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Hendrik Zorn

Recounting the Beans

The Statistical Construction of Fiscal Reality

Studies on the Social and Political Constitution of the Economy

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The Statistical Construction of Fiscal Reality

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Studies on the Social and Political Constitution of the Economy

Abstract

Accounting and statistical frameworks do not just mirror reality. They actually create it. To measure economic “facts”, many conceptual decisions have to be taken. While those framing decisions may be consensual among experts, a lot of them are not, or rely on arbitrary or ambiguous grounds. A closer, inductive look into the measurers’ realm reveals that economic reality is actively constructed – either by mere convention or by deliberate decisions. This setting becomes highly important if we take the institutional context into account in which numbers are produced and used. Representatives of the measurement professions involved (i.e. economic statisticians or financial accountants) and national and international organizations strive to effectively deal with imminent measurement questions. It turns out that they try to actively find justifications for approaches open to criticism. Trust in numbers is actively managed with a claim to solve open questions in a technical manner. This goes hand in hand with many data users’ interest to blindly rely on numerical facts. Yet an analysis of the debates that lead to the issuance of measurement standards clearly shows that the suggested precision and neutrality is a myth. This has important implications as economic numbers are increasingly used to rationalize decisions in the fiscal, economic, and business environment. By not being aware of the constructive elements of economic measurement, decisions are effectively either delegated to certain expert communities or are essentially influenced by accident.

This study looks at the process of the statistical creation of fiscal reality from an end-to-end perspective. In the field of international fiscal statistical standards (i.e. the IMF Government Finance Statistics framework and the related System of National Accounts), in practice the relevant dimensions of reality construction are first derived conceptually. Then a debate by standard setters on a specific measurement issue is reconstructed and the spectrum of debated measurement options is derived. In a third step, a semi-empirical dataset is built that operationalizes the alternative measurement conventions. In this way, the numerical impact of the discussed options can be shown. These alternative data are then employed to undertake an econometric sensitivity analysis of a standard fiscal impact projection model. The results suggest that conceptually, fiscal reality is constructed in many important dimensions. Second, the analysis of the example debate reveals that the decisions of measurers are at the same time both over- and underdetermined by the justification principles used in practice. Thus significant room for maneuver exists when deciding on statistical standards. Thirdly, the numerical implications of the largely arbitrary or at least ambiguous solution spectrum are profound. The results derived from the econometric analysis show dramatically different results, depending on how fiscal reality is measured. Together these results show that we dramatically err if we treat economic numbers as a technical area. Rather we need to profoundly understand the social context in which the numbers come into being.

About the author

Hendrik Zorn was a doctoral researcher at the IMPRS-SPCE from 2006 to 2008.

Recounting the Beans

The Statistical Construction of Fiscal Reality

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Preface

“For each of the big economic questions facing the world [...] there is a model that will provide a big numerical answer [...]. Such figures are trotted out far and wide. But can we entirely trust them?”

THE ECONOMIST, JULY 15TH 2006, P. 66

This thesis represents the attempt to save a dissertation project. It began with the failure to gather a clear-cut dataset on basic fiscal indicators for an empirical study about partisan impacts on economic policies. One established source, the Government Finance Statistics had just shifted to an accrual basis. Additionally, the OECD began publishing a special series of the national accounts, the General Government Accounts. Yet the data-series in both publications were rather short and spotty. The attempt to combine them with other data series turned out to be a major problem: inconsistencies between different sources and over various editions of the same publication series led to very different figures for core indicators. It didn't take long to notice that the endeavor to reconcile these inconsistencies with national data sources was futile. After a while the only solution that seemed feasible was to stop worrying. After all, a bulk of experts at international organizations is working precisely towards the aim to solve these problems and to provide the best available data in coherent datasets. So why not just trust the most recent data? But then again the differences between the numbers were sometimes so significant, often turning deficits into surpluses and vice versa that the question arose whether measurement concepts have a significant impact on the econometrical results. An interesting puzzle was thus not just the statistical analysis of relationships found in the data, but the origin of the data and underlying concepts themselves.

The subsequent search for documentation on how fiscal statistics are produced revealed that surprisingly little attention has been paid to the topic. But when studying statistical debates it soon became clear that statisticians faced a bunch of challenging questions. While it was obvious that a lot of bright and motivated people were working on conceptual and practical issues, such as the statistical treatment of Public Private Partnerships, Sale-and-Lease-Back contracts or Securitization, the basic impression one got was that in fact many measurement issues were non-trivial. When digging deeper in the literature there were also signs that economists had occasionally considered the issue and became concerned about the impact of measurement questions in the field of economic and fiscal statistics. In addition some statistical scholars express warnings about misunderstandings about the reliability and precision of the data. Yet these critical voices were dwarfed by the overwhelming numbers of studies and arguments that treated accounting issues as minor problems.

This thesis reflects the attempt to understand the social production process of fiscal data. It is more of a patchwork of small insights in the process than a systematic study. This has to do with the fact that statistical data production has very many different aspects, most of which are so far little reflected in a coherent perspective. Take for instance the relationship of statistics to accounting information (especially against the background of the recent international harmonization of the latter), the transition of fiscal statistics (and government accounting) to an accrual basis, the change of the primary purpose of national accounting figures in Europe from analytic to administrative uses, the epistemological basis of financial vs. real statistics, the retreat of economists from the conceptual debate about macroeconomic statistics and the resulting self-administration of macroeconomic statistics through statisticians. All of these aspects would require thorough investigation. Yet it seems that within the statistical expert community only a small number of people can actually take a distant view to reflect on the “big picture” and hence to think about the relationship between theoretical issues, epistemological principles, accounting issues, and practical challenges. This thesis wants to provide somewhat of an overview over the most important aspects involved. Overall, the

coverage of the study is not very satisfying, given that many questions could only be discussed in a superficial way. Yet I hope that the basic point becomes clear: We should spend more attention towards – supposedly boring – questions of measurement and we should generally think more about the data before we delegate decisions to the authority of numbers.

I am deeply grateful to the Max Planck Institute for the Study of Societies for offering me the possibility to work for two full years on the topic. First of all, I'd like to thank my supervisor Jens Beckert for all the support and helpful guidance he gave me. Likewise, the contributions from the other members of my committee, Wolfgang Streeck and Guido Möllering, were extremely valuable for this project. I also profited substantially from two research stays at international organizations. It was a pleasure to work with François Lequiller and Jean-Pierre Dupuis at the OECD statistics department. They both gave me invaluable insights in their work as international statisticians. I am also very grateful to the people at the IMF government finance statistics division for hosting me and letting me participate in their work. I want to especially thank Keith Dublin for making the stay possible and Murto Wickens and Cor Gorter for sharing their impressive knowledge on fiscal and economic statistics. Additionally, I want to thank all the other statisticians and public finance experts that I had the chance to talk to. Finally, I wouldn't have had the energy to pursue such an abstract academic endeavor without knowing what really counts: So I thank my family and – most of all – my love Catharina. For everything.

Hendrik Zorn

Wiesbaden, 30 September 2008

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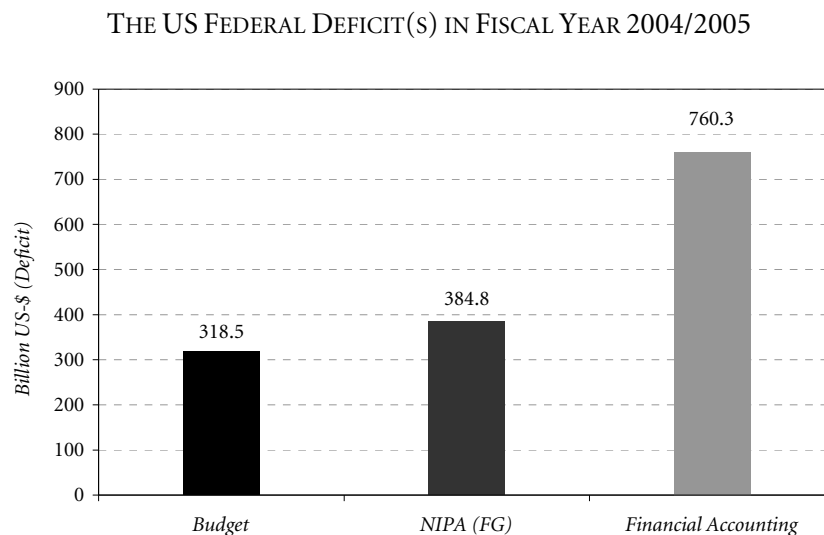
List of Abbreviations

AAS	Australian Accounting Standard
ABO	Accrued Benefit Obligation
ABS	Australian Bureau of Statistics
AEG	Advisory Expert Group on National Accounts
BEA	Bureau of Economic Analysis
BOOT	Build-Own-Operate-Transfers schemes
BOPCOM	Balance of Payments Committee
CFC	Consumption of Fixed Capital
CICA	Canadian Institute of Chartered Accountants
CMFB	Committee on Monetary, Financial and Balance of Payments Statistics
CUC	Current Unit Credit
DG ECFIN	Directorate General for Economic and Financial Affairs
EAN	Entry Age Normal
EC	European Communities
ECB	European Central Bank
ECOFIN	Economic and Financial Committee
EDG	Electronic Discussion Group
EDP	Excessive Deficit Procedure
EMU	European Monetary Union
ERISA	Employee Retirement Income Security Act
ESA	European System of Integrated Economic Accounts
EU	European Union
FAS	Financial Accounting Standard
FASB	Federal Accounting Standards Board
FAWP	Financial Accounts Working Party (OECD)
FRS	Financial Reporting Standard
GAAP	Generally Accepted Accounting Principles
GDP	Gross Domestic Product
GFSM	Government Finance Statistics Manual
GNP	Gross National Product
HI	Hospital Insurance
IARIW	International Association for Research on Income and Wealth
IAS	International Accounting Standard
IASB	International Accounting Standards Board
IASC	International Accounting Standards Committee
IFAC	International Federation of Accountants
IFRS	International Financial Reporting Standards
IMF	International Monetary Fund
INSEE	Institute national de la statistique et des études économiques
IPSAS	International Public Sector Accounting Standards
IPSASB	IPSAS Board
IRF	Impulse-Response-Function
ISWGNA	Inter-Secretariat Working Group of National Accounts
ITC	Invitation to Comment
NAWP	National Accounts Working Party (OECD)
NBER	National Bureau of Economic Research
NHS	National Health System
NIPA	National Income and Product Accounts
NPM	New Public Management
NPV	Net Present Value
NSI	National Statistical Institutes
NSO	National Statistical Organizations
OASDI	Old-Age and Survivors Insurance Disability
OECD	Organization for Economic Co-operation and Development
OEEC	Organization for European Economic Co-operation
OPM	Office of Personnel Management
PBO	Projected Benefit Obligation
PFI	Private Finance Initiative
PILCH	Permanent Income Life Cycle Hypothesis

PIM.....	Perpetual Inventory Method
PPP	Public Private Partnerships
PSAB.....	Public Sector Accounting Board
PSC	Public Sector Committee (IFAC)
PUC	Projected Unit Credit
SBO.....	Conference of Senior Budget Officials
SDDS	Special Data Dissemination Standard
SGBNAC	Swedish Government Budget and National Accounts Commission
SGP	Stability and Growth Pact
SNA.....	System of National Accounts
SPC	Statistical Program Committee
SSAP	Statement of Standard Accountancy Practice
SVAR.....	Structural Vector Autoregression
TFHPSA	Task Force on the Harmonization of Public Sector Accounts
UK.....	United Kingdom
UN	United Nations
UNECE.....	United Nations Economic Commission for Europe
UNESCO.....	United Nations Economic and Social Council
UNSC	United Nations Statistical Committee
UPL.....	Unfunded Pension Liabilities
US	United States
VAR	Vector Autoregression
WPFS.....	Working Party on Financial Statistics (Eurostat)
WPNA	Working Party on National Accounts (Eurostat)

1 Introduction

Figures tend to awe the analyst. Numerical information creates an aura of precision and neutrality. This is particularly true when it comes to economic data. On the micro level profits or costs, on the macro level economic growth or public deficits are typically treated as hard facts. The corresponding data are so prominent in the public and academic discourse that their validity and reliability is generally taken-for-granted. Even hardboiled scholars stifle a yawn when it comes to the underlying measurement concepts. There is a widespread assumption that statistical concepts and accounting approaches are merely technical details (cf. Morgan 1988: 477; Hopwood 1992: 125). That, however, is not the case.



Source: Fiscal Year 2005 Financial Report of the United States Government; BEA NIPA

Figure 1: Three US Federal Deficits

We would not expect fiscal accounting to be the subject of significant accounting dispute. And yet, when dealing with government finance data one soon faces substantial ambiguities. Very different values co-exist even for the major aggregates. For the US federal government deficit in fiscal year 2005 three different - official - figures were published (see Figure 1). While the *budgetary deficit* was disclosed at \$ 318.5 billion (2.6% of GDP), the US national income and product accounts (NIPA) reported a *net borrowing* of the (central) government of \$ 384.8 billion (3.1% of GDP). Most striking is the difference to the “net costs” in the government financial report, which is based on generally accepted accounting principles (GAAP). It put the *financial deficit* at \$ 760 billion (6.2% of GDP) - more than double the value of the unified budget deficit.

What then is the ‘true’ deficit? Obviously very diverse answers are possible when it comes to the measurement of the government’s finances. The three different figures stem from three different reporting frameworks: Budget accounting, national accounting and financial accounting all measure the same economic phenomena, although from different angles (Jones 2000a). A closer look shows that the deviations reflect alternative conceptual choices¹. One might think that this simply follows fundamentally different reporting purposes. But that is only a small part of the story. Rather inherent conceptual ambiguities exist in the context of measuring the financial activity and position of governments. Boskin stated already in 1982 that the suggested precision of the budgetary deficit is essentially a “myth” and that due to severe accounting challenges “we do not [...] know what the budget deficit, in any reasonable sense, was in any recent year” (Boskin 1982: 297).

Accounting sociology has highlighted the nontrivial nature of bookkeeping practices for some twenty years now. It is argued that accounting is not a neutral mirror of reality but rather has the potential to create it (Mennicken 2006). Ample evidence shows that accounting practices are dependent on their social environment and at the same time feed back on the decisions and structures of organizations (Hopwood 1983). This constructive potential of accounting stems from a basic, but often overlooked feature of quantification in the social and economic realm: Most of accounting’s matter is not directly given in nature but is essentially based on social conventions. Social and economic phenomena need to be defined as measurement objects before they can be quantified (Desrosières 2006). Many economic ‘facts’ are thus actually “empirical constructs” (Stone 1951: 9) that need to be conceptualized and operationalized in the first place. Often this pre-measurement activity is far from being a straightforward task. Accountants and economic statisticians, the two major groups producing economic data, must constantly deal with numerous, sometimes arbitrary decisions² (Ijiri/Jaedicke 1966: 474). Studies on the history of economic measurement reveal that the quantification of many facts we argue with in a taken-for-granted manner today have in fact a long and heavily debated history. What is considered *personal* or *national income* (Hicks 1946; Reich 1991), the *public deficit* (Blejer/Cheasty 1993), or the *public sector*

¹ In particular the different figures mirror distinct positions on the spectrum between cash accounting on the one hand and integrated, accrual accounting on the other. Along this dimension many complex choices, interpretations, and arbitrations are necessary. This can be witnessed through a look at typical debates in the academic accounting literature. The discussions are characterized by substantial uncertainty about which principles should determine financial reporting in the public sector (Hodges/Mellett 2003; Carlin 2005; Christensen 2007; Robb/Newberry 2007).

² Ijiri and Jaedicke refer to a discussion on fixed asset accounting for which three different valuation approaches emerged from the discussion as technically best solutions (historical cost, inflation adjusted historical cost, and specific current price valuation) (Ijiri/Jaedicke 1966: 474).

(Jones 2000b) is often based on (initially) challenged assessments that lack straightforward technical solutions.

But if social, economic, and fiscal data are really dependent on somewhat shaky conventions, is it that people working with such data are aware of the “brackets” (Callon 1998a: 249) in which they put the world? Surprisingly often, this is not the case. On the contrary, in many applications for fiscal data the facticity, neutrality, and precision of the numbers are generally key working assumptions. Financial markets, policy-makers, or analysts typically accept fiscal statistics as facts. Otherwise fiscal rules couldn't prescribe pin sharp caps for public deficits and econometric studies couldn't analyze fractional quarterly variances of spending data. Obviously, the argumentative basis of accounting constructs does not constrain the way in which the figures are used. Accounting practices produce figures to which actors respond. This makes the figures real in their social impact (Hodges/Mellet 1998: 57).

Social and economic quantification has for centuries been used by the state to enhance its capacities for “action at a distance” (Rose/Miller 1992). With the advancement of rationalization, public governing techniques rely more and more on sophisticated indicators and hence put more pressure on quantitative indicators: on the micro-level New Public Management (NPM) reforms³ introduce managerial decision making procedures that require advanced numerical information (Hood 1995). Governments face the pressure to improve financial management efficiency of individual units and departments (Matheson 2004; Modell 2004). On the macro-level fiscal rules have been employed in a number of countries and consolidated financial reports are widely used to monitor financial performance of governments. Benchmarking studies between OECD countries are intensively covered by the media and hence exert a substantial pressure on incumbent politicians. With the demise of Keynesian paradigms discretionary fiscal policy has come under scrutiny and the ‘soundness’ of public finance is closely observed through quantitative indicators (Hartwig 2005: 6f). Likewise, the Open Method of Coordination, introduced at the EU's Lisbon Summit in 2000 relies on the principle of common goals expressed in numerical indicators. Peer-pressure stemming from the publication of statistical indicators is used to coordinate political efforts (Schäfer 2005). Taken together these applications give the fiscal macro aggregates a major importance, so that sometimes politicians seem to target their value directly, rather than the underlying economic structures they aim to measure (Suzuki 2003b: 501).

³ The ‘New Public Management’ has originated in the Anglo-Saxon countries. In essence the underlying paradigm embodies the intention to organize the public sector like private businesses. This involves the adoption of private sector managerial approaches, the separation of the provision of services from purchasing and planning activities, a stronger orientation to outputs and outcomes (performance) and the introduction of accrual accounting systems (including the preparation and disclosure of a balance sheet and an income and expenditure account) (Hodges/Mellett 2003: 1).

1.1 Beneath the Surface of Rationalization

The whole endeavor of fiscal accounting that underpins these developments appears to be a story of advanced and increasing rationalization. With government agencies gradually taking over the responsibility, the task of gathering economic statistics became increasingly professionalized (Studenski 1958: 149). Since the 1940s a sophisticated international standard for macroeconomic statistics, the System of National Accounts (SNA), is being developed. Today the SNA 1993 (UN 1993) provides the umbrella framework for all macroeconomic statistics (IMF 2007b) and is often considered to be the “gold standard” (Ward 2004b) of the statistical world. What is more, the international harmonization of business accounting standards by the International Accounting Standards Board (IASB) (Baker/Barbu 2007) has also triggered the reconciliation of *statistical* and *accounting* rules (Laliberté 2004b). In the field of government finance statistics especially the disclosure of International Public Sector Accounting Standards (IPSAS) provides the possibility of a mutual alignment of the respective concepts. A Task Force on the Harmonization of Public Sector Accounting (TFHPSA) has recently taken first steps in this respect (IPSAS-Board 2005; TFHPSA 2006b). It hence appears that economic and fiscal statistics become increasingly rationalized: The recent developments suggest that a process towards ‘best practice’ is underway. In line with this, the OECD and the IMF discuss fiscal accounting as a matter of good governance and fiscal transparency (IMF 2007a; OECD 2000b). The quality surveillance missions initiated by the IMF (IMF 2003) and the growing role of Eurostat as sort of an auditor of national data reports (Savage 2005) further suggest that fiscal data production is inherently seen as a technical process that can be adequately dealt with on the basis of *expertise* and *technical rationality*.

This belief in the technical characteristics of fiscal measurement even endures significant challenges. When for instance the Stability and Growth Pact was negotiated in the European Union, the European system of national accounts was chosen as the basis for the compilation of respective fiscal and economic indicators, even though the system was never intended for such a purpose. Statisticians faced the challenge to stress their professional competence in measuring economic phenomena while at the same time they needed to damp inflated expectations about the reliability of the respective indicators (van Wijk 2001: 320ff.). The theoretical discussion on fiscal rules seemed widely to have ignored the respective conceptual and operational challenges (Kopits 2001; Beetsma/Bovenberg 1999; Chari/Kehoe 1998; Dixit/Lambertini 2001). Only the huge revisions of the Greek deficit of up to nearly 3 percentage points of GDP (Eurostat 2004c) a couple of years later raised the awareness for data quality issues and strikingly highlighted the impact of accounting conventions and practices on the reported figures.

Numerous cases of creative accounting and fiscal gimmickry further undermined the factual surface of the fiscal data (Besnard/Paul 2004; Dafflon/Rossi 1999; Easterly 1999; Koen/Noord 2005). Yet while the ECOFIN Council admitted that politicians had obviously underestimated the complexities of the data generation process (ECOFIN 2004) the regulative answers found are essentially procedural, intended to strengthen the role of *expertise*. Implicitly thus the problem is considered to be manageable at a *technical* level.

A glance at the statistical literature and debate reveals that the task of interpreting reality for measurement is far from straightforward, though. Statistical experts complain that economic theory does often not provide sufficient (or any) guidance on difficult measurement issues, and - worse - is increasingly uninterested in conceptual questions (Reich 2001; Keuning 1998: 437; Fourquet 1980: 11f.). Many important decisions are taken pragmatically by statisticians with little guidance from economists, other experts, or the wider public. While often the impression is that the critical questions have been solved, in fact statisticians state that the role of economic statistics as an “an intermediary between a real material world and a virtual representation constructed from partial and selective statistical observations” is increasingly “undermined by the shifting quicksands of economic theory, legal intervention, exogenous political determinations and the growing global nature of many transactions” (Ward 2006: 327). What is more, not only the features of economic reality but also the demands from analysts are often ambiguous. The history of macroeconomic statistics provides evidence for fundamental epistemological debates about the feasible degree of imputations and functional vs. institutional perspectives following different understandings of analytical requests (see Bochove/Tuinen 1986; Vanoli 1986; Ruggles 1996: 393f.). A more vigilant glance at the measurement process hence reveals that the interpretation of economic ‘reality’ is far from a technical endeavor. The observed trend towards formalization, standardization, and quality surveillance at the surface overshadows substantial debates on the content of the accounting rules. Substantial ambiguity underpins the measurement concepts and procedures. In the statistical community, government accounting and economic statistics in general have a long and debated history (Vanoli 2005). The current perspective of statistics on the economy is a frame which developed as a result of conceptual debates, negotiations, and implicit selections (Suzuki 2003b). Beneath the surface, the negotiation of fiscal statistical standards becomes increasingly challenging. A case in point is the recent decision to endorse accrual accounting principles in the public sector, to shift the analytic emphasis towards integrated accounting systems and to develop concepts for balance-sheets and net worth analysis for the government sector. In the negotiations leading to the SNA 1993 statisticians

endorsed the accrual accounting principles for the whole system of macroeconomic statistics, including the institutional sector accounts for the government. A couple of years later the IMF adopted a strongly business-oriented perspective for the new Government Finance Statistics Manual (IMF 2001a). This change of accounting principles, while sometimes being presented as a rather technical step, has in fact far reaching consequences and is highly controversial among government accountants (Carlin 2005; Marti 2006; Wynne 2003). Put simply, the basic controversy addresses the question *whether* governments should follow business accounting principles or stick more to a cameralistic accounting approach and *how* the respective accrual principles should be interpreted and implemented in practice. The core feature of integrated accrual accounting frameworks is to replace cash outlays through ‘costs’ indicators of government services and to link revenues to the production of services. A performance-oriented perspective similar to commercial financial reports is intended (Robinson 1998). But accounting sociology demonstrated that in the business context accounting reports “create the costs and returns” and “define profits and losses” (Miller 2001: 393). And in the public sector, accounting conventions are even more controversial (Hodges/Mellett 2003; Carlin 2005; Christensen 2007). As Chan argues governments face the question on how far they want to go on the cash vs. accrual spectrum. He stresses that the farther one goes, the “more risky” the endeavor becomes, given “more measurement problems”, “less theoretical support” and a higher degree of subjectivity⁴ (Chan 2003: 17). The shift of fiscal statistical standards from a cash to an accrual basis is thus associated with many challenging and often controversial decisions. Formal standardization is no sign of technical governability. The struggle about scope and meaning of the accrual principles on a more practical level shows that statistical rules are not just technical derivations.

But this presents us with a puzzling situation: Quantified indicators are used to rationalize governing techniques in the fiscal sector and at the same time the underlying facts are necessarily social conventions that often have a controversial basis. What is more, the trend towards ever more sophisticated applications is associated with more ambiguity and uncertainty in the field of public sector accounting. How can fiscal data rely on ambiguous and contested conventions and at the same time be treated as facts?

⁴ The controversy is mirrored by very different approaches of national governments with respect to accrual principles. While a number of countries began to reform their financial reporting systems and to introduce accrual principles even for the core government entities (Lüder/Jones 2003a) many other countries remain skeptical (OECD 2002). Moreover, a recent survey on the specific reporting practices in 16 OECD countries revealed that the rules applied and statements prepared differed substantially (Pina/Torres 2003).

1.2 The Black Box of Economic Statistics

The short answer to this puzzle is that for many applications the precise content of the data matters little. As long as actors refer to the same data, coordination of social action is possible. Given that the macroeconomy is not directly observable but can only be made visible through measurement instruments (Boumans 2001) reference to the same numbers solves the communication problem. It is then the trust in the institution providing the database and in the general characteristics of the quantification procedures that triggers the perception of statistics as facts. The “trust in numbers” (Porter 1995) is related to a specific conception of objectivity and realism associated with numbers. This suggests that actors rely on data as long as collective coordination of actions is deemed possible through mutual acceptance of the point of reference. This basis of economic rationality has been prominently highlighted by the sociology of conventions (Salais 2007). At the center of this approach is a pragmatic perspective on how actors deal with their daily problems. Since conventions can be mobilized effectively to reach goals, the basis on which they rest is often secondary. The rationality to refer to a number stems from its practical value, namely that others will accept it and that it can be used without having to argue further. There is thus often actually no need for a complete informational basis for decision making; ‘irrational’ grounds of decisions might make sense from the perspective of social actors⁵. The social efficacy of statistical figures may thus well rest on their willing acceptance from outside as conventions. Many governance mechanisms in modern society seem to work precisely because underlying classifications and compilations are simply not scrutinized. Quantitative data would enjoy their tremendous importance in today’s societies then because they are *believed* to represent facts.

But this short, coordination-focused answer to the puzzle is not completely satisfying. Two key aspects remain unaddressed. First, statisticians themselves consider their decisions as subjectively meaningful. There is much debate about the statistical norms, principles, and rules. This suggests that the presentation of reality is actually controversial among the experts. The conventionalist perspective in contrast treats the content of the rules and principles as rather arbitrary. It is thus beyond the perspective to explain how specifically statisticians define reality. It actually appears that some elements of statistical standards seem to endure in a taken-for-granted manner. But at the same time they are also subject to purposeful (re)definition. We need to understand the subjective logic and the organizational processes with which statistical conventions are established in order to understand how statistical reality is created. Second, ignoring

⁵ A somewhat linked, but different argument is brought forward by Brunsson in the context of organizational decision making (Brunsson 1985). He argues that for organizations it is often more important to trigger any activity (and thus to avoid deadlock) than to make perfectly rational decisions.

the process of convention building shifts the task of defining reality to statisticians. But, as Schumpeter once noted, “we need statistics not only for explaining things but also in order to know precisely what there is to explain” (Schumpeter 1954: 14). The specific choices statisticians make when agreeing on public sector accounting conventions matter “for the way in which we think about Government and how we account for and monitor its performance” (Chow/Humphrey/Moll 2007: 7). It is thus important to study the content of the rules and practices adopted, how they come into being and what their impact on the resulting figures is. Fiscal reality is an ambiguous concept and the measurement of fiscal aggregates is complex (Blejer/Cheasty 1991; Levin 1972; Levin 1975). Statisticians actually make two types of decisions in this process: *how* to define and measure things that are deemed measurable and *how much* to claim measurable in the first place.

Remarkably, statisticians themselves seldom claim that their work has a decisive impact on the presentation of reality. Their conceptual debates mostly remain in a *realist* mode. In the statistical practice many frames and paradigms appear to structure the cognitive processes of statisticians. The SNA regularly refers to the “economic substance” of economic events, suggesting that this is some existing matter that can be revealed through the data. National accountants distinguish between “financial” and “real” flows (Vanoli 2005: 152) claiming that the latter can be revealed through the employment of analytical concepts. The scattered insights we have so far in the epistemology of statisticians show that their cognitive relationship to reality is complex and comprises many context-specific and pragmatic solutions but essentially remains in a realist mode (Desrosières 2001). For economic statisticians measurement can thus be *right* or *wrong* in a given analytic context.

Yet this realist mode of data production contrasts with insights of historical studies, highlighting that the current frame of economic statistics is a historical construction (Suzuki 2003b: 473). If we go back in history, there is enough evidence to scrutinize a technical view on economic statistics. Richard Stone, the principal designer of the first international system of national accounts suggested in his Nobel lecture that many important measurement prescriptions are essentially conventions (Stone 1984). Today, however, many of the principles that were once argued about are largely unquestioned and have entered the world-view as paradigms that are not necessarily consciously reflected anymore (Morgan 2001: 249). But macroeconomic statistics are not neutral, “[d]ifferent choices would have resulted in a different picture of reality” (Bos 2007: 9).

With respect to the black box of statistics, two basic phenomena hence require an explanation. First, the factual acceptance of economic statistics is a phenomenon that needs to be explained. It cannot be seen as the only natural result of the process. As

Callon highlights there are in fact “cold” and “hot” situations. Only in the former are calculative decisions accepted since consensus on the key aspects of the world exists (Callon 1998a: 260). So a crucial question is how the *expertise* of statisticians is actually generated in its social context; how is the black box itself established and maintained? Second, the question is how ‘facts’ are produced inside the black box. Latour convincingly highlights the role of networks in this respect. He states that fact producers first interpret reality. Yet once a debate has been closed, its outcome is referred to as a fact (Latour 1987). The two puzzles associated with the black box of economic statistics are hence: (1) how do the conventions underlying quantification inside the black box emerge, and (2) how is statistical expertise established, how do statistical numbers become accepted as facts?

1.3 The Starting Point

The starting point of this study is the observation that there is a problem where most producers and users of fiscal data do not see one. In the majority of cases the implicit or explicit responses given to the above two puzzles seems to be axiomatically restricted. Both the credibility of the figures (the surface of the black box) and the solution of measurement disputes (inside the black box) are commonly viewed from a *technical-rationalist* perspective. This means that the quantification is willingly delegated to respective experts, such as economic statisticians or accountants. At the same time, it is believed that it is the technical characteristics of the resulting figures that will determine their social credibility. Acceptance of the figures, so goes the implicit assumption, will be determined by *what* the figures actually measure and *how* they measure it. The epistemological position taken is hence essentially a realist one: If measurement issues are debated, then the resulting figures can – analytically – be judged by their reference to a ‘true’ underlying economic value.

To be fair, this technical view, while following a metrological ideal, does not automatically consider data gathering to be a wholly unproblematic endeavor. One could perhaps distinguish three different positions towards dealing with measurement questions from such a realist perspective: The first position does, indeed, treat accounting and statistics as unproblematic. The implicit assumption is that measurement practices are technical processes that are determined by the rules of informational efficiency. The collection of data through statistical agencies will be governed by the functional demands for information on relevant aspects of the economy⁶. A second position acknowledges that the measures might show a bias or

⁶ This position is practically accepted by most neoclassical models. Take for instance the macroeconomic models on consumption choices that are based on the permanent income hypothesis (Friedman 1957). Those models start from the idea that households optimize their consumption choices subject to their

misrepresentation of reality due to conceptual, technical or resource constraints. For instance there could be trade-offs between timeliness and relevance of an indicator simply due to the technical characteristics of the data generation process. A consequence of this position would be that conceptual and methodological debate is worthwhile since measurement can be better or worse (see for instance Buti 2006: 4f.). The third position even goes a step further and takes account of the context in which figures are produced. The potentially adverse incentives of the people and organizations involved in the production of data are explicitly considered to be a problem (see for instance Herrera/Kapur 2007). This view is for instance open for the problem of political manipulation of the figures (Milesi-Ferretti 2003; von Hagen/Wolff 2004) and empirical studies investigate the impact of data quality issues on decisions made by financial market actors (Bernoth/Wolff 2006; Cady 2004). Yet, even though accounting and statistics might be problematized from a realist perspective, the core claim is that an uncontroversial and objective reality exists which can – at least theoretically – be quantified in an uncontroversial manner. An ex-post comparison of any measure with its ‘true’ value is deemed possible. The major difference in perspective is whether successful measurement requires conceptual-theoretical input and effective governance mechanisms or if, following a market-logic, a quasi-automatic process will provide the correct information.

While such a realist position is the prevalent paradigm of many scholars and analysts operating with economic and fiscal data, it is nevertheless shortsighted. It errs, independently from the fact if one thinks that the neoclassical laws governing economic behavior actually are *natural laws* or a *social convention* to be accepted for normative reasons⁷. Even if the softer claim is made, and the existence of economic laws is deliberately accepted on a normative basis, the technical-realist perspective fails to acknowledge that the measurement of economic reality is in fact highly ambiguous. There is an inherent vagueness in the measurement of economic and fiscal reality that raises fundamental doubts what ‘objective reality’, separate from subjective or inter-subjective constructions, should actually be. However, there is obviously limited capacity or willingness on the side of the users to deal more profoundly with the measurement concepts or techniques that enter the quantification process. At the same

knowledge on their current wealth including the present value of all future disposable incomes. Accounting problems are typically not considered in this context. Yet the problem of predicting future incomes (essentially an accounting problem) has fundamental macroeconomic implications. The finding of behavioral economics that households often do *not* optimize but rely on rule-of-thumb decision making (Shefrin/Thaler 1988) is one pillar for New Keynesianism to support the positive stabilizing effects of macroeconomic policy (e.g. Gali/Lopez-Salido/Valles 2007). It is obvious that accounting and statistics could have an impact in such a setting: They could substantially influence actors’ perceptions of future incomes.

⁷ As Frank Dobbin convincingly showed, seemingly universal economic laws can be subject to context dependent, cultural-cognitive interpretations and hence constitute a social construction (Dobbin 1994).

time statisticians will hesitate to disclose tensions they face with data production publicly for fear of damaging the credibility of the numbers (Desrosières 2000: 174). This constellation can have profound consequences, though. In the field of auditing Michael Power suggests that measurement “may be trusted to produce and reaffirm trust only because its real nature is widely misunderstood (Power 1997: 137).

Instead of simply *assuming* that the fiscal statistics produced do represent the best available interpretations of an uncontroversial reality, one should thus rather *empirically investigate* the processes by which data are generated. This study thus starts from essentially two heuristic hypotheses: (1) First, statistical conventions and principles are *not necessarily* determined by functional, technical analytical demands. (2) Second, the public appearance and perception of the figures is *not necessarily* determined by the actual measurement content. Hence, the analytical perspective of this thesis explicitly allows for a possible break in the functional link between measurement conventions and analytical demands.

1.4 The Empirical Object

What is the black box of fiscal accounting? What is its content? How and where is it actually decided what counts as government expenditure, revenue, and deficit? This question is not as easy to answer as it might appear. Budgetary figures are produced by national authorities, mostly the ministries of finance. Often, the public discourse about fiscal policy relates to those budgetary figures and is thus focused on the figures the central government discloses. Yet, whenever those figures are to be compared at the international level, substantial differences in the definition come to the surface⁸. If we want to understand how fiscal reality is defined and what the impact of those definitions is, we thus need to study the international statistical standards underlying the compilation and reporting process. Those standards coordinate data production between national statistical institutes. The task of data gathering is performed by professional statisticians in an organizational environment. As Savage notes, statisticians “are well-socialized professionals, with their own technical standards, specialized knowledge, conferences, journals, national and international associations, workshops,

⁸ This happened for instance when the IMF began to use budgetary data of its member countries for the purpose of fiscal analysis. The comparison of national data sources revealed that it was necessary to find common definitions for fiscal events. Statisticians in the newly founded Government Finance Statistics Division were concerned that inappropriate definitions could misguide fiscal decisions of policy makers (Levin 1975). The same problem occurred when administrative procedures for the European Community/Union required economic data in order to compile member states contributions and to monitor fiscal policies on the way to the Monetary Union. An expert group called “group comparaison des budgets” came to the conclusion that budgetary statistics could not be reconciled. The drafters of the Maastricht Treaty thus opted for the European System of Integrated Economic Accounts, and hence the national accounts as a reference (Savage 2005). The amount of work that was necessary to deal with problematic cases and to find common definitions (van Wijk 2001: 228ff.) provides clear evidence for the fact that national figures are highly context specific.

and networks that extend throughout the world” (Savage 2005: 47). Like other professions, economic statisticians define their jurisprudence importantly through the management of a complex knowledge basis (Sarfatti Larson 2006) consisting of conceptual frameworks, empirical methods, and the skills needed to manage large datasets. Accounting research could show that over the recent decades the development of standards at the national and international level has become increasingly important for the profession (Richardson 1988: 393). For statistics, the SNA has risen to become the uniform framework for all macroeconomic data (IMF 2007b) and it is a logical choice to concentrate the empirical investigation here. It is predominantly on the basis of the SNA and related standards that national statistical institutes compile, adjust, and report their closely monitored economic indicators to international organizations.

THE PRODUCTION OF FISCAL STATISTICS IN THEIR ORGANIZATIONAL CONTEXT

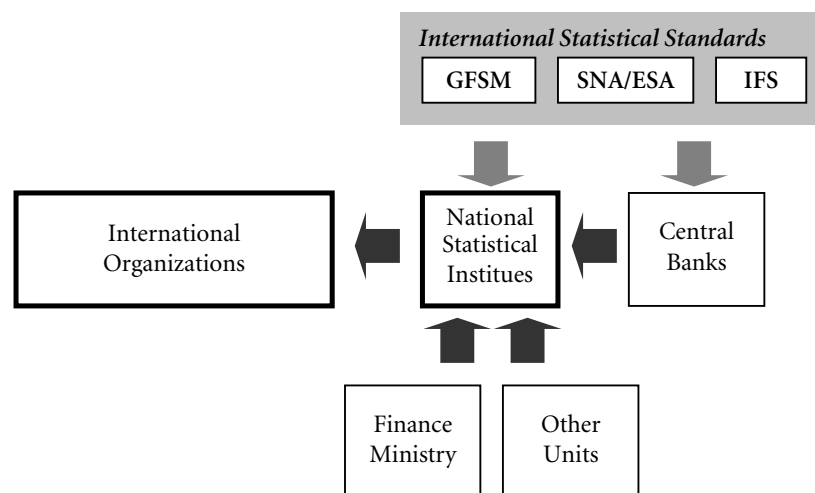


Figure 2: The Production Context of Fiscal Statistics

Statistical standards have a double function in practice: They provide on the one hand common definitions that allow for an understanding between statistical organizations. At the same time standards apply a specific measurement approach. Often standards prescribe a ‘best practice’ or recommend what constitutes a ‘good’ solution⁹. The combination of the harmonizing and pedagogical function is explicitly stated in the preface of the 1968 SNA: The framework

⁹ From the existence of international standards one cannot derive that national statistical data is automatically compiled according to those guidelines, though. There still seems to be an inherent tension between figures which have relevance in the national context and the need to reconcile data on the basis of common definitions. A recent analysis of data used by IMF economists showed that there are still substantial differences between the figures compiled in the national context and those prepared according to international standards (Pellechio/Cady 2005; Pellechio/Cady 2006).

“is designated to provide international guidance to national statistical authorities who wish to improve, elaborate and extend their national accounts and their system of basic statistics. [...] The new SNA is also to serve as a basis for the reporting of comparable national accounting data to the United Nations and other international bodies, and for construction coordinated international guidelines and standards in respect of more specialized bodies of economic, financial and other statistics” (UN 1968: iii).

But where do we have to look if we want to understand where statistical standards render come from and how they render fiscal reality? Miller has argued that the field of accounting is substantially influenced through changes at its periphery. He stressed that “at the margins [...] accounting as a body of legitimated practices is formed and reformed by adding of devices and ideas of various kinds” (Miller 1998: 174). He highlights that accounting imports external expertise, typically dependent on historical contexts and is only temporarily stabilized. Historically the SNA has more or less constantly been updated and adjusted. The initial framework has been changed in two major waves (Bos 1994). Currently another update is underway and the SNA from 1993 undergoes a comprehensive review. A list of 44 issues has been discussed since 2003 (Havinga, I. 2004: 2). This thesis studies this updating process of the SNA, formally called “SNA 1993 revision 1” to examine the process and impact of statistical construction of fiscal reality.

This endeavor requires a broad analytical perspective. For the fiscal sector the IMF Government Finance Statistics Manual (GFSM) had historically even more influence on the production of internationally harmonized fiscal data. Likewise the European Community/Union developed an own system for its member states, the European System of Integrated Economic Accounts (ESA). The latter is closely aligned with the SNA, however. And the IMF government finance statistics, after showing substantial differences to the SNA in the first three decades of its existence, became integrated the SNA framework in 2001. Moreover, statistical standards develop in the context of existing business accounting standards. National accounting was always inspired by business accounting principles and adopted many of its conceptual choices (Vanoli 2005: 460). The conceptual importance of financial accounting concepts seems to have increased due to the disclosure of the IFRS and the development of international standards for public sector accounting. In 1996 the International Federation of Accountants (IFAC) initiated a standard setting program for government financial accounting that essentially translates the IFRS/IAS for the public sector (Sutcliffe 2003). Up to now 26 International Public Sector Accounting Standards (IPSAS) have been disclosed¹⁰ (IFAC 2008).

¹⁰ The standards provide guidance for national governments seeking to apply internationally harmonized financial accounting standards. While the implementation record of the IPSAS in countries is still mixed (IFAC 2007a) the standards seem to enjoy substantial conceptual importance for the whole field of government accounting. For economic statistics this is witnessed by the recent efforts to reconcile the

THE EVOLUTION OF INTERNATIONAL STATISTICAL AND ACCOUNTING FRAMEWORKS

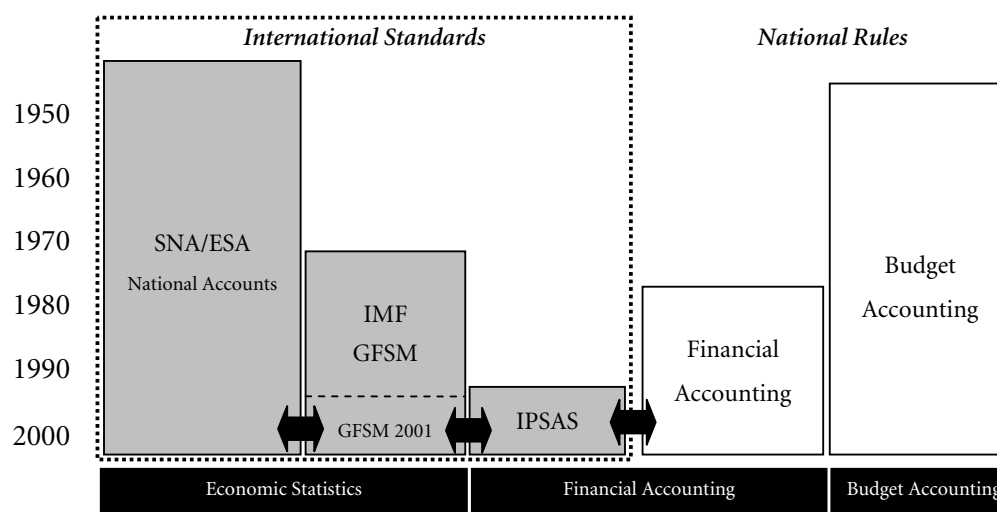


Figure 3: The Evolution of International Statistical and Accounting Frameworks

1.5 Research Questions

How can standardization, harmonization and apparent rationalization of the measurement process occur when the accounting principles and implications are controversial and increasingly ambiguous? The whole puzzle is less surprising if we drop the assumption that the institution of formal statistical standards is functionally determined. This means two things:

First, the decision making of statisticians is not necessarily derived directly from outside analytical demands. Sociological neo-institutional research has shown that the attempt of organizations to cope “rationally” with uncertainty often leads to a harmonization of their formal activities (DiMaggio/Powell 1983). Standardization can then occur as a result of mutual observation and imitation of organizations and groups involved in the measurement process rather than through the diffusion of technically superior solutions. In fact, a look into the scattered reports by statisticians on their decision making reveals that the pressure towards conceptual coherence is actually limited. As a senior statistician explains, many decisions related to statistical standards have been taken on a rather pragmatic base by the experts, leaving abstract debates to theorists (Vanoli 2005: 461). At the same time the theoretical discussions in the statistical journals seem to have shown little interest in the practical questions arising during the recent revisions of the SNA (Blades 1999: 415). It seems that rule setting by the professional

differences between the IPSAS and statistical standards and the expression of intentions to harmonize the systems where it is possible (IPSAS-Board 2005).

community concentrates on detailed problems with clear solutions rather than the overall logic of the system¹¹.

Second, the outside perception of the facticity and the acceptance of the figures may depend more on symbols and rhetoric than on the actual technical features of the measurement process. It is a key characteristic of statistical data that they do not carry any information about their origin, their reliability, precision or underlying controversies. The perception of their general attributes might thus rely more on “a legitimized aura of precision in the measurement process” than the actual content of the figures. Professional reputation may be managed independently from actual practices (Power 2004b: 14ff.; Power 2004a: 771). The self-presentation of actors and organizations involved in the production of fiscal statistics may lead to a cleaned up façade of the measurement process (Goffman 1959 [1987]).

The production of statistical knowledge happens within a black box. So even if statistical number production is based on a set of formal standards, the origin of those standards and the impact they have in practice will largely remain a secret unless we decide to directly look into the black box. We still lack insights into how statistical ‘knowledge’ and fiscal ‘facts’ are actually produced. Bruno Latour suggests that this stems from the fact that “surprisingly few people have penetrated from the outside the inner workings of science and technology, and then got out of it to explain to the outside how it all works”¹² (Latour 1987: 15). Moreover, he stresses that the “construction of facts” is not a process of an individual or even a group, it is a “collective process” (ebd. 1987: 29) and hence the specific contribution of individuals is blurred. Yet the described puzzle suggests that many of the sociologically relevant questions are actually inside the black box: How do measurement choices depend on the context in which statistical systems operate? And how do the respective choices in turn influence the surrounding environment? While similar questions have already been addressed by sociology in the field of accounting we still know very little about macroeconomic accounting and statistics (for noteworthy exceptions see Miller 1986; Savage 2005; Suzuki 2003b; Suzuki 2003a). Moreover, while it was convincingly demonstrated *that* accounting creates reality, still relatively little is known about *how* this is done and what *the impact* of the decisions actually are. This thesis aims to address these questions by opening up the black box of fiscal statistics in order to partly deconstruct the production of fiscal facts.

¹¹ A similar observation has been made in the field of accounting. Here, too, the adopted accounting treatments are said to reflect often merely technical compromises. The question towards their normative or wider impact, however, is often left open (Marti 2006: 65).

¹² His study shows that the “distinction between the technical literature and the rest is not a natural boundary; it is a border created by the disproportionate amount of linkages, resources and allies locally available” (Latour 1987: 62).

The goal is to study the development of statistical standards in their organizational field. In particular the questions addressed are:

- *How and in which respects do economic and fiscal statisticians actually construct reality? How and why are specific rules being established that define how fiscal data is produced?*
- *Second, what is the impact of those decisions? How do the choices among alternatives, given pre-measurement controversy, ambiguity, and uncertainty, influence the data and the conclusions drawn?*

The first set of questions deals with the professional debate among experts and the interpretative process leading to new statistical standards. The aim is to study the interaction between institutional environment, organizational processes, and professional logics. This part thus concentrates on the level of accounting rules and principles and how the standards emerge. The second problem set concerns the numbers that result from these questions. Given that conceptual decisions impact on the data but assumptions and conventions themselves remain implicit, the aim is to exemplarily study the influence of the statistical decisions on the ‘facts’ and conclusions drawn from them.

1.6 Theoretical Perspective

The production of fiscal statistics is an organizational activity. National statistical agencies gather data from various public sector entities, process it, adjust it, and publish the resulting figures either directly, or transmit them via special channels to international statistical organizations. Standards play an important and growing role in this context. The SNA, the ESA, and the GFSM are formal institutions that constrain and enable the organizational work of national statistical agencies; they are an important channel through which international and national statistical organizations interact. As such the research done in this thesis is related to a general interest in understanding regulation and governance in a transnational context (Djelic/Sahlin-Andersson 2006). The basic research interest in this field is to understand how international coordination and regulation in an organizational field comes about. The focus is on how “constellations of public and private actors that include states, international organizations, professional associations, expert groups, civil society groups and business corporations” (ibid: 7) interact to regulate across the boundaries of national states. The case of statistical standards provides a long and rich case for this type of investigation, given that coordination among statisticians in this area reaches back to 1939. Standards

also provide a good case for softer, non-binding, and informal rules in this context (Mörth 2004). This follows from the fact that regulation through standards is typically characterized by a situation in which those being regulated have substantial scope for interpretation in the process (Brunsson/Jacobsson 2000a). While being formally established, standards often presuppose additional interpretations at the implementation level. To establish this supportive knowledge and practice the role of discursive networks and experts is highlighted (Marcussen 2000). In different contexts experts have been found to create “epistemic communities” (Haas 1992) in the transnational realm and thereby substantially shape and influence governance mechanisms. It is the common “cognitive and value schemes” that are “often associated with complex socialization processes and generally translated into ‘expertise’, shared interests and projects” which provides explanatory power (Djelic/Sahlin-Andersson 2006: 11). Yet the processes through which the respective expertise and standards are established are often not harmonious. Research in the field of international standardization of business accounting principles shows that the institutionalization of the IAS/IFRS was characterized by substantial elements of struggle among experts, expert associations, and interest groups (Botzem/Quack 2006). One important source for deviating preferences and strategies has been found in the specific national legacies against which actors operate at the international level (Djelic/Quack 2003).

This study looks at the whole process of international standard setting from a perspective guided by sociological new institutionalism. The attempt made here is to consider structural elements of the organizational field where international statistical standards are created, agency of involved actors, and the content of the debate¹³.

1.6.1 AN INSTITUTIONAL PERSPECTIVE

A core claim of research in sociological new institutionalism is that neither rational-actor models nor functional approaches can sufficiently explain empirical patterns in organizational behavior. The spreading of institutional practices and the resulting similarity of organizational practices is not seen as the outcome of optimizing decisions. Instead they are explained through imitation of legitimized formal practices and through culturally and cognitively established frames¹⁴. As a consequence institutional features are seen as a separate dimension of organizational activity that can endure

¹³ As Mohr observes “the communicative channels in an organizational field are not analyzed in a way that enables these meanings to be treated as constitutive of the field itself” (Mohr 2005: 22, cited in Djelic/Sahlin-Andersson 2006: 21).

¹⁴ What actors do is then mainly not explained by strategic choices among desirable outcomes. March and Olsen, in studying political decision making, stress that in many empirical cases outcomes are less relevant for decisions as the decision-making process itself. They argue that those processes often follow normative, interpretative understandings of actors and are hence shaped by subjective view of necessity and appropriateness (March/Olsen 1984: 742).

partly independently of their technical efficiency (DiMaggio/Powell 1991: 9). It is observed that most organizations exist in an already highly institutionalized environment. Normatively sanctioned demands from powerful actors bring legitimacy seeking organizations to accept those institutionalized elements. Scholars detected a strong pressure on organizations to incorporate existing procedures which are defined externally and claimed rational¹⁵ (Meyer/Rowan 1977). More generally, isomorphistic processes could explain the phenomenon of organizational similarity, especially in uncertain and ambiguous environments¹⁶. In addition evidence suggests that 'suboptimal' structures may persist as organizational routines¹⁷ (Powell 1991: 191ff.). These findings raise substantial doubts about the ability and tendency of organizations to develop efficient structural elements in the first place or to adjust quasi-automatically to efficient solutions later on. Rather it is found that the feasibility of specific structures for organizational ends is often unquestioned or taken-for-granted by actors in- and outside the organization. Organizational practices thus endure as "socially constructed, routine-reproduced programs or rule systems" (Jepperson 1991: 149). The legitimacy of organizations depends much more on keeping up a rationalistic appearance of their actions that can be quite independent from their actual workings. It seems that "a logic of confidence and good faith" is applied, strengthening the claim that the adopted formal structures would be feasible for organizational ends (Meyer/Rowan 1977: 340). The mechanisms with which organizational actors adopt institutionalized practices are often rather subtle. Sociological new institutionalism highlights the role of cognitive and cultural aspects to explain how institutions evolve and persist (DiMaggio/Powell 1991: 8). Scholars found that institutions influence the behavior of organizations and

¹⁵ While for early adopters functional needs and internal organizational characteristics may explain the adoption of certain formal structures – late adopters obviously do so independently of their working needs. Rather the increasing adoption lead to the institutionalization of a formal structural aspect and the adoption for other organizations becomes a question of legitimacy rather than efficiency (Tolbert/Zucker 1983).

¹⁶ DiMaggio and Powell propose three concrete modes of isomorphism: coercive, mimetic, and normative (DiMaggio/Powell 1983: 150ff.): *Coercive* isomorphism stems mainly from the imposition of organizational requirements by external actors and organizations. A prominent example is regulations by the state that lead organizations to adapt certain features and makes them more similar. But those pressures may also be exerted more informally through expectations of external actors. *Mimetic* isomorphism is a second important channel explaining the structural imitation of organizational features within a field. Substantial uncertainty about appropriate structures may simply lead organizations to copy formal elements of other units in their field. By adapting structural elements that are dominant for other organizations organizational representatives are assumed to legitimize their choices. Finally, *normative* isomorphism is a harmonizing effect mainly through professions attempting to define principles of their occupation. Specifically the search for a common knowledge base and the existence of professional networks are considered the main factors leading to diffusion of similar practices between organizations.

¹⁷ According to Powell suboptimal structures may persist due to at least four channels: The exercise of power by dominant actors having an interest in keeping a structure, structural conservatism due to switching costs if relations in the field are complex, taken-for granted structures and the ignorance of superior alternatives, and finally path-dependency for instance through sunk costs and lock-in effects. Overall a strong resistance to change appears likely since "they threaten individuals' sense of security, increase the cost of information processing, and disrupt routines. Moreover, established conceptions of the 'way things are done' can be very beneficial; members of an organizational field can use these stable expectations as a guide to action and a way to predict the behavior of others" (Powell 1991: 194).

individuals via the actors' perception as 'natural' constraints. A major impact of institutions was not through internalization of norms but through cognitive framing: Institutions shape the way actors perceive decision situations, how they value alternatives, and what they consider as constraints (Jepperson 1991). A special "habitus" (Bourdieu 1977) guarantees that subjectively meaningful actions replicate structural elements of organizational behavior¹⁸.

These theoretical and empirical works prepare the ground for this study: It is assumed that organizational practices of national statistical institutes do not adjust mechanically to functional analytical demands. Rather there is substantial scope for institutional structures to be kept up as independent elements of organizational life. But the focus of these initial works is not sufficient to study the phenomenon of fiscal reality construction. This is because the traditional works typically stop short of taking agency of individual and organizational actors and particularly the origin of the institutional structures themselves into account. While the theoretical tradition explicitly emerged in a constructivist perspective following the ideas of Berger and Luckmann (1967) the emphasis was more on the diffusion of existing institutions and on the documentation of existing institutional elements rather than the detailed processes by which those institutions were created and shaped. This had some severe shortcomings. Institutions were sketched as rather arbitrary conventions; the substance of the rules was not considered to be of much relevance. Despite the fact that subjective beliefs of actors were modeled as important driving forces of institutionalization processes their actual content was mostly disregarded. Through this, the importance of discourse, the variability of subjective cognitive elements, interactions and negotiations between individuals and organizations over implications of institutional features were widely neglected (DiMaggio/Powell 1991: 26f.; Hirsch/Lounsbury 1997: 410). Yet the existence of alternative options should be considered, especially if institutionalized practices are mutually conflicting, for instance in fragmented environments (D'Aunno/Sutton/Price 1991; Schneiberg 2007).

More recently therefore, the perspective of neo-institutionalist research has shifted. Scholars stressed the need for considering agency in institutional contexts more thoroughly. A first innovation was to weaken the assumption that organizational practice would be completely determined by institutional elements. It was acknowledged that organizations may strategically decide not to conform to institutional pressures (Oliver 1991). "Requests" from the organizational context are seen as being actively

¹⁸ Bourdieu has made a strong point to explain why cognitive aspects matter in the reproduction of fields. His concept of "habitus", a set of durable dispositions developed in reaction to surrounding structures, cognitively guide individual's choices and decisions and at the same time motivate action (Bourdieu 1977). This allows for an understanding of agency that is neither completely determined by structures nor one that can be based on methodological individualism.

interpreted from within organizations subject to normative foundations (Greenwood/Hinings 1996: 1024). This was especially plausible in cases where institutional rules were complex and contradictory. Struggle about the relative impact of conflicting institutional patterns might well occur (Friedland/Alford 1991). Theoretical approaches to investigate agency started from the possibility to change behavioral scripts (Barley/Tolbert 1997) or the existence of contradictions or indeterminacies (Clemens/Cook 1999). Likewise it was highlighted that the logic of arguments on institutional adaptation is itself a social construction. Discursive elements of institutionalization are for instance increasingly taken into account (Levy/Scully 2007: 973). Given that institutional characteristics are often ambiguous, the analytic perspective shifts towards “conflict over meaning”; it is claimed that there is need to directly investigate the “origins and structuring of logics” (Lounsbury 2007).

A second important extension of the analytic perspective focused on the reverse direction, from organizations and individuals back to the institutions themselves. Actors and organizations are assumed to meet in “organizational fields” to interactively produce social order in the form of institutions (Fligstein 2001: 107). DiMaggio and Powell claim that “institutions are not only constraints on human agency; they are first and foremost products of human actions” (DiMaggio/Powell 1991: 28). The social constructivist aspect is hence stressed and especially the role of agency in this context is highlighted. The concepts of “institutional entrepreneurship” (DiMaggio 1988: 15; Fligstein 1997) or “institutional work” (Lawrence/Suddaby 2006) try to capture those actions of individuals and organizations directed at influencing the institutions that govern their work. This is especially relevant if specific elements of institutionalized structures are linked to perceived interests of actors in the field. As Bourdieu argues, power relations may then matter substantially, given that actors are endowed with various forms of capital¹⁹ (Bourdieu 2005). Fligstein argues that the role of agents in the reproduction of fields might be crucial, especially in situations that are characterized by turbulence or uncertainty (Fligstein 2001: 107). In those situations the social skills of actors to influence others to cooperate and to accept new ideas or new meanings for a specific problem set may be decisive. The crucial question thus becomes how actors intentionally try to influence the institutions themselves.

This, of course, introduces a major analytical problem: Institutions lose their status as external constraints of action and “become the object of strategic considerations” (Beckert 1999: 781). But how can institutions constrain individual and organizational action and at the same time be subject to strategic or purposeful action (Holm 1995)?

¹⁹ Bourdieu distinguishes between financial, cultural, technological, juridical, organizational, commercial, social, and symbolic capital (Bourdieu 2005: 75).

The duality of institutions as restrictions of action and cognition *and* as strategic target of action is the major phenomenon that needs to be explained. I claim that it is a matter of degree between structural persistence, independent agency, and institutional work that explains how fiscal reality is in practice created. To the extent that actors consider the underlying accounting principles and heuristics of statistical standards *not* as mere measurement conventions but as normatively or technically prescriptive, standards and their supporting knowledge become an institution from the perspective of new institutionalism. Other rules will be deemed dispensable. Again others have a specific meaning attached but it will be pondered if the interpretation of its meaning should be changed.

1.6.2 STANDARDS AS INSTITUTIONS

The sociological concept of institutions is wide. Additional analytical guidance for the present project can be found in recent research on standards and standardization. Nils Brunsson and Bengt Jacobsson, for instance, stress that standards are an increasingly important form of social regulation, next to norms and directives²⁰ (Brunsson/Jacobsson 2000a). Brunsson holds that standards “are explicit rules formulated by few and offered to many” (Brunsson 1999: 114f.). In many cases the coordinating effect of standards seems not only to rely simply on their *explicit* content, though. Many non-formal aspects seem to matter for how professional actors deal with the standard frameworks. They should hence be seen as a storage and expression of wider expert knowledge (Jacobsson 2000: 43). The text of standards is often linked to tacit shared understandings of those producing and adopting them. Standards need to be understood in their dual nature: As a container of expert knowledge on the one hand and as a vehicle to demonstrate this professional expertise on the other hand.

Studying standard setting as institutions requires us to consider their role for both producers and adopters. On the standard production side, Henning notes, that it is crucial to recognize that standard setters have a natural interest in keeping a monopoly or dominant position in their field. There is hence a strong incentive to “sell” their standards (Henning 2000). For adopters standards are an important vehicle to gain legitimacy for specific purposes. Adopting a standard is crucial for organizations in very different contexts to demonstrate compliance with established and widely acknowledged practices. Yet given that there often remains discretionary room at the implementation level, Brunsson highlights that following a standard does not necessarily mean mechanical application but rather trying to “practice” a standard with “reasonable accuracy” (Brunsson/Jacobsson 2000b: 129). This implies that one also has to look at the

²⁰ Brunsson states that standards share with directives that they have a clearly identifiable source, and with norms that they are mostly voluntarily adopted.

detailed content of standards in order to understand what their implementation actually means. Often, for instance, standards do not directly prescribe the end-products or detailed processes, but merely general organizational features or approaches. They hence leave substantial room for interpretation, as for instance in the case of ISO 9000 quality standards (Furusten/Tamm Hallström 1996: 8). Statistical and accounting standards seem to differ substantially in the degree of detail they employ. One could well distinguish between the level of general paradigms or basic principles, their link to more specific economic events through specification of guidelines, and finally the direct classification and operationalization of specific events. It is important to take the ‘depth’ of the regulative attempt of a standard into account. Standard setters may well decide to keep a certain rule on a general level and hence to introduce substantial interpretative scope for the level of implementation, if only to increase the level of acceptance and to avoid implementation hardships. Standardization is thus not only about choices among alternatives, it is also about how much to standardize at all²¹!

The theoretical and analytical focus of this thesis is on standard development and hence the *production process* of statistical standards. Instead of taking the institution of standards as given, this project mainly asks how those standards emerge and how they develop over time. This does not mean, however, that the implementation part of standards is considered irrelevant. As Streeck and Thelen state, institutional change may take manifold and often subtle forms; changes in interpretation of a rule may change and influence its social impact (Streeck/Thelen 2005). We need to look at the process of fiscal data production as a complex, collective endeavor in a highly structured field. We face various actors in different roles: international organizations appear as standard setters and users of the data for fiscal analysis; national statistical institutes, especially those from OECD countries, strongly participate in the standard setting process and at the same time operate as rule-takers once the standards are in place. Individual experts operate in the field, sometimes representing their own professional stance, sometimes acting as representatives of their organizations. Policy-makers and academics also appear on the stage, either by explicitly formulating demands, or through the interpretation of their demands on the side of statistical experts.

The analytical focus of this thesis addresses two fundamental questions of institutionalism: First, the question of institutional change vs. stability: It is an empirical question to study whether standards in the field of government finance statistics are stable or subject to transformation and change. If they are changed, the question is, why

²¹ As Brunsson argues, the degree of ambiguity may influence the success of a standard, since “the most easily created and accepted standards may be those of minor importance to users and their activities, with uncertain benefits, and of little practical significance. Standards with a clear and substantial impact are harder to create and establish” (Brunsson 2000: 36).

and how precisely this change occurs. Second, the question is of structure vs. agency: standards can either be conceptualized as external restrictions of actors operating in the statistical world or they can be thought of as voluntaristic agreements of actors, coming together to define the rules of accounting at their discretion. I claim that to solve these theoretical controversies it is necessary to look at the empirical level. The dimensions of stability vs. change and of agency vs. structure are most likely matters of degree. The positions on both ends of the spectrum should not a priori be considered as mutually exclusive. It is rather an empirical question whether elements of both sides interact and how precisely this occurs. Persistence and transformation, redefinition of concepts and epistemological constraints may be intertwined in a complex way. This might not provide as neat an explanation as rationalistic functionalism. But if we set out to explain real world processes we cannot completely ignore real world complexity.

The theoretical approach chosen here follows this dual approach towards agency and structure and explicitly takes the cultural-cognitive side of action into account. Statistical standards are considered as an institution that is more than just a set of formal rules. It also embodies a certain shared worldview on economic events and impacts on data production in combination with a habitus of statisticians actually working with and on the standards. The approach is thus open towards purposeful strategic action and towards the change of the standards. At the same time it acknowledges that the whole project is a collective endeavor involving many organizations and actors which are embedded in a wider organizational field. Hence, the participation of individual agents is limited and the collective outcome cannot be completely governed by one agent strategically.

1.7 Structure and Methods

The thesis is organized in four sections. The first section provides an introduction to the phenomenon of social construction of fiscal reality. An overview over critical accounting research is provided and open questions of this research area will be briefly discussed. Then the production of economic and fiscal statistics in their social context will be analyzed, taking the black box character of the accounting process, the role of international standards, and the actual collection processes for fiscal statistics into account. The section then addresses the origins and dimensions of ambiguity of financial accounting. A brief historical overview will examine the recent shift of government accounting and fiscal statistics from a cash to an accrual basis. The section concludes with a brief inspection of the major constructive dimensions of public sector accounting.

The second part of the thesis then studies the epistemology of macroeconomic statistics in more detail. Historical origins of national economic statistics and the development of

modern national accounting as well as respective international standards are described. The relationship between government's economic activity and statistics will receive special attention. Then the specific frame the SNA "puts on the world" is briefly redrawn to understand the basic logical elements of the statistical system currently in place. Further the epistemological foundations of macroeconomic statistics will be analyzed in more detail: Historical and current controversies within the statistical community about 'reality' in statistics will be discussed as well as the role of economic theory as an influence factor on macro-statistics. It will turn out that neither the conceptions of reality nor economic theory will provide sufficient guidance for statistical measurement of economic events. The section therefore continues by collecting evidence on how statisticians actually deal with the respective challenge to solve the remaining ambiguities.

The third section of the thesis then undertakes a process and debate analysis of the current SNA updating process. After giving a broad introduction in the preceding and current updating procedure and the organizational field in which it takes place, the debate on the statistical recording of pension obligations will be analyzed in detail. The statistical issue at stake is first presented to understand the content of the unfolding debate. Then an overview over the discussion process and its outcome are given. The main empirical part of this section then analyzes various documents prepared during the expert debate to analyze the content and argumentative logic of the contributions. Specifically it will be examined how statisticians frame their decisions and justify the chosen conventions. The section concludes with some general analytical insights gained on the relationship of statisticians to reality and the constructive impact of economic statistics. The section will pay specific attention to the question on which grounds quantification approaches are justified and how much uncertainty actually remains inside the black box when establishing international standards.

The fourth section then builds on the results of the preceding analysis and attempts to quantify the uncertainty involved in the establishment of statistical conventions. The aim is to measure the discretionary impact economic statisticians have when debating about the accounting conventions underlying the recording of economic reality. In particular the impact of accounting conventions in the field of measuring unfunded pension obligations and additionally of basic capital accounting concepts are modeled and tested empirically. Specifically, actuarial parameter scenarios, various actuarial methods, and alternative operationalizations of the discount rate are used to account for the periodized implicit pension costs of defined benefit pension schemes. This is done first in a stylized model of a working population and then based on disaggregated empirical data for civilian federal US government employees in the fiscal years 1997-

2007. From this analysis ambiguity intervals for implicit pension contribution rates are derived. These are then used to estimate the impact intervals on aggregate spending levels and dynamics. In a next step similarly compiled uncertainty bands are used to recompile a quarterly time-series of US government spending from 1960-2007. Additionally, alternative methods for capital valuation are employed. The resulting time-series are then employed to re-estimate a typical econometric study in the area of fiscal research in order to examine the sensitivity of empirical impact estimates towards controversial accounting conventions. The final section summarizes the main findings, concludes, and provides a general discussion of the relevance of the insights gained against a broader background.

This thesis does not employ a specific empirical method. The basic aim of the study is rather to critically assess processes through which knowledge on economic, and in particular fiscal, events is produced. To do so, various empirical sources and approaches are combined. The first section is based largely on secondary analysis of accounting research, documentation of statistical methods, standard documents and various sources emerging from the process of fiscal data production. The second part mainly analyzes statistical literature and primary documents from the statistical debate as well as selected secondary studies on the history and epistemology of statistics. The third part uses mainly primary decision making documents, such as debate contributions to an electronic discussion group, expert and issue papers from statistical conferences and the minutes of statistical meetings to trace the process and argumentative logic of statisticians. The fourth part employs a semi-empirical approach, based partly on various statistical data sources and partly on stylized models. The modeling allows both to compensate for the lack of individual level data and to highlight the impact of specific accounting conventions in a controlled manner. In addition 18 semi-structured interviews with senior statisticians and public finance experts at the national and international level have been conducted. Those consisted of four experts from national statistical institutes, and 14 international statisticians and accounting experts from Eurostat, the European Central Bank, the OECD, the IMF, the UN, and the Worldbank. The interviews mainly served as background information for the study, but occasionally they are also used as empirical material. Tacit information has also been collected during two four month research stays at the OECD statistics department and the IMF government finance statistics division.

2 The Social Construction of Fiscal Statistics

In practice accounting and statistical figures are often used to mark the boundary between politics and expertise, between normative choices and ‘objective’ analysis of causes and impacts. Measurement techniques are employed to establish the boundary between facts and beliefs. Numerically based argumentation has spread widely, obviously due to its ability of calling “to reason rather than tradition” (Broadbent 2002: 439). The apparent neutrality of quantified assessments triggers their widespread application in the context of “economic governance” and their influence in shaping wider social structures (Vollmer 2003: 365). Especially the different forms of accounting are becoming increasingly influential in modern management of organizations and societies (Burchell, et al. 1980: 5ff.). This observation is not new: Sombart and Weber claimed that there is an inherent link between numeracy and capitalistic development. Yet both authors also contributed to the impression that accounting can be analyzed from a “technical point of view” (Weber 1968 [2003]: 92). For Weber “formal rationality” constituted the extent of quantitative calculation which is technically possible and which is actually applied²² [*das Maß der ihm technisch möglichen und von ihm wirklich angewendeten Rechnung*] (Weber 1976 [1922]: 44)]. Sombart even compared accounting to the methods of the natural sciences, such as astronomy or medicine (Sombart 1902 [1969]: 119). This perspective of accounting as a realist endeavor has proved stable until today. The neutrality and calculative power of accounting is often actively promoted by the discipline itself. Various accounting scholars tried to lay the foundations for accounting as an *empirical* science depending on general laws, similar to the natural sciences (Sterling 1975). The aim is obviously to establish the principles for an unbiased representation of objective conditions and to improve the functional value of accounting information for its users. An unbiased representation of reality is generally thought possible as long as accountants follow the principle of “neutrality”²³ (Solomons 1991).

²² Weber states that the quantitative expression in the form of money (in contrast to natural units) is the highest form of formal rationality. He differentiates the notion of “formal rationality” from that of “material rationality” – the former being well-defined and value-neutral and the latter potentially ambiguous and related to value postulates.

²³ This ‘unproblematic’ perspective is only unsettled in times of crisis: Cases of accounting and auditing failure or fraud, as with Enron or WorldCom, shed light on the uncertainties of quantification. There are also systemic accounting crises as the accounting and rating deficiencies in the US mortgage crisis in early 2007 showed. In the fiscal context the large revisions of the Greek authorities in their deficit notifications highlighted problems with the underlying data frameworks. Yet often these crises are encountered by regulatory efforts and potential uncertainties with the data tend to be forgotten rather quickly in the aftermath. Misrepresentation is considered rather an exception that can be avoided by regulation and self-management of the accounting community (McKernan 2007: 174f.). In the fiscal context the IMF discloses a manual on transparency promoting “best practice” disclosure standards and governance rules and monitoring the compilation techniques since 1998 (IMF 2007a).

Yet this *technical* view stands in contrast to evidence suggesting that accounting principles are highly ambiguous and that accounting has much more discretion than outsiders typically assume (Porter 1995: 98; Ijiri/Jaedicke 1966). Substantial differences among accounting systems between and even within countries reflect this inherent vagueness. For the fiscal sector Blejer and Cheasty conclude that in “the absence of standardized accounting rules for government, the conventional deficit is not well defined, and the deficits of different countries are not directly comparable” (Blejer/Cheasty 1991: 1646). The form and content of currently existing accounting systems seem to reflect a specific historical development rather than a purely technical function (Hopwood 1992). Quantification practices and rules did obviously not develop purely as a reaction to the “needs” of an economic system. Rather cultural influences and ideas had an independent role in shaping statistical systems (Starr 1987: 23). Fiscal statisticians sometimes complain:

“Economists too frequently take for granted the ingenuity and persistence that have gone into measuring government in the alien framework of market-priced, transaction-based production, and consumption while keeping, or indeed shaping, a relationship with the popular conception of what government does” (Levin 1996: 207).

The non-technical features of economic statistics stem from a neglect of a fundamental aspect of measurement in the social and economic realm: Its dependence on a set of conventions. Alain Desrosières, a statistician and sociologist, argues that quantification is more than measurement. While ‘measurement’ presupposes that an uncontested measurable object already exists, such as physical height, quantification in the social world means to “express and realize in numerical form that which was previously expressed in words and not in numbers” (Desrosières 2006: 10). This highlights that prior to measurement the scope for quantification needs to be established by convention. Those conventions involve agreement on what is to be measured and how it should be measured in the first place. This presupposes not only measurement techniques, but also prior “equivalence conventions”: “Measurement, strictly understood, comes afterwards, as the rule-based implementation of these conventions” (ibid.). Desrosières thus distinguishes between *equivalence conventions* and *measurement conventions* as necessary social agreements before quantification can take place in the social and economic world.

Statistics are thus more than just a neutral reflection of reality. Statistics “are products of social, political, and economic interests that are often in conflict with each other. And they are sensitive towards methodological decisions made by complex organizations with limited resources” (Alonso/Starr 1987: 1). Statisticians themselves occasionally articulate that they mediate between incomplete data sources and a selective presentation of reality (Ward 2006). They admit that the figures produced by economic statistics “exert a major influence on the perceptions, expectations and decisions of

analysts, investors, and policy makers” (Keuning 1998: 437). Anecdotal evidence suggests that economic statistics may also create self-fulfilling prophecies: *The Economist* recently speculated that a focus by Japan on growth rates of GDP per head instead of total GDP could have increased the latter, since “consumers may have felt cheerier and spent more” (The Economist 2008).

Porter convincingly shows that modern societies increasingly rely on quantification as a means to establish trust. Yet in contrast to technical approaches towards measurement this line of research states that quantification is first and foremost a social technology to generate ‘objectivity’. It is not (necessarily) the ability of quantitative indicators to represent their measurement objects adequately which is decisive. Rather it is the mutual acceptance of the validity of the numbers, the actors’ acceptance that is decisive for their social impact (Porter 1995: 45). He claims that

“[...] quantitative estimates sometimes are given considerable weight even when nobody defends their validity with great conviction.[...] A decision made by the numbers [...] has at least the appearance of being fair and impersonal. Scientific objectivity thus provides an answer to a moral demand for impartiality and fairness. Quantification is a way of making decisions without seeming to decide” (Porter 1995: 8).

Moreover, as Vernon argues, once information is quantified the solidity of the ground on which it is prepared often seems to be ignored. Using the example of productivity measures, he argues that statisticians often produce numbers that are subject to high margins of error. However, in the political debate, the information is typically used without reference to weaknesses in the data. Rather “politicians used the data if they could fit the material to their arguments, and disregarded the data if they could not” (Vernon 1987: 77). Power observes a similar point in that the ‘objectivity’ of the figures “does not depend on a view that measurement reveals things as they are. It is rather a function of administrative and managerial proceduralism, which demands the possibility of re-checkability and, in turn, a legitimized aura of precision in the measurement process itself” (Power 2004a: 771). This introduces a distinct *social* dimension in the process of quantification. The social perception of figures with respect to their general characteristics is a fundamental prerequisite in the context of social and political control.

2.1 Insights from Accounting Research

Sociology addressed numerical information in a very broad manner: Calculative practices have been studied as a general means of economic representation. These numerical images are seen as culturally constructed products that fundamentally shape the economic realities that are studied and their interpretation²⁴ (Kalthoff 2002).

²⁴ Kalthoff can show that the way a bank compiles the default risk of its loans has a qualitative impact on economic processes and communication in a bank (Kalthoff 2005).

Numerical practices are treated as contingent to wider social contexts and the discursive nature of measurement techniques is documented (Miller/Napier 1993). On a general level the increasing importance of counting and measuring is seen to be related to the emergence of rationality patterns in the western world (Power 2004a: 766). Calculation in general and the emergence of social statistics in the 18th and 19th century in particular are studied with regard to their function of social ordering and governance (Starr 1987: 13ff.). Rose and Miller argue that quantification was increasingly used by modern states to allow “action at a distance” (Rose/Miller 1992) and Porter highlights them as a means to overcome distrust and specific problems of political decision making (Porter 1992). Other studies look at the role of calculation and calculability for the functioning of markets (Callon 1998b; Callon/Muniesa 2005). Markets are understood as “collective calculative devices” which in various ways make goods calculable, provide “calculative agencies” in order to perform the calculations, and organize the actual calculation (of prices) so that exchange is possible. Standardized calculating procedures are perceived as important factors to “frame” markets in order to make goods and services “marketable” (Rottenburg/Kalthoff/Wagener 2000: 24ff.).

More specific research has been done in the area of financial accounting. But a review of the empirical and theoretical literature shows that the interest in the ambiguity of accounting emerged surprisingly late and is still very limited. While sociology has studied accountants in the “sociology of professions” intensively, the process of accounting itself has remained largely a “black box” (Vollmer 2003: 354). The discussion of structural uncertainty in the accounting process and frameworks occurred at first more in the field of accounting and statistics. A sociological approach towards the wider function and impact of accounting emerged largely outside the discipline and attracted the attention of sociological scholars only in the 1990ies. At least until the late 1970ies accounting practitioners and academics dealt with the vagueness of bookkeeping in a seemingly straightforward way. Disputes and controversies were ‘solved’ more or less pragmatically (Hopwood 1978: 7). The academic accounting literature aimed to support decision making of stakeholders by clarifying what should enter the financial reports according to normative principles and postulates (see for instance Gordon 1964). The existing margin for different treatments or alternative frameworks was narrowed, following the stated purpose to inform internal and external interest groups in an objective manner. Positive empirical studies on the actual influences on - and the impact of - financial reporting, however, were lacking.

2.1.1 THE EMERGENCE OF CRITICAL ACCOUNTING STUDIES

Classical sociologists have already highlighted the role accounting played in the development of capitalism and modern concepts of rationality²⁵. For Weber accounting played a crucial role for the emergence of modern capitalism. Double-entry accounting was in his view a prerequisite for modern rationalization in general and the application of the concept of capital profitability in particular. Capital accounting allowed the monetary “valuation and verification of opportunities for profit and of the success of profit-making activity by means of a valuation of the total assets” at the beginning and the end of an accounting period (Weber 1968 [2003]: 91). Only through this, he argues, could capitalists rationally evaluate their past and future business decisions in terms of ‘profit’ and ‘loss’ and assess their resources free for alternative investments²⁶. Sombart took an even stronger position on the issue. For him capitalism wouldn’t have been possible without double-entry accounting. He saw the relationship as one of “form and content” (Sombart 1902 [1969]: 118, own translation). He argued that the pure notion of capital is a result of a pure accounting view on business transactions that abstracts from real world objects and views all items only in terms of their contribution to earnings. While he showed that the characteristics of modern bookkeeping, i.e. the reliance on accounts and the principle of double entries, existed for a long time, only the systematic linking of profit and loss accounting on the one hand and the valuation of assets in the balance sheet on the other unfolds the central importance of accounting. In “capitalism, socialism, and democracy” Schumpeter referred only briefly to bookkeeping. But he, too, stressed the important role of accounting in the development of capitalist rationality. For him profit and cost accounting was both a *product and a foundation* of capitalist economic rationality. He argued that accounting enhances the action of the enterprise by accentuating monetary and numerical aspects (Schumpeter 1950: 202).

However, following the classical contributions sociology largely remained silent about accounting (Miller 2006). What is more, as argued above, the classical Sociologists treated accounting in a surprisingly technical manner, thereby neglecting the ambiguity involved in quantification of economic indicators. The first attempt to expound the problems of alternative accounting treatments took place in the late 1970ies, outside the discipline of sociology. Accounting scholars tried to sketch a “positive accounting

²⁵ Chiapello even suggests that the recognition of “capitalism” as an economic notion itself is based on accounting terms (Chiapello 2007).

²⁶ For instance he stresses the relevance of monetary calculation in determining the resources available for consumption in a specific period. He argues that monetary calculation allows the “vorherige Abschätzung und nachträgliche Feststellung derjenigen aus Geld bestehenden oder in Geld schätzbaren Zugänge und Abgänge, welche die Wirtschaft, bei Erhaltung der Geldschätzungssumme ihrer insgesamt verfügbaren Mittel [...], die Chance hat, während einer Periode zur Verwendung verfügbar zu haben“ (Weber 1976 [1922]: 45).

theory” with the aim to “explain why financial statements take their current form” instead of discussing normative issues (Watts 1977: 54). These works tried to explain the adaptation behavior regarding specific accounting rules and the preference building towards the content of specific accounting standards (Watts/Zimmerman 1978: 112). Based on the observation that reported figures impact on the interests of a variety of stakeholders to the firm, the way financial reporting was done became the dependent variable of their research. This research showed for instance that the adoption of specific accounting policies was connected to firm variables²⁷ (Watts/Zimmerman 1990: 132). Yet although the “positive accounting theory” departed from earlier normative contributions by acknowledging that accounting is context dependent, its focus was still restricted. Firms’ behavior was analyzed in a strict principal-agent framework – accounting was seen as the outcome of (constrained) optimization choices of rational actors. A critical stream emerging from the accounting discipline and inspired by sociological works challenged this perspective. Accounting was not seen as a neutral reflection of a pre-existing reality anymore. Rather the process of developing accounting systems and the respective theories were itself studied as a social phenomenon. It was stressed that academic accountants “like all human beings, are self-interpretative, social beings who do not merely accept the world but create both it and the accounting systems which form part of it” (Chua 1986: 584). An alternative research agenda was set up in the early 1980ies. It based on the assumption that accounting was more than the translation of ‘facts’ into ‘figures’. More emphasis was put on the wider functions of accounting in its organizational and social context and on the exploration of change rather than on the elaboration of the linkage between action and interest at a given point of time. Since the early 1980ies accounting scholars initiated an interdisciplinary research program studying accounting in its organizational and social environment (Burchell, et al. 1980; Burchell/Clubb/Hopwood 1985: 409). This heterogeneous field of sociologically oriented accounting literature may perhaps best be summarized by the assumption that accounting is on the one hand influenced by its social context and on the other hand that accounting exerts influence on its environment (Morgan/Willmott 1993: 4). Financial information systems are thus treated as an independent and dependent variable at the same time (Hopwood 1983: 288).

²⁷ In an early work Watts and Zimmerman for example set out to explain why firms spend resources on corporate lobbying to influence accounting standards. Their main argument is that managements have – under certain external and firm-specific conditions – an interest to report lower earnings. Influencing accounting standards is treated as the outcome of a rational strategy based on a benefit-cost analysis (Watts/Zimmerman 1978).

2.1.2 ACCOUNTING AS A CONTEXT-DEPENDENT PHENOMENON

The first empirical pattern is hence the observation that accounting is a context-dependent phenomenon. Many studies show that accounting developed in particular historical contexts, against special epistemological backgrounds. A common finding is that there is *not* just one and unambiguous way to translate “facts” into “figures” but that accounting is a “social and institutional practice” that is embedded in and constitutive of social relations (Miller 1994: 1). Financial accounting is perceived as “a cultural symbol of modernity and marketisation and thereby subject to cultural, economic and institutional pressures and influences” (Hopwood 2000: 763). A series of works for instance analyzes accounting systems from a neo-institutional perspective (DiMaggio/Powell 1991; Meyer/Rowan 1991). Meyer shows that accounting processes are likely to reflect the restrictions and opportunities of the organization’s environment. He distinguishes two major assumptions on the environmental impact in the literature: Either (1) accounting is said to follow the demands of powerful organizations/actors or (2) the environment serves as a supplier of modules for organizing (Meyer 1986: 346). Covaleski and Dirsmith show that political pressures towards conformity influence the budgetary practices within universities through various intra- and extra-organizational processes (Covaleski/Dirsmith 1988). Power finds that auditing is “more that of a routine or institutionalized practice rather than rational choice, cognitive congealment rather than efficient adaptation” (Power 1997: 123). Mezias provides evidence showing that the adoption of financial reporting practices can be explained by factors in the inter-organizational environment of firms: A controversy regarding the accounting treatment of an investment tax credit in the US was “solved” in a complex interplay of big firms, the accounting profession, and regulatory institutions (Mezias 1990). Boland and Pondy see accounting as a combination of “rational” and “natural” elements. This assumes that managers in organizations not only react strategically to constraints, but also symbolically interact with the social world by interpreting reality and problems. Accounting is then seen as a set of symbols that helps actors to make sense of their actions (Boland/Pondy 1983).

This perspective thus strongly departs from a central paradigm of normative and positive accounting theory: Accounting systems are understood as not being determined by the requirements of efficient and rational decision-making. Substantial divergence between claimed and actual functions of accounting in the organizational context could occur. While accounting rules “may be introduced in the name of particular conceptions of social and organizational efficiency, rationality and relevance, in practice accounting systems function in a diversity of ways, intertwined with institutional

political processes, and the operation of other forms of organizational and calculative practice” (Burchell, et al. 1980: 13).

An alternative proposition is to see accounting systems rather as a means to legitimize individual and organizational behavior (Power 2003: 379). March for instance argues that preferences are often far too vague and incoherent for rational decision making. In practice decisions are therefore often based on historical experience rather than expected consequences. Accounting information is then at times collected to fit decisions rather than vice versa (March 1987). The reality “constructed” by accounting can thus play a role of legitimizing actions. In a similar perspective Carruthers and Espeland could show that the relying on double-entry bookkeeping helped to legitimate particular business decisions - the specific way of bookkeeping became a symbol of rationality, irrespectively of the content of underlying strategies (Carruthers/Espeland 1991). While formally accounting systems state to serve the purpose to inform stakeholders for the sake of decision making, in practice “accounting systems have become ever more implicated with the functioning of more all-embracing forms of organizational practice” (Burchell, et al. 1980: 16) and are thus heavily dependent on its environment²⁸. In this context accounting is seen as a device that links “actions with values”, i.e. it structures relations between actors, the perception of available actions, and generally provides a means for organizational control (Richardson 1987).

Another important insight in this respect is the existence of strategic reactions from actors, once they are subject to a monitoring process. From organizational learning literature we learn that the attempt to measure performance indicators with high precision can lead to adverse incentives: “[The] more precise we attempt to make the performance evaluation system, the greater the individual’s incentive to optimize the index score regardless of the cost to the organization” (Dyckman 1981: 298). It is stated that firms can – at least to a certain degree – use their accounting freedom either for “opportunistic” or “efficient” accounting policies (Christie/Zimmerman 1994: 541). On the macro level this adverse effect of monitoring shows the validity of “Goodhart’s Law”, which stated (for monetary policy) that a measure loses its relevance as soon as it becomes subject to systematic monitoring²⁹ (Chrystal/Mizen 2001; Goodhart 2006).

²⁸ The first endeavor to understand accounting as a context-dependent phenomenon was undertaken from the contingency perspective (Gordon/Miller 1976; Gordon/Narayanan 1984). In these works it could be shown that the degree of uncertainty in the organizational environment had an influence on the reliance on management accounting systems as an alternative to other forms of information. Yet neither contingency theory nor the theory of efficient markets succeeded to explain the emergence of existing accounting rules.

²⁹ For public finance statistics this relates to the possibility of fiscal gimmickry and creative accounting (Milesi-Ferretti 2003; Petersen 2003) which has been intensively discussed in the context of EMU’s deficit and debt compilations (Besnard/Paul 2004; Easterly 1999; Koen/Noord 2005; von Hagen/Wolff 2004; Dafflon/Rossi 1999; Balassone/Franco/Zotteri 2004).

2.1.3 ACCOUNTING AS REALITY CREATING DEVICE

The second major insight is that “accounting practices actively create, rather than merely reflect economic realities” (Mennicken 2006: 2). Accounting is more seen as a form of communication involving interpretation (Lavoie 1987). The form and content of accounting reports can thereby “shape or rationalize future decisions” (Morgan 1988: 482). By influencing the visibility or even defining organizational realities accounting is assumed to have a much broader impact on its social and organizational environment than previously thought³⁰ (Burchell, et al. 1980: 5). This constitutive role of accounting stems from the selection of particular aspects of reality as relevant for understanding of processes and events. It is assumed that the process of representation is not a neutral mirror of reality (Hines 1988) but that accounting rules “create the costs and returns” and “define profits and losses” (Miller 2001: 393) and thereby make certain aspects of reality visible and manageable:

“Accounting provides a way of giving an apparent precision to at least some of the general categories of economic discourse. It is a precision, however, that does more than merely reveal what is already there. The specificity introduced into the organization by accounting can create a basis for more fundamental changes. [...] What previously might have been presumed to be there but poorly revealed, once operationalized, can start to provide a way in which the organization can be changed” (Hopwood 1992: 136).

This gives lead to the question which aspects accounting systems select for representation. A first restriction of accounting is apparently its focus on *measurable* aspects³¹. While the numerical representation suggests an objective view on reality, in fact “accountants are always engaged in interpreting a complex reality, partially, and in a way that is heavily weighted in favor of what the accountant is able to measure and chooses to measure, through the particular schemes of accounting to be adopted” (Morgan 1988: 480). Moreover, even the measurement of seemingly straightforward economic items generally presupposes a general economic concept of what should be measured. Hopwood for example shows how difficult it was for an 18th century English potter to assess his costs – without such a concept: “The facts of costing had to be laboriously created rather than merely revealed” (Hopwood 1992: 132).

³⁰ Extreme positions building on these perspectives claim that accounting is politically instrumentalized in order to maintain the existing social and economic structure. These approaches try to integrate the logic of accounting systems in a wider political-economy approach, mostly inspired by paradigms of capitalism critique. It is argued that current accounting systems reflect the normative position of “utility-based, marginalist economics” and thereby “serve[s] to bolster particular interest groups in society” (Tinker/Merino/Neimark 1982: 167). Accounting is said to implicitly incorporate the normative assumptions of neo-classical economics accounting and thus to function as a means to present the existing economic structure as the only possible configuration (Cooper 1980). The dominant focus of the literature is, however, the functioning of accounting systems in their organizational context. In the foreground is the attempt to understand the form and content of information systems in the interplay with organizational actors (Hopwood 1978: 10).

³¹ Critical accounting studies argue that accounting rules as currently applied have (unsurprisingly) a financial bias and therefore systematically neglect social and environmental needs (Saravanamuthu 2004: 300).

Accounting is thus necessarily based on sort of heuristic conceptions of reality that serve as cognitive predispositions for the interpretation of organizational aspects. From a historical perspective there is strong evidence that these 'images' are contingent on the wider development of modern societies and particularly the capitalist system (Davis/Menon/Morgan 1982: 307f.). Although objectivity is often assumed by accounting theorists, in fact 'metaphors' and conventions shape the way reality is perceived (Morgan 1988: 482). "The images which shape accounting theory both reflect and constitute reality in a super-structural sense – they articulate an ideology for making sense of structure for specific ends" (Davis/Menon/Morgan 1982: 310). Porter stresses that these heuristic concepts are not independent of reality but in fact interrelated with business practice: Figures "that have no credibility as truth claims will be less effective also at projecting power and coordinating activity. [...] Adequate description counts for little if the numbers are not also reasonably standardized. Only in this way does calculation establish norms and guidelines by which actors can be judged and can judge themselves" (Porter 1995: 44).

From an epistemological point of view accounting frameworks thus intermediate between data and phenomena. Bogen and Woodward claim that the unquestioned association of data with phenomena may be problematic (Bogen/Woodward 1988). Objectivist positions concur with relativist - the implicit or explicit question of many accounting studies is if there is an independent reality that exists beyond what is portrayed by accounting figures (Kalthoff 2005: 90). Some state that economic theories in the first place define what accounting later reveals as empirical evidence. As a basis for accounting procedures Hopwood claims that the "world needs to be told what profit ought to be even though it apparently is orchestrated in the name of it. Seen in such terms, economic discourse is not merely a reflective phenomenon, providing insight into the way in which the world is, but it can also be a constitutive phenomenon, having the potential to play a role in forging a reality that is more in line with our economic understandings of it" (Hopwood 1992: 130).

Since accounting either creates reality or at least reduces it (Power 2004a: 769) it is not viewed as a neutral technique but as a system that severely influences agents preferences, the way how organizations operate, and how they are perceived (Power 2003: 379). Information systems select and highlight aspects of reality due to the ability to project a complex reality into simple baseline figures (Miller 2001: 381). Created reality thus most likely feeds back on actions of economic agents. Accounting systems "become mechanisms around which interests are negotiated, counter claims are articulated and political processes explicated." (Burchell, et al. 1980: 17).

2.1.4 OPEN QUESTIONS

Most of the sociological accounting studies focus on management accounting and corporate financial reporting. Although the application of financial accounting standards in the public sector has been studied in the accounting literature, scholars have contributed little to the overall assessment of public finances. This can possibly be explained by two factors: First, most governments applied *financial* accounting only in selected entities at the boundary of the state, while core entities for centuries applied *cameralistic* (i.e. cash based) accounting standards based on its primary function as instrument of budgetary control. Second, the only overall view on the government sector is typically produced by *national* accounting. The macro context has however rarely attracted interest in the accounting literature. Constructivist aspects and the social contingency of accounting have predominantly been studied on the organizational level. Accounting aspects of macro statistics in contrast have been widely ignored (for seminal exceptions see Miller 1986; Suzuki 2003b; Suzuki 2003a). At the same time accounting scholars showed only little interest in economic statistics since both budgetary accounting and national accounting developed quite independently of the accounting discipline (Jones 2000a; Jones 2000b).

Some important insights in public sector accounting from a critical perspective can nevertheless be found in the accounting literature at the organizational level. Jones and Mellett for instance show that the reform of the UK healthcare system was accompanied and strongly supported by substantial changes in the accounting framework. Accounting became an “instrument for change” (Jones/Mellett 2007: 116). Shaoul argues that the accounting approaches in the context of Private Finance Initiatives apply doubtful and ambiguous methods to measure the investment value and risk. It appears that accounting techniques are politically instrumentalized to rationalize economic decisions made out of a political motivation (Shaoul 2005). In a similar vein Collier finds in a study on cost accounting for police service strong evidence that accounting is increasingly used for political purposes. In this setting, accounting serves to provide rational arguments for a significant reallocation of resources (Collier 2006).

On the macro level, however, the availability of adequate accounting figures for the public sector is widely assumed, especially by the political economy literature on fiscal macro management. Many economists see a close monitoring of the financial activity of governments as an mitigation to democracy-immanent dilemmas, such as the ‘deficit bias’ (see Persson/Svensson 1989; Alesina/Tabellini 1990; Tabellini/Alesina 1990; Roubini/Sachs 1989; Edin/Ohlsson 1991; Alesina/Roubini 1995; Alesina/Drazen 1991). Increased control is believed to allow governments to make financial commitments credible and thereby to increase – at least from a theoretical point of view – the overall

welfare of the country³². Yet the influence of presentational devices on the perception and knowledge building about the economy (Thomson 1998: 286) is not restricted to the micro level. Accounting and statistics define objects, such as unemployment or income inequality. Even the notion of the ‘macro-economy’ can be understood as the result of a social construction process (Suzuki 2003b: 473). Boumans highlights the role of economic models in the processes of making economic “phenomena” observable via “measuring instruments” (Boumans 2001: 427). He stresses that in economics, models are constructed by combining empirical and theoretical components in a way that is better described as “calibrating” rather than theoretical derivation and empirical testing (ibid.: 428).

The way in which economic statistics and accounting render fiscal ‘reality’ in terms of an aggregate picture on government activity has hence received only little attention in the literature. It is mostly from the accounting debate in specific contexts that critical voices about the ability to measure certain phenomena have been raised. It remains that the fundamental issue of accounting ambiguity and the role of accounting conventions in the presentation of *fiscal* reality is seldom reflected in the wider economic and political debate. What is more, little is known about the specific processes through which accounting conventions are adopted, standards are negotiated, and practices are shaped. This is especially the case for statistics. Paul Starr asked for research on statistical systems as social phenomena already more than 20 years ago (Starr 1987). Yet the black box of fiscal statistics largely remained closed.

2.2 The Production of Economic Statistics in their Social Context

A closer look at fiscal data reveals that the deficit is *not* an unambiguous concept. Some economic analysts revisited fiscal data concepts and highlighted the complexity inherent in the measurement of respective indicators (Blejer/Cheasty 1991). It appears that those experts having dealt seriously with fiscal measurement questions come to a rather skeptical assessment of the general possibilities to precisely quantify the state’s economic activity. Despite the seemingly clear meaning of published budget deficits, “these deficits have little relationship either to the commonsense definition as the difference between real income and real outlays of the federal government over any period of time, or to the deficit concepts appropriate to a variety of economic models” (Boskin 1982: 296). It follows that the published fiscal figures enjoy their credibility and precise appearance not as a consequence of their actual measurement content. Rather ignorance or general

³² The inability of democratic governments to sufficiently establish credible commitments is generally seen as a major obstacle for welfare-efficient policies (Barro/Gordon 1983).

trust in the respective sources seems to trigger this effect. Statistical knowledge production is treated in a black-box³³ manner.

We thus need to understand the production of fiscal figures in the social context. This however, faces an immediate challenge: there is no clear reference framework for fiscal data. Jones claims that three different perspectives, national accounting, budgetary accounting, and financial accounting, all attempt to measure the same economic phenomena, although from different perspectives (Jones 2000a). In fact a fourth data framework, the Government Finance Statistics Manual of the IMF, is in the offer. The field of government accounting is thus characterized by a coexistence of rival data frameworks. Two accounting perspectives (budget and financial accounting), with many differences in form and content of accounting documents between and within countries, and two international statistical standard frameworks provide data for the same economic phenomena. It is hence the more surprising that fiscal data is treated in a factual manner. The fact that different data frameworks measure economic events in different ways clearly shows a certain degree of uncertainty or ambiguity in the measurement process. Yet the reconciliation of different sources rarely attracts attention. It rather appears that the reference to the respective figures is context dependent. The national political debate naturally refers to central government budget documents. In the international and academic debate typically statistical sources are referred to. The conceptual and practical foundations of data bases rarely attract attention, however.

2.2.1 THE BLACK BOX OF ECONOMIC STATISTICS

The production context of statistical data is in practice treated as a black box. The heterogeneous group of data users pays little attention on what actually enters the database and how data is processed. Trust in the organizations, professionals, and general knowledge about the underlying procedures does in practice often replace direct knowledge on the data content. As soon as this transfer of credibility from data to their producers takes place, numbers appear as objective. The measured figures gain the status of 'facts' and the production process will in turn be neglected (Heintz 2007: 77). The result of this construction of facts is that they subsequently appear "unconstructed by anyone" (Latour/Woolgar 1986: 240). Desrosières reconstructs the logic with which data users do access statistical information and concludes that interest in the details of the measurement process is actually limited: "[For users] 'reality' is nothing more than the

³³ Following Latour's exploration with reference to cybernetics, the treatment of information in such a way means that "no matter how controversial their history, how complex their inner workings, how large the commercial or academic networks that hold them in place, only their input and output count" (Latour 1987: 3).

database to which they have access. Normally, such users do not want to (or cannot) know what happened before the data entered the base. They want to be able to trust the ‘source’ (here the database) as blindly as possible to make their arguments” (Desrosières 2001: 346). The same diagnosis is made by another senior statistician who claims that a reconciliation of data sources would in practice be impossible for users. Data users would face diverging and incomplete source data for the same phenomena, different measurement concepts, and lack of access to necessary individual data records (Keuning 1996: 1).

The question then becomes how statisticians deal with the black-box appearance of economic accounting from the inside. The willing acceptance of statistical figures as facts from outside users provides the ground for a professional self-understanding of economic statisticians who see themselves in the role of bridging the analytical needs and the source data through the provision of consistent databases. Users would typically not be in a position to judge the requirements of economic data gathering:

“Users, at best, can do little more than state the nature of the problems they wish to address [...] Most of the concepts employed by both economic theoreticians and econometric modellers are expressed at a level of generality that allows for a very wide range of interpretation [...]. It is the responsibility of the producers of the data—and especially of the national accountant—to ensure that the data measure what they purport to measure, and that what they purport to measure is relevant to the real world decisions about economic and social policy that must continually be made” (Ruggles/Ruggles 1983: 402f.).

The production of statistical data is hence considered the domain of expertise and professional methods³⁴. Savage observes that statisticians established themselves as a distinct profession (Savage 2005: 47). Internal statistical debates would widely rely on professional reputation. A lack of credibility and reputation could substantially undermine individual statisticians’ potential to influence the outcome of future statistical debates³⁵ (ibid.: 65). This professional self-understanding clearly explains the willingness on the side of statisticians to endorse the responsibility of making economic phenomena operable and measurable. In Goffman’s terms the “front side” professional actors show is largely determined by the purpose “to establish a favourable definition of their service or product” (Goffman 1959 [1987]: 83). At a closer look, however, it becomes obvious that statisticians face severe tensions in their everyday work. The demands and limits of well-established methods e.g. of inference statistics and survey procedures often come into conflict with the social or political context in which the

³⁴ It even appears that the scope for ‘professional’ decisions in the production of fiscal data is actually increasing. With the spreading of NPM doctrines government management is often transformed to “spaces of manageability between inputs, outputs and outcomes. Those spaces seem to call for expert management” (Gendron/Cooper/Townley 2007: 102).

³⁵ In practice, senior statisticians regularly complain that the professional skills found in national accounting departments would often be insufficient. High turnover in national accounts departments would severely undermine the role of experience, especially in Europe (Vanoli 2005: 467).

statistical figures are used. Nevertheless it appears that statisticians abstain from revealing too much about the difficulties of their profession. Desrosières finds that statisticians face a tension between the demand to present consistent data to the outside and internal problems of data reliability and conceptual challenges. He argues that statisticians must “skillfully combine” the different requirements “even if their writings tend to brush the issue under the carpet because the tools and language needed to express it are neither formalized nor taught, and also because they are wary of misunderstandings. By opening up this Pandora’s Box, might there not be a risk of undermining the results which are in fact very costly to obtain and whose social legitimacy needs to be constantly reaffirmed, notably in periods of budget restrictions?” (Desrosières 2000: 174). Reich argues that national accounting in Germany faced a quite hostile environment in the years after the war. This led to a specific national tradition in which conceptual challenges were largely internally discussed:

“It seemed unwise to discuss in public all the problems and errors which inevitably accompanied the new enterprise. There was a tendency to publish only uncritically certain results. Rather than turning to the scientific community the experts of national accounts kept problems within themselves, and preferred to have the doors closed when errors and methods were discussed” (Reich 1994: 162).

Statisticians thus obviously care about *legitimacy* of their organizational products. What is relevant is not (only) the technical aspects of measurability but also the outside perception of the figures as relevant, reliable or objective. For institutional theory this organizational task is a classical topic. In face of conflicting logics between abstract demands and concrete working tasks, organizations tend to decouple the two. The formal rationality of the endeavor is kept alive while dealing pragmatically with critical questions within the organization (March/Simon 1958). Decoupling allows to create a “general aura of confidence” (Meyer/Rowan 1977: 358) for the people working inside the organization and outside observers. The question then immediately becomes how *expertise* is established as legitimized mode of practice comes to the fore. Research in the field of auditing and accounting in the public sector shows that measurement expertise is actively constructed in an interactive relationship between a professional group and practice communities claiming to have expertise in a specific area (Gendron/Cooper/Townley 2007). Power argues that accounting firms actively stress their expertise in certain areas and seek respective legitimacy. As a consequence it is rather institutional credibility that supports expertise rather than the technical working procedures³⁶ (Power 1996: 294f.).

³⁶ Power (1996: 305ff.) argues for the case of brand accounting: the core accounting debate is about whether brands can be measured in a way that is deemed sufficiently reliable. As a result “verifiability and auditability are less properties of things in themselves and more a function of the institutional credibility of experts”. The scope of measurement items that are regarded in such a manner has often less to do with

A crucial point of the process seems to be the management of the numerical surface of databases. When taking the rhetorical aspects of accounting communication into account, the actual validity of the data appears to be of minor importance for users compared to their consistency and “internal validation” (Desrosières 2001: 347). A key strategy in this respect appears to be the mutual harmonization of different statistical databases. In practice the incoherency between the different standards led to special problems for the practical implementation of the standards. Dawson argues that the differences between the IMF GFSM and the SNA would lead to difficulties in supporting the practical influence of international statistical standards: “There is to some extent an inherent conflict between international comparability and local articulation of sector accounts, but this is especially so if the international standards are not harmonious (Dawson 1989: 20). The “surface-management” also occurred in the European Union, where the implementation of conceptual changes for national accounts was delayed in order to avoid the public appearance of two different sets of figures. An expert involved in the discussions recalls that

“there was mounting anxiety among statisticians and policy advisers about the likelihood that the already critical public would come to believe that the indicators for the excessive deficit procedure were to be distrusted. One reason for concern was that the 1997 figures – on government deficits and debt as well as on GDP that served as denominator – would repeatedly change, first, already after a short time, when premature data, estimated in February 1998, were replaced by figures produced by regular compilation methods, and, later in the year, when the ‘exhaustiveness exercise’, aiming at disclosing the hidden economy, had its effects on the level of GDP. Moreover, there was the prospect of alternative figures popping up alongside the existing ones when, in 1999 and in some countries already in 1998, the ESA 95 was introduced” (van Wijk 2001: 252).

This demonstrates that statisticians actively engage in keeping up a credible surface of economic statistics and are aware that the public perception of the quality of statistics is importantly influenced by the behavior and plausibility of key figures. The avoidance of internal and external inconsistencies is thus a crucial strategy to keep the black box closed.

At the same time the credibility of statistical figures relies on generalized perceptions of the applied methods, too. Statistics need to be based on the widespread perception of scientific ‘objectivity’. Daston and Galison argue that the ‘modern’ concept of objectivity is one of a “mechanical objectivity” that intends to eliminate any influence of the observer on the result of the measurement³⁷ (Daston/Galison 1992). Put generally,

the measurement content itself but rather with a consensus among the expert community and the acceptance of non-accounting professional expertise as legitimate.

³⁷ Daston and Gallison show that the modern notion of objectivity mixes various, historically distinct elements. The current concept of “objectivity” developed in the 19th and early 20th century as opposed to earlier concepts of “closest possible rendering of what truly is”. These earlier ideals of science often required interventions and judgements by the observer. The later concept of “mechanical objectivity”, an important element of modern objectivity concepts, forbade these interventions. The definition of this element of objectivity has its origin in the intended elimination of any influence of the observer on the result of the measurement (Daston/Galison 1992: 84).

measurement techniques need to present themselves as being independent from theory and cognitive frames. In the end it is the configuration of the ‘machine’ that influences the measurement result (Heintz 2007: 68). Transferred to the statistical realm this means that an important way to ensure the appearance of accounting approaches as objective is via the definition and application of clearly specified rules. As Lee documents for the United Kingdom and the United States, the issuance of formal accounting standards has gained relevance and constituted an important component of the professionalization of the accounting discipline (Lee 1995: 57ff.). The accountancy profession tried to “sell” its expertise and introduced first voluntary, then mandatory practice standards through increasingly institutionalized bodies and the initiation of a professional debate in respective journals. At the same time standard setting was not characterized by complete autonomy. Rather legal and political interventions occurred and accountants developed standards in reaction to public criticism and company crises³⁸. This second point seems to be particularly intriguing: Richardson found evidence that accountants received professional rewards “for the codification of practices in politically sensitive areas” (Richardson 1988: 393). This suggests that standardization reacts to problematic issues and standardizes areas in which ambiguity came to the surface. Ample evidence suggests that professional knowledge production is deeply embedded in a social, political, and cultural context. The Sociology of Science has shown that even in the Natural Sciences knowledge production has to be understood as a cultural product. Collins showed that epistemological outcomes are responsive to existing social and political conceptualizations³⁹ and the legitimacy of knowledge depends on the fit to conventionalized rules (Collins 1985).

Some statisticians explicitly claim that the frame which economic statistics put on the world is not neutral, but selective. Yet they also observe that this is typically not taken into account by outside users. It is claimed that the “language” of the national accounts is “not very well spoken and understood anymore” (Bos 2007: 7). Moreover, some statisticians are well aware of their constructive impact. Richard Stone, the main author of the UK system discussed this problem already 50 years ago. He stated that the decision for the economic statistician, in how far he should go to satisfy analytic demands, even if the data basis is thin, is a difficult one. He saw the risk that

³⁸ Crucial for the development of standards is the existence of continuous public scepticism of the potential of accountants to reliably provide their services. The accountancy profession reacted in two ways: by making standards and concepts more formal and explicit and by “doing nothing”, i.e. the decoupling of description of ideal solutions but keeping practice as it were (Lee 1995).

³⁹ Collins argues that the acceptance of scientific research results as credible “knowledge” depends on the distance to the context in which it has been created. The controversies associated with the establishment of a “core set” of scientific knowledge are known only to a very limited number of directly involved specialists. The farther away from this initial debate knowledge is used, the more will it appear as certain (Collins 1985: 144).

“too great a willingness to give answers to questions that cannot be answered debases the statistical coinage. Orders of magnitude, based not on fact but on hopes and prejudices, may receive undue attention because they are put forward by specialists who are supposed to be concerned solely with facts or rational deductions from fact. As a consequence the layman may become confused on the line between fact and speculation” (Stone 1951: 83).

This trade-off between analytic relevance and reliability or credibility still existstoday. The statisticians’ work is often characterized by the tension between actual data content, estimation assumptions, margins of error, and the social and political use of the figures. Today, the basic problem still seems to be the same. Economic statisticians are confronted with the task of defining potentially uncertain objects into numbers and hence risk giving the impression of false precision: “[In] defining appropriate methodological procedures, in setting standards, and in benchmarking data there is a danger that statisticians may appear to ‘set things in stone’ even where the issues themselves are uncertain and subject to fundamental change. Resolving the growing inherent tension over time between preserving a desired continuity and coherence in existing series and accepting the need to take account of the increasing relevance of changed circumstances remains one of the most important challenges facing official statisticians” (Ward 2004a: 11).

It turns out that international standards are a major part of the answer to achieve organizational credibility for the production of economic statistics. The EU, for instance, “entrusted the credibility of the member states’ critical budgetary figures to a relatively minor agency in the European Commission [Eurostat], which harmonizes these data with a set of accounting rules that were never intended for such a purpose” (Savage 2005: vii). The reason was obviously that there was simply no other harmonized accounting framework for this function. International standards are a key aspect to understand how fiscal reality is constructed.

2.2.2 INTERNATIONAL STANDARDS FOR ECONOMIC AND FISCAL STATISTICS

B reports are main source of public finance information that is discussed in the public. Yet these budget documents have two major shortcomings: First, they follow the budget accounting standard, which provides in most cases only very restricted financial view. This is because budget accounting applies in most countries pure cash accounting principles (or cash accounting enhanced by obligations/commitments). While cash accounting has the “virtues of simplicity and objectivity” (Wynne 2003: 19) it is often said to give a misleading picture on the fiscal stance, since for example credit purchases do not appear as expenditure item, investment expenditure cannot be capitalized (OECD 2002: 3) and accounting labels (i.e. what counts as expenditure/revenue) are often arbitrary in the context of budget accounting (Kotlikoff 1988: 793:f.). Second, budget documents typically provide only a patchwork view over the public sector. They

often include only the units subject to the public budget. Extra-budgetary units (off-budget funds), social security schemes, government owned enterprises and other non-core government units do not or only partially enter these documents. Moreover, different levels of government usually keep their own budget documents. Hence, a consolidated view over all levels and units of the public sector is typically not available.

These limitations of budget reports led some governments to extend their financial reporting practice. During the last two decades some countries substantially altered the way they disclose financial information to the public. With the Public Finance Act in 1989 New Zealand became the first country to prepare accrual based government-wide financial statements (Pallot 2001: 383). Others, such as Australia and the US followed with similar attempts. In the US, for instance, government-wide financial statements were introduced as a means to improve financial management by the Chief Financial Officer Act⁴⁰ (Chan 2004: 205ff.). In Europe, too, a noticeable trend towards extended financial reporting occurred in recent years (for an overview see Lüder/Jones 2003b). Yet the additional disclosure of financial information is typically subject to political struggle and agreement. Enhanced information is usually associated with a loss of power and authority of incumbents and the administration. Increased accounting transparency can thus substantially restrain discretion of public managers and politicians. It is thus hardly surprising that government officials tend to hesitate when it comes to broadening their financial reporting practice (Chan 2003: 13).

Moreover, even if financial reports are produced, the basic problems of consolidation and non-comparability between (and within) countries remain. Government financial statements follow nation-specific standards and usually focus on single departments or individual public sector units (IFAC 2000: 12). Non-core government units often follow different standards and thereby increase the heterogeneity between accounting standards within a country (Lüder 2000: 120). The degree to which central government can harmonize/define accounting standards for state, regional, and local governments differs from country to country. While for instance in the UK and France accounting standards for local governments are universally defined, in other states cooperation in accounting matters is voluntary for sub-national government levels, such as in Spain for the regions (Montesinos/Vela 2000: 132) or the US for all states and municipalities (Thai 1992: 242). As a consequence national data sources are scattered, cover very different scopes of the public sector, follow very different standards, and are thus basically not comparable between countries. Therefore, fiscal policy analysts typically draw on internationally harmonized economic statistics to handle the problem of non-comparability.

⁴⁰ As a result all federal government departments must now present audited financial statements according to the standards set by the newly established Federal Accounting Standards Advisory Board (FASAB).

Internationally comparable fiscal indicators are only provided by economic statisticians. After the war the United Nations Statistical Commission (UNSC) of the UN Economic and Social Council (UNESCO) set out to take the leading role in international co-ordination of statistics in all areas, including economic statistics. Generally the UN should serve as “the central agency for the collection, analysis, publication, standardization and improvement of statistics serving the general purposes of international organizations” (United Nations 1946: 231).

Basically two frameworks have been developed to allow for international comparisons of fiscal activity. The first is national accounting. The national accounts are not just the basic system for compiling GDP and related aggregates but they also contain sector accounts, including the general government sector. Studying the relationship between fiscal aggregates and other macroeconomic variables is a major feature of the system. Three official guidelines of the System of National Accounts (SNA) have been developed and published. A second system of internationally comparable data has been developed by IMF statisticians in co-operation with member state’s experts. Starting in the 1970s a special Government Finance Statistics Division began conceptual work to define standards for fiscal statistics (Levin 1972; Levin 1975). The GFS (along with the manuals on balance of payments and banking statistics) were mainly coordinated by a network of the ministries of finance and national central banks (Vanoli 2005: 198). The first conceptual manual from 1986 (IMF 1986) was separate from the SNA, being more an approach to harmonize national budget statistics. Yet the second version (IMF 2001a) was essentially aligned with the SNA.

Today, analysts or policy-makers have no choice but to draw on either the SNA or the IMF GFS when in need of internationally comparable data on fiscal activities⁴¹. International economic studies and forecasts, such as OECD’s economic outlook or IMF’s international economic analyses, mostly draw on SNA-based sources, IMF-GFS, or corresponding data-sets. What is more, particularly in the European context, macroeconomic indicators have a variety of administrative uses⁴². These applications draw data from the European System of Integrated Economic Accounts (ESA), the European version of the SNA. The national accounts thus have a high relevance for actual administrative purposes. This role of the ESA has been reinforced by transforming it into an EU-regulation in 1996 and hence making it enforceable according to EU law (Da Costa/Juan-Ramón 2006: 141).

⁴¹ For revenues, the OECD Revenue Statistics is also a standard framework.

⁴² The “fourth resource” is based on Gross National Product (GNP) indicators, the fiscal surveillance procedure of the Stability and Growth Pact and the Accession Criteria to the European Monetary Union are based on fiscal indicators.

THE EVOLUTION OF INTERNATIONAL STANDARDS FOR ECONOMIC AND FISCAL STATISTICS

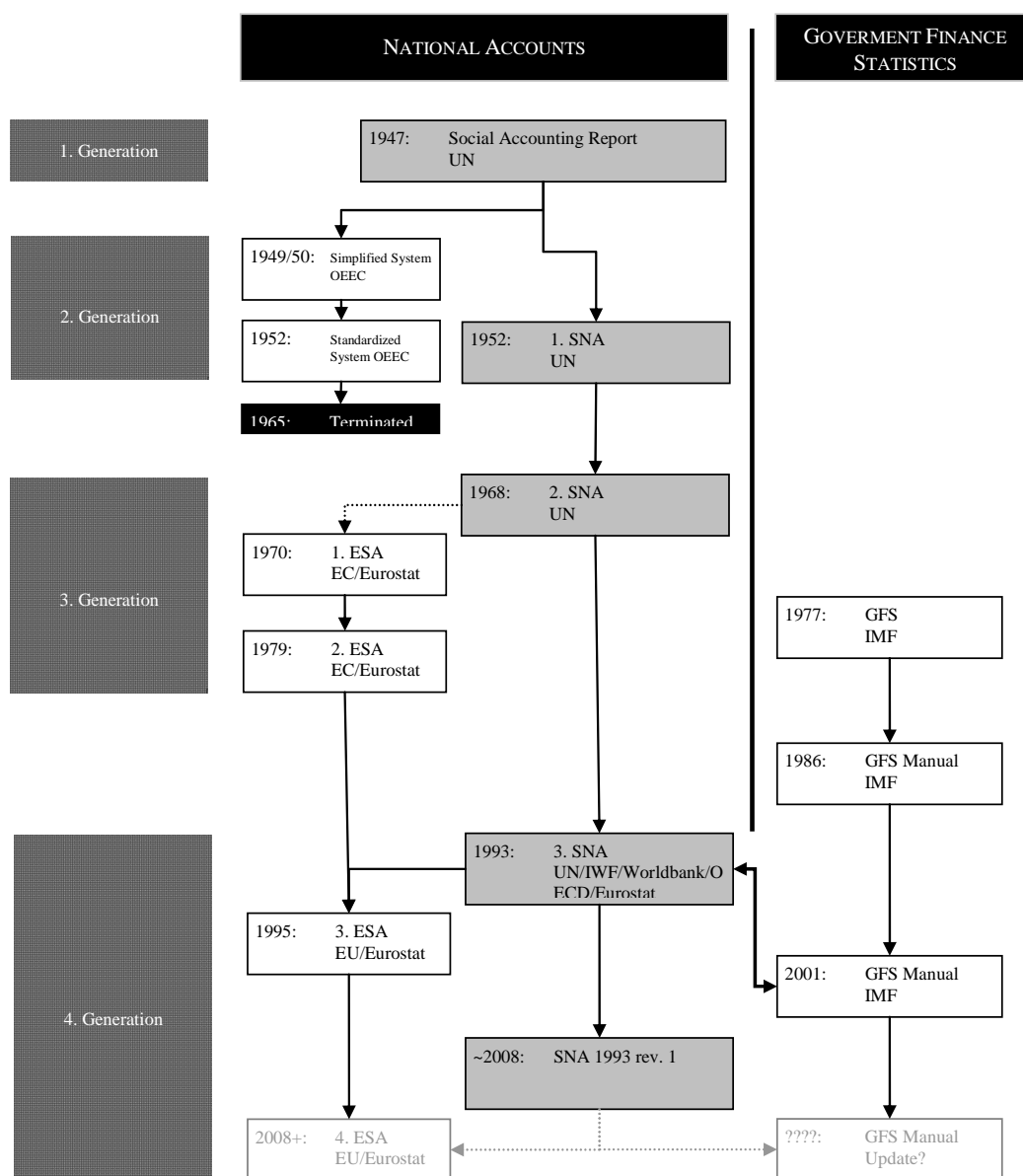


Figure 4: Historical Evolution of Statistical Standards

Macro-statistics in general and the national accounts in particular are therefore crucial when it comes to the collection of internationally comparable data on fiscal activities. The decision of the IMF to bring its own standard in line with the SNA in 2001 strengthened the role of both frameworks by making them consistent with each other. This shifts the emphasis on the conceptual foundations of macroeconomic statistics and hence the respective framework of internationally agreed standards: The SNA is today the universally acknowledged general reference framework for economic statistics. It forms the basis of data that is collected and disseminated by international organizations.

It promises to support trust of data users in the adequacy of the figures. Data users typically rely on the OECD, the IMF, Eurostat, or other international organizations to provide data for multiple purposes.

The function of the SNA as a statistical standard is actually twofold: Firstly, it harmonizes the data to allow international comparisons and produces a “common language” thereby enabling a social debate over the “facts” represented in the figures (Desrosières 2000: 173). Secondly, the SNA also embodies a specific view of the economy. The picture produced by the SNA is not a neutral reflection of reality. Rather “the description is focused on what can be readily observed in monetary terms, it contains substantial transformations of what can be observed and is based on a specific way of labeling economic reality. Different choices would have resulted in a different picture of reality” (Bos 2007: 9).

The government finance perspective in the SNA is restricted, though. The starting point of the national accounts is production activity (based on the market value of the goods and services produced). Given that most of the economic activity of the government is provision of goods and services that are *not* traded on markets as well as the distribution and redistribution of income, it constitutes a special sector in the system. Moreover, the system is set up to consistently analyze the contributions and exchanges between sectors of the economy in a symmetrical way. There is no natural interest in the system to provide a consolidated view of economic activities from the perspective of the general government, though. This is why the SNA does not contain any definition of total revenue and total expenditure for the government. Fiscal analyses based on the SNA had thus to come up with related definitions using existing categories in the system to derive respective indicators. This introduces substantial additional discretion for fiscal analysis and explains why data from the GFSM may differ from aggregates used in the European context. In 2002 for instance the OECD revised its national accounts based definition of total expenditure, changing the respective values in their publications for some countries in the magnitude of 5% of GDP (Lequiller 2002b).

Nevertheless fiscal analysis is today prominently linked to the concepts of national accounting. The attempt to provide sound and sustainable policies relies on national accounting indicators, such as GDP (Hartwig 2005: 6f). Budget presentations and predictions are also directly linked to other macroeconomic aggregates. Moreover, as stated above, the EMU based the measurement of the fiscal indicators underlying the Maastricht Criteria and the Excessive Deficit Procedure (EDP) on the European System of Integrated Economic Accounts (ESA 1979/1993) hence providing a specific operationalization of the deficit based on the SNA.

2.2.3 THE PRODUCTION OF FISCAL STATISTICS

Before being in a position to apply international statistical standards, national statisticians face the task to gather the required source data, though. One would not expect that source data availability could be a major problem in the public sector context, and yet it is a non-trivial aspect. The public sector consists of a huge variety of units on different levels of government. Alongside core institutions of the state a multitude of non-budgetary units populate the arena, such as various agencies, social security schemes, hospitals, universities, public networks, state owned enterprises, public-private joint ventures, non-profit institutions, and many others. As a general principle all financial information regarding their activity derives from the financial statements of those units. Yet collection of the respective information from such a heterogeneous population is a challenging task. It was for instance only in the mid 1980s that the US federal government agencies began to develop a common “language” in order to improve their reporting of financial events⁴³. In a similar vein Sweden experienced severe data availability problems. The information basis on the fiscal stance during an economic crisis in the early 1990s was highly doubtful – the actual position of the government deficit was unclear and differed substantially between various sources. This triggered a major reform initiative of the Swedish Government to systematize information gathering (SGBNAC 1997). Another insight in the complexity of gathering source data on fiscal statistics can be evidenced by looking at the EDP-inventories⁴⁴ prepared by EU national statistical institutes for Eurostat. Especially to cover state and local governments and peripheral government entities numerous inconsistent sources often need to be combined to achieve a consolidated statement on fiscal figures.

Moreover, it is crucial to see that the systems of economic statistics are different from accounting frameworks since they cannot influence the data that is produced by the economic units in the first place but rather deal with the information as secondary use:

“Despite their name, the national accounts bear only a partial similarity to the accounts of a company. The general frameworks are similar but the data sources are entirely different. The company accountant has at his disposal a ledger showing to the last cent all the transactions carried out by the firm during the period. The national accountant obviously has nothing similar for all agents, especially for households. For this reason, it is not unreasonable to speak of “national accounts statistics”. The addition of the word “statistics” implies acceptance of the notions of approximation, estimation and revision,

⁴³ The initiative was taken because agencies differed in their interpretation of basic events. In 1996 did the Federal Financial Management Improvement Act require from the federal agencies to record transactions according to a harmonized language. This substantially extended the information available for central decision makers (Hoge/Martin 2006: 126).

⁴⁴ The EDP Inventories are accessible under [http://epp.eurostat.ec.europa.eu/portal/page?_pageid=2373,67499807&_dad=portal&_schema=PORTAL]. They basically follow problems to monitor the implementation of standards at the national level. Initial attempts to apply a consistent measurement approach for European countries in 1994 showed substantial institutional incapacities to follow the rules (Savage 2005: 90).

things in which the national accountants excel but which are anathema to company accountants” (Lequiller/Blades 2006: 34).

It follows that the existing international statistical frameworks for economic statistics cannot be completely independent from accounting concepts and primary accounting documents. Financial or budget accounting data is the most important source for the compilation of the national accounts. Typically the relevant items of the financial statements are adjusted on an aggregate level to link them to the national accounting concepts (Laliberté 2004b: 3f.). As a principle the SNA states that a congruence between micro and macro accounts concepts is aimed at, that “as a general objective, the concepts, definitions and classifications used in economic accounting should, so far as possible, be the same at both a micro and macro level to facilitate the interface between the two kinds of data” (UN 1993: § 1.67). Especially in the context of fiscal statistics, the standards are thus “a data mechanism for classifying the statistics produced by the government” and hence to deal with officially produced reports of the authorities (Ward 2002: 3). At the same time statistical work in the fiscal sector is typically much closer to the primary source data than in other sectors of the economy. As a consequence *fiscal* statisticians tend to describe themselves as acting “more as accountants than as statisticians” (Pitzer/Dupuis 2006: 4).

The different logics of economic statistics, financial accounting, and budgetary accounting thus concur but also meet again in the aggregation process of the data. Especially in the government sector there is typically a hierarchy between the different data logics. Government units usually collect and publish data for budgetary or other administrative purposes. Off-budget government units typically follow very different accounting rules, depending on their function and legal form. The influence of national accountants on the micro accounting concepts applied is thus often very limited. Sometimes the differences between the two levels that occur are substantially. Lüder observes in this context “a growing inconsistency between governmental accounting and the macro-accounting system” (Lüder 2000: 120). First, most countries still apply cash-principles which is conceptually different from the accrual bases of the SNA93/ESA95 and GFSM2001. Second, detailed accounting practices vary substantially *between* countries. And, what is more, the situation *within* countries becomes increasingly heterogeneous: The public sector is characterized by a growing number of peripheral units that apply (different) business accounting rules. Finally, a number of countries recently decided to reform their government accounting systems, mostly towards the application of accrual systems (Lüder/Jones 2003b). Jones generally diagnoses problems for incompatibility of the concepts actually applied. The three accounting perspectives (national accounting, financial accounting and budget accounting) would follow different rules and practices which “are converging on some form of accrual accounting

but that convergence, by its nature, also increases the opportunities for detailed divergence” (Jones 2000a: 112).

THE MICRO-MACRO AGGREGATION OF FISCAL STATISTICS

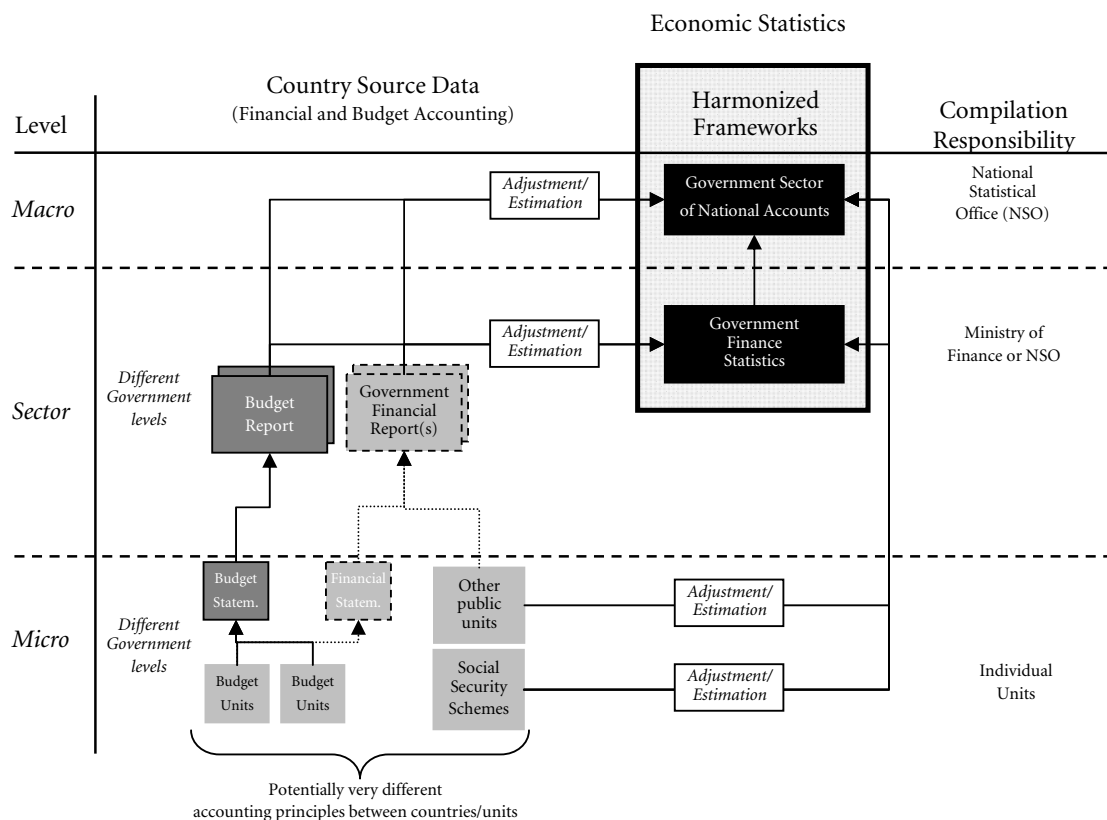


Figure 5: Simplified Scheme for Micro-Macro Relations in Government Accounting

While statistical standards are thus defined at the international level to reconcile national data sources, there is an inherent problem of fiscal data production stemming from the concepts embodied in the primary accounting documents. The concepts for government accounting are relevant on at least two different levels: First in a nation-specific setting that defines the basic characteristics of budgetary accounting and - in some cases - financial reports. This level defines which primary data is available at all for fiscal analysis in a country. The second level then encounters the ambivalence in accounting by the means of international standardization. While the production of the primary accounting reports obliges mostly the government authorities themselves (in some cases they are audited) the compilation of harmonized and consolidated data is typically the task of statistical offices. This leads to additional problems: The compilation of standardized data is not just a question of conceptual agreements but also of data organization and institutional arrangements.

Statisticians face a heterogeneous field of primary data that needs to be integrated in order to fulfill the requirements of international standards. Statisticians are typically at the end of a long and complex “information chain”:

“The chain is segmented in the sense that data producers consist of data compilers and gatherers, who are not always data analyzers, who may be different from data suppliers. At each link along this chain, there may be opposition to what statisticians call the ‘burden of change’. [...] Certainly the pressures, benefits, and costs of these burdens vary among data users, suppliers, and gatherers, and when the burden is too great for technical, administrative, financial, or political reasons, this encourages the evasion of these new data requirements” (Savage 2005: 91).

Thus the compilation of government financial data is typically a complex process involving the preparation of individual accounts by single units and then the aggregation of this data by other units. Looking closer at the organizational field of fiscal statistics it turns out that different professional cultures developed in the international statistical community. Vernon distinguishes between technical experts mostly working for international organizations and national statisticians. He argues that the former are influenced by their training to aim at uniformity in the data. This group is devoted to developing international standards to increase international comparability which might lead them to suppress inconsistent details. At the same time, statisticians at the national level - while being mostly formally protected from political pressure - might in some countries not be “in a strong position to resist political pressure to present a favorable statistical picture” (Vernon 1987: 62) or to alter the fiscal data prepared by the ministry of finance. Vernon further suggests that even if international organizations might know that statistics in one country may be problematic – they are not in a good position to discredit member states (ibid: 63). The “chain” of data production is hence extended to the international level.

The link of aggregation from primary data sources to the aggregated statistical statement is discussed in the statistical literature under the notion of micro-macro-links (van Tongeren 2004: 283). Many statisticians claim that it is often necessary for economic statisticians to alter the information presented in the primary sources, though there may be requested not to do so: “In fact, analysts wish to deviate the least possible from what can be observed using micro-data, in particular their change over time. But national accounting is obliged to adjust business micro-data, either individually or globally or by sector of activity, for better approximating its own classifications and to end up with economically more significant measurements of key variables” (Vanoli 2005: 451). From a practical perspective it is thus necessary to see that international standards, following the aim of defining those economically meaningful aggregates, are actually implemented on a national level by statisticians that face the requirements of national data consistency, a specific data context, and constraints of available data.

To understand the institution of the national accounting standards it is finally crucial to see that the SNA is a voluntary standard. The degree of implementation and the specific way it is done in a country is hence essentially a sovereign decision of the national statistical authorities. National accounts figures are compiled by national institutes and then reported to international organizations following a standardized questionnaire. Often the reporting is incomplete and countries lag with the implementation of the system or decide not to implement certain aspects at all. The SNA must thus be seen as a conceptual manual that provides guidance for national compilations techniques⁴⁵. The situation is very different in the European Union, however: At first the ESA, too, had the status of a recommendation, the legal status of the text being an administrative document (van Wijk 2001: 181). Yet with the accelerating integration efforts following the European Single Act in the second half of the 1980s the situation changed. The accession criteria of the Maastricht Treaty, the fiscal indicators of the Stability and Growth Pact (SGP), and the compilation of member states contributions derived from the Gross National Product (GNP) are all based on the ESA. The political importance of the figures led to the decision to adopt the statistical framework as a council regulation and make it thus compulsory for member states (De Michelis/Chantraine 2003: 141). Increasingly Eurostat, the statistical authority of the European Union, is responsible for surveying the actual implementation practice in the member states.

2.3 Accounting Ambiguity

But why is it that accounting actually has the potential to create reality in the first place? How can and do conceptual decisions alter the presentation of fiscal situations and the economic activity of the state? This section will directly address the constructive potential of accounting in the context of fiscal statistics. It will turn out that the constructive dimensions of accounting basically stem from three dimensions: First, the delineation of the government sector; second, the basic accounting basis of the system, reaching from pure cash to full accrual accounting; and third the specific operationlization of non-cash accounting entries. The latter two dimensions are especially relevant in the public sector since recent years witnessed a fundamental change in perspective: some government accounting systems and the international standards for fiscal statistics changed from a cash to an integrated-accrual accounting perspective, opening up the field of government accounting for accounting interpretations in an untypical environment. The final part then exemplarily discusses

⁴⁵ As a consequence some countries applied their own system for quite a long time. Until the 1970s France took a substantially different approach, and only lately did the United States decide to move their system closer to the SNA (Vanoli 2005: 43ff.). Further, experts often claim that the SNA does not take the statistical capabilities of developing countries into account, thus ignoring the implementability in the great majority of the UN's member countries (Ward 2004b).

the constructive dimensions in public sector accounting to give an idea of how accounting conventions can and do influence core fiscal aggregates

2.3.1 THE LOGIC OF INTEGRATED ACCOUNTING SYSTEMS

From a very general perspective accounting systems can be seen as the representation of “primitive transactions/events via accounting policies (rules) with the purpose of preserving value-relevant information” (Ohlson/Zhang 1998: 85). Financial reporting frameworks are basically a set of rules that translate economic events into accounting figures. The characteristics of accounting systems are then characterized by their definition of basic economic events and how they display these events in an accounting report. From a bird’s eye view, accounting frameworks can take different positions on a basic dimension – which is a continuum with two opposite accounting logics: On the one end of the spectrum there is pure *cash-accounting* which simply accounts for in- and outflows of money in the respective period. Accounting then consists of recording all incoming or outgoing monetary flows and summing them up at the end of the respective observation period. The main balancing item is the cash surplus or deficit which simply measures the liquid assets gained or lost in the respective period. On the other end integrated balance-sheet or *accrual accounting* systems apply a much broader concept. In addition to the measurement of monetary flows, stocks of assets and liabilities are recorded on a balance sheet. The aim is to measure changes in net wealth (the value of all assets less the value of all liabilities) instead of changes in liquid assets only. Accordingly registration and valuation of assets and liabilities must be carried out at the beginning as well as at the end of the accounting period. Changes in net wealth then reflect a profit (or loss).

Double-entry bookkeeping is crucial for integrated accounting systems⁴⁶. It developed most likely in the 14th century simultaneously in different spots of northern Italy. Despite local differences the basic idea was to analytically relate day to day economic events with the long-term development of the value of the capital stock (Goldberg/Leech 2001: 219ff.). The basic proposition is that income analytically differs from the amount of money received. Income is seen as the amount of money that can be spent on consumption during a certain period while keeping ‘wealth’ constant (Hicks 1974). Hence, the profit of a certain period is associated with the excess value of the overall capital stock compared to the beginning of the period (Stone 1951). From this perspective the relationship between *cash inflows* and *income* is then only a loose one: not all money received (paid) is necessarily to be treated as income (expenditure).

⁴⁶ “Double-entry means that every recorded economic event affects two positions in the accounts (a debit and a credit)” (Crittenden 1857: 14) allowing to see where the resources come from and what has been done with them.

Likewise income (expenditure) may also consist of changes in the value of the capital stock though no money is received (paid). Transactions must be recorded in a way that the change in wealth is identifiable.

The double entry principle sets out to systematically link changes in wealth (expressed in the net worth position derived from stocks in the balance sheet) to economic events reflected in flows. Hence the results of operative and non-operative activity can be assessed from two sides: The accounting documentation of generation of profit and loss as well as other changes in wealth; and the respective stocks documented in the balance sheets. Balance-sheet approaches aim to overcome the insufficiency of cash flows as a performance indicator. The restriction of accounting reports to a certain time-frame for instance can lead to “timing and matching problems”⁴⁷ (Dechow 1994: 4). An accrual system is built on the principle to record events when the ‘economic position’ of the reporting unit is affected, not when payments take place. Investment expenditure is conceptually recognized as the purchase of future revenue streams. Technically, an asset is recorded that ‘preserves’ the value of the investment on the balance sheet. At the time of the machinery purchase net worth is not affected. Rather one financial asset (cash) is conceptually exchanged against a non-financial asset. Only depreciation (the loss of capital value during production) is then counted as expense, at the time the economic activity (production) takes place. The effect on the accounting report is thus twofold: costs are only recorded in the period in which the associated value is created through production (matching), and both streams affect the reported performance only in the year production takes place (timing).

AN INTEGRATED ACCOUNTING FRAMEWORK

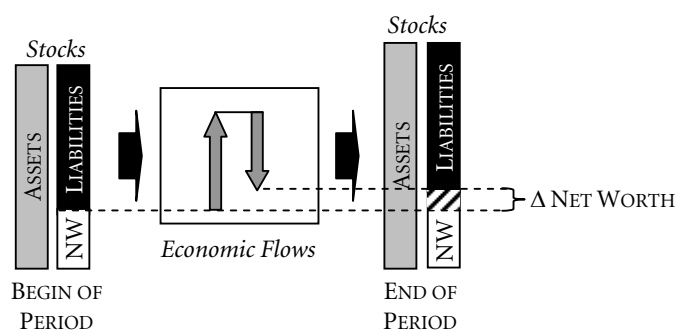


Figure 6: An 'Integrated' Accounting Framework

⁴⁷ For instance an outflow of resources (investment in machinery) in the first period could yield a return (through production) in the second period. In a pure cash accounting system the reported performance would be negative (expense without return) in the first period while it would be positive in the second period (return without expense).

Moreover, a second characteristic of balance sheet approaches is important: Performance (profit) is measured as the change of net worth. For instance the production of goods should realize an increase of net worth. In accounting terms the value of the money (financial assets) received through the sale exceeds (typically) the value of the associated expenditure (intermediate consumption and production costs including depreciation). Hence, at the end of the day, the unit will typically hold more assets than before. Net worth also changes due to changes in the value of either assets or liabilities. Valuation and revaluation is thus also very important for performance measurement in accrual systems. The value of assets and liabilities may change due to various factors. Hence, if the owner decided to sell the respective positions he could make a profit or loss. Following the logic of the accrual principle this change in the money making potential should be measured at the time the value change occurs. This leads to economic flows that are not related to production activity but simply to the fact that a unit holds assets or liabilities and their value changes. Additionally, changes in the value of capital goods conceptually also affect the depreciation charges. With the prices of depreciable units increasing or decreasing, opportunity costs of production changes as well. Hence, in an accrual system valuation affects production costs. Not only actually made payments are recorded in the income statement, but costs are also increased or decreased, depending on the conceptualized alternative uses of the employed assets.

This highlights the importance of valuation approaches in accounting systems. Different approaches for valuation exist, reflecting different information needs⁴⁸: Equity investors are typically interested in the capacity of assets to produce future revenue (value in use), bond holders are typically interested in the price that can be raised in the case of default (market value), managers might be interested in the operational performance and hence to distribute actual original costs (historical costs with depreciation). Hence, income assessment in terms of accrual accounting involves two basic tasks: First, assets and liabilities must be recognized and valued. Second, all economic activities during the accounting period must be integrated in the framework. All transactions need to be assessed according to their impact on the value of assets and liabilities. This basically leads to the double entries: Resources are always linked to uses, expenses to revenues and short term transactions to their long-term impact on wealth.

2.3.1.a Principles of Accrual Accounting

It is thus a fundamental aspect of most accounting systems to distinguish between cash inflows and payments on the one hand and income and expenditure on the other. The difference between cash and accrual values then generally stems from three principles:

⁴⁸ See Figure A 3 in the annex for a schematic description of the two capital valuation approaches employed in the International Financial Reporting Standards (IFRS)

- (1) Matching: *Cost and related revenue are to be recorded in the same period*
- (2) Timing: *Values shall be recorded when incurred, not when cash is transferred*
- (3) Net Worth: *All changes in wealth should be recognized*

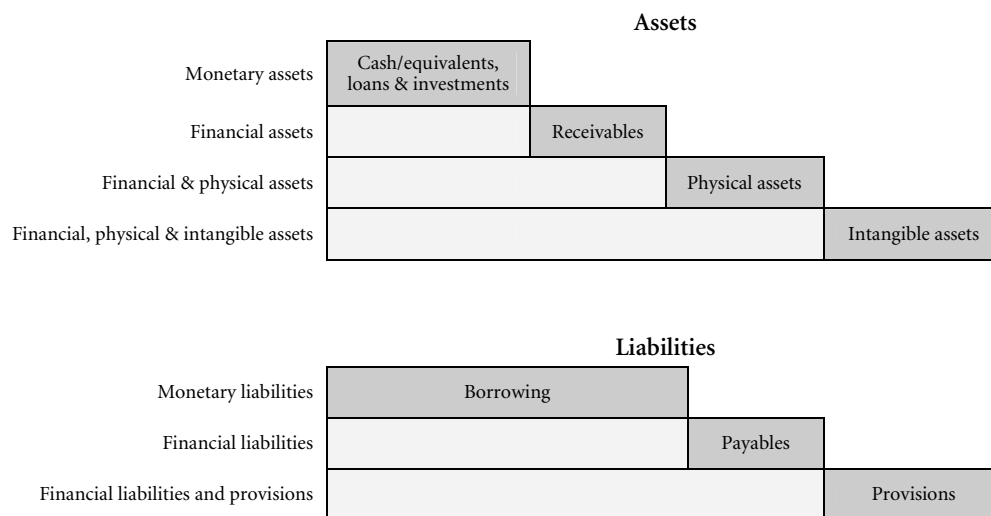
(1) The matching principle is a central convention that costs shall be recorded in the same period when corresponding revenue is recognized. “Matching of revenue and expense is concerned with reducing the ‘value’ of assets in accord with the flow of revenue to which that asset contributes” (Hylton 1965: 824). If costs incur but the corresponding revenue is not yet realized they are to be ‘capitalized’, i.e. an asset ‘reserving’ the costs could be created. This means that these expenses will not count as long as revenues do not occur. The principle of depreciation of fixed assets derives from the same idea: costs in the form of abrading a machine are distributed along the time in which corresponding revenue is created. (2) The timing principle states that revenues shall “be recognized when a firm has performed all, or a substantial portion of services to be provided and the cash receipt is reasonably certain” (Dechow 1994: 4). This addresses basically the question in which period a transaction should be recognized. It is sometimes not straightforward when to make a recording, for instance if an asset is bought in one period but delivered and/or paid in a later period. (3) Finally, the value of assets and liabilities can change although no transaction occurred. Whenever assets are gained (e.g. the discovery of natural resources), or assets are lost (e.g. destruction), their value increases (e.g. due to increased prices for inventory), or decreases (e.g. by attrition processes) this influences wealth. The price of fixed assets can, for instance, change as a consequence of inflation or changes in the market. This leads in principle to a change in the resources an economic unity has at its disposal – although no transactions occurred. The treatment of holding gains or losses is thus an important aspect of accounting systems⁴⁹ (Litherland 1951).

The accrual principles lead to a difference between actual cash flows and the figures that enter the accounting report for a particular year. Accrual accounting is not just an all-or nothing alternative, though. The detailed rules of application and underpinning norms and assumptions have a significant influence on the functioning of the system (Carlin

⁴⁹ Litherland showed in an overview over British history of accounting thought that the treatment of value changes for fixed assets depended substantially on wider concepts of profits. He argued that two generally opposing views existed in the early 20th century: The first view was based on the assumption that the firm could be liquidated at the end of the accounting period. Accordingly holding gains/losses should be fully charged on the profits distributable to shareholders. In contrast a second school of thought promoted the idea, which goes back to Adam Smith, that there are two sorts of capital: current and fixed capital. Value changes of fixed capital assets – it was argued – should not enter profit calculation, since they are to remain in the firm for ongoing activities. Open questions were, however, if capital losses should be deducted from distributable profit and if depreciation is chargeable (Litherland 1951: 476f.).

2005: 329). It is crucial to see that “cash” and “full accrual” are more the ends of a possible continuum on which financial reporting can be based than just two simple options (van der Hoek 2005: 35). Indeed, the basic definitions tend to be very general in the first place. For instance the International Federation of Accountants (IFAC) states in the International Public Sector Accounting Standards (IPSAS) that accrual accounting “means a basis of accounting under which transactions and other events are recognized when they occur (and not only when cash or its equivalent is received or paid)” (IFAC 2004: 24). This definition is very general in nature and leaves considerable room of judgement and interpretation.

SCOPES OF ASSET AND LIABILITY RECOGNITION



Source: own chart based on Lüder/Jones 2003: 22f.

Figure 7: Scopes of Asset and Liability Recognition in Accounting Systems

Lüder and Jones try to conceptualize the potential heterogeneity arising from different applications of the accrual principle. They distinguish two basic dimensions along which accrual accounting systems can differ in substance (Lüder/Jones 2003a: 21ff.): First, accounting systems operationalize their accounting base differently, i.e. they apply the accrual principle to varying degrees. Second, the systems can differ with regard to their measurement focus, i.e. they cover different scopes of assets and liabilities. The options for the application of the accounting base reach from pure cash, over modified cash, to modified accrual and finally to full accrual. Since accrual accounting involves sometimes quite difficult assessments the principles of timing and matching can for instance be applied to a restricted set of assets/liabilities or transactions only. Further, the decision what is treated as an asset or liability in the system has substantial influence on the

complexity of the system. The asset concept of cash accounting, which is restricted to monetary assets only, can quite continuously be expanded to other financial assets (for instance shares), to different scopes of non-financial assets (buildings, machines, computers, infrastructure items etc.) and to intangible assets (such as licenses, software, brand names). The same applies for liabilities.

While the net worth approach has a long tradition in capitalist economies, over time the valuation of both assets and liabilities has become more challenging (Florio 2007). This has several reasons: Intangible assets, such as licenses, patents, brand names, or wider human resources are considered as becoming increasingly relevant for production activities, but their values are inherently difficult to assess. Further, markets for different kinds of assets on the balance sheet became more liquid, giving rise to more pronounced fluctuations in market prices, hence making historical or inflation-adjusted valuation increasingly problematic. On the liability side, simple financial relations have given way to complex financial instruments, such as derivatives and hard to value long-term liabilities, such as employee pensions and health care obligations. With the volatility of prices increasing, business accounting standards increasingly attach importance to “fair value accounting” (Nölke 2006) which either uses current market values, where available, or constructs market-equivalent estimates for unobserved asset and liability prices.

Hence, on the asset side the boundary between current and capital expenditure is subject to definition. The same is true for valuation and depreciation approaches. The decision what constitutes an asset is not a technical question, but often rather a convention. Valuation is undetermined, both due to conceptual questions (depending on the purpose of the accounts) and to practical questions (e.g. the estimation of market values for assets on illiquid markets). On the liability side, complexity of financial instruments and the uncertainty associated with long term obligations also introduce discretionary scope. The link between stocks and flows is ambiguous as well.

2.3.1.b The Influence of Accounting Principles on the Figures

Differences between cash flows and accounted income and expenditure are bridged by accrual entries as well as other asset and liability positions. Basically the discrepancies between (observable) cash flows and reported figures in the accounting statement occur at three stages in an accounting framework:

- 1. Non-cash events:* Numerous economic events can affect the accounts although no cash payments occur. Changes in value of assets and liabilities, the occurrence or increase of liabilities, and many other complex events need to be recognized and valued. Accounting frameworks need to specify which events shall be recorded as change of net

worth or change of the composition of assets and liabilities and how those flows (and resulting stocks) should be valued.

2. *Deferral*: All those cash and non-cash events that are recognized and valued, and have hence ‘entered’ the accounting frame need to be periodized. Depreciation charges serve to defer the recognized costs (again, cash or non-cash) to the accounts of a specific period. The costs of long-term investment projects over multiple periods may be distributed over time and the respective assets may thus appear only gradually in the stocks. The scope of assets and liabilities covered in the system substantially affects the possibility of recording non-cash events and shifting payments over time.

3. *Drawing the line(s)*: Once events are recognized, valued, and periodized, the overall change in accounted/reported net worth is determined. However, the classification of the recorded economic events in different parts is crucial for the presentation of the financial results, since important balancing lines are drawn in the middle of the accounts. The operative surplus or deficit (i.e. profit or loss) is the balancing line of the operative statement, covering all those flows that are defined as operational. This excludes usually all recognized investments (non-financial or financial) and all changes of net worth for which the unit is de facto declared not responsible (or at least that should not be recorded as relevant for profit or loss in this period).

Two intermediate balancing lines are of crucial importance: The operative results and the financial deficit. The latter is derived in the accounts by carrying forward the operative results and deducting those investments categorized as non-financial. If the reported profit exceeds non-financial investment there should by definition be resources left to invest in financial assets, redeem liabilities, or simply put on the bank account (all of which is regarded financial investment). If there is an operative deficit or non-financial investment exceeds the profit, the money to finance these investments is taken from the financial resources of the unit; hence there must be a financial deficit.

In practice the grouping of a transaction as either “operative”, “non-financial” or “financial” investment, or “other flow”⁵⁰ thus plays a crucial role in influencing the balancing lines. At the same time total expenditure or revenue is typically also defined as those resources entering the operative statement. Yet the nature of many economic events is subject to definition or debate: There is a grey area between operative and non-operative revaluations, between investment and expenditure, and between non-financial and financial investment. All those classifications result in categorizing money items “above” or “below the line”.

⁵⁰ The concept of “other flows” stems from the SNA and is hence a statistical concept. However the IASB currently works on a project called “performance reporting” with the aim to report operative performance twice, first related to transactions and second including revaluation gains and losses (the project’s discussion content and timetable are accessible at [<http://www.iasplus.com/agenda/perform.htm>]).

The scope of recognized assets and liabilities has an important influence on differences between cash and accrual figures. If, for instance, unfunded pension obligations are recognized as a liability in the system, then changes in outstanding liabilities can be recorded as expenditure. If they are not recognized, the economic event (the change in implicit liabilities) passes unnoticed in the accounts. Further, cash payments can only be shifted over time if respective assets are recognized. For instance only if research and development expenditure is recognized as leading to an intangible asset the possibility to record it as capital expenditure instead of current expenditure exists. The recognition of an item as fixed asset is necessary for capitalization (thus allowing the spreading of expenditure over several accounting periods). Additionally, the operationalization of the timing and matching principle (and the scope of their application) influences the possibility to shift payments over time. The criteria of when revenue is treated as “earned” or a liability as “incurred” substantially affects the time of recording. Likewise important are valuation approaches for the stock of assets and liabilities.

CONSTRUCTIVE DIMENSIONS OF ACCRUAL ACCOUNTING

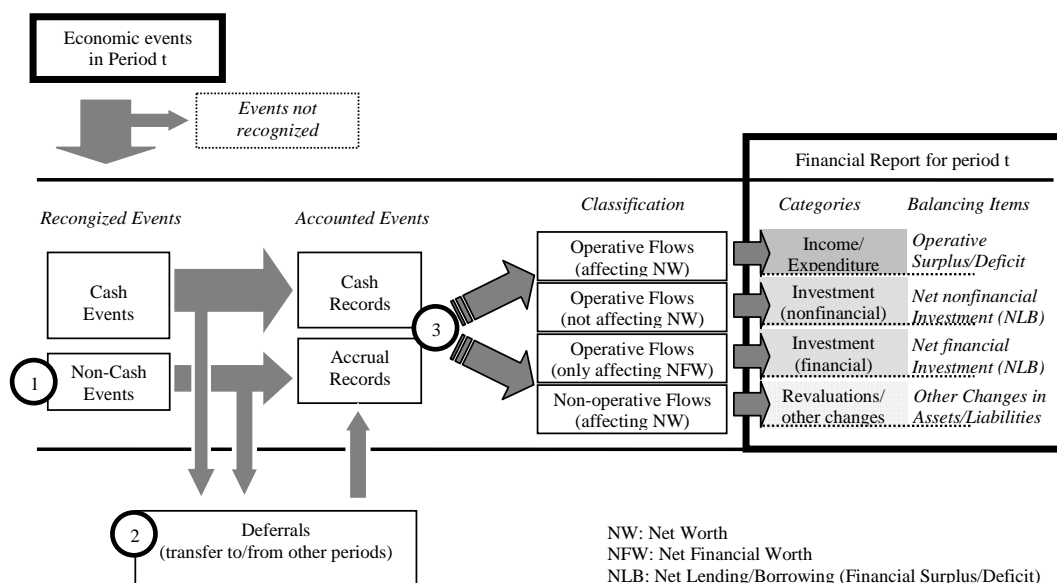


Figure 8: Constructive Dimensions of Accrual Accounting

To summarize, the “constructive dimensions” 1 and 2 influence the way economic events (cash and non-cash) are displayed as resources and uses in the report. The broader the scope of assets and liabilities the larger are the potential differences between cash flows and recorded amounts. Through a series of conceptual and methodological decisions economic events are then translated to periodized accounting figures. Again the discrepancy between cash flows and accounting flows can be significantly affected by

the respective rules and practices. The 3rd dimension is then presentational, since it rearranges and classifies the *accounted* flows into analytic categories. By defining balancing issues and rearranging the flows the headline indicators are shaped by presentational concepts. Put differently, the scope of assets and liabilities and their periodization and valuation decide on how economic events actually enter the accounting report of a specific period. It is on the basis of those “accounted flows” that a financial report and the balance sheet are prepared. Still, substantial constructive impact stems from the classification of accounted flows and stocks into specific presentational categories.

2.3.2 THE TRANSITION TO ACCRUAL ACCOUNTING IN THE PUBLIC SECTOR

Traditionally, public sector accounting was based on cameralistic bookkeeping. While business accounting has for centuries been based on accrual principles, government accounting is still dominated by cash principles (OECD 2002). Three features are particularly important for government financial management: the outstanding relevance of cash management, the central role of cash based budgeting, and the lack of a comprehensive balance sheet (Monsen/Näsi 1998: 284). For a long time proponents of a cash based approach towards government finance were dominant by stressing that a focus on cash payments and receipts would provide the best indicator for the government’s impact on the economy (Levin 1993: 107). Reflecting dominant budgeting practices of its member countries, the IMF’s first Government Finance Statistics Manual (1986) strongly emphasized the cash basis of accounting. During the expert discussion on the SNA 1993 it was stressed that “[because] of the different nature of the government sector, there is no concern in the GFS for the government’s asset position as a reflection of the government’s wealth” (Expert Group 1988a: 4).

In the wider macroeconomic statistical context, too, government has been treated as a special sector. Initially it was even far from unanimously accepted that government transactions should be included in the compilation of GDP at all⁵¹. As Perlman argues statisticians soon agreed to do so, witnessing the growing importance of government finances for macroeconomic management and the substantial increase in their magnitude (Perlman 1987: 137f.). Nevertheless government accounting was for a long time characterized by fundamental differences to other sectors of the economy. The focus was clearly on current transactions, gross investment expenditure, and often a narrow focus on financial liabilities. Non-financial assets and depreciation were beyond

⁵¹ The prominent US statistician Simon Kuznets was for instance strongly opposed to the inclusion of government activities in the estimate of national income and production since it was not the analytical focus of the system and would deteriorate the view on economic processes (Kuznets 1948).

the scope of interest for public finance analysis⁵². The general approach strongly mirrored the Keynesian background in which the national accounts were established and which dominated the analysis of public finances for decades.

2.3.2.a The Emergence of Public Sector Accrual Accounting

For more than ten years now “accrual accounting” is gaining ground in the field of government accounting, however. A selected number of countries changed the basis of their budget systems respectively, and even more countries are changing their financial reporting framework to an accrual basis. With the recent disclosure of International Public Sector Accounting Standards (IPSAS) by the International Federation of Accountants⁵³ (IFAC), a project launched in 1996 by the bodies’ Public Sector Committee (PSC), even an international standard framework is in the offering (Sutcliffe 2003).

Starting in the early 1990s New Zealand and Australia began to introduce business-style accounting principles to the core government sector. This was inherently linked to the New Public Management (NPM) reforms⁵⁴ and the intention to introduce an operative-managerial orientation in the public sector (Carlin 2005; Robb/Newberry 2007). The obvious motivation was to run government more like business with a strong focus on costs and management and to increase the pressure for public sector to be managed more efficiently (Rubin 1990: 180). The New Zealand Treasury Department argued that cash accounting and budgeting had profound shortcomings that need to be addressed as part of the initiated liberal reforms of the public sector:

“Our present system of funding government expenditure based on annual cash appropriations does not provide the right incentives for public sector managers to make the best use of the resources available. Nor does it encourage them to provide information on the full cost of activities or the outputs achieved using available resources. An effective financial management system should impose powerful incentives on managers to perform” (New Zealand Treasury 1987: 82).”

The focus was thus on setting the “right incentives” and to provide information on “full cost” of services and products provided to the public. The report argued that the costs of investment and the subsequent use or deterioration of capital assets were not properly accounted for under a cash-based system. Moreover, it was claimed, future expenditure

⁵² The SNA’s focus was different, though. Following the need to provide a consistent framework for all sectors of the economy in a quadruple-entry system, it also considered government wealth, production, or the asset accumulation. Yet, in practice the dominant focus for all statistics relevant for public finance analysis were cash dominated. And even within the SNA, measurement of non-financial capital for government was a rather crude exercise and could only serve as a rough proxy. Remarkably, the Bureau of Economic Analysis (BEA), continued for decades to treat all government expenditure as current; only in 1995 did the agency change this approach and began recording of government gross capital formation (Parker/Triplett 1995).

⁵³ The IFAC is a private non-profit international organization of accountancy bodies.

⁵⁴ New Public Management is basically characterized by “the idea of a shift in emphasis from policy making to management skills, from a stress on process to a stress on output, from orderly hierarchies to an intendedly more competitive basis for providing public services, from fixed to variable pay and from a uniform and inclusive public service to a variant structure with more emphasis on contract provision, are themes which appear in most accounts” (Hood 1995: 94).

commitments were not taken into account and non-cash expenditures such as tax breaks were not recorded (ibid.: 81). The claim was that the inclusion of those implicit cost components would enhance accountability of the public sector, by increasing “managerial awareness of resources in times of fiscal restraint”, by stressing “concern over the deterioration of infrastructure” and correcting for “the receipts generated through privatization” (cf. Pallot 1992: 41).

A key idea of accrual accounting systems is to recognize capital costs in the current accounts of a unit in order to adequately reflect the use of capital assets in the cost statement. Otherwise the cost assessment of a public service would be difficult to assess: In years of capital investments costs would be higher whereas in the following years only current operating costs would be recognized. The idea to distribute capital costs over the years of usage is thus intuitively appealing (Hodges/Mellet 1998: 60). The UK government, too, stresses these advantages of accrual accounting:

“[It] allows better financial management and, indeed, external accountability by:

- presenting expenditure in any period, matched with revenues earned and also on the basis of obligations incurred in that period; and
- separately recording – as capital assets – expenditure incurred for longer term benefit. This expenditure is then recorded as a cost in each of these future periods by a charge for depreciation or amortisation or, if the value of the asset has declined, via an impairment charge” (UK Treasury 2005: 6).

For these or similar stated reasons a number of countries began to reform their financial reporting systems and to introduce accrual principles even for the core government entities (Lüder/Jones 2003a). With the Public Finance Act in 1989 New Zealand became the first country to prescribe accrual based government-wide financial statements (Pallot 2001: 383). Australia followed with the introduction of accrual based statements, first on a department level and since the mid 1990s at the level of consolidated government⁵⁵ (Guthrie 1998). Three accounting standards (AAS 27, AAS 29, and AAS 31) prescribed the disclosure of financial statements for the government units similar to those of private sector units (Carnegie/West 2005: 916). The UK, too, initiated a comprehensive accrual reform of the financial reporting and budgeting system starting in the early 1990s (Chow/Humphrey/Moll 2007; Mellett 2002). Sweden introduced accrual accounting on the local level already in 1986 and extended the system to the central government in 1993 (Paulsson 2006). Canada and the United States followed in the mid 1990s⁵⁶ (Carlin 2005; Chan 2004). In addition accrual accounting or elements of

⁵⁵ Before, the state of New South Wales, the Commonwealth and a little later the state of Victoria had already shifted to an accrual basis (Carlin 2005: 311).

⁵⁶ The implementation of accrual reporting in the public sector was a major organisational challenge in the pioneering countries. In the US efforts to provide consolidated financial statements for the federal government by the Financial Management Service (FMS) of the Treasury began already in 1976. Yet it took until 1996 to complete the first accounting report (Hoge/Martin 2006: 127).

it have been adopted in France, Iceland, Japan, Poland, Spain, and Switzerland; others have introduced supportive accrual information (see Table 1).

GOVERNMENT ACCOUNTING IN THE OECD

	BUDGET				FINANCIAL STATEMENTS			
	Full Accrual	Both	Mixed	Cash	Full Accrual	Both	Mixed	Cash
Australia				•	•			
Austria				•		•		
Belgium				•				•
Canada	•				•			
Czech Republic				•				•
Denmark			•				•	
Finland			•				•	
France				•	•			
Germany				•				•
Greece				•				•
Hungary				•				•
Iceland		•			•			
Ireland		•						•
Italy		•				•		
Japan				•	•			
Luxembourg				•				•
Mexico				•				•
Netherlands			•				•	
New Zealand	•				•			
Norway			•				•	
Poland	•				•			
Portugal				•				•
Slovakia			•				•	
South Korea				•				•
Spain	•				•			
Sweden				•		•		
Switzerland	•				•			
Turkey				•				•
United Kingdom	•				•			
USA			•				•	

Source: OECD Budget Practices and Procedures Survey 2007; Paulsson 2006

Table 1: Accounting Bases of Parliamentary Documents

The introduction of accrual standards to the public sector began at first in peripheral units with largely commercial activities. In Australia for instance the first units to test accrual principles were business-like units at the boundary of the state in the early 1980s. In the early 1990s the development then spilled over to political departments and reached hence the core of the government⁵⁷ (Guthrie 1998: 8; Robinson 1998: 21). A similar, staged development can also be found in the UK. Accrual accounting was initiated in the 1990s with the reform of the National Health System (NHS) with the introduction of internal markets for hospitals (Wynne 2003: 2). In 1993 then, the Chancellor of the Exchequer announced the intention to shift central government accounting to accruals, and in the following years a respective Green Paper and White Paper were disclosed 1995 (IFAC 2002: 2). Over time, the accounting project in the UK was extended to include a consolidation of all accrual accounts in order to provide

⁵⁷ This highlights that accruals can be implemented at different levels in government: at a “department/agency level” they can be the basis for financial reports of individual government sections; at a “consolidated level” they can give an overall view on a whole government’s financial activities and they can even serve as “budgetary information” (Marti 2006: 48.).

respective information on a macro-level. While such an extension was at first dismissed (Jones 2004: 963) it was taken up by the new Labor government in 1998 as part of its Economic and Fiscal Strategy Report to provide a framework for macro-economic decision making (Chow/Humphrey/Moll 2007: 17). This should explicitly substitute for statistical approaches to underpin macroeconomics.

Observers often consider the transition to accruals in the public sector to be a trend (Lüder/Jones 2003b; van der Hoek 2005) and many accounting associations strongly endorse the move towards accruals (e.g. Fédération des Experts Comptables Européens 2007). Studies could also show that consultancies and accounting firms strongly promote the benefits of accruals in the public sector (Christensen 2003). Moreover, the IMF and the OECD generally support accrual practices and try to highlight the benefits of extended systems (Khan/Mayes 2007).

Yet looking a bit closer reveals that the trend is less powerful and decided as it might appear at the surface. Recent research shows that the pioneering countries have introduced the respective accounting reforms without much critical reflection. Potter for instance studies the implementation process in Australia and concludes that institutional forces have essentially limited the set of questions posed throughout the implementation process: the conceptual framework of Australian accounting regulators has been used deductively to reconstruct public sector accountability in terms of financial accounting requirements of recognition and disclosure. The feasibility of commercial accounting in the government context and potential wider consequences were typically beyond the debate and have obviously been supported by a strong rhetoric (Potter 1999; Potter 2002). As Carnegie and West argue, the claim of accountants that it was viable and possible to implement financial reporting as means of accountability control met little opposition (Carnegie/West 2005: 922). Christensen finds that consulting and accounting firms could effectively convince decision makers that the introduction of accruals was a necessary support for public management reforms. He suggests that it was a combination of ideational conviction on adequate styles of public sector management and economic self-interest that brought the firms to advocate accrual accounting in the public sector (Christensen 2003).

It thus appears that commercial accounting practices were widely accepted as being an important and feasible alternative to support NPM reforms. An analysis of the parliamentary decision making process in the UK, too, shows that the decision to move to accruals was obviously based more on general beliefs and expectations of general benefits than thorough analysis and knowledge of what the implications will be (Chow/Humphrey/Moll 2007: 15). A number of countries apparently followed the trend towards “modernizing government” without preparing for the wider implications. This

may explain the widespread adoption of accrual principles in obviously unprepared contexts. Jones and Pendlebury for instance find that often local government financial reports were introduced but do presently receive little attention from outsiders (Jones/Pendlebury 2004). Christiaens and Rommel argue that within the local government context in Belgium the existence of accrual information has not changed the traditional ways of management and control. It is still predominantly cash information on which decisions are based (Christiaens/Rommel 2008).

A consequence of this lack of conceptual work is that much actual discretion has been delegated to the level of implementation. It is thus barely surprising that the application of accruals differs widely⁵⁸. Most government financial statements follow nation-specific standards and usually focus on single departments or individual public sector units (IFAC 2000: 12). A recent survey on the specific reporting practices of 16 OECD countries revealed that the rules applied and statements prepared differed substantially (Pina/Torres 2003). Two experts from the Netherlands Court of Audit reviewing developments in other countries for instance come to the conclusion that “no two countries have introduced identical systems” and even “within individual countries, the details differ significantly from one part of the public sector to another” (Dees/Neelissen 2004: 11). More variance stems from different rules within a country, such as between core and non-core government units (Lüder 2000: 120). Likewise the degree to which central government can harmonize/define accounting standards for state, regional, and local governments differs substantially from country to country and is hence a further source for difference⁵⁹.

2.3.2.b The Accounting Debate

It is remarkable that conceptual thoughts were widely absent before and during the implementation periods. And even today, while there is now a growing literature on public sector accounting (for an overview see Carlin 2005; Christensen 2007), very basic points are still under discussion. The academic debate is characterized by substantial uncertainty about who the users of general purpose reports are and how their information needs may be best served (Hodges/Mellett 2003: 6ff.). Moreover, it is still heavily discussed whether there should be different accounting standards for the public and the private sector (McGregor 1999; Carnegie/Wolnizer 1999; Barton 1999b; Barton 1999a). A recent literature survey reveals that before and during the implementation

⁵⁸ Denmark for instance introduced accrual budgeting, though in a restricted manner: It excludes infrastructure, heritage and military assets (Finansministeriet 2006). The US Government Accountability Office argued explicitly against the extension of accruals to budgeting since it wouldn't help sustainability (Government Accountability Office 2007).

⁵⁹ While for instance in the UK and France accounting standards for local governments are universally defined, in other states co-operation in accounting matters is voluntary for subnational government levels, such as in Spain for the regions (Montesinos/Vela 2000: 132) or the US for all states and municipalities (Thai 1992: 242).

period in New Zealand and Australia academic accountants have widely ignored the subject. It was rather practitioners and government officials that dominated the debate until the mid 1990s (Christensen 2007). This lack of reflection on the process was already highlighted by Pallot in 1992 (1992). Yet officials in both pioneering countries decided to more or less transfer private sector accounting standards and principles to the public sector (Ryan/Guthrie/Day 2007). Commercial accounting principles were considered as the natural way to support NPM reforms (see for instance McCulloch/Ball 1992). The implicit constraints of this approach were at the time little reflected. The reforms “were developed and adopted in a seemingly narrow fashion, with little investigation of the effects of their application for either the organisations involved or for the wider community and, generally, without reference to problems and issues that might occur” (Potter 2002: 69).

Considering the century-long difference between commercial and government accounting principles the quasi-automatic transition of accrual reporting (and budgeting) to the public sector is remarkable. Moreover, despite a large number of articles on the subject, there still is no conceptual framework available. Up to now the IFAC has disclosed 26 IPSAS (IFAC 2008), yet the development of a conceptual framework is still on the strategic agenda for 2009⁶⁰ (IPSAS-Board 2007). The accrual practice has thus developed in absence of principles guiding the transfer to the public sector. The appeal for a debate on non-profit accounting largely fulminated. With the adoption of responsibility for non-profit accounting by the US Federal Accounting Standards Board (FASB) in 1978 some authors asked for a discussion (Anthony 1978; Weinstein 1978). Yet about ten years after an initial prelude on cultural and heritage assets (Mautz 1981) the debate was still widely mute (Mautz 1988) and many issues remained unsolved (Anthony 1995). This unclear situation led to nation-specific approaches with respect to accounting regulation in the field of government accounting. The sector-neutrality approach of New Zealand and Australia was widely not followed in other countries. The US Federal Accounting Standards Advisory Board (FASAB) disclosed a government specific framework in 1996 (FASAB 1996). In the UK accounting framework also stressed that, despite similarities, government accounting has different objectives for instance due to different strategic objectives, different constraints and different nature of some assets (UK Treasury 2005: 8). Moreover, even in the two pioneering countries the specific meaning of sector-neutrality seems unclear. Newberry argues that in practice different interpretations have led to diverging practices in the two sectors (Newberry 2001).

⁶⁰ Up to now the IPSAS are conceptually based on the business-focused International Financial Reporting Standards (IFRS) (IFAC 2008: §18).

While practitioners thus seem to make choices on a more or less pragmatic level in order to be able to implement accrual principles, the academic debate has raised some fundamental concerns about the implications (see e.g. Likierman 2000). At least three broad areas of critique can be distinguished: First, it is stressed that there are specific implementation problems in the public sector requiring attention. Second, some scholars state that decision making would be distorted through accrual information. Third, some discussants stress that the implications of accruals would not be a neutral device, but rather constitute part of a political ideological program and could hence have broader and often unreflected consequences.

1. Basic Problems of Transferability. Critical voices stress that accounting bases for non-profit purposes is fundamentally different. It is for instance argued that the absence of clear ownership structures would restrain the possibility to derive performance indicators with respect to the benefits with respect to an equity stake (Hodges/Mellett 2003: 9). Especially accounting for capital assets is subject to criticism in the public sector. This is obviously related to the complexity of the establishment of the asset boundary. Valuation of public sector-specific assets, such as heritage assets, military assets, infrastructure assets, etc. poses special problems since market prices are often not observable (OECD 2002). Some consider that the extension of the recognition boundary to include heritage assets or the land under highways as wrong (Barton 1999a; Barton 2000). The same critique applies to liabilities. It is argued that business criteria to determine liabilities were not easily transferable to the government, since pure promises could be considered more binding in this context and the solidity of a claim was much more difficult to assess. Others stress that the general relationship between productive activity and cash flow is fundamentally different in the public sector. Hence operative success could not be defined one-dimensionally in terms of profit (Mautz 1988). Carnegie and West argue that “performance” in the public sector has many non-financial aspects. Financial indicators, such as a profit based balancing line would thus provide a misleading picture of government operations. Accountability was not enhanced but actually distorted. While there was a general trend in the private sector to broaden the concept of accountability in the direction of non-financial factors “accountability within public sector not-for-profit entities is being coerced by accounting standards into a narrower financial focus” (Carnegie/West 2005: 915). Another core point raised is the lack of observable output prices in the public sector. Without a feasible substitute for the measurement of output value any cost savings could be related to service cuts that are external to the financial report⁶¹

⁶¹ This point is even acknowledged by proponents of accrual accounting systems, although they stress that accrual accounting still has many advantages through better cost accounting (Parry 2005: 52f.).

(Christiaens/Rommel 2008: 69; Robinson 1998). Any performance indicators would be misleading if output measures could not be accounted for (Walker 2002). Output measurement remains a core difficulty for want of adequate possibilities to allocate joint costs and to account for changes in quality of services (Robinson 1998: 27). Wynne concludes that

“accrual accounting was specifically developed to measure the profit earned by an entity that should be attributed to a particular financial year. Accrual accounting also enables private sector businesses to match the cost of the provision of goods and services with the revenue gained from their sale. For private sector companies, this single performance measure neatly encapsulates their financial performance and the achievement of their prime objective, to make a profit. For public sector organisations the same concept, profit, cannot be expected to be as effective” (Wynne 2003: 7).

Guthrie argues that hence the core problems of public sector accounting would remain unresolved: “The reality is that the accrual system of accounting is in most cases no better equipped to provide solutions to these important problems, and may in fact result in the production of spurious and confusing data for users of financial reports” (Guthrie 1998: 15). At the extreme, some conclude, that commercial-like statements would lead to severe misrepresentations of the “true” nature of government activities. For instance Barton’s study on the financial statements of the Australian Ministry of Defense suggests that massive investments in military assets and services are displayed wrongly as a profitable activity (Barton 2004). He concludes that business accounting standards do not fit the public sector due to different reporting objectives, different operations, and different assets and liabilities.

2. Adverse Impact on Decision Making. Some scholars observe that stated goals and actual practice of government accrual accounting may substantially diverge. Hodges for instance argues that the concentration of financial performance can lead to sub-optimal management decisions. He argues in the case of UK Health Trusts that accounting targets can often be met in various ways which could have adverse and unintended consequences for actual service delivery (Hodges/Mellet 1998: 68). Robinson questions the claim that accruals would provide better investment decisions: accrual accounting principles would actually mix sunk costs with marginal costs and hence blur the basis for decisions through irrelevant costs (Robinson 1998: 22ff.). Guthrie argues that the explicit focus on maintenance of the capital value can lead to unwanted consequences: Financial performance indicators were less relevant in the public sector, because the demonstration of solvency is less relevant, equity stakes have a different meaning and relevant outcomes are typically of non-financial nature. He claims that the focus on cost measurement can so in the end even create disincentives for public investment. Depreciations charges for new investment projects might deteriorate cost-based indicators. It may pay to keep old and written-down assets even though service quality suffers (Guthrie 1998: 11). Others claim that the multi-annual spreading of capital costs

could actually reduce budgetary discipline in the short run (General Accounting Office 1995: 7; OECD 2002: 2)..

3. *Normative underpinnings.* Taking a more comprehensive view, Carlin argues that more important than internal accounting arguments about the appropriateness of financial reporting types should be the impact of accounting practices on the broader context. In an empirical investigation of how the state of Victoria implements accrual accounting, he concludes that in fact the accounting choices have fundamental implications. He claims that accrual accounting would not be a neutral device but assumptions leading to capital valuation and depreciation rates tend to inflate annual costs as compared to the private sector (Carlin 2005). This second-order logic of accounting information is also stressed by others. Wynne for instance argues that different reporting modes are actually linked to diverging normative conceptions of the state, with a communitarist perspective on one side and a public choice perspective on the other (Wynne 2003). Barton claims that accrual accounting essentially follows the aim to promote smaller government through the pressure it puts on efficiency of government services (Barton 2004: 298). In a similar vein Guthrie argues that the whole project of accrual accounting and budgeting in the public sector is not neutral but “a means to the enactment of significant changes in the scope, scale and style of public sector administration and activity” (Guthrie 1998: 1). Pallot stresses that accrual concepts might actually change the way public sector decision makers behave. She claims that while the concept of private ownership over assets implicit in commercial accounting might not be appropriate for the public sector it might nevertheless have consequences: “[Although] the decision such as the sale of public assets under privatization is taken by government irrespective of accounting treatment, accounting presentation using the corporation model can play an important role in conditioning those involved to think in ‘private’ terms and make the sale of assets seem more legitimate” (Pallot 1992: 47). Finally Heald speculates that accrual accounting rules would not have got so much attention “had they been expected to promote larger rather than smaller government (Heald 2003: 753).

The basic feasibility of accrual reporting for the public sector is hence far from universally accepted in the accounting community. What is more, the content of the debate is often focused on decision making, such as the question whether “land under roads” should be recognized and (re)valued in order to provide information on the financial position. Decision making relevance is often a major argument in this context (Barton 1999a). However, we argued that in the end financial reporting and fiscal statistics will produce pictures of reality, which are socially perceived as “facts”. Epistemological questions seem to have very limited relevance in the whole discussion,

however, and the complex assessments involved clearly show the ambiguity and uncertainty in the accounting process. The “trend“ to accruals is hence far less clear and uniform than is often suggested. Within the accounting discipline the conceptual bases for accrual accounting are highly controversial (Chan 2003) and they are actually applied in very different ways (Lüder/Jones 2003a). There is obviously neither consensus on the necessity of accrual accounting for the government sector, nor is there a shared concept of what the details of its implementation should be. As a consequence a restricted number of countries adopted accrual systems in the first place and even fewer changed their budgeting systems. Within those countries the degree to which accruals are applied and the detailed rules implemented differs widely.

2.3.2.c *The Adoption of Accruals in Fiscal Statistics*

As documented above, fiscal statistics were initially defined rather independently from other macroeconomic statistics. The IMF issued standards and guidelines for special areas. In 1972 the IMF established a unit specially dealing with public finance issues, the Government Finance Statistics division (Jones 2000a: 105). Conceptual work began immediately afterwards (Levin 1972; Levin 1975). It took however some years until the first Government Finance Statistics Manual was published (IMF 1986). The 1986 Manual demarcates its purpose against the SNA by stressing some major differences in the measurement approach. Most important are the general emphasis on transactions that have a *financial* impact. The GFSM 1986 puts strong weight on current spending and a preference of highly reliable measures:

“[While] the national accounts seek to measure all production, income, consumption, capital accumulation, and finance arising during the current period whether from current outlays, or outlays in the past (on capital goods) or in the future (on unfunded pensions to which no current contribution is made), this Manual focuses on outlays made during the current period” (IMF 1986: 1).

And later:

“Data for payment flows, particularly for aggregate revenues and expenditures, are called for in the Manual because they represent the best ready approximation of the flows of funds and resources; they avoid problems of valuing resource flows; they correspond most closely with other financial statistics; and they constitute the basis on which most governments keep their accounts” (IMF 1986: 2).

Another important difference between the SNA and the GFSM 1986 relates to the treatment of specific financial operations. Whereas all financial transactions are classified below the line in the SNA, the GFSM classified lending activity of governments as expenditure⁶² (thus having an impact on the deficit/surplus). In the late 1980s, during the SNA updating discussions, the IMF GFS were conceptually reconciled with the SNA. At that time it was considered problematic that the different international statistical

⁶² The reason for this treatment was the assumption that government lending is associated with political motivations and not just a means of financing.

frameworks differed from each other in many important respects. It is explained that the different manuals were created over time within the IMF “each guided by the analytical needs of a particular group of specialists” and that despite efforts to harmonize the system “differences remain, and now that the differing measurement conventions have taken hold among analysts both within and outside the Fund, changing them will be difficult” (Dawson 1989: 20).

The publication of the 1993 SNA and a fundamental critique of the methodological bases of the GFSM 1986 led to the initiative to revise the first manual. Revision works of the IMF began in 1995 with the issuance of a note highlighting the major issues of change. A questionnaire was sent to member countries (IMF 2001a: viii). The correspondence with country experts led to the recognition that users and compilers were discontent with the 1986 framework. A conceptual paper by Don Efford, who wrote the first draft of a revised manual as a consultant to the fund, presents three arguments to move to an accrual basis: First, the demands of users and compilers; second, the need to be consistent with the SNA 1993 and other statistical standards, particularly the IMF Balance of Payments Manual; third, the change of the accounting basis of budget and financial accounting to accrual principles in a number of member states (Efford 1996: iv).

Despite the scattered transition paths, the differences in national approaches, and the controversy about feasibility, implications, and requirements of accrual accounting, fiscal statisticians thus gradually endorsed the idea of integrated accounting for the government sector. This marked a substantial change in the statistical framework underlying public finance analysis. It can partly be explained by changes in analytical demands. Economic scholars became concerned with the overall assessment of long-term government solvency and intergenerational accounting (Kotlikoff 1988). The IMF, in its role to monitor fiscal policies of its member states began to discuss the “intertemporal shortcomings of the conventional cash deficit” (Blejer/Cheasty 1991: 279). The conceptual focus of what constitutes “reality” in the government sector was thus challenged. Especially fiscal analysts in the IMF thought about the analytic value of a public sector balance sheet (Buiters 1983). In particular the impact of arrears (Diamond/Schiller 1993), holding gains and losses on assets and liabilities, the treatment of revenues from privatization and asset sales, the recording of social security contributions and the non-cash incurrence of liabilities, such as for welfare benefits or debt guarantees became an issue (Blejer/Cheasty 1993). Generally, a strong interest by economists in the net worth of government arose (Da Costa/Juan-Ramón 2006; Traa/Carare 2007). What is more, the OECD and the IMF began to highlight the importance of extended accounting systems for fiscal and budget transparency and

accruals were often stressed as “best practice” in this respect (OECD 2000b; IMF 2001b). The deficiencies of the cash indicators led the IMF’s Fiscal Affairs Department to adopt a selective strategy to adjust cash figures for the impact of several unwanted effects (IMF Fiscal Affairs Department 1995: 10ff.). The initial Keynesian focus of government finances impact on disposable income of households had thus given way for an interest in the observance of “sound” and “sustainable” policies (Hartwig 2005: 6f).

The endorsement of accrual accounting thus appears as a logical step to provide statistical data related to the net worth of government. Economic statistics gradually began to support accrual principles for the public sector. Already during the revision of the 1968 SNA statistical experts decided that the accrual principle should universally be applied to *all* sectors of the national accounts, including the government. The text of the SNA 1993 notes that accrual recording is conceptually the right principle and that cash government data should be adjusted where necessary (SNA 1993: §3.96). The transition of the GFSM to a full accrual framework in 2001 (IMF 2001a) then constituted a major shift in the analytical perspective. The manual now combines full balance-sheet accounting, with an *operational* statement for the government and a statement of other economic flows (see Figure A 1 in the annex). The integrated nature of the system is expressed by the requirement that all changes in net worth and its sub-components should be completely recorded in the system. The core element of the framework is the “operating statement”: *Revenue* and *expenses* are explicitly defined in relation to net worth. The difference between the two is called “net operating balance”. It includes an estimate of depreciation. Transactions in non-financial assets in contrast are not recognized as revenue or expense and are hence shifted below the operating balancing line. The system still shows “net lending borrowing” which adds the impact of transactions in non-financial assets and equals transactions in financial assets.

Hence the statistical “container” of fiscal statistics was explicitly opened up for an integrated, accrual based, operative view on government activity. However, as we saw in the above section, the adoption of accruals substantially extends the scope for the accounting system to interpret and possibility “create” reality. It was shown that neither was there a consensus among accounting experts on *whether* accruals should be implemented in the public sector, nor on *how* they should be employed. In fact, very different positions on a continuum from “cash” to “full accrual” accounting are possible (van der Hoek 2005: 35) and countries differ widely in the weight they put on accruals⁶³.

⁶³ One could distinguish between five groups: (A) Some countries endorse an extreme approach by applying private sector methods more or less directly to the core government. (B) Others apply government specific approaches to budgeting and financial reporting. (C) A third group of countries applies accruals for the purpose of financial reporting, but not for budgeting. (D) A fourth limits the role of accruals even for the purpose of financial reporting. (E) The fifth and still largest group of countries completely abstains from adopting accruals for core government units.

For countries that stick to a cash system Lüder observes “a growing inconsistency between governmental accounting and the macro-accounting system” (Lüder 2000: 120). And within “accrual countries” the detailed rules of application and underpinning norms appear to have a crucial impact on the resulting figures (Carlin 2005: 329). But in contrast to national government accounting systems that can follow different rules, fiscal statistics have eventually to decide on what they consider to be reality⁶⁴. International statistical standards must either define what is claimed the intended solution or leave it to the countries what they want to report.

To understand why economic statistics apparently so easily switched to accruals in the public sector it is important to briefly look at the general logic of national accounting. The epistemology of macroeconomic statistics was already strongly shaped by an accounting mode of the presentation of economic events (Suzuki 2003b). Hence, contrary to the cash based public finance statistics, the macroeconomic national accounts were already much closer to a business accounting model of economic representation. The SNA often refers to the “economic substance”⁶⁵ of a flow and decides to adjust observable transactions on markets. The SNA 1968 already put emphasis on sector specific net incurrence of liabilities, the net acquisition of financial assets, capital formation and saving (Dawson 1989: 13). The SNA 1993 then fully developed the idea of accounting for economic events with respect to their impact on the accumulation of wealth. It systematically linked current accounts, accumulation accounts, and balance sheets (Bos 1993). Due to this general approach of national accounting on the overall economy the treatment of government transactions was conceptually already much closer to business accounting than it was the case for the GFSM. The consistency principle in the national accounts required that in the government sector, too, *transactions* as opposed to *payments* were the basic economic event to be covered. This made some adjustments necessary when reconciling administrative data sources with its macroeconomic presentation (e.g. Bloem 1988: 300f.). Moreover, the SNA also addressed government accounting from a “production” side, and decided to measure government output on the basis of its “costs” (cf. Fourquet

⁶⁴ In a way the burden of fiscal statistics is heavier than that of public sector accounting. After all, economic statistics aim to make statements on “reality”. The scope for purely pragmatic decisions is clearly limited. While accounting at some points became explicitly pragmatic, ceased to speak about “truth”, and used decision-usefulness to justify treatments (Beaver 1981; Zeff 1978), economic statistics have a much stronger obligation to talk about the world “as it is”.

⁶⁵ The SNA 1993 for instance highlights that modifications to administrative records are necessary if the ‘economic substance’ is different. One example is the rerouting of social security contributions that are in practice paid directly by employers but registered in the accounts as being paid to and repaid by employees as part of overall compensation (SNA 1993: § 3.25). The treatment of financial leases is another example: If machinery is legally owned and financed by one party but rented to another unit for production, in many cases the latter unit bears all risks and rewards of the asset. The SNA therefore allows for a treatment that treats the rented asset as being owned by the producer in order to “capture the economic reality of such arrangements” (SNA 1993: § 6.118). Since the asset is financed by the legal owner, the system imputes a loan that is repaid including interest during the rental period (SNA 1993: § 7.107).

1980: 11f.). Starting from this perspective, economic statisticians distinguished already for a long time between “financial” and “real” flows (see Vanoli 2005: 152) and were hence much more open to accounting constructs.

It is thus hardly surprising that the introduction of accrual accounting in the government sector was considered by national accountants largely as a rather straightforward application of already inherent principles. A senior statistician involved in the development of the SNA clearly states that the accrual principle would follow naturally from the logic of the system⁶⁶:

“I’ve got so used to the idea, that obviously, an accrual basis is what you need. But it seems strange to me that people were ever content to have a cash basis for so long. I don’t know why it was, how it came to exist for so long, but it’s clear that it did” (Interview III: 162-164).

The important aspects of accrual accounting now promoted by the IMF GFSM 2001, such as the endorsement of balance sheet accounting, the recognition of non-financial capital, depreciation accounting, and the reliance on market price equivalents for assets and liabilities, were hence already captured in the SNA. Yet for fiscal analysis the shift nevertheless constituted a major shift in perspective. So far, fiscal analysis did seldom refer to the ‘softer’ accounting entries in the SNA. The integrated, accrual based perspective of the SNA was mainly used to compile the non-market part of GDP. Yet the estimates of the capital stock and of depreciation charges were passed on rather rough and indirect estimates. They were not based on balance-sheet information but on the Perpetual Inventory Method (PIM), which relies on historical investment data and price indices (OECD 2001: 43ff.). The shift towards accruals thus implies that now the full spectrum of accounting concepts affects many of the core fiscal indicators in the accounts, such as definitions of expense and revenue, or the operating balance. So while the endorsement of accruals by the IMF appears formally only as a minor step associated with the alignment of its GFS manual with the SNA 1993, it is in fact a fundamental change in the analytic perspective of fiscal statistics.

2.3.3 CONSTRUCTIVE DIMENSIONS OF PUBLIC SECTOR ACCOUNTING

With the endorsement of accrual principles, fiscal statistics became subject to the influence of a whole battery of accounting concepts that influences business accounting and was also naturally embedded in the commercial sectors of the national accounts. Building on the insights into the ambiguity of integrated accounting systems presented above, at least three constructive dimensions of public sector accounting can be distinguished. First, the delineation of the public sector/government sector defines which entities are relevant for the accounting statement in the first place. Second, the

⁶⁶ The interviews are quoted anonymously. The numbers indicate the lines in the transcripts of the interviews. The respective codes are available on request.

choice of the accounting spectrum, essentially the scope of assets and liabilities recognized in the system, defines generally how far accounting constructs can deviate from actual cash flows. Third, the specific rules for periodization of non-cash entries through depreciation and amortization rules as well as the valuation approaches determine the specific periodized flows and stocks. Additional constructive impact then stems from the classification of individual economic events under certain general categories and the presentational grouping of accounted events and hence the determination of the relationship between accounting entries and analytical measures.

2.3.3.a Sector Delineation

The entity concept is crucial in an accounting context, since “the limits of managerial responsibility, together with the inputs, outputs, assets and liabilities to be reported, are identified” (Hodges/Mellett 2003: 9). For the purpose of government accounting it is crucial to define the ‘line’ between private and public, as well as between the “public sector” and the “government sector”. The boundary of the state identifies the units whose transactions will be counted as government transactions⁶⁷. Sector classification is comparably straightforward and undisputed for the core institutions of the state, such as the parliament, administrations, or ministries. However, there are typically numerous units where this is not the case⁶⁸. This starts with public hospitals, universities, municipal service facilities and reaches over public and private social security schemes (Eurostat 2004a), non-profit institutions to complex legal constructs such as special purpose vehicles (SPV) and Public-Private-Partnerships⁶⁹ (PPP) (Hodges/Mellett 2004). The influence of sector classification can be substantial, as Figure A 2 in the annex on the classification impact of investment outlays under the Private Finance Initiative in the UK demonstrates. It follows that the sectorization of many entities existing on a “public-private continuum” (Perry/Rainey 1988: 192) is far from trivial.

The first GFS-Manual started off with the idea that a *functional* classification of the government sector was necessary as opposed to legal or institutional criteria (Levin 1975). The SNA delineates government units from other units in three steps. General

⁶⁷ Additionally sector consolidation will lead to the elimination of transactions between units that are classified as “state” - only transactions with outside units will appear in the accounts.

⁶⁸ Organizational theory showed that the line is difficult to draw in terms of institutional characteristics. The view on the boundary was long overshadowed by ideological views on what distinguishes bureaucracies and profit organizations. While most economists saw organizational features of bureaucracies in sharp contrast to profit-oriented firms, others argue that bureaucratic characteristics can be seen as a rather universal phenomenon of modern organizations – in both public and private organizations (Meyer 1982). Typically the distinction is in practice made on a series of criteria, such as primary goals, the way of financing, and different forms of management (Vasu/Stewart/Garson 1998: 6).

⁶⁹ PPP are used to shift investment and operation expenditure to private firms in exchange for regular fees buying the output of the scheme. This sort of outsourcing aims to privatize the production of some “goods” that the market alone would not supply efficiently. Currently they most often cover the construction and operation of certain facilities (for example hospitals, schools, or ports) and other infrastructure investment (roads, energy generation, transmission, and distribution, building of bridges).

government consists of all “institutional units” that are “public” and that engage primarily in “non-market production”⁷⁰ (Pitzer/Dupuis 2006: 6). The three steps are thus to define “institutional units”, “public”, and “non-market production”. But difficult and complex relations between governments and corporations make the boundary between government, public corporations and private corporations hard to draw. Further, the notions of “economically significant prices”⁷¹ and “mainly controlled and financed”⁷² that serve to classify units are rather imprecise (TFHPSA 2006a: 4) and selective, since they draw the line between government and non-government based on the type of production activity (and not on organizational features). What is more, the rules according to which the involvement of governments in business activities is judged are ambiguous. Different interpretations can hence lead to different assessments of the respective activity.

2.3.3.b *The Accounting Scope*

The accounting basis for government accounting can take very different positions on the cash to full accrual spectrum. Theoretically the balance sheet of the government can be thought of consisting of its non-financial (NFA) and financial assets (FA) on the one side and its liabilities (L) on the other. Net worth (NW) would then be compiled as the residual, and hence as

$$NW_t = NFA_t + FA_t - L_t$$

The traditional cash based budget balance basically reflects change in the stock of cash. In a wider conception it reflects net financial worth (NFW) defined as the difference in the value of financial assets less the value of liabilities:

$$NFW_t = FA_t - L_t$$

A balance sheet approach now links the values of the stocks of non-financial and financial assets and liabilities at the beginning of the accounting period to the respective values at the end of the period. Changes in value may generally arise either due to transactions or due to price changes. In accounting notation the change in net worth in period t is triggered by

$$\Delta NW_t = \Delta NFA_t + \Delta FA_t - \Delta L_t + \Delta p_{NFA} NFA_t + \Delta p_{FA} FA_t + \Delta p_L L_t$$

⁷⁰ Public firms, government owned quasi-corporations and privately financed NPI are explicitly excluded from the government sector (Jones 2000b: 173).

⁷¹ Economically significant prices shall cover the prices of the production. Yet the concept appears to be somewhat arbitrary. Neither a definition of cost nor of time periods is at hand. In the European System of National Accounts additional guidance is given. Sales are defined and it is stated that prices, in order to be economically significant, should cover more than 50% of the costs (ESA 1995: §§3.27ff.).

⁷² Generally the SNA states that “control is defined as the ability to determine general corporate policy by appointing appropriate directors, if necessary. Owning more than half the shares of a corporation is evidently a sufficient, but not a necessary, condition for control” (SNA 1993: §4.30).

and hence by changes in the volume of the assets and liabilities and by changes in the value of the “old” assets and liabilities. The volume change is typically further split. Changes in the volume due to transactions are separated from other changes, for instance appearance or destruction of assets by untypical events. Buiter drafted a comprehensive balance sheet for the public sector (Buiter 1993) (see Table A 1 in the annex). From this example it becomes clear that virtually any amount between only current flows and any potential future expected in- or outflow could be recognized conceptually. The estimation of future social security obligations on the liability side of the balance sheet and the capacity to raise taxes in the future constitute extreme examples of what could be considered an asset or liability in net present value terms.

As Boskin (1982) convincingly demonstrates, there is substantial uncertainty in government accounting about adequate capital accounting, especially for sector specific assets. Moreover it is a complex question on how to account for changes in obsolescence of assets and changes in the real value of liabilities and assets, such as land or mineral rights. In addition he discusses the question of how to account for off-budgetary spending, including implicit guarantees, loan guarantees, and increases in social security entitlements. It follows that the line that one can draw to define accounting events is particularly challenging. A glance at the topics in the SNA updating debate reveals that in fact the boundary for assets and liabilities in the government sector is discursively established. For instance it was discussed to extend the boundary of financial liabilities to various forms of guarantees⁷³ (Mink 2006). Likewise an expert group proposed to capitalize Research and Development and hence to extend the asset boundary of the system⁷⁴ (Aspden 2005). Securitization of future revenue streams was decided not to be included in the asset boundary (Aspden 2006; AEG 2006: 90ff.).

2.3.3.c Periodization and Valuation

Additionally rules and conventions for periodization and valuation leave substantial scope to influence the content of financial reports. The periodization principles need interpretation since the prescription to record flows when economic value is created, transformed, exchanged, transferred or extinct (IMF 2001a: 2, FN. 5) is not directly applicable. Options reach from recording when cash is actually paid over when “payment or delivery becomes due” to more sophisticated assessments of when flows take place (Keuning/Tongeren 2004: 170). These three options are no discrete choices, though. Rather they can be understood to be choices on a continuum. The accrual

⁷³ The expert group decided to include standardized guarantees, while one-off guarantees will not be recognized in the core accounts of the new SNA (AEG 2006: 187f.).

⁷⁴ While the AEG members were largely in favor of the proposal, the bulk of countries in the final review were more critical.

principle can thus be applied in different ways and to different degrees. When is “value” actually created or exchanged? The answer is not straightforward but may affect the reported figures substantially (Blejer/Cheasty 1991: 1649). For instance in the case of revenues from UMTS licenses there was substantial debate within the statistical community whether to account the revenue at the time of the license sale or when the acquiring companies use the licenses for their phone services⁷⁵:

“There was this question: Is it a tax? And the people who said it is a tax said if it is a tax, then we should split it to the next years. [...] I said no, if the government receives a payment and if the government has no obligation to refund this payment so the sum that is has gained is completely it’s own money. It can do what it wants. There is strictly no liability” (Interview VII: 203-209).

Likewise, depreciation rules are often arbitrary in the accounting context. In practice typically simple rules on a pragmatic basis are employed. Yet economic statisticians stress that measuring capital on the basis of current values is particularly complex, given that market prices for used capital goods are extremely rarely observed and theoretical patterns of efficiency decline are essentially arbitrary (OECD 2001). Finally, valuation of capital can be done on very different bases: from actual amounts paid reaching to differently constructed proxies for market prices or nominal costs (Traa/Carare 2007). In business accounting practice historical valuation concurs with fair value or current accounting (see Figure A 3 in the annex). Yet even for the concept of current price accounting, very different operable concepts exist, such as replacement cost, net realizable value at sale and value in use (Robinson 1998: 23f.). Countries following accrual accounting do in practice apply very different valuation approaches, from historical cost accounting to current replacement cost accounting based on regular estimates of market values.

Similar problems exist in the context of business accounting. But in contrast to business accounting, the basis for pragmatic solutions to those challenges seems to be even harder to justify in the government sector. Hodges and Mellett state that the user needs in the public sector context differs from that of the private sector: “In the private sector the identification of an entity also brings with it ideas of ownership, but this aspect is blurred in the public sector as, in theory, all the assets ultimately belong to ‘the public’. This is coupled with the absence of any single, measurable objective, such as profit” (Hodges/Mellett 2003: 9).

⁷⁵ The sale of the UMTS mobile phone licenses raised some difficult conceptual questions in the statistical community. While Eurostat decided in 2000 to treat the UMTS receipts as resulting from the sale of an asset, the SNA discussions are in favour of classifying it as a tax (thus no asset is recognized) (Harrison 2005). The difference between those treatments lies in the timing: While tax payments can and should be deferred by accruals to the periods where the economic activity based on the asset, the sale of an asset gives rise to an immediate receipt. While a sale of a non-financial asset would not improve net saving it would improve net lending/borrowing (the financial deficit).

2.3.3.d *Going down the Accrual Road*

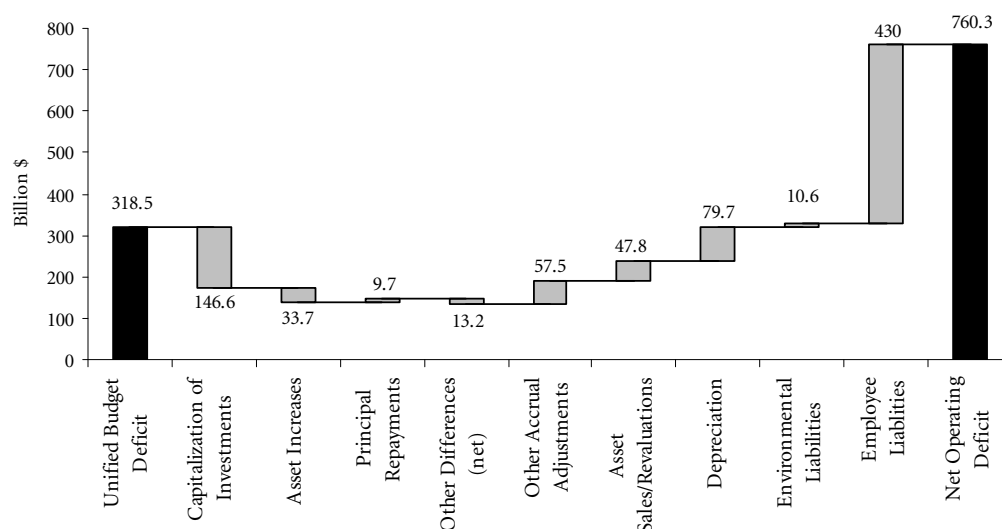
It is thus little surprising that government accounting is in practice characterized by fundamentally different approaches, with some countries following a pure cash approach and a huge variation in the details of those countries applying accrual accounting (Lüder/Jones 2003a). While Denmark for instance introduced an accrual basis for budgeting purposes, it explicitly excludes military assets and infrastructure assets from the accounting scope (Finansministeriet 2006). The US introduce accrual accounting only for financial reporting purposes and mostly applies a restricted scope and mostly historical valuation of the assets (FASAB 1996). In contrast New Zealand and Australia follow very strict rules in terms of current capital valuation and include a very broad scope of assets and liabilities (Carlin 2005).

So where do we see the impact of the different scopes of accrual accounting and different interpretations of its implications? Let's again look at the US federal deficit of the fiscal year 2004/2005. Figure 9 displays and summarizes the detailed components explaining the 'deficit gap' in the US financial statements. The first four bars relate to accounting entries that form part of a cash-based approach but are conceptually excluded from an accrual perspective: Investment expenditure (\$146.6 bn.) and other increases in assets (\$33.7 bn.) are capitalized. This means the respective payments are not treated as expense but rather assets are created that are recorded on the balance sheet. Principal repayments (\$9.7 bn.) impact on the cash-deficit but are treated as net worth neutral in the accounting deficit. Some other minor accrual adjustments sum up to a net difference of \$13.2 bn. The six bars on the right mainly relate to components that do appear in the accrual statements but not in the budget accounts: mixed accrual adjustments (\$57.5 bn.) comprise for instance positions arising from payment arrears; receipts from asset sales (\$47.8 bn.) are recorded as income only in the cash perspective whereas revaluations only lead to income or expense from an accrual perspective. A depreciation charge (\$79.9 bn.) is recognized in the accrual deficit but not in the cash balance. Finally the increase in environmental liabilities (\$10.6 bn.) and employee related obligations (\$430 bn.) lead to a deficit of \$760.3 bn.

The US example thus highlights that especially the treatment of capital costs, and the recognition of long-term liabilities can give rise to substantial non-cash components of expense. In addition the specific period-allocation of specific transactions under the accrual principle affects the accounting result. With the shift to an integrated accrual basis fiscal statistics now face the same conceptual problems as government accounting in this example. Moreover, the question what the balance sheet approach, which is theoretically endorsed in the SNA 1993 and the GFSM 2001, really means requires

constructive work by statisticians⁷⁶. Fiscal statistics thus actively determine how far and in which direction accounting constructs for government deviate from cash figures. They thereby exert a major influence on how the economic activity and the financial position of the government is presented and perceived.

RECONCILIATION OF THE US CASH AND ACCRUAL DEFICIT IN 2004/2005



Source: Financial Reports of the US Government

Figure 9: Unified Budget Balance and the Net Operating Deficit FY 2004/2005

2.4 Conclusion

This chapter showed that accounting is a non-trivial exercise. Broad evidence in the critical accounting literature demonstrates that accounting practices are not functionally determined but are shaped by their organizational environment and at the same time feed back on their surroundings by defining often ambiguous concepts, such as “costs”, “revenue”, “profit”, or the “deficit”. In contrast to the widespread impression, based on a metrological ideal, accounting is essentially based on social conventions. Figures nevertheless often appear as facts due to a social division of labor: quantification is delegated to specific professions and organizations. Accountants and statisticians are asked to find the adequate basis for measurement. Conventions are hence mainly established within a black box. This constellation ensures that data compilers will have an interest in demonstrating their expertise to the outside by hiding the uncertainty and

⁷⁶ The SNA 1993 framework contains the concept of balance sheets and thus requires an interpretation. So far, statisticians pay less attention to balance sheets and concentrate on flow accounts (Vanoli 2005: 312). Thus compared to business accounting, balance sheets play only a minor role: “The valuation of social assets or capital stock at the level of the national economy is still one of the most controversial problems to date. Stocks have not been counted as a constituent factor of the macro-economy largely due to their immeasurability” (Suzuki 2003b: 490).

ambiguity of the measurement process within their domain. This, in turn, creates the ground for potentially severe misunderstandings about the reliability and validity of the data on the side of data ‘consumers’.

The look in the social production context of fiscal data presented in this chapter suggests that there are in fact manifold reasons why fiscal accounting should not be considered an unproblematic task. This starts with the mere organizational challenge to collect data from very different units. But even more fundamental is the choice and interpretation of accounting concepts. The chapter showed that public sector accounting recently moved from a rather simple cash accounting framework to an integrated accrual perspective. The fiscal statistical framework, developed by the IMF since the early 1970s, was for three decades strongly focused on cash concepts and financial transactions. In explicit opposition to national accounting concepts, the GFSM 1986 kept a focus on payments that were directly observable in the accounts of the government (Levin 1996). But this situation changed fundamentally in the recent fifteen to twenty years. The introduction of accrual principles in some governments financial reporting and budgetary frameworks introduced a departure in some countries’ source data documents from pure cash concepts. New Public Management concepts opened government accounting for a ‘production’ perspective and the assessment of ‘costs’ and ‘revenue’ rather than cash ‘outlays’ and ‘receipts’. The analytical focus of the GFSM 2001 clearly shifted from a cash and liquidity oriented perspective to highlighting the conceptual importance of balance sheets and capital accounting, as it was already contained in the SNA.

Despite substantial controversy in the accounting community and an uncritical approach as regards the practical implementation of accrual accounting, fiscal statistics endorsed a respective approach. This leaves fiscal statisticians with the need to find their position in the resulting constructive dimensions of accrual accounting systems. The brief overview over typical decisions involved in this context shows that statisticians need to establish the sector boundaries for the government, the boundaries for assets and liabilities, various rules for periodization and valuation, and to make a bunch of classification decisions when it comes to the presentation of the results. This suggests that accounting concepts have a decisive impact on how the figures will look like. It is therefore crucial to understand how statisticians come to define the concepts, how they agree on the respective conventions. Given that the SNA is now the leading framework for all macroeconomic statistics, and hence essentially contains the core decisions in this respect for most statistical systems, the next chapter will analyze the specific epistemology of the SNA and practical strategies of economic statisticians when assessing reality in order to understand how statisticians render the complex problems associated with economic quantification.

3 The Epistemology of Economic Statistics

Fiscal reality is a *defined* reality. The preceding chapter demonstrated that the production of fiscal data occurs in a social and organizational context. It was argued that a substantial part of the frame that statisticians ‘put on the world’ is institutionalized in the form of international statistical standards. Fiscal statisticians recently adopted an integrated accrual based approach and hence opened the field for the influence of respective accounting concepts. ‘Traditional’ neo-institutional research would now most likely focus on the role of the standards in order to explain organizational behavior. The existence and diffusion of respective formal rules would probably be highlighted as the major phenomenon to be explained. This study takes a different perspective, though. The aim is to go beyond the surface of statistical standards and to understand the origin, content and transformation of the standards themselves. This chapter will directly investigate the general cognitive logic with which the standards are established. The question addressed is how economic statisticians frame the world, how they establish their relationship to economic reality and how they generally deal with measurement ambiguities in this context. The section starts by providing a historical overview over the emergence of frameworks for economic statistics. In a second step the frame currently applied by the SNA 1993 is briefly described and systematized. The third part then analyzes the epistemological approach of macroeconomic statistics. The role of economic theory and the general conceptual relationship to ‘reality’ will be examined and major working strategies applied in practice to deal with remaining ambiguity are considered.

3.1 The History of Economic Statistics

The heuristics structuring macroeconomic data gathering are inherently linked to the emergence of modern national accounting. National accounting developed in the 1930s and 1940s first in selected countries, and then spread globally and was internationally harmonized in the second half of the twentieth century. It combined the newly emerging macro-economic theory, essentially based on Keynesian ideas, with increasingly sophisticated attempts to estimate national income, production, and expenditure in the form of economic accounts (Kenessey 1994b). The provision of macro-accounting schemes, the embedding of those data in a new macro-based theoretical approach, and the fundamental redesign of economic policies contributed to the birth of the notion of “macro-economics” or “macro-dynamics” as introduced by Frisch in 1933 (Frisch 1933). Contrary to the widespread belief the construction of a macroeconomic data framework was by no means self-evident and straightforward, though. The contemporary view on the economy in terms of GDP, institutional sector accounts etc. is to a significant degree the result of a historical construction, based on the application of accounting

terminology in the field of economic statistics (Suzuki 2003b). The currently dominant approach then emerged incrementally over the last century. Initial conceptual decisions for the purpose of national income estimation mostly reflected situational choices, following “the requirements of governments in war, the local economists hired to make the accounts and so forth” (Morgan 2001: 243f.). In the aftermath the basic features of the system, the accounting structure, its composition and level of detail have been constantly developed (Kendrick 1996a: 2). The national accounts became a *systematic* approach forming the basis for Keynesian theoretical analysis, econometric modelling, and practical policies (Bos 2006: 16). Today the SNA forms the conceptual framework for all macroeconomic statistics.

3.1.1 THE ORIGINS OF STATISTICAL ASSESSMENTS OF REALITY

The empirical measurement of national economic aggregates faced ambiguities right from the beginning. National income estimation strongly relied on theoretical conceptions of production and income. Both were subject to definition and had to be constructed theoretically before they could be linked to observational data. Respective questions were addressed on different levels: The level of economic theory, the level of measurement concepts, and the level of statistical methodology. The development of macro-empirical datasets accordingly “depended as much on the formulation of meaningful concepts of national income as on the accumulation of reliable statistics and the development of effective statistical techniques. The development of meaningful concepts, in turn, has depended on the formulation of rational theories of economic production, inasmuch as national income is merely a monetary expression of national product” (Studenski 1958: 11).

Actual measurement attempts in history reflect prevalent economic concepts of their time, theoretical and analytical innovations of individual scholars, and the data constraints that existed in times long before national statistical offices were founded. For centuries national income estimates were initiatives of individual scholars in a handful of countries⁷⁷. The first attempt to measure national income was undertaken by William Petty in the 17th century. With “*Verbum Sapienti*” he presented the very first national income estimate (for England and Wales) in 1665 (Maddison 2004: 2). Ten years later, in

⁷⁷ There is only a small strand of literature on the history of national accounting. The first systematic overview was written by Paul Studenski (Studenski 1958). Newer developments, in particular the international standardization of the postwar area were subject to a conference of the International Association for Research on Income and Wealth (IARIW). The main conference papers were published in a book edited by Zoltan Kenessey (Kenessey 1994a). A newer monograph on the history of national has been written by André Vanoli (Vanoli 2005). Another recent overview on the history of national accounting was written by Bos (Bos 2006), which is preceded by a working paper on the conceptual logic and theoretical underpinnings of the different SNAs (Bos 1993). There are in addition country-specific works, such as the overview on the US NIPA by Carol Carson (Carson 1975), and the French system edited by Fourquet (Fourquet 1980). Systematic coverage of national accounting issues is also provided by the periodical *Review on Income and Wealth* which is published by the IARIW since 1951.

“Political Arithmetick”, he developed a comparative perspective by contrasting England’s national income to that of rival France and the Netherlands (Hartwig 2005: 2). Petty’s obvious motivations were to argue against the common perception that his country (England) was in a bad economic shape and to estimate the economic resources available for the second Anglo-Dutch war (Vanoli 2005: 5). Yet, as the title of his second book suggests, he also attempted to develop a more general approach towards quantitative measurement of social matters. His work has therefore been interpreted as the foundation for an “effective implementation of fiscal policy” (Maddison 2004: 2).

Other estimates of national income followed soon. Gregory King and Charles Davenant prepared enhanced estimates in the last years of the 17th century (Lequiller/Blades 2006: 398). In France, too, progress in national income estimation was made, based on both theoretical concepts and statistical innovations. Conceptual efforts by Boisguillebert to define national income were complemented through detailed statistical work and estimation techniques by Vauban (Kendrick 1970: 292f.). A general feature of these early approaches was still the quite restricted focus and the practical categorizations of observational groups. Statistical presentation was very close to common-sense categories and there was little analytical organization of the data. This, however, changed slowly. Over the following years concepts for income measurement became more abstract and “oriented towards the presentation of the income structure according to factors (labor, property, etc.)” (Vanoli 2005: 16). The following two centuries witnessed a number of attempts to estimate national income in Britain with methodological and conceptual advances⁷⁸ (Maddison 2004: 5). Conceptual influences mainly stemmed from Adam Smith’s material production concept and the French Physiocrats. Quesnay developed the idea of an economic circuit in terms of money and goods and introduced the notion of surplus creation (in contrast to earlier conceptions of subsistence economy) (Vanoli 2005: 13). Yet still the main triggers were concrete political projects. Arthur Young was in 1770 concerned about tax reform and Henry Beeke improved income estimates to make a case for the introduction of a general income tax (Studenski 1958: 41ff.).

Since income estimation was soon related to conceptual understandings of what constitutes “productive” economic activity, production became a key concept of economic statistics⁷⁹. The initial measurement approaches occurred in a strongly

⁷⁸ At this time national income estimation depended much on primary sources. Innovations can thus also be explained by administrative developments. With the introduction of the national income tax in 1842 in Britain for instance a much more reliable database for the estimates was created. This allowed Smeed and later Giffen to develop much more systematic national income estimates. Census data also increased very much in quality. Bowley argued in the early 20th century for the creation of a central statistical office to collect better source data. The lack of income tax data in France during the 19th century explains the lower precision of estimates here (Maddison 2004: 5).

⁷⁹ It is remarkable in this context, however, that the first framework of Petty showed already quite many of the characteristics of the modern system. He included services, in addition to the production of only goods (Vanoli 2005: 12). Further, Petty and King already applied a double-entry approach by estimating labour

mercantilist context (Studenski 1958: 11; Ehrlich 1955). The political program of maximizing national wealth obviously triggered the basic motivation to measure national wealth. At the same time these first estimates can also be seen as the approaches to break away from narrow notions of wealth⁸⁰ by building a broader theory of production and conceptualizing the flow of income as a source of wealth. The Physiocrats still limited the production concept to agriculture⁸¹. Adam Smith widened the theoretical focus away from agriculture, but he still stuck to a material production concept which excluded services from production and hence national income⁸² (Studenski 1958: 20). It was the birth of neoclassical economics that finally introduced a more comprehensive concept of production:

“It is sometimes said that traders do not produce [...] that while the cabinet-maker produces furniture, the furniture-dealer merely sells what is already produced. But there is no scientific foundation for this distinction. They both produce utilities, and neither of them can do more: the furniture-dealer moves and rearranges matter so as to make it more serviceable than it was before, and the carpenter does nothing more” (Marshall 1890 [1997]: 63).

Before World War II national income estimation was hence the domain of individual scholars in a small number of countries (Carson 1975: 153). These individual estimators were mostly interested to compare the economic performance of their own nation to others, or to get insight in the resources for warfare and the conditions for efficient taxation (cf. Kendrick 1970: 289ff.). But although these motivations were in essence highly political, the state remained widely absent in income estimation until the 20th century. Consequentially, the early centuries of national income estimation were characterized by rather fragmented data series: Time-series, if compiled at all, were comparatively short and the estimates were not integrated in a systematic framework. What is more, until the middle of the 19th century income estimations were only prepared in five countries (France, England, Russia, Germany, and the Netherlands). Among those, only France and England showed a somewhat enduring tradition, whereas research and estimation in the other countries was quite selective (Vanoli 2005: 7ff.). Interest in statistics *on* government economic activity was virtually absent.

and capital income on the one hand linked to expenditure on the other. They also saw the residual as contributing to the national wealth (Kendrick 1970: 286). The first drafts were thus already quite advanced.

⁸⁰ The mercantilist perspective was mainly to treat national wealth as the amount of gold which was mainly to be accumulated through foreign trade and exchange. The conceptual role of domestic production and income was in contrast strongly neglected (Studenski 1958: 11)

⁸¹ At the same time, however, the “Tableau Economique” showed the interrelations between income in different sectors and thereby prepared input-output analysis (Kendrick 1970: 286f.).

⁸² Smith’s concept of wealth was strongly related to the accumulation of durable capital goods only. Services (and hence the activity of the state) were treated as consumption rather than production. He distinguishes productive and unproductive labour and closely links the generation of “value” to the production of (material) goods: “There is one sort of labour which adds to the value of the subject upon which it is bestowed: there is another which has no such effect. The former, as it produces a value, may be called productive; the latter, unproductive labour. [...] The sovereign, for example, with all the officers both of justice and war who serve under him, the whole army and navy, are unproductive labourers” (Smith 1776 [1976]: 330f.).

3.1.2 THE DEVELOPMENT OF MODERN NATIONAL ACCOUNTING

The individual research attempts since William Petty prepared the ground for modern national accounting. Major innovations regarding the estimation of macroeconomic accounting aggregates in the 20th century were then made by Arthur Bowley and Colin Clark in the UK and Simon Kuznets in the United States during the 1920s and 1930s. This prepared the ground for the expansion and development of comprehensive systems of national income estimation which occurred quite simultaneously in Britain, the United States, the Netherlands and Scandinavian countries (Comim 2001: 214; Bos 2006: 13). Up to 1940 macroeconomic statistics mainly focused on the estimation of aggregates for national income only. The expenditure side of the national production process and the relation among more detailed sub-aggregates had widely been neglected (Kendrick 1996a: 6). The provision of a systematic framework was thus a distinctive feature of national accounting. It is conceptually different from the previous, rather detached estimates and thus particularly attractive to scholars and policy-makers. The innovation of a framework of balancing accounts marked the “progression from national income to national accounts” (Kurabayashi 1994: 94).

In the 1930s and 40s there was an unprecedented attention by governments, economists, and economic statisticians towards national income estimation. The literature explains this development mainly through the effect of the economic crises of the 1930s and the burden of the two World Wars and subsequent reconstruction (Studenski 1958: 149). In the United States official estimation of national income was initiated in direct response to the Great Depression in 1930/31 (Carson 1975: 155ff.). In the UK planning of macroeconomic resources during World War II led the British Government to mandate official estimates of the income (Vanoli 2005: 20). A new emphasis on managing of macroeconomic resources and stabilizing the overall economy prepared the ground for a substantially new understanding of the role of governments and economic statistical information systems.

Accordingly national income estimation became increasingly institutionalized and was finally understood as an official government task. Australia had already pioneered in this respect in 1886 with the publication of an *official* estimate and more governments joined in the 1920ies (Jones 2000a: 103). The 1939 World Economic Survey by the League of Nations contained national income data for 26 countries, although the lack of official sources still made the reliance on private estimates necessary (Savage 2005: 70). But national statistical institutes were founded in many countries. In the United States the first official national publications appeared in 1926 (Carson 1975: 154). With the Great depression the government then developed an enduring interest in producing national income figures. In June 1932 the Senate asked the Department of Commerce to prepare

official estimates of national income for the years 1929-1931. The task was passed to the National Bureau of Economic Research (NBER), founded shortly after World War I. The resulting figures were compiled beginning in 1934 by Simon Kuznets and others⁸³ (Vanoli 2005: 17). A little later the UK also strongly developed its statistical information system with the foundation of the Central Statistical Office. James Meade and Richard Stone intensively worked on national income estimation (Jones 2000a: 104; Comim 2001: 217). Briefly after this, the first official document was prepared as a supplement to the budget presentation in 1941⁸⁴ (Vanoli 2005: 20).

In these years John Keynes was directly involved in the collection and organizing of the data. He even partially supervised the work of Meade and Stone at the UK Treasury (Kenessey 1994b: 3f.). His academic work before already profited much from the preceding macroeconomic estimates of the academic Colin Clark in the 1930s. During World War II he directly influenced the sketching of a national accounting system in his study "How to Pay for the War" (Kurabayashi 1994). Keynes himself also argued for of a publication of a technical article outlining the accounting framework that Meade and Stone developed⁸⁵. In the US Simon Kuznets was apparently more motivated by an empirist perspective and hence sketched the statistical framework to estimate national income even before the publication of the General Theory. Yet the emphasis on macro-stabilization policies inherent in Keynesian thinking appeared to provide a systematic approach that later motivated the people involved in national income estimation. It was explicitly implemented when Milton Gilbert took over the work in the field of national accounts (Perlman 1987: 140ff.).

The emergence of a new macroeconomic perspective on the economy involved both, theoretical and empirical innovations. Both are inherently linked: The emergence of national accounting apparently presupposed a new theoretical understanding of the macro-economy and vice versa. In the end the practical relevance of macroeconomic data for policy-making led to major investments in the development of conceptual frameworks and data collection (e.g. the founding of national statistical institutes). The emergence of national accounting systems as opposed to rather detached national income estimates is fundamental for the conception of macroeconomic reality. The basic characteristics of the "systems" were that they integrated previously independent strands

⁸³ The definition of national income that Kuznets applied was in a sense narrower than previous attempts. A potential explanation is the apparent endeavor to base the estimates on reliable data. Services from family members and consumer-owned durable goods, earnings from odd jobs, charity, holding gains and losses and illegal production were therefore excluded from the estimates (Carson 1975: 158).

⁸⁴ The UK government decided to publish official estimates in reaction to the observation that non-official estimates published in *The Economist* deviated strongly from the figures of the government (Jones 2000a: 109).

⁸⁵ This article, which appeared in the *Economic Journal*, contains the first presentation of national income estimation in an accounting framework (cf. Meade/Stone 1941).

of statistical work, namely input-output matrixes, flow of funds analysis, balance sheets and wealth estimates. The practical work and the integration of the respective concepts occurred differently in individual countries, though. This formed the basis for attempts to harmonize national accounting internationally in the following decades (Kendrick 1970: 311).

3.1.3 INTERNATIONAL STANDARDIZATION

Although many countries adopted national income estimation as an official government task, national approaches differed substantially (Vanoli 2005: 77f.). The establishment of national accounting was an inherently political process, strongly embedded in nation specific ends that were pursued in its formative phase. International comparability was neither aimed at nor fitting in the framework. Whereas the French for instance followed an *institutional* aggregation of economic activities, the British system was based on *activities* (production, consumption, etc.) (Miller 1986: 91f.). The need for international co-ordination became obvious when statisticians attempted to compare the respective figures at the international level. The early systems contained very different definitions of national income (see Table 2).

POST-WAR COUNTRY DIFFERENCES IN NATIONAL INCOME ESTIMATION

	US	UK	CAN	IRE	CH
Employees' contributions to social security and pension funds	0	X	0	X	0
Employers' contributions to social security and pension funds	0	X	0	X	X
Undistributed profits for corporations	0	0	0	0	0
Dividends, rent, and interest	X	X	X	X	X
Capital income of government	0	0	0	0	0
Capital income of life insurance	X	X	X		X
Interest on national debt	X	X	X	X	X
Social security and pension fund benefits	X	0	X	0	X
Relief benefits	X	X	X	X	X
Military benefits and other government nonfactor transfer payments	X	X	X	X	X
Subsidies to consumers	0	X	X	X	X
Business transfer payments	X	X	X		X

Note: X – item included; 0 – item excluded

Source: Studenski 1958: 209

Table 2: Country Differences in National Income Definitions

The issue of international harmonization was for the first time discussed in the Statistical Committee of the League of Nations in 1939 when national income estimates for 26 countries were published (Kendrick 1970: 307). During the war however, no concrete steps were undertaken by the League. The first effort was a trilateral initiative of three countries: Representatives of Great Britain, the United States and Canada met in Washington in late 1944 in order to align the (methodological and presentational) characteristics of their systems (Hill 1994: 1; Denison 1947). In December 1945 a

meeting of a newly founded the Sub-committee of National Income Statistics of the League of Nations broadened the participation to Australia, the Netherlands, and Mexico (Vanoli 2005:131). After the war the Statistical Committee of the newly founded United Nations assumed the responsibility for the statistical harmonization.

In the second half of the 20th century substantial resources were invested in developing a set of standards for macroeconomic statistics. Four different waves of international standards can be distinguished, starting with (1) a conceptual paper by the UN in 1947, followed by (2) the first release of a UN System of National Accounts in 1953, and two revisions in 1968 (3) and 1993 (4). The 1993 SNA is currently under revision, a process officially called “SNA 1993 rev.1”. The first SNA has been preceded in 1952 by a system developed by the OEEC (since 1961 the OECD)⁸⁶. The standards followed the twofold aim of strengthening the basic logic of national accounting and at the same time harmonizing the national figures (Bos 1993: 2).

The theoretical and conceptual development of the international standards was initially strongly concentrated in the hands of a small group of experts, first of all of the British Richard Stone. He played a leading role in the respective working groups for the UN and the OEEC. Stone was first invited to write a report for the League of Nations Committee of Statistical Experts at the meeting in December 1945 (Carson 1975: 178). This report was published in 1947 under the name “Definition and measurement of the national income and related totals” in which he drafted the international system in the form of balancing accounts⁸⁷ (UN 1947). The report laid the basis for both, international harmonization and the conceptual development of national accounting. It highlights the relevance not only of aggregated totals, but emphasizes the interrelationship of sub-aggregates that was characteristic for the UK accounting approach (Suzuki 2003b: 474):

“[Modern] enquiries which had their origin in an attempt to measure certain broad totals have changed their emphasis and now concentrate more on the structure of the constituent transactions and on the mutual interdependence of these transactions. It has come to be realized that for different purposes certain related but distinct aggregates are useful” (UN 1947: 24).

Yet the report was classified and marked as technical document. It did not yet represent official international guidelines for national accounting (Vanoli 2005: 132). Stone was therefore asked to develop a practical guiding system for the OEEC to coordinate post war reconstruction in Europe and particularly help allocating the Marshall Plan aid (Lequiller/Blades 2006: 399). The representatives at the OEEC actively supported the idea of statistical monitoring to manage scarce resources for investment purposes (Ward

⁸⁶ This framework was roughly similar to the UN System, mostly due to the strong personal influence of Richard Stone in the drafting of both documents. In 1965 the OECD decided to abandon its own system. Instead the European Economic Community issued its own standards (in 1970, 1979, and 1995) to meet the advanced needs of policy co-ordination in Europe (Savage 2005: 71).

⁸⁷ At this time the International Association for Research on Income and Wealth was founded as an international forum for scholars working in the field of national accounting (Kendrick 1970: 310).

2004b: 302). Stone began to develop an implementable national accounting system at a special research unit at Cambridge University (Ruggles 1996: 389). The resulting first OEEC system (“A Simplified System of National Accounts”) was discussed in 1950 and 1951 and a year later revised and published as the “Standardized System of National Accounts” (OEEC 1952). The “simplification” was necessary, since the system described in the 1947 UN report was at this time far too ambitious for most OEEC countries (Bos 2006: 17). The “Standardized System” was still based on the UN paper but much simpler as the original framework. It follows that the first actually implemented set of internationally harmonized guidelines mainly stemmed from the “policy needs” of an international organization.

At the same time the United Nations Statistical Commission (UNSC) attempted to design an operational system that would apply at the world level, and not only for OEEC states. Again it was Richard Stone who was asked to prepare the report which was then named the 1953 System of National Accounts (SNA). The content of the system was basically similar to the OEEC Standardized System (Hill 1994: 3). It consisted in essence of 10 standard tables for various components and six standard accounts (Lequiller/Blades 2006: 399). The practical impact of the 1952/53 systems in terms of effective harmonization was limited, however. It coordinated the data reporting of national statistical institutes to international organizations by providing a common reference framework and defining requested totals. Actual harmonization of the underlying concepts and measurement approaches was not part of the system and hence only poorly developed.

In the early 1960ies there was a consensus among national accountants that the first UN system should be revised and substantially extended. Again, under the strong influence of Stone a new version of the SNA was prepared (Pyatt 1994). The second edition of the SNA basically overtook the accounting structure of the earlier system but made it more integrated, by including input-output tables, the flow of funds table and by – at least formally – balance sheets (Lequiller/Blades 2006: 401f.). Whereas the 1953 SNA was still very much concerned with the derivation of broad totals from the sector accounts, the 1968 SNA strengthened the focus on detailed interrelationships between sectors (Bos 1993: 4) hence further developing the idea of the accounting structure. At the same time the European Communities (EC) launched an own attempt to extend the existing OEEC system in order to reach better comparability between the six member states in 1964. Early in the process of European Integration, the High Authority had expressed concern about the comparability of national economic statistics. Policy coordination within the EC presupposed more consistency and comparability of the statistical figures. Monnet argued in favor of increased harmonization of statistical data and of “making sense of

conflicting national data-bases” (Savage 2005: 46). The European System of Integrated Economic Accounts (ESA) was hence produced by a team of experts at Eurostat and completed in 1970, largely in parallel to the 1968 SNA⁸⁸ (De Michelis/Chantraine 2003: 32ff). The ESA 1970 was broadly consistent to the SNA, although it was more detailed and more adapted to the circumstances of the six EC member states. The OECD in turn decided to abandon its own system in 1965.

Yet the 1968 SNA faced again severe challenges in the 1970ies. The oil crises and associated occurrence of high inflation had an impact on the analytic meaning of traditional deflation practices. Moreover, the spreading of monetarism lead to an increased interest in financial accounts (Harrison 1994: 169f.). The revision work began in 1975, initially with the modest intention to apply some clarifications and minor adjustments rather than drafting a new and extended system (Kendrick 1996a:12). In the early 1980s the formal decision to revise the system again was taken “largely as a result of discussions at the annual meetings organized by the OECD for national accountants from member countries, and at the biennial conferences of the International Association for Research on Income and Wealth” (Lequiller/Blades 2006: 402). The UN Statistical Commission created an expert group that recommended to clarify the system in order to remove ambiguities, to increase consistency, and to harmonize the SNA with other statistical standards (Harrison 1994: 171). Actual work began in 1986 and took until 1993. In contrast to the earlier conceptual work, the revision at this time was made on a cooperative basis by the five major international organizations, the UN, the OECD, Eurostat, the IMF, and the Worldbank. The outcome, the SNA 1993, is often labeled the “gold standard” for national accounting (Ward 2004b: 299). A complete and much more detailed accounting sequence has been developed and balance sheets are conceptually integrated in the system. One of the text’s main authors, André Vanoli, describes it as a “fully developed international system of national accounting” that basically completed the post-war efforts to establish international guidelines (Vanoli 2005: 126). The ESA, too, was updated along the lines of the SNA⁸⁹ (to the ESA 1995).

3.1.4 STATISTICS AND THE GOVERNMENT

We saw that economic statistics developed initially as a private endeavor of individual scholars. Yet the analytic and motivating questions were already closely related to questions of governance, such as the estimation of economic resources available for taxation or warfare. Initially statistical attempts were merely to take stock of public

⁸⁸ In 1959 the statistical division to the General Directorate of the EC was formally renamed Eurostat. At that time 650 professional statisticians were working to provide data for coordinated policy-making.

⁸⁹ Again an expert team was created comprising Eurostat and member state experts and was assisted by the National Accounts Working Party (De Michelis/Chantraine 2003: 141). In practice the work was basically to take the SNA 1993 and translate it to the European text.

resources but over time the underlying questions grew more complex. The modern state required sophisticated and solid knowledge in complex categories. As a result the state became increasingly engaged in official statistics, and the gathering of information was professionalized in the public sphere (Schmidt 2007: 232f.). The systematic production of quantitative information on economies and societies is thus inherently related to the “demands of modern state for social and economic intelligence” (Starr 1987: 15). As Miller argues, “[accounting] and the state have in common that they were born out of and remain normative techniques for the management of public and private resources” (Miller 1986: 102). Indeed the term “statistics” was introduced to denote the “science of the state” by the German von Achenwall in the 18th century, although it was initially associated with non-numerical information on state characteristics (Desrosières 2005: 23). Fourquet claims that the very notion of productivity was inherently related to conception of power for absolutist states:

“Alors on comprend la portée de la question résumée par le mot sacré de ‘productif’. Productif de quoi? De puissance! La question du travail productif ou de la force productive est un question d’Etat, c’est le souverain qui la pose, pas les sujets, car il s’agit pour lui d’accroître la puissance de l’Etat, de la mesurer par rapport aux autres grandes puissances, et de savoir de quelles ressources il dispose pour préparer la guerre, la conduire ou se relever de ses ruines” (Fourquet 1980: 7).

In turn, the emergence of statistical data influenced the nature and role of the state. In the early 19th century official statistics developed as an administrative practice in several European states. Through the formalization of social relationships, the state itself was constructed as the specific interrelationship that could be ‘objectively’ viewed through the means of statistics (Desrosières 2005: 165). The drafting of a system for economic statistics in form of the SNA may hence be understood as being interrelated with idealized perceptions on how to regulate society (Kendrick 1996b: 4).

With the role of the state in the economy growing, an important question for economic statistics became the recording of government’s economic activity itself. The first national accounts frameworks were drafted when the role of government expanded substantially against the 19th century laissez-faire state. Keynesian macroeconomics prepared the theoretical foundation of a much broader responsibility of the government. Accordingly, public finances were increasingly relevant to determine the level of national economic activity (Vanoli 2005: 27). The emergence of the national accounts was therefore strongly connected with a basically new role of the state in managing the economy (Miller 1986: 91). Yet the inclusion of government transactions in macroeconomic statistics, and especially national income statistics was highly controversial in the early years of national accounting and was long seen as one of the most difficult challenges in national accounting (Hicks 1940; Studenski 1958: 194ff.). This refers to traditionally different views on whether government activity actually

constitutes consumption or production (Swedberg 1998: 30). In the US, for instance, the idea to include government in the national accounts was fundamentally opposed by Simon Kuznets.

Yet given that the government took over an ever larger responsibility, during the 1930s⁹⁰ many statisticians claimed that its exclusion would be a serious omission (Fourquet 1980: 11). The accounting treatment of the state was challenging and led to a segregated display in the accounts, based on the perception that “the government’s various roles in the economy were held to be *sui generis*” (Perlman 1987: 141). The national accounts then framed the impact of government services with the concept of non-market production⁹¹. They developed a special perspective on government in that the boundaries of the sector are constructed according to the type of production activity. Through this the SNA employs a specific definition of what constitutes government in the first place. The SNA 1968 for instance notes that the “legislature, executive, departments, establishments and other bodies of government should be included, irrespective of their treatment in the actual government accounts. It is immaterial whether they are accounted for in ordinary or extraordinary budgets, or in extra-budgetary funds”⁹² (UN 1968: §5.25). The statistical system thus comes along with a notion of what is considered government, independent of the self-description of modern states.

The crucial question was then how to measure government activity. The basic problem for most government services remains that no price for the products and services exists since they are not traded on “markets”. Hence the national accounting principle of basing valuation on market prices cannot be applied in the government sector. The convention employed by statisticians was to measure non-market production on the basis of defined cost components. Nevertheless statisticians are well aware that this approach has clear drawbacks:

“How does one price those services of the government for which no payment seems to be made? The technique has been to argue that they are worth what is paid for them; but what is paid for them is not for the output but for the input. As the economic role of government expands, the assumption that the value of the output is defined by the cost of the inputs affects an increasingly important part of our totals” (Perlman 1987: 138).

Ward describes the resulting dilemma for economic statisticians and claims that “[non-market] commodities are frequently undervalued but clearly have a market impact on

⁹⁰ Perlman argues that three major developments influenced this decision in the US: the extension of government transfers following the Social Security Act in 1935, the switch to Keynesian stabilization politics based on Keynes General Theory in 1936, and the shifting focus towards consumer purchasing power during the recession in 1937/38 (Perlman 1987: 141).

⁹¹ Abraham and Mackie provide a framework for non-market accounting, stressing that while the SNA is widely accepted in the user community, it nevertheless omits important aspects of production that are not related to the market. In the context of GDP compilation this is especially relevant if market and non-market activity follow different trends and this appears to be the case (Abraham/Mackie 2006: 163).

⁹² Additionally the SNA groups units that are not formally part of the government (social security schemes and non-profit units) in the sector (UN 1968: §5.26).

any consideration of personal living standards and communal welfare” (Ward 2006: 333). Others stressed that accounting for government on the basis of its costs would overstate its contribution to national production since some services would actually enter production of private firms as intermediate consumption. An inclusion in national income would then amount to “double counting”. The question raised was thus if government expenditure should be recorded as full contribution to national income or if something as the value added can and should be compiled⁹³ (Kuznets 1948: 153). In this debate, many arguments for and against inclusion were raised. Most counter-arguments relate to the question of operationability in the absence of market prices and the burden on conceptual coherence if certain activities are included. Other arguments relate to the economic relevance or the comparability regarding institutional differences (potential substitution effects between private sector and state activity) (Bos 1993: 11f.).

It appears that finally the argument that labor and capital were bought on factor markets to produce government outputs led to the convention to include government services at the value of its costs (Reich 1986: 69f.). Yet still controversies remained. United States statisticians for instance insisted on recording all government transactions as current expenditures, thus not allowing the capitalization of government assets (Vanoli 2005: 77). The SNA, in contrast prescribed that the cost components of government production were intermediate consumption, compensation of employees, indirect taxes on products, *and* consumption of fixed capital. Hence only the wear and tear of capitalized goods was recognized as capital cost component in a specific period and not all gross investment. And conceptual uncertainty about the role of the state remains in the system. The SNA 1993 for instance introduced the distinction between *individual* and *collective* consumption of government services. Consumption expenditure that relates to individually consumed services included in a special balancing item into consumption of private households to take into account that the respective products and services are consumed by individuals and not the state. Government consumption in the SNA 1993 is in turn restricted to *collective* consumption. The additional item “actual consumption of households” indicates the consumption expenditure net of the rerouted government expenditure (Kendrick 1996a: 13).

But what is the relationship between the concept of government production in the macroeconomic accounts and fiscal statistics? An answer cannot be easily provided. The accounting system as described above does not predetermine the key fiscal indicators. In fact, the SNA does not directly embody any public finance perspective. Revenue and expenditure totals are not defined and therefore ambiguous in the SNA. The OECD did

⁹³ Germany for instance insisted at first to divide government expenditure into intermediate and final consumption. Only the latter was to be included in the national product in order not to increase it unduly (Reich 1994: 163).

derive its fiscal indicators for publications, such as the Economic Outlook, from the national accounts but employed an independent definition of its components⁹⁴ (Lequiller 2002b). The only indicators useful for public finance and defined in the system were “saving” and “net lending/borrowing”⁹⁵. This led to problems in the EU context. When the European authorities chose to employ national accounts data for its fiscal monitoring, policy experts did not consider that the ESA did not provide any definition of spending and revenue:

“So when the Maastricht Treaty said, well the reference point is the national accounts, the problem was discovered that the deficit was defined, but not expenditure and revenue. And that left for two years an ambiguity of what we were talking about. The EDP tables reflected this ambiguity in the sense that they do not have expenditure and revenue at all. There was no government finance perspective” (Interview XV: 1-5).

The EU thus had to find and introduce a respective definition on the basis of the ESA with commission regulation 1500/2000 (European Commission 2000). The respective indicators however were not unambiguous. This can be witnessed by comparing the respective expense and revenue definitions to the ones employed in the GFSM 2001. Generally the EU definition is based more on financial components of the national accounts and avoids imputed elements, whereas the latter includes items such as depreciation⁹⁶.

The approach adopted by the national accounts was obviously no objective reflection of reality but an outflow of the political conviction that the state should adopt an active role in the society and that its activities had to appear as part of the national income accordingly (Suzuki 2003b: 489). At the same time the national accounts do only offer the building blocks for fiscal statistics but do not describe the specific definition of income and expenditure concepts. Even the deficit concept can be altered based on

⁹⁴ A simplified accounting scheme of the general government sector is provided in Table A 2 in the annex.

⁹⁵ Yet even the operationalization of the budget balance was controversial. Representatives from Germany and the Netherlands for instance initially proposed to use net saving as a deficit indicator. The proposal was rejected, however, based on arguments that measurement problems for investment and depreciation would lead to severe problems of comparability (Savage 2005: 29).

⁹⁶ This clearly points to the fact that there are actually two broad possibilities to record public finances from a statistical perspective. Either one can focus on financial aspects and record only actual payments and transactions that are readily observable and easy to value. If at all, only straightforward accrual elements, such as for interest on zero-coupon bonds, will then be included. The respective deficit concept would then be “net lending/borrowing” as the balancing line of the financial and capital account. Alternatively one could start from production-related entries in the national accounts and hence derive more of an operative perspective and employ a broader series of accrual based entries. The latter approach would more clearly set out to explain changes in overall net worth and hence also take the valuation of non-financial capital and depreciation into account.

Institutionally the first, financially motivated statistical view on the economy was traditionally located in the central banks, whereas broader concepts of public sector activity, such as in the national accounts were employed in national statistical institutes. Yet in contrast to the national accounts, there was much less need and intention to harmonize or even stabilize the financial concepts between countries. The “central banks’ scope to respect statistical principles had generally been limited, their primary purpose being to collect information for their own needs – which could change from time to time under the influence of changing circumstances and views. Requirements of a typically statistical nature had largely been experienced by central banks as a strait-jacket” (van Wijk 2001: 2). This opposition between financial and real statistics thus typically led to some opposition between statisticians working at central banks and those at national statistical institutes (Vanoli 2005: 440).

considerations whether imputed elements should be included or whether only hard and observable, more financial transactions should be included (Lequiller 2002b). After all, accounting for government in the framework of economic statistics cannot be technically determined. It turns out that the measurement approach towards governments “indicated people’s attitudes toward government” (Comim 2001: 219).

3.2 The Frame of the SNA

The historical emergence of the approaches to estimate national income (and production), the drafting of interrelated systems of economic measurement and the standardization of the respective national approaches thus show how much conceptual work was necessary to derive the macro-economic figures that today are widely taken for granted. The definition of the macro-economy in terms of accounting can hence be understood as “the social construction process of the macroeconomy in the sense that currently presumed, *prima facie* objective and popular profiles of macroeconomies were once actively figured by a handful of academics in a specific historical context” (Suzuki 2003b: 473). The SNA is today the decisive framework that largely determines how macro-economic events are accounted for. The system applies a “universal model” (Bos 2007: 9) of the economy in order to allow the measurement of economic events. The following sub-section briefly studies the major characteristics of this universal model.

Methodological and conceptual questions became more explicit with the establishment of modern frameworks of national accounting in the 1930s and 40s. Richard Stone stated in the formative years of national accounting that there are substantial problems with facts that are ‘empirical constructs’ as opposed to ‘primary facts’ (Stone 1951: 9). While both are quantitative in nature, he argues that only the latter need no (or little) conceptual thinking to be derived. Primary facts, such as “the quantity of a commodity produced over a particular period” could be directly derived from organizational accounts. Empirical constructs, in contrast, need a conceptual or theoretical approach in order to be measured, since certain items, such as personal or national income, have no direct empirical equivalents (*ibid.*). Yet most epistemological principles still remain implicit in the SNA. In the debate that prepared the SNA 1993, many statisticians argued in favor of making theoretical linkages more explicit in the system (e.g. Reich 1991). But the rare attempts to systematize the specific perspective of the national accounts on “reality” show how complex such documentation actually is. Aukrust proposed in 1966 a set of on postulates to get a clear presentation of how national accounts want to “describe” the economy (Aukrust 1966). He argues that no less than 20 postulates are necessary to reconstruct the systems epistemology. Yet still he admits that this system is not sufficient to explain all actual choices.

3.2.1 THE EVOLUTION OF THE ACCOUNTS

The different editions of the SNA exhibit both conceptual advancement/changes as well as remarkable continuity. On a general level, the style of the reports changed substantially: Whereas the 1947 and 1993 reports mostly deal with the conceptual logic and theoretical foundations of the system, the 1953 and 1968 editions focus on more practical descriptions of the accounts and bookkeeping rules (Bos 1993: 5). A second major development is the strong tendency to increase conceptual consistency *within the system* and a strong trend towards harmonization of the SNA *with other statistical frameworks*. The transition from the 1953 SNA to the system of 1993 achieved “an almost complete unification in a common conceptual model – within the limit of certain imperfections proper to all human deeds – encompassing the SNA, the ESA and the IMF manuals on balance of payments, government finance and monetary and banking statistics” (Vanoli 2005: 126).

In order to define their frame, modern macro-economic statisticians, like their predecessors, had to establish the “production frontier” (Lequiller/Blades 2006: 98). Most agencies responsible for the production of economic statistics “felt it was prudent to confine national income and product estimates largely to final goods bought and sold in organized markets, with imputations of value confined to those non-market transactions with significant market counterparts from which values could be derived” (Kendrick 1996a: 7). As a consequence the national accounts placed great emphasis on production activities with the intention to sell the output on markets⁹⁷. Over time this production boundary remains essentially stable: all versions of the SNA include the services of owner-occupied dwellings and exclude unpaid household services, likewise services of labor, financial capital, and land are not included, since they are not defined as production (Bos 1993: 11ff.).

With regard to presentation and structure, the system passed through some changes. The 1947 report developed already an elaborated system of accounts that had to be simplified for the sake of implementability in the 1953 version. This OEEC/SNA system clearly reflected the data constraints at this time and a rather pragmatic policy orientation towards macroeconomic management and allocation of the Marshall Funds. While following the basic logic of the British accounting system, the 1953 SNA concentrated much more on the derivation of aggregated totals than on the interrelationships of detailed transactions. It provided a basic framework for analyzing flows associated to

⁹⁷ Exemptions from this rule are (1) production that is not separately paid for (government services, implicitly charged banking services, services by pension funds, life and casualty insurance companies, and non-profit-institutions); (2) Own-account production of capital goods; (3) Imputed services of owner-occupied dwellings; (4) Output used for compensation of employees.

production, consumption, accumulation, and the relationship to the external sector. But the different accounts were not integrated in a systematic way (Kendrick 1996a: 10).

THE SNA ACCOUNTS OVER TIME

1947	1953	1968	1993
		Production, Consumption, Expenditure & Capital-Formation-Account	Goods and Services Account
Operating Account Revenue Account - Insurance Companies - Priv. Pension Funds - Social Security Institutions	Production Account	Production Account	Production Account
Operating Account Revenue Account - Insurance Companies - Priv. Pension Funds - Social Security Institutions Appropriation Account	Appropriation Account	Income and Outlay Account	Generation of Income Account
Capital Account Reserve Account	Capital Reconciliation Account	Capital Finance Account	Capital Account Finance Account
Reserve Account (only realized holding gains and losses)		(Reconciliation Account) (Balance Sheet)	Changes in Volumes of Assets Account Revaluation Accounts Balance Sheets
Consolidated Account (RoW)	External Account - Current - Capital	Consolidated Account - Current - Capital	RoW-Account - Goods and Services - Primary Income and Current Transfers - Capital Account - Financial Account - Other Changes in Assets - Assets and Liabilities Account (Balance Sheets)

Source: Bos 1993: 40

Table 3: The SNA Accounts over Time

The 1968 system, in contrast, broadened the scope of the system, introduced input-output analysis and described the matrix form as a systematic representation of the covered relationships. It set out to be the basis for a much more sophisticated approach enabling economic forecasting and planning against a Keynesian background (Ward 2004b: 301ff.). It implemented a more detailed and more comprehensive analysis of the circular flow of income and production in the economy and between sectors. Specifically it aimed to design a “detailed framework for the systematic and integrated recording of the flows and stocks of an economy. It brings together data ranging in degree of aggregation from the consolidated accounts of the nation of the old SNA to detailed input-output and flow-of-funds tables into an articulated, coherent system” (UN 1968: iii). The 1968 version also put much more emphasis on sector analysis as its predecessor. The aggregated accounts were deconsolidated to facilitate the different accounts for individual sectors. Moreover, financial accounts became integrated in the framework. For each sector the net incurrence of liabilities, the net acquisition of financial assets, capital formation and saving were defined and disclosed (Dawson 1989: 13). But while the SNA 1968 provided the derivation of net lending/borrowing figures from production and income generation and the full transition from opening balance sheet positions to

the closing balance sheet, the financial part of the national accounts has for a long time been developed with much less emphasis than the other parts (Ruggles 1987).

In contrast to its predecessor the 1993 system appears generally less interested in details and engages much more in the conceptual coherence and theoretical justifications of the system. But it is the first edition that fully drafts a complete set of accounts for all sectors including balance sheets and further shifted the emphasis towards detailed analysis of sector analysis as compared to overall aggregates (Vanoli 2005: 105ff.). Although balance sheets were already discussed in the 1968 version only the 1993 SNA substantially develops the idea of an integrated stock-flow system and discusses the relevance of balance sheets in detail. It offers balancing statements, diagrammatic representations and equations as formal representations (Bos 1993: 8).

3.2.2 THE ARCHITECTURE OF THE ACCOUNTS

In their current form, the national accounts still aim to document the circular flow of resources between production and the generation of income, its distribution, redistribution and use within a nation (SNA 1993, §1.3). The central accounting aggregate in the national accounts is (gross) domestic production (Kendrick 1996a: 12). In addition the national accounts groups its accounting units according to five sectors (SNA 1993: §4.6): The *non-financial corporations sector*, the *financial corporations sector*, the *general government sector*, the *non-profit institutions serving households sector*, and the *households sector*. The basic agents of the economy are conceptualized by the SNA as “institutional units”. An institutional unit is defined as an “economic entity that is capable, in its own right, of owning assets, incurring liabilities and engaging in economic activities and in transactions with other entities”⁹⁸ (SNA 1993: § 4.2). If a unit does not satisfy these criteria then it is classified in the same sector as the unit that owns it. Unincorporated enterprises (owned by households or government) that behave *as if* they were corporations are however treated as “quasi-corporations” (and thus considered as institutional units) if they have a complete set of accounts (SNA 1993: §4.5).

The institutional units are grouped according to defining characteristics. Specifically the government sector comprises only institutional units that are defined as “non-market producers”. To distinguish between market and non-market production, the SNA assesses the role that prices play for the respective units: “Market producers are

⁹⁸ The SNA93 (§4.2) further specifies: “(a) An institutional unit is entitled to own goods or assets in its own right; it is therefore able to exchange the ownership of goods or assets in transactions with other institutional units; (b) It is able to take economic decisions and engage in economic activities for which it is itself held to be directly responsible and accountable at law; (c) It is able to incur liabilities on its own behalf, to take on other obligations or future commitments and to enter into contracts; (d) Either a complete set of accounts, including a balance sheet of assets and liabilities, exists for the unit, or it would be possible and meaningful, from both an economic and legal viewpoint, to compile a complete set of accounts if they were to be required”.

producers that sell most or all of their output at prices that are economically significant - i.e., at prices which have a significant influence on the amounts the producers are willing to supply and on the amounts purchasers wish to buy. Schools, colleges, universities, clinics, hospitals, etc. constituted as Non Profit Institutions (NPI), are considered market producers when they charge fees which are based on their production costs and which are sufficiently high to have a significant influence on the demand for their services” (SNA 1993 §4.58). Further an institutional unit is only subsumed in the government sector if it is considered to be a *public* unit, that is, if it is “controlled and mainly financed” (SNA 1993 §4.9) by government units. Private non-market producers are classified in the non-profit sector instead. The conceptual delineation of government units from other units is thus performed by the SNA in three steps: general government consists of all (1) “institutional units” that are (2) “public” and that engage primarily in (3) “non-market production” (Pitzer/Dupuis 2006: 6). Other publicly owned units are found in the financial and non-financial corporations sector and non-public non-market producers are in the NPISH⁹⁹ sector (see Figure 10).

THE SECTORIZATION OF THE ECONOMY IN THE SNA

GENERAL GOVERNMENT	FINANCIAL CORPORATIONS	NON-FINANCIAL CORPORATIONS	NPISH SECTOR	HOUSEHOLDS SECTOR
Public	Public	Public	Private	Private
	Private	Private		

Source: (Pitzer/Dupuis 2006: 6)

Figure 10: The Sectorization of the Economy in the SNA 1993

To frame the economic activity of thus defined units and sectors, the SNA introduces a special concept of economic activity. One attempt to make the conceptual framework of the national accounts explicit was recently undertaken by Reich. He reconstructs the epistemology of the accounts from the basic events that are covered. An economic event is defined as any occurrence which affects the net worth of an economic unit as measured in the balance sheet of the system (Reich 2001: 15). The most important observational object of the national accounts is the *transaction of value* between institutional units. Two types of transactions are distinguished in the system, financial and non-financial transactions. The former type covers transactions with a monetary or financial component. The latter occurs whenever a “real” economic activity is performed, such as production or consumption. The basic principle of using transactions as the basic observational element of the national accounts is that typically

⁹⁹ Non-profit institutions serving households

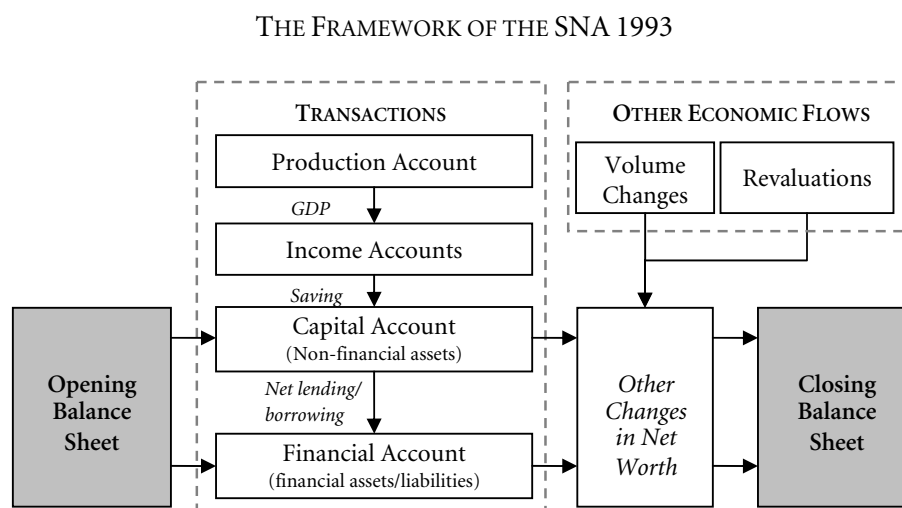
their value can be assessed at the time of an exchange: “The transactor/transaction principle ensures that the accounts are objective. It forbids the accountants to set up the accounts as they please, but requires them to work as statisticians. Values should be observed, not assumed by accountants” (ibid.: 14). This implies that economic value is in principle only recorded in the system when it can be considered to be symmetrically reflected in the accounts of two different institutional units involved in an exchange (ibid.: 18). The SNA then applies a double-entry system for each side of the transaction, leading actually to a “quadruple entry” system (Lequiller/Blades 2006: 208). Two basic identity principles govern this recording practice: the *budget identity* and the *transaction-identity*. This means that both within and between sectors total resources and liability changes should equal the total of uses and asset changes (Keuning/Tongeren 2004: 169). But observable transactions are not the only economic events covered in the system. As Reich puts it, not only value exchanges (transactions) but also value transformations (production or consumption) are of interest: “The critical point in respect of the duality of economic events is that the transformation of assets through production and consumption is the essential origin of value, but in itself is not observable. Transactions are thus statistical observations that can be entered into the accounts directly, while the value of transformations can only be inferred from the data on transactions on the basis of some accounting rule (imputation)” (Reich 2001: 24). The system therefore imputes the generation of value within units that is not observable on markets.

The SNA 1993 now conceptually links balance sheets, transaction accounts, and other changes in the value of assets. This means that stocks and flows are integrated in the system. The conceptual aim is to be in a position to fully explain the changes in the balance sheet position through flows in the respective period. This should hold for both, the economy as a whole and the institutional sectors individually. In the flow accounts transactions are separated from other economic flows, the former being “an interaction between institutional units by mutual agreement or an action within an institutional unit that is analytically useful to treat like a transaction” (SNA 1993 §3.12). “Other flows” are defined by the system as “changes in the value of assets and liabilities that do not take place in transactions¹⁰⁰”.

A decisive feature of the system is the presentation of estimates in the form of linked accounts (see Figure A 4 in the annex). The respective accounts summarize all flows that lead to a certain balancing item from two perspectives, those that increase the economic value for the economy/sector (resources) and those that decrease its value (uses) (Carson

¹⁰⁰ These entries are of two broad kinds - the first kind consists of changes due to factors such as discoveries or depletion of subsoil resources, or destruction by war or other political events or by natural catastrophes while the second kind consists of changes in the value of assets, liabilities, and net worth due to changes in the level and structure of prices, which are reflected in holding gains and losses” (SNA 1993 §3.57).

1996: 33). Three different types of accounts are contained in the system: current accounts (covering flows related to production, distribution and use of income), accumulation accounts (showing how flows are used to change stocks of assets or liabilities and how the value of the stocks is changed independent of transactions), and balance sheets (recording the value of all assets and liabilities). The balancing item of one account is the opening item of the following account. The last balancing item of the current accounts is saving. The current accounts record transactions related to production, distribution and use of income. The accumulation accounts trace what happens with the accounted resources available after consumption and records capital accumulation and financial transactions. Accounts for other changes in assets comprise non-transaction related changes in the value of asset positions, arising from changes in the volume or price. The analytical balances that receive most attention in practice are GDP, which results from the production account, net saving as the balancing item of the use of income account and net lending/borrowing which forms the balancing line of both, the capital account and the financial account.



Source: based on IMF 2007b: 20

Figure 11: The Framework of the SNA 1993

3.2.3 THE PRACTICAL RELEVANCE OF THE STRUCTURE

A fundamental issue remains, however: the accounting framework does not really determine the content of the respective entries. While the structural elements of the system exert constraints on the consistency of certain definitions and requires to record entries in a systematic way in the tables, the specific operationalization of economic events and the scope of the system is not directly determined. The conventions adopted are thus not prescribed by the accounting structure and flexibility with regard to theoretical or pragmatic definitions remains:

“This flexibility points to the fact that whatever accounting scheme is adopted is largely a matter of choice and is historically contingent [...]. The choice becomes a conventional one once national income accounts have been standardized under the auspices of international economic agencies in the later twentieth century and those agencies used their power to insist on their own measuring instruments” (Morgan 2001: 243f.).

Aukrust admits that even his systematic concept of national accounting postulates cannot fully guide actual measurement practice. He claims that actual choices will “depend on the correspondence which we choose to establish – by convention – between the logical structure laid down by our set of postulates and observable (‘real world’) phenomena. Here the range of choice is very wide” (Aukrust 1966: 189). Hence the basic structure of the SNA alone cannot sufficiently guide measurement. Rather many recommendations remain general, on the level of principles and can hence only be applied through additional interpretative work. As a senior statistician notes, the implementation of statistical standards involves cultural underpinnings, which are potentially controversial within the statistical community:

“For me it’s, when you really understand the principles of the SNA you are able to make quite every decision [...] It’s a question of cultural senses. I know that a lot of people think they make the national accounts according to international standards but in fact they have not completely integrated the SNA principles. For example the ____, when they make the national accounts, they think they apply the SNA but in fact for many details they have not integrated the SNA. They apply the SNA as they think of it, by the terms of their own system” (Interview VIII: 36-42).

The application of the SNA system is hence also a question of interpretative authority. As another senior statistician stresses, whenever the national accounting system relies on principles rather than precise rules, a strong jurisprudential background is necessary to justify the treatments adopted:

“The rule which is more precise is more comfortable for the accountant. But in general terms the principles should be there. But the principles can be really used in practice if you have a strong jurisprudential background. That if you have a strong community which is behind you, which helps you to sustain your principle. Because otherwise your weight is not very big” (Interview VII: 91-95).

The content of the SNA is determined by a specific frame it puts on the economy. Its basic observational units are “institutional units” which are grouped in sectors, according to specific criteria. Within each sector, the flow of income from production activity to its use in consumption and investment in non-financial and financial capital is traced. Moreover, stocks of the value of the asset positions are recorded at the beginning and the end of the period, and changes in the balance sheet positions not related to transactions are recorded as “other economic flows”. The system delineates the general government sector, provides information on its production, transactions with other sectors, and saving and financial balance. But at the same time the system is obviously determined by more than its basic structural features. A softer concept of the underlying epistemology, reflected in part in additional formal specifications of the system and partly in informal, cultural understandings of the system is necessary to make the system

work. The next section will therefore study the general aspects of the broader epistemology within the field of economic statistics.

3.3 Epistemological Approaches in Economic Statistics

The SNA employs a specific perspective on the economy. Yet this perspective cannot be derived deductively from the accounting titles. Rather statisticians need to define “reality” more directly and to decide what they consider to be the content of the respective accounting entries and how they should relate to each other. An inductive view on historical and current decision making processes of statisticians involved in the standard production suggests that very different strategies are employed to assess statistical “reality”. There are references to the self-perception of economic agents, the existence of unit accounting reports and observable institutional data, concepts based on economic theories, references to a (business) accounting logic, and practical assessments derived from the context of application. Kenessey for instance argues the major progress in the post war development of the national accounting systems were based on a “systematic application of macroeconomic theory”, the “introduction of the double-entry principle”, the linkage to concrete politics, and the comprehensiveness of the system to integrate the overall economy (Kenessey 1994b: 6). He hence refers to theory, accounting principles, the application context and the relation to an independently perceived “economy”. Other authors state that the applicability of a deficit concept in face of conceptual alternatives should be determined “on the basis of observed compliance with its assumed conditions and of behavioral relations found to be analytically significant” (Levin 1993: 112). This introduces some form of empirist calibration and the studying of economic behavior, viewed from an analytic perspective. This section will study how economic statisticians generally deal with ambiguities when measuring reality. First, the role and limits of economic theory will be studied. Second, the relationship to observational or analytical concepts of reality will be discussed. It will be shown that neither the former nor the latter will sufficiently narrow the scope of empirical alternatives for statisticians. In a third step I will hence discuss a non-exhaustive list of working strategies of statisticians to overcome the remaining ambiguities.

3.3.1 THE ROLE OF ECONOMIC THEORY

What is the relationship of national accounting statistics to economic theory? It is often claimed that economic theory would provide statisticians with the necessary concepts so that the relationship is considered to be one of unidirectional determination. As Reich states, “compliance between theory and measurement has always been called for, but this has been a one-way exhortation: statisticians, please follow the right road, do what theory

tells you and what you have learned at school!" (Reich 2001: 5). Yet given the empirical ambiguity of economic variables, such as consumption, income¹⁰¹, expenditure etc. the link between those phenomena and observable events needs to be conceptually established. To make use of companies' bookkeeping entries or transactions of private households one needs to develop methods for data collection and concepts for the construction of aggregates. Economics and accounting thus have a special relationship. Accounting is sometimes described as the "master metaphor" of economics, widely resting on neoclassical models of economic behavior (Klamer/McCloskey 1992: 158f.). Others claim that accounting and statistics serve as "measurement instruments" for economists (Boumans 2001: 427).

It is obvious that the SNA stands in a Keynesian tradition. It was stated above that Keynes¹⁰² even exerted strong personal influence on the actual development of the UK national accounting system (Kenessey 1994b: 3). The very fact that macroeconomic accounts as a systematic approach were designed can be substantially explained by a shift in theoretical/analytical perspective. Preceding theories, the neoclassical economics of the late 19th and early 20th century, were conceptually not interested in studying phenomena on the macro-level since relevant economic relationships were assumed to exist solely on the micro-level. It was modern macro-economics which for the first time developed a fundamental interest in national economic indicators (Hicks 1990: 528). For Meade and Stone the policy-making "frame" was given by Keynes' identities; they formed the "skeleton of National Accounting" (Vanoli 2005: 19). Most of the people working on the National Accounts in the first decades explicitly intended to establish a direct connection with the Keynesian framework¹⁰³ (Perlman 1987: 140). This relationship between Keynesian economic theory on the one hand and the provision of statistical source data

¹⁰¹ The definition of income in economic theory has prominently been proposed by John Hicks. He defined income essentially as the amount an individual can spend during a period and still be as well off at the end of the period (Hicks 1946: 171ff.). The crucial aspect in this definition of income is the idea that wealth of a person can be measured by the capital value of all property including prospective income. Hence, for Hicks' theoretical definition of income the valuation of all capital at the beginning and at the end of the accounting period is necessary. The ex post income can be compiled as "Consumption plus Capital accumulation" (ibid: 179). This is the core idea of capitalistic value production; there is a capital value that is deemed measurable. Income is then related to changes in wealth and does not simply consist of money received but results from a change in the net property, constructed as the capital value. As academic accounting scholars highlight this definition of income is only operable if one assumes the existence of perfect and complete markets delivering an exchange value of all the property possessed by economic agents (e.g. Beaver 1998). This explains why accounting is often said to be neoclassical in its paradigms. The "fair value" principles promoted by international financial reporting standards attempts to apply a hypothetical exchange (market) value as widely as possible. In practice, however, historical cost is the dominant valuation form for capital.

¹⁰² Other theoretical contributions have also been inherently related to the structure of the accounts as developed in many countries, the OEEC system and the first SNA: Kenessey stresses the role of Ragnar Fritsch, Simon Kuznets, Irving Fisher, Leontief, Jan Tinbergen and Morris Copeland (Kenessey 1994b: 2).

¹⁰³ The relevance of concepts such as total final outlays in an economy, investment outlays, disposable income, government spending and revenue in Keynes theory have crucially motivated respective statistical work (Kendrick 1970: 305). Still today does the basic system crucially rest on assumption that aggregate demand determines GDP (Dawson 1989: 11).

on the other has deeply influenced the production of macro-economic data. National accountants saw themselves largely as a “third party” in the whole process. When drawing up the macro-statistical frameworks in the 1940s a characteristic division of labor emerged: Economists produced the “theory”, national accountants “translated theory into ‘concepts’”, and statisticians actually supplied the data that was supposed to fill the accounting framework (Desrosières 2000: 175).

The relationship between theory and statistics is in fact not unidirectional, though. It rather appears that macroeconomic data gathering and the development of macroeconomic theory have been interdependent¹⁰⁴. Statistics addressed macro-phenomena before Keynes drafted his theory and helped him to develop and display his ideas. It can be said that actually a “statistical revolution”¹⁰⁵ (Patinkin 1976) prepared the ground for Keynesian macroeconomic policy in the first place. In the US Simon Kuznets’ system was established three years before the publication of Keynes’ General Theory, motivated basically by pressing empirical and less theoretical questions. The national accounts are hence obviously more than just a tool to operationalize Keynesian concepts. The statistician Fourquet, for instance, rejects *any* superior role of economic theory in the statistical process and stresses that instead economic statistics would more or less only process the data that primary statistics provide (Fourquet 1980: 4). He thus discards the idea that theoretical observations would pre-structure the observational categories.

The relationship between economic theory and economic statistics became problematic with the demise of Keynesianism. While Keynesian doctrines were still dominant the 1950s and 1960, the 1970s witnessed the well known simultaneous occurrence of inflation and unemployment. This, of course, questioned the basic assumptions of Keynesianism¹⁰⁶ (Lucas/Sargent 1979). Marginalist economists, who never fully accepted the macro-approach of national accounting, gained ground. The compromise governing post-war economics, the neoclassical synthesis, was openly rejected. In his Nobel lecture Edward Prescott stressed that until the late 70s macroeconomic concepts were generally be seen as detached from the rest of economics, i.e. the neoclassical approach (Prescott 2006: 203). Keynesian theory was challenged by monetarism, new classical macroeconomics and by proponents of real business-cycle theory (Sachs/Larraín B 1993:

¹⁰⁴ The interdependence between economics and accounting has already been highlighted in the early 19th century: “These two sciences are indispensable to each other. They lend support to each other and draw their convergence a consistency, a power, and a brilliance which they could never attain in isolation” (Ganilh, cited in Kendrick 1970: 300f.).

¹⁰⁵ Patinkin speaks of a revolution, referring to three major innovations compared to preceding estimates of national income: Firstly, the broad discussion and conceptualization of solutions for methodological problems; secondly, the increase in detail and quality of the estimates; and thirdly the systematic preparation of officially compiled series of annual estimates as opposed to single and incoherent figures for selected points of time (Patinkin 1976: 1104).

¹⁰⁶ The Lucas Critique argued that in a dynamic environment the Keynesian approach was not valid: Assumptions of economic agents would influence their behavior. It was not the effect of policy variables, but the effect of policy rules that should be studied in a dynamic environment (Prescott 2006: 205).

15). All these theories proposed different answers to the problem of economic instability. The focus of macroeconomics shifted substantially as a consequence. Whereas Keynesian analysis was based on assumed or observed relations between macro-aggregates the new approach requested a rigorous micro-foundation of the explanations (see Hoover 2001: 72). Today, virtually every macroeconomic study has strong links to micro-reasoning, thus bringing macroeconomic reasoning again closer to microeconomics¹⁰⁷.

Surprisingly, however, the result was not to abandon macro-economic accounting. On the contrary, national accounts statistics are today even more widely used in the theoretical and practical discourse. Yet the influence of different economic theories became more complicated: “Keynesian and classical – soon called neoclassical – influences got combined, in some cases with surprising results” (Vanoli 2005: 80). Neoclassical arguments and reference to micro-logic of markets for instance became increasingly important for justification of treatments. Some experts, for instance, claim that national accounting is today directly based on neoclassical concepts. Hulten argues that the SNA 1993 “provides an internally coherent set of guidelines based on (or, at least, consistent with) the neoclassical model of consumptions and production” (Hulten 1996: 150). It follows that national accounting “is now thoroughly under the influence of developments in micro-economics and the conditions assumed to govern market efficiency and possible state intervention in the market” (Desrosières 2000: 175). The extensive conceptualization of market prices as a reference for valuation in the system – even where they are not theoretically derived – shows this clear reference to market-based logic¹⁰⁸. The relationship between national accounts and economic theory is thus complex today. The text of the SNA 1993 acknowledges the existence of concurring economic theories and claims to be neutral in this respect:

“National accounts are [also] used to investigate the causal mechanisms at work within an economy. Such analysis usually takes the form of the estimation of the parameters of functional relationships between different economic variables by applying econometric methods to time series of data at both current and constant prices compiled within a national accounting framework. The types of macroeconomic models used for such investigations may vary according to the school of economic thought of the investigator

¹⁰⁷ The problem with the theoretical micro-foundation of macroeconomics is fundamental, however. As Akerlof notes, the neoclassical reconciliation of macro-relationships led to five “neutrality results” that questioned most of the previous assumptions on which macroeconomic policy had traditionally been based (Akerlof 2007). The assumption of Ricardian households and the Permanent Income Life Cycle Hypothesis (PILCH) for instance led to the theoretically derived conclusion that fiscal policy measures are much less effective than previously assumed. As a consequence the basic rationale to gather economic statistics for the purpose of macro-management of the economy could be questioned. The breakdown of the paradigms of Keynesian macroeconomic governance thus fundamentally influenced the relationship between theory and national accounting. The radical reorientation of economic methodology towards micro-foundation left the aggregate realism of the national accounts in the defense.

¹⁰⁸ The role of neoclassical theory is for instance prevalent in the valuation of capital in the system. In order to derive economically meaningful estimates of depreciation a virtual market for used capital goods needs to be constructed that by definition abstains from market failures or rigidities and rather assumes the existence of perfect competition and information. In face of market failures Vanoli stresses that even the price for current investments might not be fully adequate from an economic perspective (Vanoli 2005: 355).

as well as the objectives of the analysis, but the System is sufficiently flexible to accommodate the requirements of different economic theories or models, provided only that they accept the basic concepts of production, consumption, income, etc. on which the System is based” (SNA 1993: § 1.33).

Yet some experts state that economic theory does influence national accounting concepts. Especially the recent conceptual impact of neoclassical economics is evaluated critically by some senior statisticians. Ward even sees the task of the statistician to defend the measurement framework against too many changes prescribed by economic theory (Ward 2006: 327). Vanoli stresses that the role of macroeconomic statistics is currently not to provide data for the test of micro-theories but rather to serve as some sort of background information, forcing micro-modelers to take imperfect competition and market failures observable in the macro-accounts into account (Vanoli 2005: 459).

It follows that economic theories provide basic guidance for measurement, but they are obviously not enough. It appears that the measurement process is dependent on (potentially conflicting) theories and (potentially arbitrary) decisions on how to cope the methodological and conceptual questions that occur on the empirical level. In principle the “matching” of theories and constructed empirical measures might be heavily disputed. Often theoretical links and presumptions remain implicit. Sometimes the emerging rules can be seen as a mere compromise between different conflicting theoretical demands (Bos 2006: 1). The degree to which macroeconomic data is accepted as representing reality and thus considered feasible for diagnosis, empirical tests, or predictions is rather an empirical phenomenon that needs to be investigated.

Operationalization is obviously more than just a simple transfer of theory to data. It usually involves interpretation due to ambiguities and unresolved relationships between observed facts and theoretical phenomena. The proceeding from theoretically assumed relationships to statistical recording involves *active* translation of concepts and thereby needs to “construct” empirical facts in the first place. This is not a new observation:

“[It] is one thing to build a theoretical model, it is another thing to give rules for choosing the facts to which the theoretical model is to be applied. [...] It is never possible – strictly speaking – to avoid ambiguities in classifications and measurements of real phenomena. Not only is our technique of physical measurement unprecise, but in most cases we are not even able to give an unambiguous description the *method* of measurement to be used, nor are we able to give precise rules for the choice of *things to be measured* in connection with a certain theory” (Haavelmo 1944: 4, italics in the original).

Often theory remains silent or ambiguous on matters that need to be solved at the empirical level. When compiling the national accounts statisticians had to decide how to integrate public services into their national income estimate; liberal economic theory - by principle uninterested in the economic activity of the state - provided no practical guidance in this respect. Yet, national accounting had to move on and solve the conceptual challenges associated with the state (cf. Fourquet 1980: 11f.). As a consequence the development of national accounting is partly detached from economic

theory. Even before the Lucas critique did national accounting and economic theory began to ignore each other by developing the predominantly operational SNA 1968 on the side of national accountants and by dropping national accounts from the agendas of economic research (Vanoli 2005: 457). Reich argues that as a consequence economic statistics are today widely independent from theory:

“As scientists we have been trained to view measurement as a means of providing objectivity. A measured figure is true and provides knowledge, we are told, unlike value judgements, which are immeasurable. [...] The interesting question here is: what has economic theory to offer in respect of the norms and objectivity that are involved in measuring an economic figure? National accountants have come to the point where they politely say ‘Not much’” (Reich 2001: 2).

This is also confirmed by statisticians deeply involved in the process of standard development. Experts confirm that while initially a strong link to Keynesian theory was established, over time macro-economic measurement developed its own principles:

“What Stone and the others did, he tried to quantify Keynes’ theories. He tried to measure consumption, saving and capital formation. In the early stages it was simply quantifying the new ideas of Keynes, growth, imbalances. [...] But to be frank, the 1993 revision and the current one have been entirely done by statisticians, who have been not thinking like economists. They like to think they can measure, categorize things, put them in sectors and so on” (Interview XVII: 19-24).

To summarize, Macroeconomic statistics emerged in a strongly Keynesian context. The statistical concepts emerged in parallel to theoretical and empirical phenomena. Available data allowed theoretical advancements in the new discipline of Macroeconomics. Once theoretical principles had been established, they also influenced measurement concepts, though. Right from the beginning macroeconomic data could neither be considered as independent observations serving to test theories nor as direct equivalents of theoretical constructs. But Keynesian principles provided the background for a stable compromise between empirical operationalization, theoretical frame, and practical purposes. The demise of Keynesianism, in contrast, created a difficult situation: The theoretical bases were contested; the major practical purpose of the statistical framework turned upside down, and different theoretical influences became combined. What is more, economic theory (and neoclassical theory in particular) is highly ambiguous on the measurement level, creating challenging obstacles for statisticians. The crucial question is thus how statisticians actually decide on measurement questions under such conditions. Given that observed events and economic theory are sometimes ambiguous, conflicting, or considered insufficient for defining statistical treatment the question arises, how statisticians in practice decide what constitutes reality.

3.3.2 RIVAL CONCEPTS OF ECONOMIC REALITY

To understand the actual choices made by economic statisticians when dealing with ambiguity it is thus crucial to examine how statisticians in practice frame reality and how they assess what it means on an operative level. Alain Desrosières studies the attitudes of

statistician and users towards reality. He argues that different cognitive perspectives of the relationship between figures and “reality” substantially influence statisticians’ “percepts, tricks of the trade, justifications provided to users”¹⁰⁹ (Desrosières 2001: 339). A glance at the statistical debate shows that the fundamental conceptions of reality are far from harmonious within the statistical community. At a very basic level, economic statisticians entered into conflicts about what they considered appropriate ways to define statistical reality. It turns out that the degree of statistical constructivism, i.e. the extent to which statistical definition should influence the numerical indicators instead of simply aggregating already existing information, was itself controversial. A review of selected expert contributions suggests that there was a struggle whether *institutional* or *functional* concepts should be used. In a second, but related dimension, the question arose whether statistical information should be based on *theoretical concepts* or rather kept close to *direct observations*.

THE CONSTRUCTIVIST IMPACT OF STATISTICAL CONCEPTS

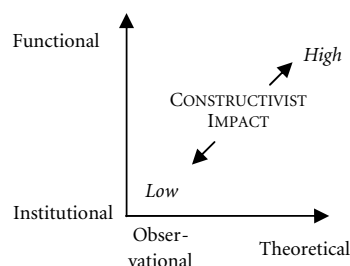


Figure 12: The Constructivist Impact of Statistical Concepts

Institutional approaches basically start from the idea that the basic categories from which statistical figures should be derived are existing units in their legal and organizational existence. An “institutional approach”, as opposed to a “functional approach” basically favors the idea to show “maximum respect of national institutional arrangements” (Vanoli 2005: 463) by not altering observed data on the basis of conceptual categories. Remarkably the preference for either of the two approaches obviously differs sharply between national statistical traditions. In the early years of international standardization

¹⁰⁹ He discusses four possible attitudes: Metrological realism, accounting pragmatism, and argument support, a constructivist perspective. Desrosières thus argues that there are conditions under which statisticians reflect on the constructivist impact of their work: whenever situations arise that are “marked by controversy, crisis, innovation, and changes in the economic, social and administrative contexts” (ibid: 349f.) statisticians became potentially aware of their role in defining reality for want of unambiguous necessities. The awareness about the fact that data is subsequently used as “reality” in later discourses would then alter the rationales and strategies towards working with ambiguities in the measurement process.

of the national accounts an approach of institutional aggregation (coming from the micro accounts) in France rivaled with a strongly functionally based approach in the UK (Miller 1986: 91f.). The basic question addressed in this dimension is whether the records observed in the micro-accounts (i.e. the source data) should be kept. Questions, such as what should be considered as income would then be answered according to categories contained in the unit's own accounts (Ruggles 1996). In the development of the SNA 1993 many statisticians have explicitly demanded to keep the core accounts closely linked to institutional self presentations (Bochove/Tuinen 1986). Others, however, have clearly suggested that a recording of exchanges as they occur will lead to serious mistakes, since "appearance" was different to "reality" (Vanoli 2005: 158). The argumentation that the self-representation of economic units in their own accounts may not reflect what is analytically intended to be measured has a long tradition. Barna argued in the 1950s that it "cannot be assumed without investigation that the economic significance of items described by the same name is the same in all countries" (Barna 1953: 148).

This thus leads to the second dimension that is clearly linked to the institutional-functional tension. The underlying argument is that the analytic interest in the economic phenomena might extend what can be readily observed in the form of market transactions. A debate between those in favor analytically separating observational transactions and imputations and those stressing the need for an analytically designed system keeping imputations at the core took place at a conference in Noordwijkerhout in the Netherlands in 1982. Essentially the question discussed in this debate is how far national accounts should actively frame and adjust or rather passively reflect existing primary data. Vanoli describes a "Dutch school" of national accounting that is primarily interested in keeping a narrow system restricted to transactions which are directly observable. The aim was apparently to limit the amount of imputation and re-routing in the system. Vanoli states that this position was favored by some other groups, such as "the Germans, the British, the Norwegians, and in the USA Nancy and Richard Ruggles"¹¹⁰ (Vanoli 2005: 463). Yet the analytically motivated statisticians could in the end prevail – at least partially. The SNA 1993 for instance includes non-monetary transactions and imputations. For the former a transaction is clearly said to take place but the value needs to be "estimated" or "indirectly measured". Imputations, in contrast should be used "for the kind of situation that involves not only the estimating of a value but also constructing a transaction" (SNA 1993: § 3.34).

¹¹⁰ Reich for instance argues that the support for national accounting in Germany was initially weak. Dismissed by German after war governments as socialistic planning instrument it was only politically accepted when the social democrats came to power in 1967. This unfriendly environment obviously led the German statisticians to draw up the national accounts in a way that kept conceptual questions at bay (Reich 1994: 162).

In practice the question does not only concern cases where values are not observable at all and hence have to be estimated more or less from scratch. Often in the statistical work data is available and the question is rather the assessment of their reliability. Richard Stone had to deal with similar questions right from the beginning. He often faced trade-offs between theoretical relevance and reliability. When he was combining heterogeneous alternative sources for the measurement of industrial production, for instance, his practical solution was to select the indicators he believed to be most accurate and to test them for logical consistency. Stone thus explicitly rejected to rank measurement precision over analytical relevance:

“It is often said that where approximate data are under consideration it is unsound to apply elaborate methods which are thought to be unduly refined, but it would seem incontestable that within broad limits it is better to estimate even roughly what we want to know, rather than to determine with comparative precision something which is seriously misleading” (Stone/Stone 1939: 481).

In the 1947 UN report the trade-off between economic relevance and reliability is explicitly discussed. The need for imputations was evident, since not all transactions that appeared theoretically relevant could be observed as exchange transactions on markets (or the market price did not reflect the assumed “real” value). The existence of an “operational basis of calculation” is seen as important for “most of the practical uses” (UN 1947: 8). Hence the paper recommends indicating where values are imputed (*ibid.*: 18).

When looking at the practical implications of those discussions for the definition of statistical standards it is important to consider that changing the concepts can either increase or decrease the distance between observational data and theoretical constructs. As Bos notes, the role of assumptions in the data production process can affect the ratio between actual observation and imputed parts in both directions (Bos 2007: 32). This highlights a separate logic in the change of the SNA concepts: There is a correspondence between an analytically defined category and the possibility to fill this category with observed data. Conceptual changes can have both effects: They can come closer to observable data, thereby reducing the amount of assumptions and imputations. Or they can state that economic reality is different from the representation in the unit accounts and thereby increase the amount of estimation. Overall Reich states that there are dangers in both directions

“One can see the seductive danger of extending the imputation technique to other areas outside the market. If a pure transaction account is inarticulate in its meaning this is matched by the opposite danger of overarticulation, of too many imputations that are uncontrolled” (Reich 2001: 27).

One could expect that accounting principles guide the assessment of reality. Yet often there is substantial discretion when the basic principles of the system are applied. Take for instance the implementation of the accrual recording principle for the case of taxes. The SNA 1993 and the ESA 1995 (ESA 1995: § 1.57) remain very general in this respect.

“The question of accruals on taxes is very difficult, because there is typically the tension between principle and practice. Both are legitimate. If you apply full accrual principles they are really far away from reality and you have too much practical problems you cannot treat. So honestly it’s a problem which is for me completely unresolved. I don’t see how to escape from that” (Interview VIII: 71-75).

The Eurostat Manual on Deficit and Debt therefore prescribes more detailed methods on the compilation (Eurostat 2002: 121ff.). For instance with regards to taxes, three approaches are allowed. Yet a former Eurostat statistician, who was closely involved in the discussion of the issue, argues that the acceptance of different methods was not satisfying for him:

“[We] said there should only be one method. The assessment with the coefficient is a good method. Of course we will have to precise the calculation of the coefficient. But this is technical. We can have an agreement on this. But there was another part saying, no, we can have what we call the time-adjusted cash. And you can have in fact something, which is the French method, which is between 1 and 2. And we agreed on all three. It was difficult at that time, because many countries at that time were using pure cash. And so people said, ‘ok, pure cash is very bad. But time-adjusted cash, ok, it’s maybe a proxy’. It’s maybe a proxy, but in fact it’s not very good. For me in all the countries that are using the time-adjusted cash, you have I, would say, an overestimate of the issue” (Interview VI: 243-252).

It follows that at the level of concretization of general principles, substantial uncertainty arises that makes a clear principle-based approach ambiguous and does not solve the problems for statisticians.

3.3.3 WORKING STRATEGIES

Neither economic theories nor a statistical conception of ‘reality’ seems to provide sufficient answers for practical measurement questions. So how do statisticians generally deal with ambiguous questions? How do they select and justify specific treatments? Based on self-reflections within the statistical literature and various documents stemming from statistical discussions this sub-section tries to outline some strategies that can be inductively found at work in practice. I will concentrate on a non-comprehensive list of five selected approaches that appear relevant: (1) Pragmatic decision making; (2) management of data common-sense plausibility; (3) conceptual and numerical consistency to neighboring sources and frameworks; (4) the establishment of an accounting logic; and (5) reliance on explicit formal procedures for decision making.

3.3.3.a *Pragmatism and Policy Purposes*

An often found pattern in actual decision making procedures appears to be pragmatism. Bos observes that many treatments embodied in the SNA show the nature of compromises. He argues that in many situations various arguments against and for specific treatments could be found and the respective advantages did depend on different purposes and national circumstances (Bos 1993: 12). This highlights that a major influence on statistical treatments stems from the practical needs of needs of policy-makers and analysts. It is important to keep in mind that the major initiative to draw up

macroeconomic accounting in a systematic manner came directly from governments. Still today, governments are one of the main user groups. By reference to statistical data reflecting “economic movements, policy-making agencies including the central bank can see if they are on track with respect to national objectives regarding growth, price inflation, the trade balance, unemployment, and so on, and if not, they can take appropriate actions” (Kendrick 1996a: 5). In addition international organizations are key users and promoters of the international statistical framework. The Marshall Plan, the OEEC/OECD, the Bretton Woods Institutions, and the EC triggered the spreading of economic statistics in terms of the SNA (Vanoli 2005: 429). Given the practical purpose in terms of communication about economic conditions and providing a supportive frame for practical macroeconomic policy-making the national accounts emerged as a decision- and action-oriented framework (Desrosières 2001: 345).

The initial practical pressure on the national accounts was thus not so much to directly measure “reality” but to create figures close to the purpose of war financing and fighting massive unemployment. It was a common understanding that economic “facts must be ‘designed’ and ‘arranged’ to be useful for practical economic operation (Suzuki 2003b: 485). The conventions underpinning national accounting can thus be seen as the product of political programs rather than as the natural result of attempts to ‘objectively’ measure national production of wealth. Miller argues that the establishment of national accounting was an inherently political process, strongly embedded in nation specific ends that were pursued in its formative phase. He sees macroeconomic frameworks as “programmes” that “render reality in such a manner that it can be programmed” (Miller 1986: 95).

This pragmatic stance of economic statistics also explains why definitions of national product and income initially considerably changed subject to differences in their primary purpose (Marcuss/Kane 2007). In fact the practical multi-purpose orientation was a major reason for Richard Stone to adopt an *accounting* framework that allows for representation of different aggregates, subject to the specific decision-making problems (Comim 2001: 219). Stone explicitly argued in favor of flexible definitions: “Which valuation of outlay is most appropriate seems to me to depend mainly on whether one is dealing with questions of productivity or of the situation facing consumers” (Stone 1943: 82). This is also witnessed by Stone’s claim in his Nobel lecture, that many accounting conventions have been adopted on the basis of pragmatic evaluations and are thus subject to redefinition whenever analytical demand changes: “This treatment, whereby commercial products are valued at market price, government services are valued at cost and unpaid household activities are simply ignored, is not a matter of principle but of

practical convenience. It can be defended, therefore, only on practical grounds” (Stone 1984: 123).

With the decline of Keynesian economic policy paradigms the national accounts lost some of their importance for macro regulation. Yet they nevertheless prevailed as a means to analyze economic events. National accounting regained importance in the international and European context (fiscal surveillance in the EMU). This was not related to planning anymore (Miller 1986: 96) but provides a standard framework for fiscal analysis, often in terms of sustainability studies (Hartwig 2005: 6f). Policy-making and also changes in financial markets led to an increased attention towards short-term developments and financial aspects (Vanoli 2005: 447f). As a consequence flow-of-funds analysis and infra-annual national accounts were developed and enhanced. It follows that a pragmatic basis for accounting conventions is often considered feasible for the justification of specific accounting treatments¹¹¹.

3.3.3.b *Pragmatism and Common-Sense Calibration*

There is also evidence that statistical conventions adopted in practice reflect wider cultural understandings of specific events. As Copeland noted in the early years of US national income estimation, the question on whether to account income on a cash or accrual basis depends essentially on the question how far one wants or needs to deviate from ‘common sense’ definitions:

“In general the accrual basis, where it differs appreciably from the receipt basis, represents an increase in the accuracy of apportionment of income between different accounting periods, and the question as to which basis to use is partly one of how great a degree of refinement is warranted and partly one of how wide a deviation from common sense usage any given refinement requires” (Copeland 1938: 9).

The contingency of statistical concepts to these broader ‘common sense’ understandings can also be witnessed by monitoring treatments over time¹¹². A case in point is the treatment of military expenditure in the national accounts. While initially the SNA treated all military expenditure as current spending, thereby rejecting the idea that spending on warfare constitutes ‘productive’ activity and would hence involve ‘economic

¹¹¹ This mirrors the development in public sector accounting: Mardi studied the emergence of accounting treatments for public sector issues in New Zealand, Sweden, and the UK. He finds that a number of problematic issues have been solved pragmatically without being related to a theoretical basis (Marti 2006: 65). In the context of economic statistics, accounting pragmatism may also be related to politically favored pictures. Vernon argues that the relationship between economic statisticians and policymakers may be somewhat problematic: “whenever the technicians are obliged to put together a complex aggregative measure, such as GNP series or a consumer price index, they are obliged to make many weak estimates in order to provide some of the missing pieces of the jigsaw. When data of that sort figure prominently in the total, it is difficult for the technicians to defend an unbiased estimate against a biased one” (Vernon 1987: 63). This clearly suggests that a method is more likely to be questioned if it produces results that are unfavorable or for data users.

¹¹² This is mirrored by strategies in the accounting community. The FASB for instance explicitly acknowledges that accounting treatments should emerge gradually and slowly to get acceptance. In the conceptual statement in 1984 the board states that it “intends future change to occur in the gradual, evolutionary way that has characterized past change” (FASB 1984: 10).

assets', this boundary shifted gradually over time. The SNA 1968 already allowed for recognition of military facilities that could be used for civil purposes, such as dependent's housing facilities. The SNA 1993 then extended the boundary to military hospitals and equipment that is durable and of potentially civilian use while still excluding weapons, facilities and goods for solely military purposes (Expert Group 1988b: 35). In the current update of the 1993 SNA this position was again challenged by some discussants: even weapons should be considered as investment and therefore regarded capital spending. In a letter to the ISWGNA a senior statistician involved in earlier discussions recapitulates the rationale of the older treatment:

“[It] seemed evident at that time that military operations in war time and by extension military services in general were not considered to be an activity similar to economic activities. My own interpretation is that implicitly military operations were not considered a process of production. [...] [T]he origin of the treatment adopted by the SNA was rooted in the experience of the recent World Wars” (Vanoli 2004).

Another example is the definition of cost components for government production. The historical contingency of the specific definitions provides clear evidence for the fact that the definition of the 'cost' of government services is essentially a matter of discretion. For instance during the SNA 1968 update a number of countries “felt strongly that it was illogical and inconsistent that the SNA recommended that rent be imputed on government owned houses occupied by individuals but not on buildings owned and occupied by government in the conduct of its business. Further, misleading changes in government expenditure were recorded when government moved from owned to rented accommodation or vice versa” (Harrison 1994: 179). It was hence proposed to include an imputed (virtual) cost component in the form of rent for owned buildings to make the recording of the event of a movement from an owned to a rented building plausible. In a similar vein a recent discussion about the imputation of a cost of capital charge followed the same argument. Obviously reflecting the large and growing analytic interest in comparing private sector and public sector production costs, a group of statisticians proposed to impute a return on employed capital in the public sector to make output estimates comparable to prices that would likely be charged by private companies for the same products/services (and assumed to include a return on capital) (Carson/Harrison 2006). As a statistician argues, this adds another cost component reflecting the practical idea of 'opportunity costs' in the idea of government spending:

“So there is another cost which is the fact that the government has not invested in the financial market to obtain some results – opportunity costs – and so these people say: On top of the cost of depreciation of the capital you have to add something which is the return to capital cost, the interest that the government has forgiven, for this investment. This is called cost of capital services. So this idea is floating and has been approved by the AEG [Advisory Expert Group on National Accounts] in principle. But many countries especially European countries do not want to hear about this. There are two reasons. The first is, that they say, it's reasonable to apply it to the private sector but not to the government. The government is special. The government doesn't invest on the financial market. It doesn't need to borrow so much; it can raise taxes to finance its investment.

[...] Second thing is they say it's going to introduce an imputed element in the measurement of the output of the government" (Interview VII: 147-158).

So the rejection of the approach by some countries is based on either the general claim that the case does not apply for government or that measurement would not be possible. In fact, the issue paper to the national accounts expert group accepts practical limitations as the most valid objection to the proposal, namely the lack of capital stock data but holds up that in principle such a recording of cost should be undertaken (Carson/Harrison 2006: 6). It is thus obvious that the cost components are revised according to general understandings of what is the adequate composition of such an estimate. This is typically justified on the basis of typical events to be covered and the absence of artifacts and theoretical justifications are used to argue for or against a specific convention. In the end, the actually proposed treatment is decided on a rather pragmatic basis, considering whether the measurement can be done on a reasonable basis or not. Moreover, a basic observation when looking at statistical debates is an inherent structural conservatism. Many questions are obviously dealt with on a rather pragmatic base, with strong links to experience in other cases. One senior statistician explains that most statisticians, when asked about a new treatment, most would frame the system according to existing rules without reference to basic theories:

"They would say, here are the rules, this is what we do and you can learn how to follow the rules. And somebody comes up with a new case, and I remember this is like another case, and in the other case we did this, so here we should do the same. So at the working level, it's possible to get by without having a lot of basic theory" [Interview III: 1-5].

The revision of the 1968 SNA was clearly initiated in a modest manner with a clear intention not to change too much of the existing system and rather to simplify and clarify problematic issues. Ten international experts debated the basic rationales and limits of the intended update in 1980 and stressed "that the burden of proof was upon those proposing changes to demonstrate that they are entailed substantial advantages" (Expert Group, cited in Harrison 1994: 170f.).

The pragmatic strategies described in this subsection most likely explain the solutions adopted whenever the stakes in the solution are not very high (e.g. the impact on the resulting figures are marginal) or a consensus exists. Typically the technical level discussion is then delegated to small task forces or subgroups of those and formulated as a recommendation to higher ranking bodies. The convention may then be proposed as a consensus on the best available solution.

3.3.3.c *External Data and Concept Consistency*

A third important strategy to deal with accounting ambiguity is the harmonization of the figures provided by economic statistics with rival data sources. As documented above, initially different macroeconomic standards developed in different areas and even the

different manuals of the IMF were mutually not reconcilable. With the end of the Keynesian consensus and financial markets becoming more complex, however statisticians clearly expressed the demand to harmonize their manuals in order to stress their expertise: “Harmonization of the SNA with the statistical systems of the Fund is important, because Fund data will be the statistical source for the new SNA capital finance accounts” (Dawson 1989: iii). During the update of the second edition of the SNA statisticians clearly felt the need to bring the different systems in line and to solve inconsistencies especially between the SNA and the different IMF manuals:

“So we started from different, slightly different perspectives, but with a very strong sense, during the 93 round of coming together. The same was true with the balance of payments and the money and finances statistics. So basically we want to have a single framework of economic statistics that are as far as possible consistent” (Interview III: 157f.).

In addition to the mutual harmonization of statistical manuals, business accounting has been an important source of conceptual and practical approaches. Already in the basic set up of the system national accounting drew substantially on concepts employed by business accountants although not all solutions were followed (Suzuki 2003b: 487f.). The complete coherence to business accounting was anyway not possible, to start with. As long as commercial accounting was not internationally harmonized, national accountants tended to stress that business accounting practices “vary across countries in aspects of recognition, timing, measurement [...]. The resulting diversity of accounting standards among countries has been precluding any serious attempts at harmonization with statistical guidelines”¹¹³ (Laliberté 2004a: 34). However, with the recent emergence of international accounting standards and the spreading of their application (Botzem/Quack 2006) the situation has changed and statisticians now encounter a rather consistent international framework of accounting ideas both in the private sector and the public sector. The IPSAS-Board for instance recently initiated an attempt to formally reconcile conceptual differences between the concepts of economic statistics in the fiscal sector and public sector financial accounting as embodied in the IPSAS (IPSAS-Board 2005). A respective Task Force on the Harmonization of Public Sector Accounting (TFHPSA) began to study the different conceptual definitions between the IPSAS, the GFSM 2001, and the SNA¹¹⁴. The explicit aim was to bring the different frameworks in line wherever this is possible (TFHPSA 2006b). Generally statisticians claim that the

¹¹³ In some cases the nature of “ad hoc” definitions of accounting statements is seen as an obstacle for its meaningful use in economic statistics. The lack of “a sound conceptual basis” is for instance seen in the partial application of the fair value accounting for assets (Laliberté 2004b: 28).

¹¹⁴ In October 2003 the international Task Force on the Harmonization of Public Sector Accounts (TFHPSA) was created by the IFAC-PSC, the IMF, the OECD, and Eurostat (TFHPSA 2006b). The Task force held six meetings until March 2006. It was organized along two working groups. One group analysed the differences between accounting standards and statistical guidelines and worked towards propositions to narrow these. The other worked on public sector issues in the context of the SNA updating. Members were predominantly senior statisticians and senior accounting policy officials from a broad range of countries and international organizations.

introduction of fair value principles into company accounting further narrows the differences between national and financial accounting¹¹⁵ (Laliberté 2004a: 37). The explicit cooperation between statistical and accounting bodies at the international level thus provides the forums for conceptual isomorphism¹¹⁶.

Business accounting, or more generally, unit accounting plays a prominent role also for reasons of practical consistency. As argued above, many statisticians stress that micro accounts have an epistemological relevance on their own (Ruggles/Ruggles 1983: 403). The interest of actors in their own unit and the variables they regard as important may differ substantially from what macroeconomists want to know. Kuznets generally criticized that the accounting definitions introduced by the national accounts would introduce theoretical values with little relation to the units own understanding of their accounts:

“If one were willing to accept the judgments of the various economic units as to what they think their net income or product is, as expressed in their accounts, one could resolve many conceptual and classification problems. But obviously no such acceptance is feasible when the definition and distribution of national income is governed by some theoretical concept of the operation of the economy” (Kuznets 1948: 153.)

While the discussion initially focused on business and household sectors, the same problem applies to the government (Bloem 1988: 291f.). Hence it comes down to the question what the role of units’ own accounting (i.e. in most cases financial accounting) is. The analysis of typical argumentation in issue papers reveals that the relationship is not solved, yet. While some statisticians explicitly state they prefer a close link to business accounting whenever this is possible, others stress the necessity of independence from these concepts. Depreciation for instance emerged as a different concept in the national accounting framework, both regarding terminology and content¹¹⁷ (Vanoli 2005: 327). Others highlight the role of business accounting as a practical solution to conceptual problems, such as the delineation of current and capital spending:

“You have to make a decision what’s capital and what’s current. So the question was why not just take what business accountants do. The national accounts have basically taken that aboard. The same thing could be done for the government” (Interview XVII: 14-15).

Another statistician claims that “if there is no good reason for being against it, we should apply business accounting rule” (Interview VII: 193-196). Consistency with micro accounts and their concepts also allows statisticians to import legitimacy from other

¹¹⁵ Under historical cost valuation of assets the use of market prices in the national accounts lead to substantial deviations particularly in times of high inflation.

¹¹⁶ Baker and Barbu document, in a meta-study on research on international accounting harmonization, that there is strong evidence for the existence of institutional isomorphism in the area of financial accounting (Baker/Barbu 2007).

¹¹⁷ The original SNA term “provisions for depreciation” was changed to “consumption of fixed capital” with the 1968 SNA in order to mark the differences to depreciation in business accounting. National accounting defines consumption of fixed capital (CFC) as the value decrease in the respective period due to normal events of “wear and tear, obsolescence and accidental damage” in revalued prices (Vanoli 2005: 324). Depreciation in business accounting in contrast is typically based on historical costs.

professions. The credibility of actuarial estimates for instance (see chapter 4) is justified by reference to the expertise of actuaries and business accountants. Even more generally, the issue the assessment of the validity of raw data quality seems to be associated with business accounting. The reliance on external professional practice from accounting documents thus allows statisticians to import legitimacy for specific accounting entries:

“Some national accountants were against the encouragement of provisions in the national accounts. Because they said a provision is by definition a little bit arbitrary. [...] But I was told by serious business accountants that this arbitrariness on provisions is less and less the case in reality because there are more and more rules on how to estimate provisions. So this is a case where the national accounts could rely on the provisions made by the government themselves even if they are a bit arbitrary in a sense when they confirm that the government applies reasonable business accounting rules to get the provisions” (Interview VII: 33-42).

Yet the acceptance of business accounting data is controversial. There is an obvious pressure on economic statisticians to provide consistent data frameworks that allow the derivation of macro-figures from the aggregation of micro-reports. Vanoli evaluates this approach critically: “Analysts [...] tend to take the evolutions drawn from the direct aggregation of individual accounts as a reference and urge national accountants as strictly as possible the latter. This means [...] requesting from it to give up the idea of being economically more significant than business accounting” (Vanoli 2005: 451).

3.3.3.d *Accounting Realism and Internal Consistency*

Another crucial epistemological feature of the national accounts stems from its form as an accounting system. Speaking of the overall economy in the form of “the accounts of nations” (Kenessey 1994a) was neither the single option nor a necessity but a conscious choice of the drafting experts against alternative approaches¹¹⁸ (Suzuki 2003b: 474). Accounting *identities* can be defined on a theoretical basis and accounting *conventions* can be used to derive individual entries. A basic proposition was, for instance, that the value of production and income/expenditure should balance (Copeland 1935: 378). The accounting frame does bring different sources and concepts together and provides the means to assess the plausibility of the content: “if two sides of the identity don’t equate, something is missing or overcounted” (Morgan 2001: 243). The accounting mode highlights the importance of internal consistency in the system (Ward 2004b) and hence a sort of logical coherence between the measures in the system:

“Proper measurement meant adopting principles of definitions, such as in accounting systems, so that as a logical consequence all items are classified in only one place and the tables both balance and add up. [...] Logical consistency as aggregation was warranted by simple arithmetic equalization in a system of interlocking transactions and by the macroeconomic theory behind the choice of particular national totals, a theory which

¹¹⁸ The idea to establish national income estimation in the form of balancing accounts was first officially discussed in the UK by Meade and Stone in the British White Paper in 1941 and later in a methodological article (Meade/Stone 1941).

required that national income was equal to national expenditure and to national output” (Comim 2001: 217f.).

The consequence of the accounting approach is fundamental in epistemological respect: The accounts form sort of a conceptual structure that serves analytic functions and that is to be filled by adequate data. An “accounting realism” is introduced: assessment of the reliability of source data is evaluated in relation to the system as a whole¹¹⁹ (Desrosières 2001: 345). Kendrick states that the accounting framework ensures the consistency of definitions over different fields and accounts and would also serve as “an accounting device for ensuring the numerical consistency of data drawn from different sources” (Kendrick 1996a: 3). Constraining individual definitions and accounting conventions in an accounting framework thus helps statisticians to assess the ambiguity of economic measurement. Logical correspondence between the different aggregates was achieved through the introduction of the double-entry bookkeeping in the system and hence “relating flows of expenditures to incomes, production to consumption, or savings to investments” (Kenessey 1994b: 6).

There were disputes as how the accounting approach should be applied in practice, though. Two basic opposing views immanent in the attempts were directly recognizable. Some, coming from a mostly Keynesian perspective, favored a system that follows more a ‘top-down’ by linking aggregated totals according to assumed and observed economic relationships (Vanoli 2005: 28). On the other hand, there were experts that argued for a micro-based accounting approach, trying to apply business accounting to a whole society and to directly link micro and macro accounts (Fisher 1906; Copeland 1932; Copeland 1935). The double-entry principle actually applied in the national accounts takes somewhat a middle stand in this respect¹²⁰. It is in some ways basically different from its commercial accounting counterpart. Not *actual* transactions between individual units are recorded but “aggregate estimates of actual transactions between five groups of entities” (Jones 2000a: 107). Hence, while the principle of symmetrically recording transactions among two transactors is the same, the national accounts record *aggregate* payments and often need to make *estimates* to balance the accounts. Yet at the same time the SNA did substantially broaden the level of detail in the accounts, thus allowing for

¹¹⁹ This set up of the national accounts shaped in turn the relationship of economic statisticians to raw data. In contrast to (professional) statisticians national accountants typically take a view that arranges data in a consistent framework. Estimation where data is lacking, arbitration where different and inconsistent data sources exist, sometimes crude plausibility checking and adjustments are necessary and are very different from the method-oriented work of traditional statisticians worrying about confidence levels and data quality (Vanoli 2005: 439f.).

¹²⁰ The UN manuals focus on both the compilation of aggregated totals and the relationships of disaggregated balances (Bos 1994: 200). This dominance of the accounting structure was however not evident in all countries. Especially economic statisticians in the US were much more interested on relationships on an aggregate level for the direct purpose of policy intervention. It was the spreading of the UK mode of national accounting at the international level that led to the prominence of the accounting structure in the SNA.

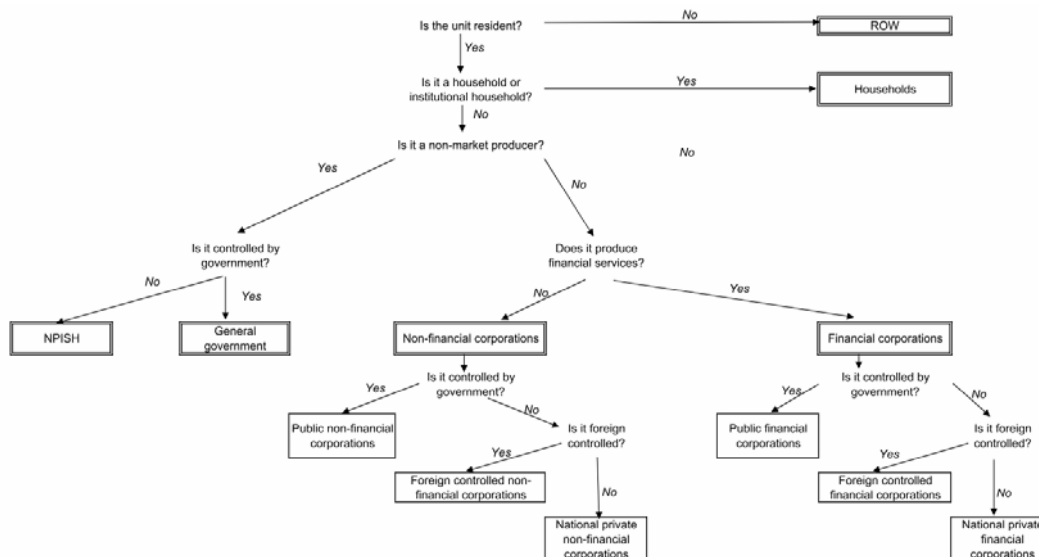
relationships among very much disaggregated components between sub-sectors of the economy.

In addition to justifying treatments via the coherency and consistency in the accounts the accounting mode of the national accounting system allows for a specific framing of reality. Like business accountants, economic statisticians regularly use the tool of decision trees to highlight and guide complex decisions, such as sector classification. The idea behind this approach is to stress the principles that guide individual decisions and hence to concentrate the content of the standards to the principles lying behind the proposed treatments. One statistician explicitly stresses the advantage of separating a principle-based framework and lower-level standards of practice:

“I think the best balance is to do it like the International Accounting Standards in business accounting. You have what they call conceptual framework and after that you have a series of standards. Often people want to be more precise, but want this to appear in the basic principles, which is a complete mistake. Because many times they need an application on a precise question, and you may of course make some compromise between particular aspects. If you make the distinction, we have basic principles which should be part of the SNA not to be more precise in too much detail.” (Interview VIII: 59-67).

In fact at many occasions economic statisticians apply similar approaches like business accountants, such as the use of decision trees in sector classification of units. The obvious aim is to highlight the conceptual logic of framing a specific problem. Any treatment can then be presented as a deductive decision making process that can be split up in a set of mutually logically contingent decisions (see Figure 13).

SNA DECISION TREE FOR SECTOR CLASSIFICATION



Source: <http://millenniumindicators.un.org/unsd/sna1993/consistency/clssue.asp?cID=1>

Figure 13: SNA Decision Tree for Sector Classification

The accounting realism is also prevalent in the statistical discussion about the treatment of so called ‘Build-Own-Operate-Transfer’ (BOOT) schemes, a type of Public Private Partnerships (PPP). Under these schemes a private corporation typically builds and operates large infrastructure objects that otherwise would have fallen in the responsibility of the government. In return the company receives regular payments by the government and often transfers the ownership over the object at the end of the service period (typically either for free or for a nominal price lower than the likely market value). From a statistical perspective the problem is typically framed as the question which unit has the ‘economic ownership’ over the asset (Donaghue 2002). The problem arises because the specific sharing of the risks and rewards of such a project between the public and the private sector is typically complex (Glaister 1999: 30). By definition this creates a grey area for the delineation of the public sector or government in economic statistics. The framing of the accounting question in the form of ‘economic ownership’ over the assets allows applying a set of conceptual criteria to solve the problem¹²¹. The statisticians’ debate during the current SNA update revealed that the actual decision is highly complex but that a set of criteria should be used to guide the decision:

“In practice, we would determine the economic owner using the same principles as for any other asset. The outcome depends on the final agreed treatment of the leases and the definition of an asset. The Canberra II Group did not come to a conclusion on a single best way to determine economic ownership. There was general agreement about risks and control being very important but there was no agreement on a single set of criteria [...]. In the Canberra II Group the Europeans tended to support Eurostat criteria while others favoured an approach based more on ‘indicators’. There were several comments to the effect that the updated SNA needs to keep things general and so should focus on general recommendations and principles” (AEG 2006: 142f.).

Again the proposed approach is to keep the regulation very general and hence to define the logic on which the statistical treatment should be based and not to standardize the specific assessment. A practical solution is thus to establish general criteria and to broadly compare these with the principles applied by international standards of business accounting. Eurostat decided in 2004 to apply a more specific approach that specifies that the involved assets should be recognized ‘off’ the government’s balance sheet if “1. the private partner bears the construction risk, and 2. the private partner bears at least one of either availability or demand risk” (Eurostat 2004d). Yet this ruling has raised some opposition by statisticians who claimed that it was generally not possible to make the respective decisions:

“PPP contracts are huge agreements. First, we as statisticians have no access to the contracts. Usually they are confidential documents between the contractors. Second, in the text of the contract it doesn’t say: ‘\$1 the government bears the construction risk’.

¹²¹ The key accounting issue is whether to classify the involved capital assets under the PPP arrangement as government assets or, alternatively, to expense the unitary charges in the year in which they occur. In the UK the question who actually carries the diverse financial risks of the project has been elected as the decisive criterion for the accounting treatment ‘on’ or ‘off balance-sheet’ of the government (HM Treasury 2003: 120).

Instead there are a bunch of different individual risks covered. There are maybe 50, maybe 100 paragraphs associated to the construction risk. How should I as a statistician weigh those?" (Interview V: 154-159, translation by the author).

Statisticians do thus choose between very general principles and more specific definitions when setting up international standards. When opting for a principle based approach, the decisive choices will be made on the implementation level. The accounting approach thus works as a self-constraint for standard-setting statisticians in that only the general treatment logic and its relation to accounting concepts in the system is prescribed. The outcome of the debate is then a deductive frame for individual cases that can regulate the discretionary freedom at the implementation level to varying degrees. Yet instead of evaluating individual circumstances the regulation remains generally enough to somewhat shield the text of the standards from the complexities of defining reality which are encountered in practice.

3.3.3.e *Proceduralism*

A final strategy to legitimize statistical treatments in face of significant accounting ambiguity is the implementation of formalized decision making procedures. This approach has gained much relevance in the European Union, where the European Council decided to base the monitoring of economic and fiscal developments on national accounting data¹²². In order to develop the respective statistical concepts, the Committee on Monetary, Financial and Balance of Payments Statistics (CMFB) was founded in the early 1990s¹²³. The establishment of the CMFB was intended to bridge the divisions between national and organizational data frameworks and to coordinate the statistical basis for the EMU (van Wijk 2001: 2ff.).

The relevance of the supporting decision making processes became apparent when first conceptual questions in the context of the Excessive Deficit Procedure (EDP) arose in late 1994. A controversial transaction was related to the assumption of pension obligations by the French government from France Telecom in 1996. Eurostat was harshly criticized by the press in the aftermath and therefore decided to fundamentally change its communication strategy and decision making approach (Eurostat 1998).

¹²² The Maastricht Treaty introduced in article 104c that member states should "avoid excessive government deficits" and that the European Commission should monitor the "budgetary situation" and the "stock of debt" (European Council 1992a: §104c). The well-known protocol attached to the Treaty specified the detailed criteria to be used for this purpose (European Council 1992b). The drafters of the treaty agreed on the need of some standardized measure of deficit and debt. In Council Regulation 3605/93 the reference to the ESA is established and later Eurostat achieved the responsibility on all technical matters regarding standard setting, methodology and interpretation (Council decision 97/28 §5). Savage (2005: 40ff.) describes that the reference to the ESA's accounting rules occurred at the urge of DG ECFIN to provide the basis to reconcile differences between national budget figures (Savage 2005).

¹²³ The CMFB has one elected representative who chairs both the CMFB and the executive body. Decisions are to be made on a majority rule basis. Countries can send up to three national delegates (typically from the statistical offices and the central banks). Guests from the OECD, IMF, DG ECFIN are allowed. Together the body comprises around 100 participants.

While formally the CMFB remained an advisory body it de facto became a veto player and Eurostat always followed the recommended decisions¹²⁴. The integration of specially designed expert committees in the Eurostat decision making process had the effect to strengthen the process legitimacy for Eurostat's decisions on government finance. Van Wijk argues that although "it appeared difficult to reconcile conflicting arguments and, in most cases, consensus was out of reach, the committee's contribution seems to have considerably enhanced the credibility of the Commission's (Eurostat's) final decisions in this field" (van Wijk 2001: 205). Since then Eurostat took a number of decisions in cases that came up in the application process of the EDP statistics (see Table A 3 in the annex). The respective decisions are summarized and explained in the Manual on Deficit and Debt (Eurostat 2002).

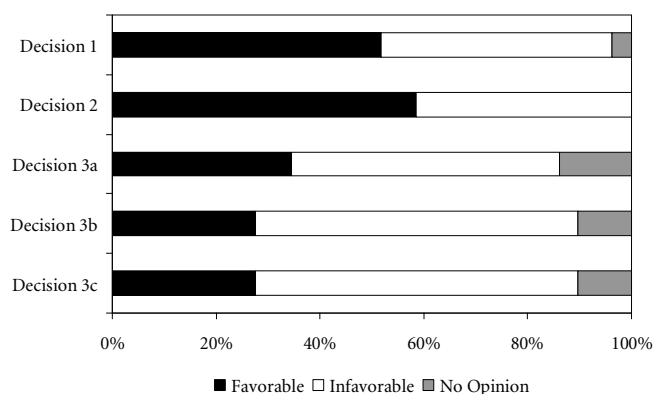
Formal and procedural aspects of the decision making process in Europe are particularly important. A number of European statisticians witnessed that economic statistics increasingly took over an important political role within in the Union. The ESA 1995 became a Council Regulation and hence received the status of a legally binding document. In a paper presented at a UNECE/OECD/Eurostat conference on national accounts an Austrian statistician expressed his concerns about adverse consequences of the legal nature of the ESA by stating that the "organic development of integration and change may be hampered, for procedural reasons", that "the implementation of legal norms may become a target predominating over scientific interpretation" and generally formal argumentation will dominate in the statistical practice¹²⁵ (Franz 1996: 4). In fact statisticians at Eurostat stress especially formal procedures to demonstrate its capability to solve conceptual questions:

"[Regulation] 21/2005 sets up the framework of cooperation. For instance it says how member states should react if they have a doubt. [...] We have a forum with the member countries, the FAWP, twice a year. And there we have an agenda and we discuss methodological issues. Then we have the CMFB. We can go there and ask their advice. Either if we have a doubt; and usually also when it's a case with general implications. But not exclusively. Member states can also request a CMFB advise" (Interview XII: 1-10).

The importance of formal decision making procedures becomes particularly evident if one looks at how controversial the treatments potentially are. Figure 14 displays the results of some CMFB decisions in selected fields. It is evident that many decisions are actually made by a narrow margin within the expert community. A formal voting procedure thus provides process legitimacy for Eurostat to justify potentially disputed decisions on conceptual and methodological issue.

¹²⁴ Two Eurostat working parties became the main bodies to prepare the CMFB decisions, the Financial Accounts Working Party (FAWP) and the National Accounts Working Party (NAWP). To strengthen its political independence the CMFB fended of the request of the European Ministries of Finance to receive a seat in the advisory body consisting of about 100 statistical experts (Savage 2005: 64).

¹²⁵ Further Franz suspects that the use of national accounts data in an administrative context might put compilers in a situation in which "they may face pressure from the national side not to produce figures 'unduly' burdening the countries by financial consequences" (Franz 1996: 5).

CONTROVERSIES ON ESA 95 ACCOUNTING ISSUES IN THE CMFB¹²⁶

Source: CMFB Opinions (published in Eurostat News Releases 120/2003, 26/2004, and 30/2004)

Figure 14: Selected CMFB Decisions

At the same time a tendency in Europe to establish clear-cut rules to be followed in order to allow check-ability of formal compliance can be witnessed. In the context of the establishment of the boundary of the general government sector the ESA prescribes a formal rule to define economically significant prices as those in which, over a multi-year period, revenue covers 50% of the costs (Eurostat 2002: 14). This introduces a formal criterion that some statisticians reflect critically:

“[They] said to themselves, probably, well it’s the way we should do it, it’s objective. The Non-Europeans were against this tool because they said this tool will lead to some absurd decisions. But at the same time, those that were not EU, they are in a situation in which they are less confronted to the difficulty of the decisions. Because their national accounts are used less than the Europeans” (Interview VII: 83-89).

The formal specification of the rule suggests a neutral basis for application and hence promises to restrict discretion at the implementation level – something which is of particular importance when it comes to administrative uses of the respective data.

¹²⁶ Decision 1 reflects the CMFB survey results for the opinion on “the treatment in national accounts of payments to government by public corporations in the context of the transfer to Government of the unfunded pension schemes that they operate for their employees”; The label “favourable” is associated with the treatment of the receipts as non-financial transaction whereas the recommendation to record them as financial transaction or other economic flow is classified as “unfavourable”. Decision 2 is related to the “treatment in national accounts (ESA95) of the transfer of an employer’s pension obligations in the form of a non-autonomous funded pension scheme to the government to become an unfunded scheme”. The crucial issue in this context was if the value of the transferred assets of the funded scheme to the government should be recorded as capital transfer (and hence revenue for the government) or as financial transaction by also recognizing a related liability position. The non-recognition of the liabilities is classified as “favourable” whereas the neutralization of the asset value by a respective liability entry is deemed “unfavourable”. Decision 3 relates to the sector classification of funded pension schemes in case of government guarantees or management responsibilities. Since at that time all concerned schemes realized current surpluses opinions supporting the classification *inside* the government sector are labelled “favourable” whereas those supporting outside classification are deemed “unfavourable”. More precisely, decision 3a dealt with the sufficiency of a government guarantee for the classification inside the government sector (no: “unfavourable”; yes: “favourable”); Decision 3b answered the question if a fund managed by a government unit should be classified in the government sector even if no financial risk is borne by the government (no: “unfavourable”; yes: “favourable”); Decision 3c was on the question if mixed schemes should be split or classified completely according to dominant features. In this context the splitting option can be interpreted as being “unfavourable” since it favours classification outside general government for the respective pillar.

However, a national statistician explains that the rule is not sufficient in practice and additional criteria are needed:

“The 50%-criterion is useful for a first assessment. Of course there some doubts may arise. Even if the 50% criterion is satisfied, the respective unit may still be a supportive unit for the government. [...] It should thus be inside government even if formally it could be considered as a market producer. Hence the rule only helps as a first step but it will be necessary to consider additional criteria in turn” (Interview V: 144-151, translation by the author).

Formal rules and formal decision making processes are thus a strategy of dealing with the need to deal with conceptual uncertainties. In the European context this applies especially in the area of standard interpretation, i.e. in situations where the ESA is considered not to provide sufficient guidance for the treatment of statistical issues.

3.4 Conclusion

This chapter addressed the general content of international statistical standards for economic statistics. National accounting emerged as a systematic approach to measure economic events in a coordinated and conceptually founded approach. In contrast to estimates of private estimates of individual scholars in earlier history, national accounting developed as an official government task and involved systematic conceptual work. It was argued that over the post war decades international standardization under the umbrella of the SNA increasingly influenced statistical practices. The section demonstrated that the specific content of the SNA can only be explained from a perspective that takes its historical development and the social context in which statistical treatments are debated into account. Initially the SNA regulations were the result of decisions of a small group of statistical experts. The national accounts emerged in a specific historical situation, characterized by economic planning needs of governments at times of war and economic crises. The epistemology of the SNA then developed rather pragmatically in this context: What was considered ‘real’ in the statistical framework, the definition of empirical constructs or the presentational frame were subject of numerous expert meetings and debates. In the end different arguments and various argumentative logics were weighted against each other in an essentially pragmatic way. The debate obviously searched for a *sufficient* justification of statistical treatments rather than the presentation of ultimate truth. This becomes particularly evident given that substantial controversies about the basic epistemological principles and the implications of certain treatments in specific national contexts occurred. Agreements on standards were reached either through conviction, negotiation, compromise or imitation.

At the same time, it could be shown, that the basis on which the respective standards are established became more challenging. The national accounts developed under the dominant influence of Keynesianism. This provided the main rationale for the accounts

as being tools for macro-governance of the economy. What is more, Keynesian theory provided a clear theoretical basis on which the accounting skeleton of the system could be established. The analytical interest in household disposable income for macroeconomic stabilization, for instance, made a cash-centered perspective feasible for government transactions. It was particularly in the context of non-market accounting, and particularly in the government sector, where most statistical standards were adopted for rather pragmatic reasons. Standards were explicitly formulated as temporary, contingent solutions. Yet with Keynesianism under attack, both, the theoretical grounds and the major purpose of the system became more ambiguous. Economists criticized the macro-realism of the accounts and demanded rigorous micro-foundation of economic reasoning. With the introduction of economic actor's expectations in the neoclassical optimization models, cash flows lost a lot of their theoretical relevance. Economic statistics thus found themselves in a situation of losing theoretical support and facing ambiguous analytical demands.

The analysis of the epistemology of the system clearly revealed that economic theory provides only limited guidance for practical and conceptual statistical work. At the same time, rival conceptualizations of reality can be found in the statistical discourse. As a result statisticians face significant ambiguity when defining statistical standards. Five different strategies have been discussed with which statisticians appear to get hold of this uncertainty: First, pragmatic, purpose oriented choices are often made. Second, statisticians calibrate their system to common-sense understandings embedded in the respective cultural contexts. The experts strive thirdly for data and concept consistency, both internally and externally with business accounting concepts. Fourth, the accounting design of the system allows various strategies to calibrate measurement by the means of system consistency. Also, the adoption of principle-based treatments allows immunizing statistical standards against uncertainty at the implementation level. Finally, within the EU, a procedural approach is used to legitimize conceptual decisions by delegating the conceptual choices to specially founded bodies.

A core finding of this section is thus that the definition of accounting conventions is highly ambiguous, and potentially arbitrary. The solutions adopted are contingent on historical and social conditions, wider problem-settings and theoretical support. In practice statisticians employ rather pragmatic strategies to ensure that their conceptual choices strengthen rather than damage their socially perceived expertise. While this chapter took a very broad perspective on the evolution of epistemological features and strategies within the field of economic statistics, the next chapter will now directly look at the updating process of the SNA 1993.

4 Updating Statistical Standards

The transition of the fiscal statistics towards an accrual basis and their integration in the SNA family has major implications for the epistemology of fiscal statistics. Now core fiscal indicators are influenced by accrual accounting constructs. The two previous chapters showed that integrated accounting systems require substantial work to make its implications operable. The debates on public sector accounting clearly showed that the feasibility of integrated accounting concepts is highly controversial in the government sector and their implications are even more uncertain than in the business sector. What is more, while some countries apply a very advanced accrual accounting system others are more hesitant with the scope and depth of the respective changes or even stick to cash principles. Fiscal statistics thus are in a challenging situation: By leaving the cash focus fiscal statisticians face challenging questions about source-data and concepts. We saw that neither economic theory nor a clear concept of reality assessment exist that could sufficiently guide measurement. Working strategies help statisticians keeping up the façade of expertise but they do not explain actual decisions on the content of international standards.

The two historical updates of the SNA and the fundamental redefinition and reconciliation of the GFSM shows that statisticians can and do substantially alter the principles on which statistics are produced in the international statistical community. This suggests that the standards are time-contingent approaches and subject to redefinition. This raises the question on how fiscal reality is actually defined and redefined in this process; how specifically the statistical rules are altered in such a context. In contrast to the general picture provided in the preceding chapter, this section will study the epistemology of economic statistics “at work”. By looking at how statisticians change their regulations during the SNA 1993 updating process we will hopefully be able to detect general mechanisms through which the international statistical standards are (re)defined.

It was shown that the SNA contains some basic principles that epistemologically guide reality assessment. Many of the basic features of the system are nowadays taken-for-granted and hence institutionalized. This concerns for instance the “accounting” form of the system, the basic recording logic of economic events, or the production and income concepts. Yet at the same time the system is also changed at the margins, when new measurement challenges are seen at the accounting horizon or old treatments are no longer perceived as feasible. This analytic perspective, as already noted in the introduction, builds on recent work in the field of institutional studies. The theoretical question addressed is not only how institutions impact on organizational behavior and

practice, but also how institutions themselves are targeted and shaped by individuals and organizations. Specifically the question of institutional maintenance and purposive institutional work is considered important (Lawrence/Suddaby 2006). The continued existence of an institution, such as the SNA, cannot be taken as evidence that it is automatically stabilized. Institutional change may occur more incrementally and can be endogenously motivated. Substantial institutional changes may thus also occur even in the absence of critical turning-points (Streeck/Thelen 2005). The updating process of the SNA allows studying the change process of a formal institution directly. A basic empirical question in this context is whether institutions change as a result of purposive and rational individual action (North 1990) or whether unintended consequences, meso-level variables or institutional stickiness explain the pattern. A core claim of sociological neo-institutionalism is that actors may be influenced by what they perceive as feasible options or constraints. Institutional economics may thus in many cases well explain purposeful action of institutional entrepreneurs from given preferences. If, however, significant variance occurs in the preferences themselves it is not the subjective optimization choices that are crucial to explain, but the cognitive constraints and logics through which actors make choices in real-world situations that should be addressed in order to explain relevant variance.

This chapter directly studies the process through which the international community of statistical experts redefines its standards. The empirical question addressed in this chapter is how the institution of statistical standards is changed, stabilized or maintained in a dynamic, transnational and international environment. The section will provide an analysis of the SNA updating processes, first by giving a brief historical overview and then by describing the main features of the most recent updating process, which leads to the SNA 2008, officially called “SNA 1993 rev. 1”. The section then continues by analyzing a specific debate, namely the discussion about the recognition and measurement of defined benefit pension obligations. I will briefly discuss the statistical issue involved in the discussion, provide an overview over the debate and its outcome, and then analyze the arguments in more detail.

4.1 The Revision Processes of the SNA

As documented in the preceding chapter, the SNA emerged as an international set of statistical standard standards, developed by a small expert team around the economist Richard Stone at Cambridge University. The standards evolved as a system of standardized tables and guiding accounting rules. The form and content of the system substantially changed over time, especially during the major revisions in 1968 and 1993. With the first major revision of the system the statistical community had to consider the rationales, motivations, and logics of changing the system. In the statistical literature

observers state that the conceptual changes “reflect a growing understanding of economic accounts as well as insights into better modes of presentation to accommodate the known uses of accounts (which themselves change). They also reflect dynamic changes within the economy itself, changes in concepts and definitions, changes in the quantity and quality of underlying data and methodology” (Kendrick/Carson 1972: 2). There are thus various stated motivations for changing the SNA, part of them being seen as improvements, while others are considered as contingent to analytic demands and changes in the object of measurement, the economy. Leading economic statisticians describe the international efforts of standard development as being the result of half of a century of professional exchange. The SNA is described as “the outcome [...] of an honest open interchange between the main producers and users of data”¹²⁷ (Ward 2004a: 3). A participant claims that the purpose of the expert meetings is not just to find a small basis of agreement but to persuade others and to find consensus on measurement questions. Yet, in practice the consultations also shifted attention and tried to reach agreement on less controversial issues (Vanoli 2005: 131).

The expert discussions have taken different organizational forms over the six decades of international coordination. The size of the expert network involved in the international harmonization increased substantially. The 1953 SNA was drafted by merely five people under the strong personal influence of Richard Stone (Hill 1994). The revision leading to the 1968 SNA – still under Stone’s influence - involved already broad discussions throughout the world, though the most influential discussions took place in the United Nations Economic Commission for Europe (UNECE) (Vanoli 2005: 134). The 1993 SNA, in contrast, was coordinated and published together by five international organizations. The number of experts directly involved in the harmonization thereby grew to about 50 people (Lequiller/Blades 2006: 402). Today the number of involved experts is even higher.

Formally the United Nations Statistical Commission (UNSC) has been the final decision making authority in the process of SNA development all along. In practice the role of the UN has gradually declined over the years, though (Ward 2004a: 3). Apart from budgetary problems in the UN statistics department the main reason for this is the existence of the alternative national accounting standards first by the OEEC/OECD then by the European Communities. Likewise the IMF took the lead in Monetary and Financial Statistics, Balance of Payments, and Government Finance Statistics. This co-existence of several centers of gravity for international statistical standards led to the need to coordinate standards among the different organizations. The 1993 SNA update

¹²⁷ This mirrors the description of a participant of the earliest international consultations in 1939 between statisticians from the UK, the US, and Canada. Denison describes that coordination at that time was performed “partly through persuasion, partly through compromise” (Denison 1947: 3).

was therefore effectively managed by a group consisting of five major international organizations, the UN, the OECD, Eurostat, the IMF, and the Worldbank. Shortly after the UNSC took the decision to review the SNA 1968 in the early 1980s was taken, the so called “Inter-Secretariat Working Group on National Accounts” (ISWGNA) was established. The declared idea was to organize the collaboration among the secretariats of the involved organizations and to guarantee a continuity of participation (Harrison 1994: 171). The ISWGNA then took over the responsibility to organize the expert meetings for the updating process.

4.1.1 THE ORGANIZATION OF THE SNA 1993 REVISION

In 2003 the UN Statistical Commission again, decided to start a larger revision of the most recent edition of the macroeconomic statistical standard framework, the SNA 1993. In the 2007 report to the UNSC the ISWGNA officially describes the “motivations” for the proposed changes to the SNA 1993:

“[The] majority of the recommendations relate to units and transactions that represent characteristics of an increasingly globalized economy; come from increased interest in the sources of wealth and debt; recognize the increasing role of intangible non-financial assets; take into account further innovation in financial markets; reflect the interest in better measures of the impact of pension liabilities in the context of an ageing population; and recognize the need for better measures of government and public-sector debt and deficit” (ISWGNA 2007d: 8).

Again, it is a combination of changes in the economy, of improved measurement and concepts, changes in the analytical interest and changes in social and political challenges that is seen as the background of the redefinition of the statistical standards.

The revision of the SNA 1993 was initially not planned as a comprehensive review but rather as an incremental update. At the 29th session of the UNSC the ISWGNA was asked to draft a formal process for amending the relevant issues within the existing system (UN Statistical Commission 1997: 15). A respective proposal was presented and adopted by the UNSC with minor changes in its following session (UN Statistical Commission 1999: 6). The ISWGNA stressed the importance to “resolve ambiguities that may appear during the implementation of the system, as well as to maintain its relevance in a fast evolving world economy” (Task Force on National Accounts 1999: 3). Stressing that there was no need for a *fundamental* reform of the SNA 1993 the ISWGNA proposed a process for four different types of amendments: minor “editorial amendments”, “clarification beyond dispute”, “interpretation” and “changes”. A formal discussion process for the latter two amendments was sketched, all starting from the idea that the ISWGNA would draft an issue paper which would then be given to diverse working parties or regional expert bodies. For amendments classified as change a second discussion round involving all national institutes would follow. The final drafting of the new text would be undertaken by the ISWGNA. The proposed text would then be

distributed to national statistical institutes of UN member countries pending their approval.

THE FORMAL UPDATING PROCESS FOR THE SNA 1993

Proposed updating procedure for the System of National Accounts, 1993

Stage of Handling	Type of amendment			
	Editorial amendment	Clarification beyond dispute		Change
Proposal	ISWGNA reviews the proposed amendment and classifies it			
Preliminary drafting	ISWGNA	ISWGNA	ISWGNA assisted by a panel of experts	ISWGNA assisted by a panel of experts
First Discussion			Working parties or regional panels of experts	Working parties or regional panels of experts
Second Discussion				National statistical offices in all regions
Final Drafting			ISWGNA assisted by a panel of experts	ISWGNA assisted by a panel of experts
Approval	ISWGNA	ISWGNA	Member countries of the Statistical Commission during a 30-day period	Member countries of the Statistical Commission during a 30-day period
Publication	Errata Sheet	SNA News And Notes, then periodic booklet	SNA News And Notes, then periodic booklet	SNA News And Notes, then periodic booklet

Source: Task Force on National Accounts 1999, p. 8

Table 4: Initial ISWGNA proposal for updating procedure of the SNA 1993

When specific issues proposed for updating were finally discussed at the ISWGNA, the process design was reconsidered in more detail. In 2001 the body decided to establish an expert group to support and advise it on the conceptual issues (ISWGNA 2001: 8). Members of the group would be proposed by the involved organizations on the basis of expertise in the national accounts. Further, the ISWGNA discussed the need to have technical papers describing the involved issues. It was basically proposed to assign one organization to the definition of a specific problem and to initiate the discussion in a broader group involving affected countries. For general issues the use of the existing working groups of the organizations and the use of electronic discussion groups (EDGs) was considered (ISWGNA 2001: 8).

In October 2002 the ISWGNA suggested that the number of issues involved made a more comprehensive approach necessary. The body came up with the recommendation to keep the system basically in place and to review specific issues, improve internal consistency and harmonization with other macroeconomic standards (ISWGNA 2002a: 3). At this meeting the agenda setting process was formally discussed. It was decided that issues which had been discussed in the 1993 revision should not be reconsidered unless there were “changes in the economic environment or progress in methodology research” (ISWGNA 2002a: 3f.). Only issues which are “emerging in a new economic environment” and old issues that “may need a further look in the new economic

environment due either to their economic significance and/or to the advancement in methodological research that may justify a different treatment of the issues” (ibid.) should be discussed. Further, the ISWGNA stressed the role of various working bodies to identify and discuss upcoming issues and their solutions. Specifically EDGs, various meetings of national accounts experts, so called “city groups” and a planned “Advisory Expert Group” (AEG) are referred to (ISWGNA 2002a: 4). The ISWGNA then held a number of technical level meetings to organize the management of the process including agenda setting, timing, drafting and decision-making. At a meeting in 2003 the body discussed the criteria for updating issues in more detail:

- “(i) There should not be fundamental or comprehensive changes to the 1993 SNA that would impede the process of its implementation, which in many countries has not yet been achieved;
- (ii) Candidates for updating are issues that are emerging in the new economic environment;
- (iii) Candidates for updating are issues that are widely demanded by users;
- (iv) Old issues that have been discussed and rejected before in the 1993 revision process but may need a further look in the new economic environment due either to their economic significance and/or to an advancement in methodological research that may justify a different treatment;
- (v) Old issues that have been discussed and rejected before in the 1993 revision process should not be candidates for updating if no change in the economic environment or progress in methodology research warrant their consideration for updating;
- (vi) Any recommendation for change should have its internal consistency and consistency with related manuals such as the Balance of Payments Manual;
- (vii) Any recommendation for change should be tested for feasibility of implementation in countries with developed and less developed statistical systems” (ISWGNA 2003: 4).

The more comprehensive overhaul of the statistical standards and a tentative list of issues to be considered were then proposed to the UNSC in early 2003. The commission endorsed the proposal and formally mandated the review in February. From that point on governance issues, such as decisions on the scope of the update have mostly been delegated to the newly established AEG (ISWGNA 2003: 4).

4.1.2 ACTORS AND GROUPS IN THE SNA UPDATING PROCESS

During the process the ISWGNA prepared annual reports to the UNSC and asked for decisions on basic process issues. In practice most questions regarding the procedures of the update were first pre-decided by the ISWGNA, which again consists of the five international organizations jointly editing the SNA¹²⁸. The agenda was also structured initially by the ISWGNA, yet once the AEG was established with the first meeting in

¹²⁸ The ISWGNA again operates at two levels, a national accountants group that is formally responsible for actually organizing the practical aspects of the updating process and a management group that oversees the work of the other level.

February 2004, it largely took over the practical responsibility to accept or reject new issues. The AEG was thus attributed a key role in the whole process. The bulk of discussions about the statistical issues however did not take place at the level of the AEG. Instead a number of lower level bodies consisting of experts on specific questions were integrated in the updating process. Those lower level bodies were asked to prepare propositions for possible changes in the form of expert papers, so that the AEG could reach formal agreements. It was clearly stated that any intended changes “which may include clarification beyond disputes, interpretation and real conceptual changes should be formulated by a clear agreement of a majority of experts and applicability should be tested in a number of countries. Only the recommendations for changes approved by the majority of experts in the expert groups should be submitted to the AEG for approval” (ISWGNA 2003: 5). The AEG met for five conferences during the core updating process (Table 5):

MEETINGS OF THE ADVISORY EXPERT GROUP ON NATIONAL ACCOUNTS

16.-20.02.2004	First Meeting, Washington DC
08.-16.12.2004	Second Meeting, New York
18.-22.07.2005	Third Meeting, Bagkok
30.01.-08.02.2006	Fourth Meeting, Frankfurt
19.-23.03.2007	Fifth Meeting, New York

Table 5: Meetings of the Advisory Expert Group

At its first meeting the AEG agreed on a list of 44 issues and assigned responsible expert groups-bodies to discuss the issues¹²⁹ (Havinga, I. 2004: 2). The working groups involved in the updating process were the *Canberra II Group on Non-Financial Assets*, the *Task Force on Harmonization of Public Sector Accounting* (TFHPSA), the *IMF Balance of Payments Committee* (BOPCOM), and some special discussion groups, including *Electronic Discussion Groups* (EDG) (ISWGNA 2007a: 2). Each topic was assigned to one of the expert groups which should debate it and prepare a recommendation for the AEG (see Table A 4 in the annex).

Some issues relating to the public sector were discussed in the Canberra II group, a so called “city group”. These groups provide forums for national experts to develop conceptual tools for macroeconomic statistics. They emerged in 1986 following an initiative of Statistics Canada and the United Nations Statistical Office, with an informal meeting of 18 national and international Statisticians in Voorburg in the Netherlands (Voorburg Group 1987). In the aftermath more than 10 similar groups to other topics were established. Participation to the groups is voluntary and the groups set their own

¹²⁹ The issues were regarded as provisional and were subsequently distributed among statistical offices, yet this process led only to minor changes (Havinga, I. C. 2004: 2).

agendas. However, the UNSC decided in 1997 that the results of the city groups should impact on the international standards¹³⁰ (UN Statistical Commission 1997: iii f.). In the context of the most recent SNA update, the Canberra II group covered many of the issues in the context of capital measurement. The group was organized in 2003 to cover research questions in the field of capital stock statistics and topics related the measurement of non-financial assets.

The discussion of issues relating to the public sector and government were formally assigned to the TFHPSA. This task force was chaired by the IMF and the OECD secretariat. It was established at the OECD in October 2003, following the initiative of the IFAC-PSC¹³¹ (TFHPSA 2006b). The mandate was initially to reconcile the differences between statistical and international accounting standards for the public sector. The steering group, consisting of senior statistical and accounting representatives from Australia, the UK, the ECB, Eurostat, the IMF, the OECD and the IFAC-Public Sector Committee (IFAC-PSC) especially decided to make recommendations to the ISWGNA regarding potential changes to the SNA. The Steering Committee of the Task Force on Harmonization of Public Sector Accounts (TFHPSA) - consisting of the IMF, the OECD, the IFAC-PSC, Eurostat, the ECB, Australia and United Kingdom – decided to address five “priority issues”:

- “(1) Super-dividends, capital injections, and reinvested earnings
- (2) Privatizations and restructuring agencies, and securitization;
- (3) Contingent assets (state guarantees), constructive obligations,
- (4) Public-private sectors delineation; and
- (5) Tax revenue, uncollectible taxes, tax credits” (TFHPSA 2004: 2).

In addition the standing IMF Balance of Payments Committee was assigned a number of issues related to international transactions and various EDGs which already existed as discussion forums were integrated in the updating process. An overview over the organizational field of the SNA updating process is provided in Figure 15. The formally highest decision making body in the process is the UNSC. The ISWGNA was assigned the task of managing the update of the SNA. The ISWGNA again handed the task of developing recommendations for the SNA update over to the AEG, consisting of 20 international experts plus representatives from the five ISWGNA member organizations. Input on specific topics came from the expert issue groups consisting of statisticians from national institutes and international organizations.

At the same time the organizational field is structured by its permanent actors: the five international organizations appear at many stages in the process due to their input to the ISWGNA and the AEG, as well as through sending experts to the discussion groups.

¹³⁰ While the small size of the working groups guaranteed close collaboration among the Statisticians, participation was limited. To counterbalance the partial independence of the city groups, the UNSC began managing “precise terms of reference” (Wang 2008).

¹³¹ Now the International Public Sector Accounting Standards Board (IPSASB)

Moreover, the annual statistical conferences within the OECD, the Working Party on National Accounts (WPNA) or the Working Party on Financial Statistics (WPFS) turned out to be important forums for senior experts from national statistical institutes (NSI) to agree on general and specific issues, especially regarding agreement between EU countries and non-EU OECD countries. Within the European Union the statistical bodies from Eurostat, the CMFB as well as the Statistical Program Committee (SPC) and a number of task forces in these organizations provided forums for discussions on the updating issues. Finally accounting bodies directly exerted an influence on the process via participation in the TFHPSA and indirectly through the disclosure of the IPSAS and IFRS and the respective debates.

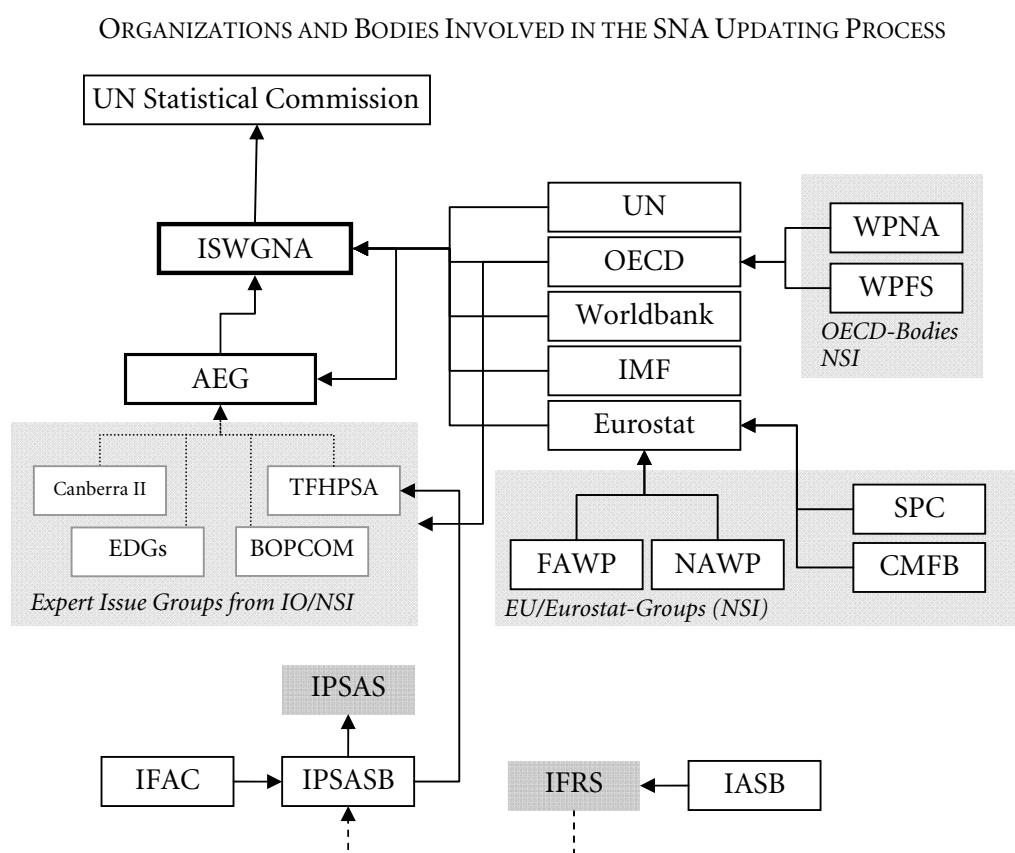


Figure 15: Institutions and Bodies involved in the SNA Updating Process

4.2 The Pension Discussion

The treatment of pension obligations was a major issue in the updating process of the 1993 SNA (Lequiller 2005: 1). Pension schemes allocate substantial funds between economic agents in a given year and manage huge amounts of liabilities and assets. Related transactions are of substantial macroeconomic importance. Private and public wealth developments and annual flows related to pension saving and investment have a considerable size, dwarfing many other trends and fluctuations. Pension issues are also

important for fiscal analysis, given that public and civil service pension systems often place substantial burdens on the government. Since the 1990s public pension schemes in general have become an important issue in the political debate and subject to remarkable reform effort (OECD 2007). The statistical impact of pension transactions is fundamental, by any measure. A typical generational model projects that the measured debt level in the EU could rise from about 60% of GDP to 280% and deficits could potentially increase to 6-8% of GDP. Even if only liabilities incurred for government employees rather than whole public pension systems were measured, the impact would still be considerable (Oksanen 2004: 21). The statistical debate that unfolded is on the basic questions whether and which of those obligations should be recognized at all in the national and sector accounts and how measurement should take place.

4.2.1 THE STATISTICAL ISSUE

The statistical recording of pension related flows is crucial for the determination of aggregate saving and wealth indicators. In the case of government also the derivation of deficit figures is influenced by many measurement questions. The recording of pension liabilities is not straightforward, though. The reason for this is mainly that a substantial part of the liabilities involved are currently implicit, i.e. they are not disclosed as explicit financial claims of the future beneficiary secured by legal titles. Instead they are contingent claims of uncertain amount. Moreover, pension systems occur in variants, based on different economic and organizational characteristics. Social security schemes cover larger parts of the population. Employer schemes are installed to provide pensions to workers and their dependants. The schemes can either be operated by single employers, multiple employers or by the government.

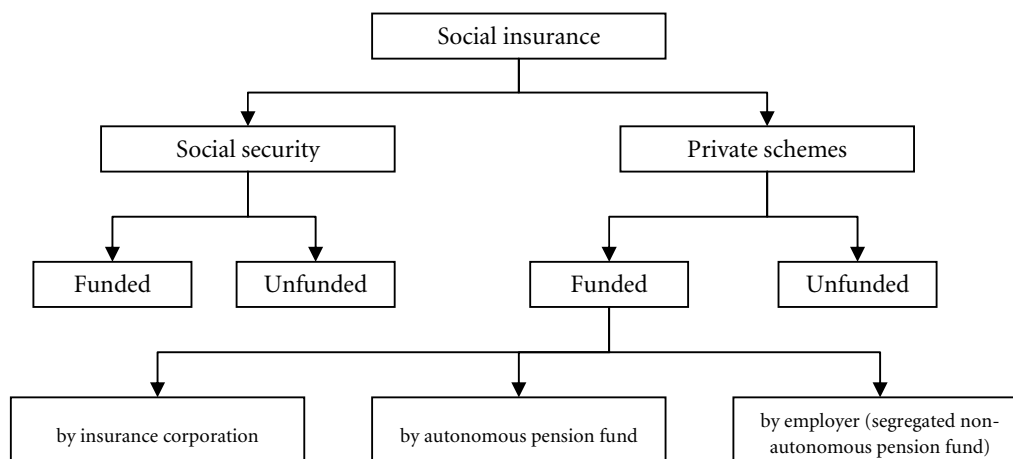
With regard to their economic characteristics, pension schemes fundamentally differ in two dimensions, the type of funding and the way pension benefits are defined: Funded schemes invest pension contributions in (mostly financial) assets in order to provide means for the future benefits. Unfunded schemes either record no reserves at all or they just record notional provisions in the form of book reserves. Funded schemes can be either “defined-benefit” schemes, linking future claims to some kind of formula. Alternatively “defined contribution” schemes have no pre-defined benefits but just allocate investment returns to policy holders. It follows, that unfunded or partly funded schemes are by definition defined benefit schemes.

4.2.1.a *The Treatment of Pension Schemes in the SNA 1993*

Pension schemes are covered in the SNA 1993 under the notion of *social insurance schemes*. Social insurance schemes are again split into two broad categories of systems: *Social security schemes*, and *private schemes*, the latter consisting of funded and unfunded

schemes (SNA 1993, § 8.63). Social security schemes are defined as covering large parts or the whole population and as being organized and financed directly by the government. The other types comprise schemes in which employers pay social benefits to their (former) employees or their dependants. *Funded* schemes invest the contributions in (reserve) assets to pay for the benefits, whereas an *unfunded* scheme is “one where there are no identifiable reserves assigned for the payments of benefits. In such cases, benefits are paid from the receipts of contributions with any surplus or deficit going into, or being drawn from, the scheme manager's other resources” (SNA 1993, Annex IV, § 11).

THE CLASSIFICATION OF PENSION SCHEMES IN THE SNA 1993



Source: SNA 1993, Annex IV, figure A.IV.1

Figure 16: The Classification of Pension Schemes in the SNA 1993

At least two crucial aspects of this conceptual perspective on pension schemes arise that are critical in order to understand the subsequent statistical debate: First, there is a conceptual distinction between social security and private schemes. This allows for a categorical difference that potentially allows differential treatments for both types of schemes. Governments, however, may operate schemes in both sections, the former in the function of the welfare state, the latter in the function of an employer. This potentially creates difficult borderline problems in countries with large social security systems similar to civil-servant pension schemes. Second, the distinction between funded and unfunded schemes is crucial in the SNA 1993: Only for funded schemes liabilities to households are recorded, while for unfunded schemes pension expenses are recorded at the time the benefits are paid. For unfunded schemes no financial assets or

liabilities are recorded in the balance sheets. In contrast assets accumulated by funded schemes are attributed to households if they are accumulated under private schemes¹³². This treatment follows essentially from the lack of a liability definition in the SNA 1993. Liabilities are rather indirectly derived from the concept of financial assets¹³³. The question if pension claims constitute a financial asset depends on the interpretation if it is assumed that there is a contract between the pension fund or employer and the employee. The system generally distinguishes between assets that are certain and those that are not, either in the probability of their occurrence or their amount. The case of conditional claims is treated under the notion of “contingent assets”. Those are classified as claims for which certain conditions must be fulfilled before a financial transaction actually takes place. The system states that

“[many] types of contractual financial arrangements between institutional units do not give rise to unconditional requirements either to make payments or to provide other objects of value; often the arrangements themselves do not have transferable economic value. These arrangements, which are often referred to as contingencies, are not actual current financial assets and should not be recorded in the SNA” (SNA 1993, § 11.25).

For instance provisions made in business accounts are explicitly *not* recognized by the SNA 1993: “Sums set aside in business accounting to provide for transactors' future liabilities, either certain or contingent, or for transactors' future expenditures generally are not recognized in the System. [...] Only actual current liabilities to another party or parties are explicitly included” (SNA 1993, § 13.22).

Funded pensions schemes own assets. Depending on who operates the fund, the SNA 1993 classifies these assets in the sector of the insurance corporation, the autonomous pension fund or as belonging to the employer in the case of a non-autonomous pension fund. However, it is considered that the assets are matched by a liability for the pension operators: the available funds are accumulated and invested in order to cover future pension claims. The SNA 1993 therefore records a liability for the pension fund and a respective asset for the household in the category *insurance technical reserves*. Funded pension schemes are hence treated in the SNA as saving schemes for the households. All contributions to funded pensions schemes are assumed to be made by employees, even when transferred directly from the employer's accounts to the pension fund. It is then necessary to reroute the employer's contributions to the household. The respective expense is recorded as a component of *compensation of employees*. In the case of funded schemes, the actual pension contributions of employers will be recorded for this item.

¹³² For social security schemes they are always be treated as owned by the government.

¹³³ The SNA recognizes “economic assets” that are defined as entities “(a) Over which ownership rights are enforced by institutional units, individually or collectively; and (b) From which economic benefits may be derived by their owners by holding them, or using them, over a period of time” (SNA 1993, §10.2). More precisely a financial asset is characterized as follows: “An asset that entitles its owner, the creditor, to receive a payment, or series of payments, from the other unit, the debtor, in certain circumstances specified in the contract between them” (SNA 1993, §10.4).

For unfunded schemes, however, no liabilities are recognized in the system. This follows from the fact that no assets are kept in the unit accounts. Hence, there is no micro-account information on which the recording of the transactions and the value of the pension promises could be based. In these cases the system states that no liabilities should be recognized in the core accounts. The SNA 1993 states that, in principle, social contributions should be imputed at the amount representing the actuarial estimates of future liabilities (SNA 1993, § 7.45). Right in the following paragraph the text acknowledges the difficulty of obtaining respective estimates and therefore proposes to base the imputation for the contributions on the retirement benefits paid in the accounting period (SNA 1993, § 7.46). In practice the system allows basing the expense category for unfunded schemes on actual payments of benefits due in the respective accounting period.

It follows that the SNA 1993 based the decision on whether to recognize pension obligations as liabilities or not on *funding* aspects. The system essentially draws the line for recognition of pension liabilities between funded and unfunded schemes: The SNA 1993 does not record any liabilities for unfunded schemes, while it does so for funded schemes. An additional aspect is that for (defined benefit) funded schemes no independent assessment of the liability is included but the value of the claim is derived from the value of the assets. While the text generally acknowledges that the liability *should* be assessed on the basis of the present value of the future liabilities, in practice it recommends that the estimate often needs to be based on the amounts actually contributed in the accounting period. This excludes, by definition, a representation of over- or under-funded schemes. It follows that the SNA 1993 prescribes recording unfunded pension payments at the time they are paid.

4.2.1.b *Statistical Alternatives*

The core statistical controversy arose for defined-benefit schemes – both unfunded and funded. The problem is that the nature of the liability and the amount of the liability are vague and potentially controversial. Hence the question came up, whether pension commitments should be recorded as a liability on the balance sheet and if changes in the present value of the claims should lead to an entry in the current accounts. And if it is proposed to do so, additional questions on valuation of those liabilities follow. The background to the measurement problem is basically that the liability arising from the pre-defined benefits needs to be measured long before it arises. Two components provide obstacles for the estimation in this context: Firstly, a number of factors make the *amount* of the liability uncertain: the time of contribution period, the duration of pension payments, and the amount of the pension payments depends on individual and future circumstances. Pension entry age, life expectation or future salary paths alter the

parameters of the benefit-formula. In the actuarial practice demographic projections are necessary to estimate the timing of the pension receipt, and economic projections are necessary to define the amount of the pension (European Actuarial Consultative Group 2001: 8). Further, any current recording of future payment obligations must necessarily be expressed in present value, thus presupposing an interest rate to be used as discount factor. The variation of professional practice in the private sector and the existence of many alternatives for choosing underlying assumptions clearly show the ambiguous and uncertain nature of the approaches in this respect (Pugh 2006).

Yet even if the potential claim can be predicted with reasonable certainty, the nature of the liability is potentially not covered. Especially in the context of social security pension schemes a classical argument brought forward is that pension formulas may be altered unilaterally: If a system is unfunded or under-funded, any reduction of the defined benefits can reduce the financial imbalance. In practice, the degree to which the benefit claim constitutes an actual liability may not be clear: It can be an explicit financial claim, a credible public commitment, or simply a promise. In many cases the liability is not directly legally defined. While the level of the promised pensions may be subject to a *political* promise, it may still not be subject to a *legal* commitment.

Formally, the statistical treatment is thus essentially influenced by the discrete assessment if pension promises are considered financial assets for the household or not. If liabilities *are not* recorded, employees' pension contributions will be recorded as current income for the pension scheme/employer. Only pension benefits actually paid in the accounting period will then be recorded as current expense. Additionally employer contributions may be imputed to derive a value for compensation of employees, but the impact of those imputations needs to be reversed before the system goes over to the financial accounts. If, in contrast, pension promises *are* recorded as financial assets of the households the pattern changes: Employers pay (implicitly) their share of the pension contributions, recorded as compensation of employees. Employees are recorded to use this (imputed) money together with their own contributions to acquire financial assets (the pension claim). Hence, the employee's contributions are not a revenue item for the employer or pension fund anymore but will be classified as a financial transaction. The same happens with pension benefit payments: They are not recorded as expense but instead as a reduction in financial assets of the household. It thus becomes clear that the statistical impact of a recognition of unfunded pension obligations on the deficit depends on the *differential* between actual contribution/pension flows and the estimated increases in liabilities.

Another statistical issue arises with respect to property income. Since the SNA 1993 attributes pension fund assets to policyholders it also reroutes the property income

earned on those assets to the employee (SNA 1993: §7.127). This helps to explain the discrepancy between contributions actually paid by employees and benefits received later on. If *unfunded* pension obligations are recognized (or the value of defined-benefit funded schemes is assessed on a calculative basis), the question arises whether for those liabilities also a property income should be imputed. This treatment is applied, for instance by Australia (ABS 1999: 4f.). In practice this means that the recording of the increase in the pension schemes liabilities is split: One part is recorded as employer contribution, in the form of compensation of employees; another part is recorded as property income of the household. In the case of government as an employer household's saving is affected as well as net lending/borrowing of government.

Figure 17 shows the recordings that would result from the recognition of unfunded defined benefit pension obligations as liabilities in comparison with the treatment prescribed in the SNA 1993 from the perspective of the government as an employer¹³⁴. If the obligations are *not* recognized as liabilities (current transfer treatment) the financial balance for the government is solely determined by the difference between employee contributions received and pension benefits paid ($2-10=-8$). Government's employer contributions (10) are not actually paid. It is assumed that they are first paid to the employees and then transferred back to the government in form of social contributions. Since the item thus appears as both resource and use in the government accounts the financial balance does not depend on the imputed level of employer contributions. Likewise any surplus of contributions over benefits (here: $10+2-10=+2$) positively affects the government balance.

The alternative, recording of pension promises as financial assets, produces a completely different picture. Now the imputed employer pension directly affects the deficit. Moreover, it is independently estimated and thus differs from the amount of pensions paid. The deficit impact is derived from the imputed employer contribution (12) and additionally an imputed property income as a contribution supplement (4), which is assumed to be paid by the employing government. Hence a total value of 16 affects the deficit. With the employer contributions, the employee contributions, and the contribution supplement (18) households acquire a financial asset from the government. A part of the cost is covered by employees through their own contributions (2) which increases the stock of cash and is accounted as a resource for the government. The net financial position changes by the remaining increase (16). At the same time the payment of pension benefits is recorded as a purely financial transaction (a

¹³⁴ The illustration follows the so called "dual recording" practice of the SNA. Pension payments and social security contributions are recorded in the current account even for funded schemes in order to reflect the assumed perceived effect on disposable income by households (SNA 1993: §9.15). The same flows appear in the financial accounts. In order to ensure the consistency of the accounts, an adjustment item is introduced to correct for the mismatch between saved and invested amounts that would otherwise result.

simultaneous reduction in cash and liabilities) and as such does not affect the deficit or net worth. Finally, as a consequence of the dual recording practice the benefits paid (10) and the employee contributions (2) plus the imputed property income (4) appear as a resource in the current accounts. This, however, is only included in the SNA to derive estimates of disposable income. The net effect of this inclusion is corrected in the system through an adjustment item (8) that neutralizes the impact at the transition from the current accounts to the capital accounts.

ALTERNATIVE OPTIONS FOR THE STATISTICAL TREATMENT OF DEFINED BENEFIT PENSIONS

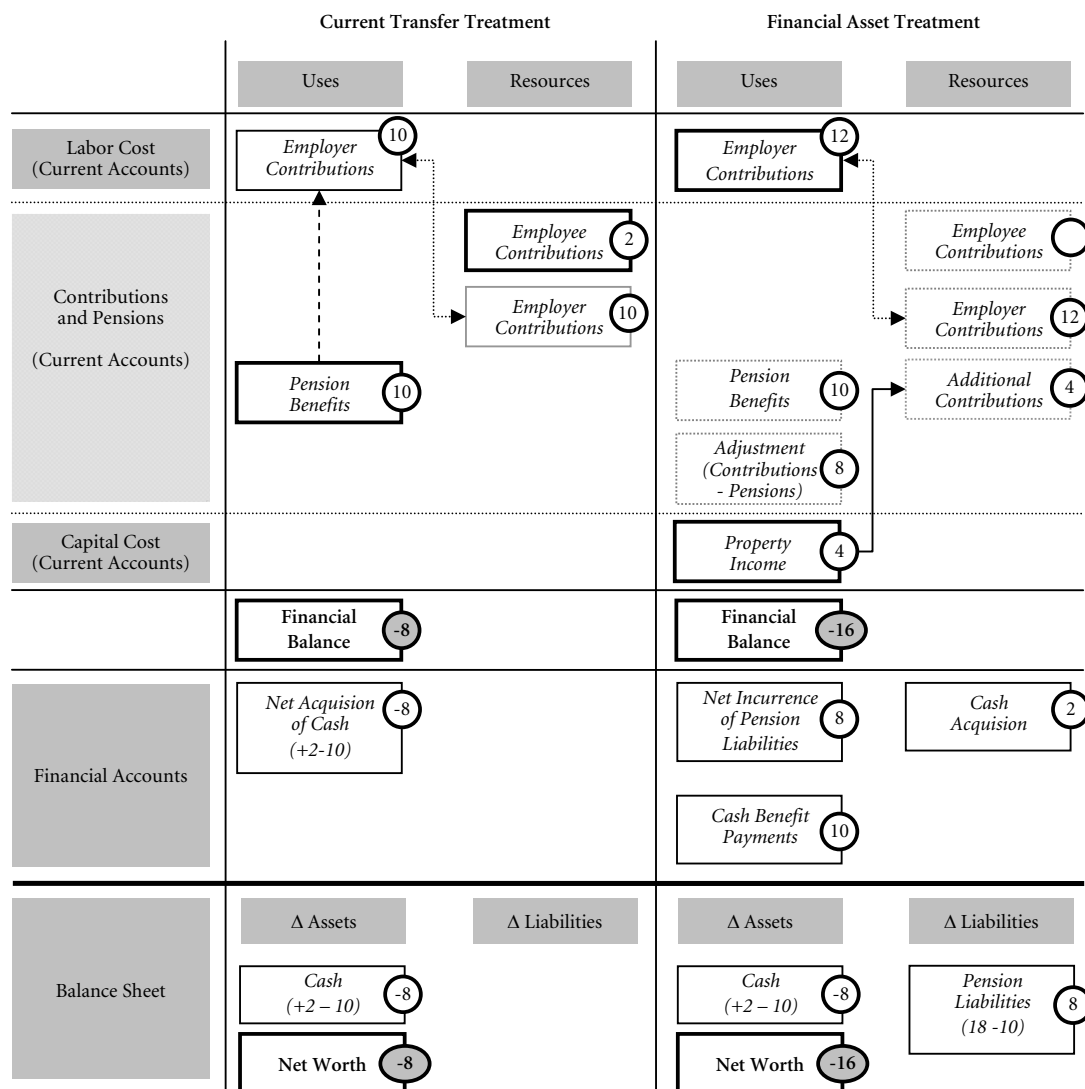


Figure 17: Simplified Scheme for Treatments of Defined Benefit Pensions

Notes: Two options for the treatment of defined benefit pension obligations in the SNA are displayed. In the current transfer treatment no liabilities of the government are recognized for pension obligations. In the financial asset treatment pension obligations are included as a financial asset. As a consequence pension contributions (employer, employee, and contribution supplements) increase the liability, while benefit payments decrease it. The bold lines indicate the components that affect the financial balance. The entries on the balance sheet correspond to changes in the respective positions, not their level.

4.2.1.c *Financial Accounting for Pensions in the Public Sector*

Preceding the statistical discussion on pension obligations were some major changes in the leading private sector accounting standards, especially in the Anglo-Saxon world and the international accounting standards. Traditionally, business accounting for pension liabilities was not subject to specific rules but was derived from general accounting principles under the guidance of accounting bodies (European Actuarial Consultative Group 2001: 16). This changed with the issuance of respective private sector accounting standards first in the US, Canada, UK and Ireland, and then at the international level. In the US the Financial Accounting Standards Board (FASB) issued the respective Financial Accounting Standard (FAS) 87 in December 1985 (FASB 1985a). Canada demands actuarial compilations of pension liabilities since 1986 in an amendment of section 3460 of the Handbook of the Canadian Institute of Chartered Accountants¹³⁵ (CICA). In the UK the Accounting Standards Board (ASB) issued SSAP 24 in 1988. In 2000 it was replaced by the Financial Reporting Standard (FRS) 17 (ASB 2000). The development in the field of International Accounting Standards (IAS) followed these national approaches. The International Accounting Standards Committee (IASC), and its successor since 2001, the International Accounting Standards Board (IASB), dealt for some time in depth with employer benefits. The International Accounting Standard (IAS) 19 was first issued in 1983 and took effect in January 1999. IAS 19 has since gained much impact, particularly since the IFRS became compulsory for European Corporations in 2005.

Essentially the accounting treatment is characterized by a gradual extension of the recognition boundary of pension obligations to non-legal definitions. Accountants in the US demanded already in the mid 1950s a shift from cash to accruals in the context of pension accounting. In the Accounting Research Bulletin 47 in 1956 for instance it was argued that the uncertainty of forecasting is manageable and that “reasonable accurate estimates can be made” (American Institute of Certified Public Accountants 1956: 15). Subsequent discussion in the US also expressed the need to make the implicit interest component in the pension charges explicit in order to make wage costs comparable under funded and unfunded schemes (see for instance Drebin 1963). A crucial impact on the common perception of the nature of unfunded pension liabilities was triggered by the passing of the Employee Retirement Income Security Act (ERISA) in 1974. With the law unfunded pension obligations became de facto corporate liabilities. It defined complex legal liabilities for defined benefit plans that made firms liable for vested benefits even if they were not covered by plan assets (Holland/Sutton 1988: 32). Yet a

¹³⁵ In 1999 the actuarial compilation was specified in more detail with the introduction of CICA 3461.

closer look reveals that there was some unease about the extension of the recognition boundary. In the summary of FAS 87 the FASB states:

“The most relevant and reliable information available about that liability or asset is based on the fair value of plan assets and a measure of the present value of the obligation using current, explicit assumptions. The Board concluded, however, that recognition in financial statements of those amounts in their entirety would be too great a change from past practice. Some Board members were also influenced by concerns about the reliability of measures of the obligation” (FASB 1985b).

On this basis a smoothed actuarial valuation of those liabilities was proposed. Recent years, however, witnessed a trend towards balance sheet driven approaches and market based measurement of liabilities with immediate cost recognition. For instance the transition from SSAP24 to FRS17 in the UK abolishes the possibility to defer the recognition of actuarial gains/losses (European Actuarial Consultative Group 2001: 17). The extension of liabilities in leading accounting standards is associated with more general concepts of liabilities. Generally the IFRS define liabilities as “a present obligation of the enterprise arising from past events, the settlement of which is expected to result in an outflow from the enterprise of resources embodying economic benefits” (IASB 2005: § 49). The IFRS however state that not all items that fall in the definition of a liability will be recognized in the financial statements. Rather it introduces additional “recognition criteria” that should guide the decision whether to include the respective items in the reports or not: “An item that meets the definition of an element should be recognised if: (a) it is probable that any future economic benefit associated with the item will flow to or from the enterprise; and (b) the item has a cost or value that can be measured with reliability” (IASB 2005: § 83).

RECOGNITION OF LIABILITIES IN THE IFRS

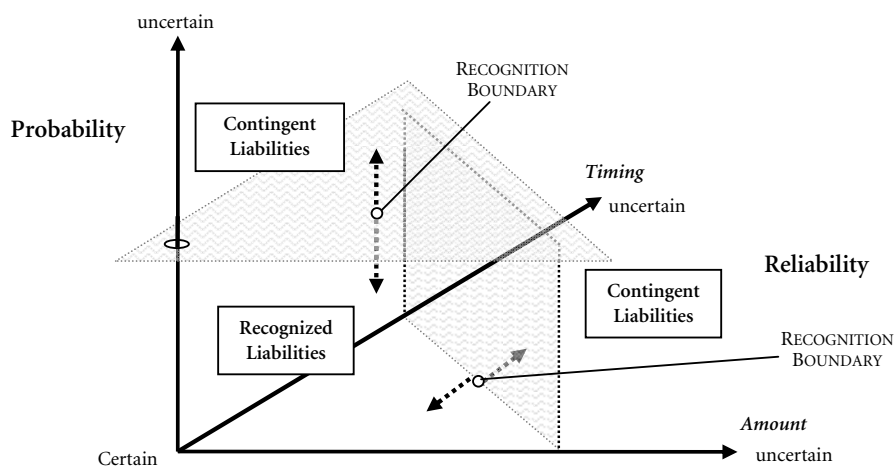


Figure 18: Recognition Boundaries for Liabilities in the IFRS

The IFRS thus conceptually introduce two recognition criteria: The *probability* with which the economic event occurs and the *reliability* with which the respective amount can be estimated. The latter dimension can be further split into two sub-dimensions, namely uncertainty about timing and about the amount of the financial outflow. Figure 18 graphically displays these three dimensions. The recognition of a liability in the financial statement presupposes a minimum probability and a minimum reliability of measurement, subject to uncertainty in timing and amount. Improbable liabilities will be regarded as contingent liabilities and disclosed but not included with their value in the financial statements. In the other dimension, if both, timing and amount are certain enough the liability will be recorded. If some degree of uncertainty exists, a liability might be recorded as “provision”. Above a certain reliability limit only contingent liabilities are recorded.

These conceptual ideas guiding the recording of liabilities gradually influenced public sector accounting as well. Public sector standards in New Zealand, Australia, the United Kingdom and the United States extended their liability boundary accordingly. The Public Sector Accounting Board (PSAB) in Canada, for instance, followed the guidance of those countries and essentially redefined its own definition of a liability. While before a liability was clearly linked to contractual agreements and disclosed legislation, the PSAB moved the definition more to a concept where “government has lost control over its ability to avoid the future sacrifice of economic benefits” and hence a much ‘softer’ approach (Beauchamp 2004). This softer approach towards non-legal liabilities is also included in the IPSAS. While the IPSAS do not (yet) include a standard on pension obligations, IPSAS 19 on “Provisions, Contingent Liabilities and Contingent Assets” was issued in October 2002. This standard defines provisions as different from other liabilities due to uncertainty about “timing or amount of the future settlement” (IPSAS 19, §19). Nevertheless the IPSAS state that provisions should be recognized when “(a) An entity has a present obligation (legal or constructive) as a result of a past event; (b) It is probable that an outflow of resources embodying economic benefits or service or potential will be required to settle the obligation; and (c) A reliable estimate can be made of the amount of the obligation” (IPSAS 19, §22). The obligation to pay pension benefits is for defined benefit schemes typically not legal in nature. Therefore the definition of a “constructive obligation” is particularly important for the applied treatment:

“A constructive obligation is an obligation that derives from an entity’s actions where:

- (a) By an established pattern of past practice, published policies or a sufficiently specific current statement, the entity has indicated to other parties that it will accept certain responsibilities; and
- (b) As a result, the entity has created a valid expectation on the part of those other parties that it will discharge those responsibilities” (IPSAS 19, §18).

More conceptual work in the area of financial accounting related to pensions occurred when the IFAC initiated a project on the accounting of government social benefits in March 2002. In January 2004 a so called “Invitation to Comment” provided a first basis for discussion. In March 2005 the project was split into three sub-projects, one dealing with global pension schemes, one with basic pension systems, and a third with all other social benefits (IFAC 2007). The discussions in these forums have thus happened in the background of the statistical debate.

4.2.2 OVERVIEW OVER THE DISCUSSION AND THE OUTCOME

The treatment of pensions was not a new issue in the statistical community. Initially, statisticians put emphasis mostly on the treatment of funded schemes and particularly the question of economic ownership of the pension funds’ assets. In 1970 for instance it was discussed whether contributions to social retirement schemes should be counted as increasing household wealth or not (Nicholson 1970: 174). In 1983 Nancy and Richard Ruggles asked for a fundamental rethinking of the statistical treatment of social security obligations and public pensions (but did not recommend recognizing them as liabilities) (Ruggles/Ruggles 1983: 376). The analytic focus at that time was still the measurement of household wealth and national saving (Quinn 1985) – fiscal sustainability was barely addressed. The discussions preparing the 1993 SNA considered pensions to be a highly important issue (Expert Group 1990: 31) but only minor changes were agreed¹³⁶.

This perspective changed during the 1990s, however. The debate in the international statistical community began when substantial problems of international comparability arose. Canada and Australia began recognizing unfunded government employer pension obligations as liabilities in their national accounts statistics. In addition the United States and other countries began reporting respective liabilities in their government financial reports. The IMF statistics department then took an interest in the issue and deliberately deviated with the GFSM 2001 from the SNA, by including unfunded pension obligations as financial liabilities. This obviously reflected the strong influence of Anglo-Saxon countries in the preparation of the manual¹³⁷. The IMF then sponsored an EDG on the issue, its own statisticians contributed intensively to the debate and it also paid external experts to prepare discussion papers on the topic.

¹³⁶ It was for instance discussed whether social security contributions should not in fact be considered a tax rather than part of wage costs. Yet these proposals did not lead to changes. Instead it was decided to record contributions to and benefits drawn from pension schemes as current transfers and to reroute property income on funded schemes via the household accounts as an extra contribution (Harrison 2005a: 175f.). In the context of government schemes discussion addressed the classification of funded government employee schemes which are invested in government bonds and borderline problems between unfunded government employer schemes and social security (ibid.: 73f.).

¹³⁷ The main author of the IMF GFSM 2001, a US citizen, states: “I wasn’t the first to ask, why isn’t this in the SNA? My division chief was from Australia and he said: Well, of course it must be there. [We] thought it was the only logical thing to do” (Interview XI: 17-18).

THE SNA PENSION DEBATE - OVERVIEW

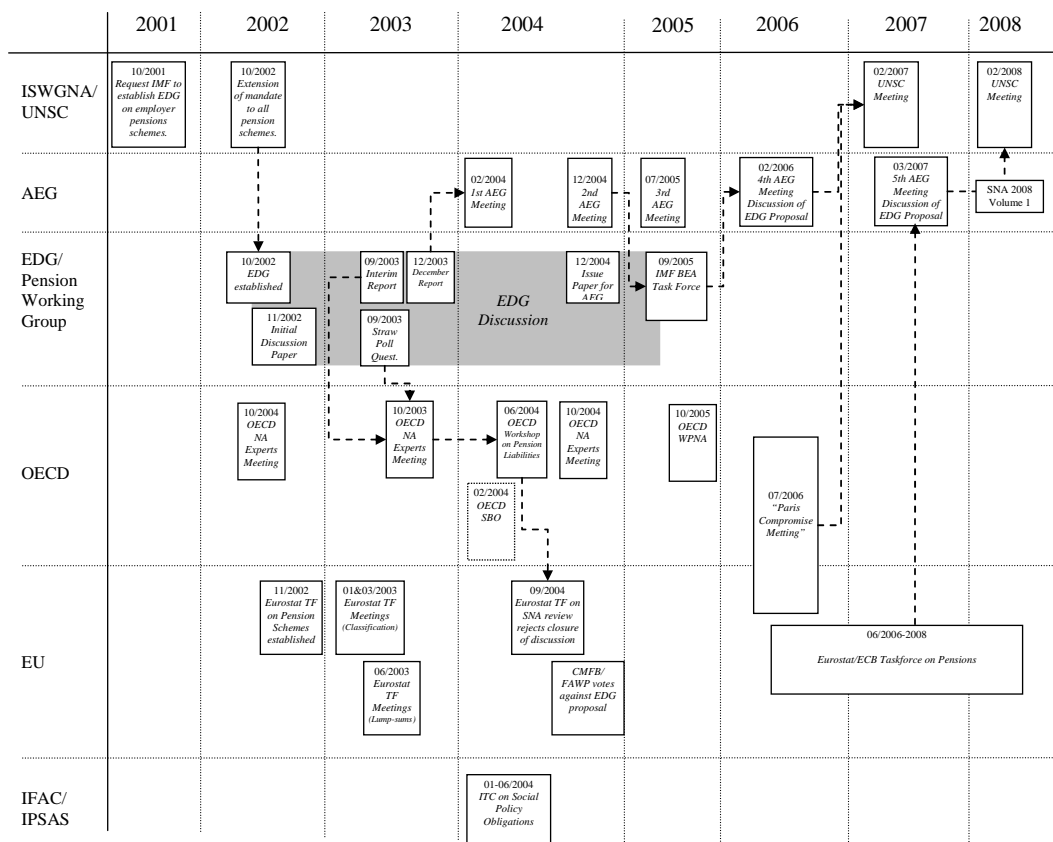


Figure 19: The SNA Pension Debate - Overview

During the first phase of the discussion, from fall 2002 to fall 2004 the discussion took mainly place within the EDG and was only mildly controversial. Most experts contributing to the debate were strongly in favor of recognizing unfunded pension liabilities in the system and to de facto abandon the funded/unfunded criterion in the system (D-26: 4)¹³⁸. When the discussion in the EDG apparently came to a close, however, Eurostat representatives expressed sharp opposition with the proposal, starting a period of intensive controversy that finally ended with a compromise in 2006 which allowed introducing some flexibility in the new SNA 2008. In contrast to earlier concerns, the dominant analytic perspective of the debate was now more on pension claims as liabilities of the employer (and government) and less as assets of households. At its first meeting the AEG explicitly acknowledged that the interest in the issue has shifted since the last formal debates (AEG 2004b: 14).

¹³⁸ Quotes from discussion documents will denote the index number of the respective document preceded by "D-". The list of the respective sources can be found in the annex.

The following section now studies the process and content of the debate on the recognition of defined benefit pension obligations in the SNA community. It starts from a description of how the issue actually came on the agenda, the major phases of the discussion process, and the outcome that will be part of the text of the new SNA. The section then continues with the analysis of the content of the arguments brought forward in this debate.

4.2.2.a Agenda Setting

The issue of pensions was brought up in the national accounts community in fall 1999. In a paper presented at the National Accounts Experts Meeting at the OECD in September 1999 the Australian Bureau of Statistics (ABS) explained that it deliberately deviated from the SNA 1993 by recognizing unfunded government employer pension liabilities in its national accounts. The basic problem stated by the ABS was that the distinction between *funded* and *unfunded* schemes was practically irrelevant for the substance of the employee's claim. The ABS argued that the pension commitments would *not* be contingent in nature and should therefore be recognized¹³⁹ (ABS 1999: 3). Statistics Canada was at that time in a similar position. Like their colleagues in Australia, the statisticians decided to include unfunded pension liabilities of its government in the national accounts. Again, this proceeding was obviously triggered by reasons of *national consistency*. Some years earlier the government had started to recognize unfunded liabilities in their accounts as notional liabilities¹⁴⁰ (O'Hagan 2003: 3).

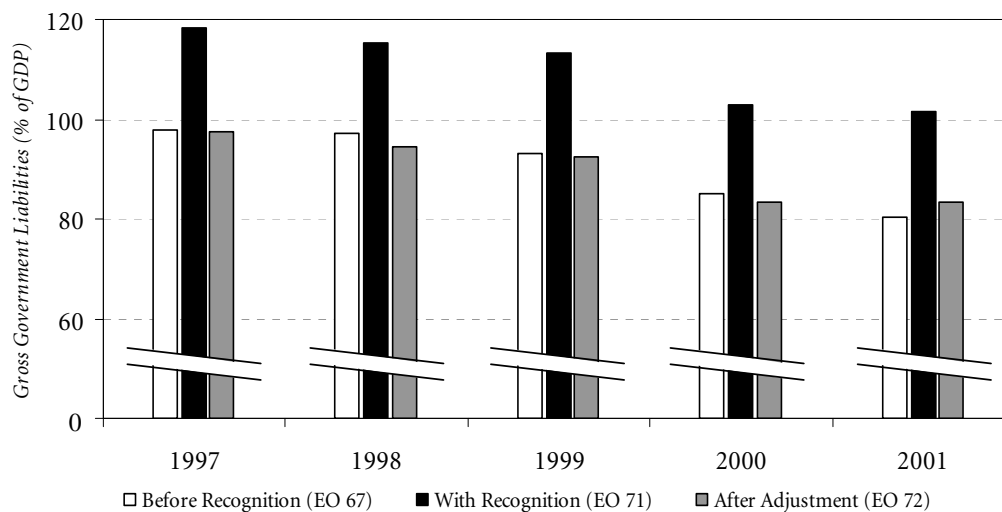
This change in the Canadian (and Australian) national accounting practices led to a substantial distortion of the financial data reported to the OECD. The inclusion of unfunded government pension liabilities in the reported statistics led to an upward jump in the figures for gross government debt by about 20% of GDP. Those figures were reported to the OECD and published in the Economic Outlook 68 in December 2000 (see Figure 20). The OECD remarked in a footnote to the table that this created a problem of comparability between Canada and those countries which did not recognize similar pension obligations (OECD 2000a: 242). However, it was not immediately clear

¹³⁹ Some years before the Australian government began including the respective liabilities in its financial reports. The national accountants claimed that the "existence and the level of the liabilities of unfunded pension schemes have been highlighted by State and Federal Auditors' General. It is thus difficult to argue that these liabilities are contingent when both the general government employers and their employees regard future pensions as actual liabilities and assets respectively" (ABS 1999: 3f.).

¹⁴⁰ Not surprisingly the recognition of unfunded pension liabilities in the government financial accounts was advanced by those countries strongly engaged in public sector accrual accounting reforms. In Australia the Australian Premier's Conference decided in May 1991 to introduce the "Uniform Presentation Framework". This accounting recommendation included the requirement to report on unfunded pension liabilities (Australian Treasury Department 2007). The United States issued a Statement of Federal Financial Accounting Standard (No. 5) in 1995 requesting to record all government pension liabilities on an actuarial basis (FASAB 1995). The standard was implemented in 1997 for all federal government entities.

what to do in order to correct for this problem. In 2002 the OECD then decided to adjust the figures by excluding the respective amounts, thus revising the Canadian figures downwards in the Economic Outlook 72.

CANADIAN GROSS GOVERNMENT DEBT IN THE OECD'S FIGURES



Source: OECD Economic Outlook

Figure 20: Canada Gross Government Debt

Following the Australian presentation at the OECD national accounts expert conference, the delegates of Australia and Canada were informed that they could formally submit a request to the ISWGNA to change the SNA respectively (OECD 1999: 16). It was Statistics Canada that reacted to this invitation and actually handed the respective request in by e-mail to the OECD on 11 February 2000 (ISWGNA 2000: 10). The ISWGNA then discussed the issue at a technical level meeting. The members explained that the topic was not new to the statistical community, but that the experts preparing the SNA 1993 had deliberately decided not to include unfunded pension liabilities in the system:

“This issue had been carefully considered by the relevant Expert Group during the SNA update process in the late 1980s. The main reason for not showing the unfunded parts of such schemes as government liabilities and as household assets was the uncertainty attached to them ultimately being paid in full. However, the ISWGNA recognised that the situation has changed in some countries at least, as indicated by some governments showing the unfunded liabilities in their accounts” (ISWGNA 2000: 10).

At this same time the IMF undertook a major step by recognizing unfunded pension obligations in the conceptual framework of the GFSM 2001. The manual notes in the introductory chapters that “analysts have become increasingly interested in assessing the effectiveness of spending on poverty alleviation, the sustainability of fiscal policies, net debt, net wealth, and contingent claims against government, including the obligations

for social security pensions” (IMF 2001a: §1.3). The manual therefore recommends the recognition of implicit pension contributions for unfunded pension promises “equal in value to the amount of social contributions that would be needed to secure the de facto entitlements” (ibid.: §6.18). Pension obligations are explicitly included as liabilities in the form of “insurance technical reserves” on the government’s balance sheet (ibid.: §7.120).

The issue of unfunded pension schemes for government employees was formally hissed on the agenda of the SNA updating process in fall 2002. In April 2001 the discussion of the topic was still rejected by the ISWGNA (ISWGNA 2001: 9). Half a year later, however, the IMF declared its intention to test if there “is interest in setting up an EDG” on the treatment of unfunded pension liabilities in the SNA (ISWGNA 2001: 5). In April 2002 the members of the ISWGNA considered that this was the case and asked the IMF to start establishing a respective discussion group (ISWGNA 2002a: 4). Representatives of the IMF then presented the case for reviewing the treatment of unfunded employer pension schemes at the OECD Meeting of National Accounts Experts, stressing the differences between the treatments in the GFSM 2001 and various accounting standards (IMF 2002). In fall 2002 the ISWGNA formally extended the mandate of the EDG to include all unfunded pension schemes and social security pension schemes (ISWGNA 2002b: 5). At this time the core question was described as “whether or not obligations for promised pension benefits, and the income thereof, should be recorded in the balance sheets and income accounts” (ISWGNA 2002b: 10). In December 2002 the discussion gained momentum. The head of the OECD National Accounts division argues in the OECD statistics newsletter that pensions have become an issue which would need to be considered. The transition of the USA, Canada, Australia and New Zealand towards an accrual accounting system justified, in his view, that the issue should be discussed in the statistical community, after being treated as a minor issue in the preparation of the 1993 SNA. He interprets that there is “growing support among statisticians in favor of adapting the SNA to the new standards of government accounting”¹⁴¹ (Lequiller 2002a: 3).

¹⁴¹ In the background to the discussion in the SNA community, pensions became an issue in the statistical agencies within the European Union. Eurostat established two task forces to deal with issues arising in the context of structural reforms in member states and candidate countries. The first main issue to be decided was the classification of specific pension schemes that could either be classified in the private sector or in the government sector as social security scheme. The other task force considered the case where governments assumed the pension liabilities for public corporations and in return received large payments (Besnard 2003). The decision processes led to several Eurostat decisions, for instance in October 2003 on the classification of unfunded schemes, in February 2004 on funded schemes, and in March 2004 on the classification of defined contributions schemes.

4.2.2.b *The Initial Proposal*

In autumn 2002, about one year after the request to establish an EDG was made, the moderator of the discussion group published the purpose and subject of the debate in the UN publication *SNA News and Notes* (De Rougement 2002). The actual debate in the EDG was then started in October 2002 with an initial paper by an SNA expert, prepared on behalf of the IMF. In this paper a general introduction in the topic is given and the existing treatment in the SNA is discussed. The main point of the contribution is clearly to raise the question whether “assets and liabilities should be recognized for unfunded pension schemes even though they do not have actual assets” (Pitzer 2002b: 7). Within one year additional six papers and 22 reactions and comments had been posted to the EDG. In the attempt to consolidate and summarize the view, the moderator prepared an interim report and distributed a first overview over the debate in September 2003 in the statistical community. Three main topics are discussed: (1) The recording of employer pension obligations and particularly the extension of the liability recognition from funded to unfunded schemes; (2) the treatment of social security and social assistance pension obligations; (3) delineation issues of pension schemes (D-29: 16f.). The report, while using cautious formulations, so as to highlight the preliminary status of the discussion, tentatively concludes that

“most, if not all, contributors favor recognizing – in a reviewed SNA – pension obligations of unfunded schemes as liabilities. It is argued that the reality of obligations does not depend on the funding characteristic of the arrangement, particularly when the obligation is recognized in the own financial statement of the entity in question” (D-29: 4).

The interim report was presented to the *OECD National Accounts Experts Meeting* in October 2003. At that time only a limited number of country representatives took position to the issue. The minutes of the meeting note that the conceptual change of the SNA received strong support:

“Participants strongly endorsed recognizing liabilities of unfunded employer schemes (Australia, Netherlands, Denmark, the UK, the USA) while no member expressed opposition, as the Chair asked for a tour de table. The Chair concluded that the OECD National Accounts Experts supported this change” (OECD 2003: 3).

Based on a number of additional contributions and a standardized survey among EDG contributors and some additional experts, the discussion group’s moderator prepared a draft and final report in December 2003 with the aim to be sent to the AEG for its first meeting in February 2004. In the paper, based on 45 contributions, the EDG moderator clearly recommends to include employer pension obligations if “they are legal obligations or constructive obligations” and to measure imputed social contributions and property income on the basis of actuarial estimates (D-47: 11f). At the February meeting the AEG formally accepted pensions as an updating item and “welcomed” in principle the idea to record employer pension liabilities on an actuarial basis but also

expressed concern about whether pension obligations actually constitute liabilities and what statisticians should do if actuarial estimates were not already provided in the employer's (government's reports). As a consequence it was decided to wait for further discussions in the EDG and to consider the topic again at the second meeting, scheduled for November 2004 (AEG 2004b: 14).

A number of additional contributions to the AEG broadly agreed with the general recommendation, although some authors suggested refinements with respect to measurement issues. In July 2004 the OECD organized a *Workshop on 'Accounting for Implicit Pension Liabilities'*. In the notes to the EDG it is observed that the "reactions of the economists to the proposals were quite varied, with many of them doubting that the proposals of the task force were realistic. However, some of them supported the proposed changes" (D-55: 1). Nevertheless, the original EDG position was taken further. The core proposals are summarized in an issue paper of the IMF Statistics Department that was prepared for the AEG meeting in December 2004:

"On the basis of the contributions received from many experts, the results of a straw poll conducted in September 2003, and discussions in various international statistical meetings, the EDG recommends the following:

- Treat unfunded employers' pension schemes identically to funded employers' pension schemes;
- For all defined benefit employers' pension schemes, use actuarial valuations to measure (i) employers' social contributions and (ii) property income attributed to insurance policy holders;
- Allocate the net assets of defined benefit employers' pension schemes to the sponsoring employers" (D-57: 3).

Moreover the paper proposed to limit the recognition of pension obligations, by definition, to employer schemes (and hence to include government employer schemes, while excluding social security systems).

4.2.2.c *The Controversy*

With the time for the supposedly decisive AEG meeting approaching, the largely harmonious view in the statistical community found an abrupt end. A number of European countries expressed strong opposition to the EDG proposal. France, Italy, Spain, and Germany, in addition to the European Commission and the European Central Bank raised the concern about the proposed recognition. In September 2004 Eurostat posted a contribution to the EDG containing the signed opinion of 30 statisticians that the final discussion of the pension issue should be postponed¹⁴² (D-55: 1). The authors of the note stress that the proposal would have far reaching implications

¹⁴² Moreover, in the final paragraph the note quite openly suggests that an open institutional conflict emerged in the context of the issue. The note quite openly suggested that the IMF did not respect the interests of all countries: "We also note that whilst the IMF chairs the EDG, it would usefully gain from appointing a moderator or co-moderator amongst other institutions or member states" (D-58: 3).

for European Statistics in the context of the Excessive Deficit Procedure and proposals therefore “have to follow ‘due process’” (ibid.), which would require time and the data would have to fulfill quality criteria. The note further stresses the danger that European countries could oppose the recommendation and therefore stop the process:

“The Task Force feels that trying to come to closure at this stage would create a particularly difficult situation in Europe, which could lead to the rejection of the proposal and may have the potential to derail the whole process. [... More] time is needed to assess the plausibility of a global package of the statistical treatment on all pensions” (D-55: 2).

This contribution to the EDG reflected the results of a preceding discussion in a Eurostat task force on the SNA update. This group met again in November 2004 and discussed an own, alternative draft report to the AEG which had in the meantime been prepared by representatives of the ECB and the Bank of England. The preliminary conclusions from these discussions were forwarded to the FAWP which met one day later in Luxembourg. The important outcome of this discussion in the Eurostat bodies was to ask for a postponement of the decision process at the level of the AEG. In a second contribution the European statisticians especially question the reliability of the estimates needed for the statistical recording of pension obligations:

“[The] usage of models and the multiplication of imputations should be limited to the extent possible, to avoid volatility in data and reduce scope for manipulations. The EDG should focus on this important question and provide guidance and reassurances, when giving recommendations” (Eurostat 2004b: 4).

The main argument of the Eurostat paper was framed as discussing the question not *whether* unfunded pension obligations should be recorded but *the conditions* under which this should be done. Specifically the solidity of the claim was doubted, given that the government could change the value of the obligation and the quality of the estimates (D-58: 2). The statisticians argue that six alternative different options should be considered, reaching from leaving the system unchanged, adding respective information for all pension obligations (including social security) in a satellite account, the EDG proposal (recognition, but limitation to employer schemes), recognition of all liabilities in the core accounts, the introduction of additional balancing lines in the core accounts, and the introduction of a special pension account (Eurostat 2004b: 6). At the next AEG meeting, which took place in December 2004, the split between OECD countries was obvious. The options whether to include the estimates inside the core accounts or outside were discussed in a highly controversial manner (AEG 2004a: 64). The AEG thus faced the proposal of the EDG on the one hand, requesting the recognition of unfunded employer pension schemes and the valuation of the respective liabilities on an actuarial basis in the regular accounts. On the other hand a group of statisticians from the EU strongly rejected the proposal. While the basic suggestion to extend the coverage of the system was accepted by many critics, the counterproposals were to put them outside the

core accounts and hence record them in a way where they would have no impact on the main aggregates and balancing lines. Yet supporters of the EDG proposal insisted on the need to change the core accounts:

“One member supported the recommendations of the EDG strongly and said that his country already had implemented the recommendations in the national accounts and the government accounts. He was supported by another member who found satellite accounts more like ‘tryout accounts’ and not suitable for this issue” (AEG 2004a: 64).

At that time there were already attempts by representatives of international organizations to reconcile the different positions by making compromise proposals. One suggestion was for instance to introduce additional balancing lines in order to mark the different nature of the pension claims, thus leaving it to the data users which line to take: “A member saw pensions as the most important reason for changing the SNA. On the question of recording she referred to the parallel treatment of consumption expenditure in the SNA and suggested a treatment with and without unfunded pension liabilities. It would have some of the attraction of the satellite accounts but not the disadvantages” (AEG 2004a: 64). In the end, the AEG agreed *in principle* to record unfunded and underfunded pension obligations in the system, but left the implications for the system open: “The AEG concluded that unfunded and underfunded employers’ pension schemes have to be treated in a new manner and the liabilities need to be recognized in the national accounts. However, the AEG disagrees about where to draw the line between pensions and social security and where to record the pensions (in the core, in satellite accounts or in ‘parallel accounts’)” (AEG 2004a: 65). The work was delegated back to lower level discussion groups and the important questions remained open.

4.2.2.d *The Search for a Solution*

The AEG then asked the task force to continue with the discussion on the treatment of pension funds. In early 2005, the US national statistical institute, the Bureau of Economic Analysis (BEA) and the IMF established a task force consisting of 13 statisticians to discuss the remaining issues. The group aimed to address the principles of the treatment of defined benefit employer’s pension schemes, including the data sources and estimation methods (Bloem/Ruser 2005). While a number of issue papers were discussed, the experts basically stuck with the previous EDG recommendations: “The consensus of the task force discussion was that economic analysis would be better served if analysis of pension schemes shifted from the current focus on the assets of pension schemes to their liabilities, and took account of the contractual nature of employer-employee relationship. This entails an actuarial approach to defined benefit schemes” (IMF/BEA Task Force on Employers' Retirement Schemes 2005: 2).

In parallel to these debates, the pension issue was discussed again in the European context at the CMFB in July 2005. The outcome of the advisory group’s meeting was to

recommend a treatment of both unfunded employer *and* social security pension obligations in a *supplementary* account and therefore outside the core accounts. Eurostat and the ECB were asked to present this position as the European opinion on the issue back to the September 2005 meeting of the IMF Pension Task Force¹⁴³ (CMFB 2005a: 10). The Committee did not discuss the implications and options in detail, but remarked the necessity to develop a common position considering the substantial impact on the EDP figures. The establishment of a respective task force in Europe was recommended. The opposition to the EDG proposal was thus again expressed by European representatives at the IMF/BEA task force meeting. Two alternative recording proposals were again proposed, namely either leaving the core accounts as they were or to record all pension obligations (employer and social security) in a supplementary set of accounts (IMF/BEA Task Force on Employers' Retirement Schemes 2005: 11). Yet both camps seemed not to come to an agreement. At the meeting of the *OECD Working Party on National Accounts* in October 2005 the stalemate was clearly visible (Table 6).

THE PENSION STALEMATE IN THE OECD WPNA

COUNTRY	POSITION	MAIN ARGUMENT
Germany	-	Asymmetry through non-recognition of contribution asset; German high-court ruling that pension claims are not linked to specific amounts
Canada	+/OECD	Canada already applies the recommendations in its core account which leads to a better measure of households' savings.
Denmark	+/OECD	Not sound to reflect business accounting principles in the SNA due to national differences; but imputations are feasible in the core accounts
Spain	-	Nothing is lost by leaving the information outside the core accounts
Australia	+	Improves analytical value of the accounts; especially in case of inter-scheme transfers or moves from unfunded to funded schemes; liability criterion decisive
France	-	Important to recognize, but dangerous to do so in the core accounts because many aspects of PAYG systems could not be reflected; contribution asset is not recognized
The Netherlands	~	Personal approval of EDG proposal; funding criterion is irrelevant; but at the same time pension claims may not satisfy criteria for liability
OECD Secretariat	OECD	There is no ideal criterion on existence of pension liability; there is thus a need for pragmatism and compromise
SNA Editor		Focus on liabilities is correct; consistency between and within countries is necessary
Portugal	-/OECD	Supplementary account will allow sensitivity analysis
Belgium	-	PAYG are not like saving schemes; EDP purpose of the national accounts limits the role of imputations; change of concept will confuse users
IMF	+/OECD	Current SNA treatment is an anomaly;
United Kingdom	?	Pension obligations are provisions; provisions may be included in the national accounts; not alternative balancing lines should be included in the national accounts to support the role of the clear national accounts
ECB		Supplementary accounts are feasible and can reflect the uncertain characteristics of the data; putting the in the core accounts is incompatible with requirements for accuracy required in Europe; in case of controversy: make no change
BEA	+	Actuarial estimates are already in the SNA; funded/unfunded criterion creates problems for partly funded schemes; compilations can be done;

Source: ISWGNA 2007, p. 2ff.

Notes: The summary of the arguments is based on the minutes of the WPNA meeting. A “+” or “-“ in the respective position column indicates the support or objection against the EDP proposal, “OECD” indicates support for the OECD compromise outline”

Table 6: The Pension Stalemate in the OECD WPNA

The conflict between the two groups within the OECD seemed not to find an easy solution. As the wording of the Eurostat note to the EDG already suggested, European

¹⁴³ Concerning the substance, the CMFB did not consider the option to leave the SNA unchanged as a feasible approach, since there was seen a “user demand for data on implicit unfunded pension liabilities” (CMFB 2005b: 11).

statisticians threatened to deviate from the SNA in case the EDG proposal was accepted by the AEG. At the 2005 CMFB meeting the representative of the OECD therefore expressed concern about a potential non-comparability between European and Non-European Accounts if different standards were applied (CMFB 2005a: 10). He describes the danger of the European countries “opting out” of the SNA by making different propositions in the ESA. This, he would see as a “failure” of the OECD (Lequiller 2005: 7). Recognizing the inability to reconcile the differences between the two groups on a technical level, the representative of the OECD clearly stressed the need for a pragmatic approach in order to ensure international comparability¹⁴⁴:

“[There is no ideal criterion on which to base the existence of a pension liability: funded/unfunded is to be abandoned; direct employer contract/social security is not a clear cut criterion, in particular for multi employer scheme; legal entitlement/not legal has the shortcoming that it is not an economical criterion. This is why one has to show some pragmatism and accept a compromise that will ensure international comparability” (OECD 2005: 3).

Yet a respective compromise seemed not at reach. At its February 2006 meeting the AEG discussed two papers presented by the IMF-BEA task force and a compromise proposal by the OECD. The AEG again concluded that there “was strong support” to “recognize the liabilities involved with all employer pension schemes, including unfunded ones” (AEG 2006: 54). At the same time the body expressed concern about problems to delineate between employer pension schemes and social security schemes and stressed the need for additional criteria. The introduction of a supplementary account recording of social security obligations was in principle endorsed. But essentially the meeting still showed the clear division between the two camps: One group stated that “unfunded government employee schemes and social security schemes are inextricably mixed and it is impossible to separate them” while representatives of the other stated that “unfunded government employee schemes are effectively contractual obligations of government in its capacity as an employer” (AEG 2006: 51).

The AEG finally tentatively confirmed the approach of the IMF/BEA Task Force to recognize employer pension obligations while excluding those falling under social security. This however, posed problems of delineation in countries where large public pension systems serve as the main pension pillar even for private employers. Since both government involvement and the nature of the claims are in principle similar between both schemes, statistical experts criticized the decision at the following joint UNECE/OECD conference on National Accounts. The representative of the OECD

¹⁴⁴ Based on the perceived feed-back the head of the national accounts at the OECD recommends a compromise solution: “These solutions are based on two major new personal proposals that I submit to the statistical community: (1) abandon the idea of separating the cases of “employer schemes” and “social security schemes” and try to include both systems in the new proposals; (2) avoid including the massive imputations, implied by the proposals, in the core accounts by developing special tables devoted to the treatment of these quasi-liabilities” (D-55: 1).

argued that “experts of these countries have some difficulty to understand why the SNA would record a liability for the government scheme for its own employees (and thus a pension asset for government civil servants) but no liability for the very similar system that the government sets up for the rest of the society” (OECD 2006: §26).

4.2.2.e *The Compromise*

A breakthrough was finally reached at an informal meeting in July 2006, organized by the OECD. This meeting excluded representatives of the IMF. After negotiations a compromise was agreed. The text essentially prescribed the recognition of all *employer* pension schemes in the core accounts and the recording of *all* (incl. non-employer) pension schemes in a special supplementary account (see Figure A 6 in the annex). But crucial for the acceptance of EU statisticians was the agreement that unfunded government employer schemes which are ‘similar’ to social security schemes could be handled in a *flexible* manner:

“The recommendation of the updated SNA regarding the recording of unfunded pension schemes sponsored by government for all employees (whether private sector employees or government’s own employees) will be flexible. Given the different institutional arrangements in countries, the updated SNA will permit recording only some of these pension entitlements in the core accounts. However, it will be a requirement that the rationale and criteria be provided to explain the distinction between those schemes whose entitlements are carried forward to the core accounts and those for which they are recorded only in the new standard (supplementary) table” (Eurostat/ECB Task Force on Pensions 2006).

This approach essentially allowed countries, or Eurostat, to apply the principle with substantial discretion at the implementation level. The criteria and their application would be subject to further decision making and would certainly provide enough time for all countries and institutions to consider the detailed implications. At a coordination meeting of the ISWGNA, the European experts signaled that the compromise proposal will be accepted in Europe (ISWGNA 2006: 1). In a written consultation process and at other international conferences members of the AEG and the IMF/BEA Task Force on Pensions also accepted the compromise proposal. The ISWGNA concluded that this compromise will have the chance to enter the SNA 2008 (UNSD 2006). In a letter to the ECB the director of the IMF statistics department expressed acceptance for the proposal, but stressed that “a single set of internationally agreed criteria for inclusion of pension schemes in the core accounts” would be desirable (Edwards 2006). In the following report to the UNSC the ISWGNA concludes that a standard supplementary table containing all pensions will be prepared containing the pension information:

“In order to make a recommendation that can be widely accepted, it is proposed that a standard table should be prepared in conjunction with the regular accounts showing the pension entitlements accruing to households for all pension schemes, regardless of the means of funding or the category of the unit bearing the responsibility to meet the obligations of the pension scheme” (ISWGNA 2007a: 11).

With the acceptance of the compromise proposal, the conceptual work in the statistical debate shifted towards more concrete work on the proposed supplementary table and measurement issues. Already following the meeting of the AEG in February 2006, Eurostat and the ECB proposed the establishment of a task force to examine implementation issues for the compilation of pension liabilities. At the initiative of Eurostat a joint Task Force with the ECB was established and its mandate agreed by the CMFB in June 2006¹⁴⁵ (CMFB 2006). The final report of the task force was presented to the CMFB in January 2008 (Eurostat/ECB Task Force on Pensions 2008). During the work of the task force remaining issues of the concrete text and measurement implications were discussed. In a letter from the ECB/Eurostat Task Force to the IMF/BEA Task Force on Pensions in November 2006 the European statisticians for instance asked for the projected benefit method to be accepted as a valid actuarial approach to estimate the pension obligations. The IMF-BEA task force reacted to this proposal by accepting to allow countries to choose the option between different actuarial approaches. At this time it was clear that European countries would preferably apply the projected benefit obligation method and the draft of the new SNA already contained the different options (ISWGNA 2007b: 2).

4.2.2.f *The New SNA 2008*

The whole endeavor of the SNA update leads into a new text for the international standard. The final text of the new system has been presented to the UNSC in two volumes. The decisive volume containing the pension treatment was part of volume 1¹⁴⁶, approved by the UNSC for worldwide review in February 2008. After this review phase, the UNSC recommended to the UN Economic and Social Council “that the 2008 SNA [...] [should] be adopted as the new international standard for compiling national accounts statistics” (ISWGNA 2008: xxxi). At the core of the proposed new treatment is the declaration that “the means by which the employer may ultimately match this obligation is not relevant for the recording of this as investment income any more than the means by which interest or dividend are actually financed affects their recording as

¹⁴⁵ The Task Force should discuss the measurement principles, sources and methods for unfunded pension liabilities in the general government sector as well as borderline issues between employer schemes and social security schemes. The Task Force was composed of international statistical experts from eleven member countries, the OECD, the IMF, DG ECFIN and the SNA editor. Its main work was to draft a supplementary table to record pension schemes included under social insurance in the SNA, the elaboration of criteria to delineate between the recording of pension schemes in the core accounts and in the supplementary table, the gathering of information on institutional characteristics of pension schemes in the EU, and the provision of initial estimates on pension obligations to be recorded in the proposed table.

¹⁴⁶ The change in the treatment of pensions affects the text of the SNA at many spots. Most important are the chapters on the “distribution of income accounts” (chapter 7), the redistribution of income accounts (chapter 8), the “use of income accounts” (chapter 9), the “financial account” (chapter 11), the “other changes in assets accounts” (chapter 12), the “balance sheet” (chapter 13), and on “cross-cutting and other special issues” (chapter 17).

investment income” (SNA 2008: § 17.154). At the same time the recognition of pension obligations in the “core” accounts and their measurement on an actuarial basis is clearly restricted to employer obligations. Social security pensions are excluded - based on the claim that those are redistributive in nature¹⁴⁷. Reflecting the long debate in the statistical community about the challenge to disentangle social security from government employer schemes, however, the system explicitly acknowledges the difficulty and claims that making “this distinction is difficult in some countries where the ultimate responsibility for administering the scheme and paying benefits is undertaken by government on behalf of many employers not working for general government (SNA 2008: § 8.76)”. In countries where such a problem would not exist the system recommends to include government employer schemes in the group of other employment schemes and hence not in the category of social security. For the other countries, the difficulty in grouping government employer schemes is acknowledged. The final text embodies the flexibility requested by the compromise proposal:

“In recognition of this dilemma, some flexibility regarding the recording of pension entitlements of unfunded pension schemes sponsored by government for all employees (whether private sector employees or government’s own employees) is provided. Given the different institutional arrangements in countries, only some of these pension entitlements may be recorded within the main sequence of accounts (here referred to as the ‘core accounts’). In addition, however, a further table is to be presented that provides information disclosing the proportion of pension provision covered in the core accounts with some approximate estimates for the remaining schemes. It is a requirement, though, that a set of criteria be provided to explain the distinction between those schemes carried forward to the core accounts, possibly where the pension promise is of sufficient strength, and those recorded only in the supplementary table” (SNA 2008: § 17.188).

Following the compromise among negotiating statisticians, the SNA treatment remains flexible with respect to the question whether the proposed recognition of all employer related pension obligations should be carried out in the “core” accounts or not: “Countries will have flexibility about whether all of these schemes should be carried forward to the ‘core accounts’ [...] but in cases where particular schemes are not carried forward, a reasoned explanation for why this is not done will be required. Internationally agreed criteria for when a scheme might not be carried forward should be developed” (ISWGNA 2007a: 11f.). The proposed text in the new SNA does not yet contain the respective criteria, but stresses that have been put on the “research agenda” of the system (SNA 2008: § 17.188).

Regarding the measurement approach the system states that the “source of these estimates is the actuarial estimates the employer is faced with in drawing up his own

¹⁴⁷ “Social security pensions are frequently funded on a pay-as-you-go basis. The normal assumption in the main accounts of the SNA is that this is how social security pensions are funded. That is the contributions receivable in a period are used to fund the benefits payable in the same period. There is no saving element involved, either for the government operating the scheme or for the individuals participating in it. No liabilities for the scheme are recognized in the main accounts of the SNA although concern is often expressed that benefits may exceed contributions and this situation is likely to worsen in an ageing population” (SNA 2008: § 17.122).

accounts” (SNA 2008: § 17.142). The actuarial valuation of the obligations is thus embraced as the adequate source to compile the implicit pension contributions. It is explicitly distinguished between imputed and actual employer contributions for defined benefit schemes. This is justified in the system for the reason that actual “payments may not be sufficient to meet the increase in the benefits accruing from the current year’s employment. Therefore an additional contribution from the employer is imputed to bring equality between the contributions and the increase in current service entitlements” (SNA 2008: § 17.144). The measurement of the imputed contributions is made in a way “so as to meet the need of an exact match between all contributions to the fund adding to the entitlements of the employee and the current service cost of these entitlements” (SNA 2008: § 17.150). Moreover, for funded and unfunded schemes the unwinding of the discounting process gives rise to property income to be assessed on an actuarial basis (SNA 2008: 17.145). This means that *actual* investment returns are treated as purely financial transactions whereas the periodized costs are estimated.

The system also discusses the techniques to compile the periodized costs of pension contributions in somewhat more detail. The differences between two general actuarial approaches, the accrued benefit obligation (ABO) and the projected benefit obligation (PBO) method are discussed. However, the SNA 2008 does not contain a preference for any of those approaches and simply states that the latter is a somewhat more “prudent” approach (SNA 2008: § 17.176) and that in the aggregate difference between the approaches will be small (SNA 2008: § 17.179). The SNA 2008 remains prudent in the context of measurement issues. The question on how to account for effects of promotions under an ABO approach is debated in a rather defensive way:

“The question arises, though, of how to record the impact of promotion on the employee if an ABO recording is used. Any version of treating the increase as a form of compensation of employees or investment income falls back into the assumption that the aggregate of entitlements is the sum of the individual entitlements but without looking at other individual impacts on the aggregates such as when someone leaves and loses pension entitlement because not enough time has been served or when someone dies before retirement age. A simpler and adequate solution is to treat the rise in salary as a price change and record the change in the revaluation account” (SNA 2008: 17.180).

The SNA 2008 thus does not clearly prescribe a treatment, but rather claims that one certain treatment would be “simpler” and “adequate”¹⁴⁸.

¹⁴⁸ Finally the system keeps the dual recording practice, i.e. even if pension related transactions are treated as saving components in the system, contributions and benefits are recorded in the current accounts as well. This leads to a somewhat ambiguous stance of the system with regards to the classification of pension entitlements as financial assets. It is claimed that household’s perceptions could well differ in this respect, justifying a respective treatment in the accounts. Moreover, some fundamental uncertainty about the question, whether parts of the liabilities are not in fact contingent and hence involve a potential transfer element, is contained in the text: “Pension schemes are treated in the SNA as having liabilities towards the households with claims on the schemes. The payments of pension contributions into the schemes and the receipts of pensions by pensioners constitute the acquisition and disposal of financial assets. However, this may not accord with the perception of the households concerned, especially pensioners’ households, who tend to regard the pensions they receive as income in the form of current transfers. Moreover, at least

To summarize, the SNA 2008 in principle contains the prescription that employer pension obligations should be included as liabilities in the “core” accounts, and respective flow and stock entries be made. For defined benefit schemes this ought to be done on the basis of actuarial estimates of the liabilities and their incurrence as well as of property income. Actual transactions are to be treated as financial transactions. However, reflecting the intense controversy and the compromise proposal in the statistical community, the text does introduce substantial flexibility with respect to the classification of government employer schemes. No set of criteria is yet proposed to guide this classification. What is more, the measurement recommendations refer to established and used actuarial practices. No preference over one specific method is given and no prescriptions about the discount rate to be chosen are made. Even the classification between transactions and other economic flows remains quite open. In principle the boundary for financial assets has hence been broadened by statisticians to include pension entitlements from defined benefit pension schemes. Particularly for government schemes this may have profound impact on the presentation of fiscal reality. But the concrete text leaves room for substantial discretion.

4.2.3 THE ARGUMENTS

Looking back historically the fundamental relevance of the pension debate becomes obvious. The SNA 1968 already took the position that the assets managed by *funded* pension schemes, and the property income earned on the assets, actually belong to the households. The standard therefore prescribed to reroute the respective flows. This approach, however, was criticized in the aftermath by some statisticians for being a “major exception to the general SNA principles of maintaining the integrity of the accounts of institutional transactors” given that it worked with assumptions about the underlying economic substance of the transactions (Ruggles 1987: 56). Specifically, it was argued that the value of those assets is imputed, difficult to measure, and that it was deemed questionable whether those pension claims actually constitute an increase in household wealth. Considering that households “do not in fact receive these funds” and that “it is not possible to make an objective valuation of their worth” and that “often even their claim to ultimate receipt of benefits from them is tenuous” (ibid.) the financial asset character of pension claims was doubted. Some twenty years ago statisticians thus argued that even for *funded* pension schemes the financial asset character was highly questionable and measurement problematic¹⁴⁹.

some pensions received under social security schemes and those received under social assistance are in fact treated as current transfers in the SNA” (SNA 2008: 9.21).

¹⁴⁹ The SNA 1993 nevertheless retained the treatment and recorded the assets of pension funds as actually belonging to the households as “net equity of households in pension funds (F.612)” (SNA 1993: §11.89), a specific category of financial assets. Additionally the property income on those assets was rerouted as if it

It is against this background that the requests to create the equivalence space between unfunded and funded pension obligations needs to be seen. It was now proposed to expand the asset classification even to *unfunded* obligations. In the interim report of the EDG debate the moderator looked back at the arguments brought up on the treatment of pensions in the preparatory work of the SNA 1993. It turns out that the economic characteristics of pension obligations were already at that time considered from a rather similar perspective. However the conclusion was that neither the economic characteristics, nor measurement techniques were sufficient to include them in the system:

“Debates were largely dominated by concerns about the contingent character of pension liabilities (unfunded schemes) as well as the adequacy of source data to provide for reasonably solid estimates of current pension obligations to be used by statisticians. [...] The outcome of this discussion was that activities of many pension schemes, such as social security and unfunded employer schemes, do not lead to recognition of liabilities in the books of the sponsor and, simultaneously, of financial assets in the accounts of households” (D-26: 5f.).

The non-recognition of unfunded pension liabilities was thus rejected for want of reliable estimates, non-recognition in the units’ accounts, and the consideration that their economic characteristics were not such that they could be considered as assets or liabilities. Moreover, the treatment is also vague with respect to the nature of pension claims against funded schemes, which is witnessed by the “dual recording” approach¹⁵⁰. The earlier discussion among statisticians thus concluded that there is *no* equivalence between unfunded pension liabilities and financial liabilities and that there is *no* adequate measurement approach for these obligations.

The important question is thus what changed in the arguments so that many statisticians now came to the conclusion that, in principle, the updated SNA should recognize unfunded pension obligations in the balance sheet and the flow accounts. The following analysis of the statistical debate will focus on the way in which the problem of recognition and measurement of unfunded pension obligations is rendered in the statistical debate. The focus will be laid on how problems with the existing system are framed, which solutions are proposed, and how the problems and solutions are justified. The aim is to disentangle, to the degree possible, implicit cognitive frames and taken-for-granted principles on the one side and voluntaristic redefinitions of statistical treatments on the other. To what extent are statistical conventions seen as technical necessities that are beyond influence or seen as the potential subject of change?

was paid out to policy holders and immediately paid back to acquire new assets in return (SNA 1993: §7.124).

¹⁵⁰ The dual recording practice records social contributions and benefit payments in two ways in the system, first as current transfer (thus reducing and increasing the measure of disposable income) and as financial transactions, with social contributions increasing and benefit payments reducing household assets. The difference between net current pension transfers and financial pension transactions was corrected through a special adjustment item in order to derive consistent saving and investment measures.

Additionally, the debate will not only focus on these, somewhat “first-best” considerations, but will also discuss perceived and argued constraints coming from practical considerations. Emphasis will thus also be put on the question how actual treatments for specific issues are logically and practically justified. This approach takes the content of the debate seriously. It is presumed that arguments in the debate matter. Moreover, the attempt is to disentangle perceived structural-cognitive constraints and active targeted action to change or stabilize existing rules.

A starting observation is that Desrosières’ distinction between the two types of conventions provides meaningful analytical guidance: Both, arguments about *equivalence conventions* and about *measurement conventions* can be found. Arguments related to the former concern the question whether the incurrence of employer pension obligations should be considered as giving rise to a financial asset or liability. The second element of the debate concerns the question how measurement of the respective stocks and flows should actually take place, i.e. how the obligations and their incurrence should actually be quantified. Both components of the debate show different aspects. The purpose of the system, its internal logic, perceived needs of analysts and policy-makers, epistemological principles and thresholds are discussed. Throughout the debate very different opinions about the existence of an equivalence space occur. While some experts stress the similarities of pension rights to other financial assets others argue that they are fundamentally different. Measurement conventions, too, are debated, but much less intensively. The core point is whether actuarial estimates on outstanding pension obligations provide meaningful and reliable information on the value of pension claims and whether they should be used in the system.

4.2.3.a *Debating the Equivalence Space*

As stated above, the debate in the EDG starts with a background discussion paper, presenting the core question to be addressed as whether unfunded pension obligations should be recorded as a “liability” in the system. This relates to the question whether pension claims should be considered as financial assets and hence constitute a liability for the pension sponsor (Pitzer 2002a: 1). The debate within the EDG starts off with the claim of several contributors that actually an equivalence space between pension promises and other liabilities would exist.

I) The Proposals

Various claims are made that the distinction between funded and unfunded employer schemes, which the SNA 1993 de facto applies, is not adequate. It is argued that in the government sector the differing treatment of unfunded pension obligations could not be justified:

“A possible rationalisation is that there is a greater degree of uncertainty attached to the future payments of pensions by an employer that has not made the necessary contributions into a separate fund at the time that the liabilities arise. Moreover, it could be argued that under some circumstances (for example, the attainment of the minimum retirement age) this uncertainty was sufficient to make the assets and liabilities in relation to unfunded pension schemes contingent in nature. While this argument might possibly have some merit in the case of individual employers in the private sector, there is no material difference between non-autonomous pension funds and unfunded pension schemes in the general government sector” (D-03: 4).

Others generally claim that the funding criterion should not guide the decision whether or not an obligation is recognized as a liability. The existence of an obligation should be assessed independently from how the pension promise is financed:

“It is unsound to differentiate recording amongst schemes according to the institutional character and the financing arrangement, as SNA does now. The employer has a liability whether it has funded its obligations (such as the amount borrowed to fund its obligations) or it has not (the liability is then direct). Such obligations arise both because of the service rendered to the employer or because the funds’ assets underperformed” (D-36: 5).

The difference between funded and unfunded arrangements is hence declared to be insubstantial from an economic perspective. It is argued that in fact unfunded schemes are like funded schemes, especially once governments recognize the liabilities in their accounts. Recapitulating the justification for the recognition of unfunded liabilities in the Canadian national accounts a statistician writes:

“An important consideration was the interpretation of the term unfunded in the case of UPL [unfunded pension liabilities]. Strictly speaking, UPL are unfunded as there are no invested assets. However, looking at this issue more broadly, recognition became an important factor. In the case of ‘pay as you go’ plans in Canada it was felt that the treatment in official government accounts resembled more a funded scheme than an unfunded one. Given that governments recognized the liability and booked interest at a determined rate on a nominal bond it could be argued that these plans were accounted for ‘as if’ they were funded and, as a result, were not materially different from funded plans” (D-08: 2f.).

This clearly shows that the existence and characteristics of a financial asset category are in fact a matter of definition and agreement. The proponents of a recognition state that defined benefit pension obligations would show the characteristics of a financial asset and should hence be treated as such in the statistical frameworks. Others establish the claim that an equivalence space between unfunded and funded employer pension obligations would exist via the argument that the assurance of an employer that he would pay a post-retirement benefit to the employee would justify the treatment of pensions as if it was part of the labor cost. Hence, the equivalence between actual wage payments and the promise to pay future pension benefits is established. One paper for instance argues that pension benefits “promised in the context of employer schemes have a clear deferred compensation nature” and are “part of employees’ compensation packages” (D-38: 2). The promise of future pensions should accordingly be included in the measurement of periodized labor costs.

While these arguments establish the principle *that* the future payments should be anticipated and included in the period’s accounts (long before they become due),

another proposal relates to the question *how* specifically this should be done. Building on the general equivalence claim, further refinements of the treatment are derived. In particular the imputation of property income is recommended. The underlying logic of this proposition is linked to the theoretical idea that the government could discharge future pension obligations by investing a sufficient amount of money in a segregated fund. It is argued that only a part of the recognized costs should then be considered labor costs and another part should be treated as property income, thereby mimicking a situation where pension claims would in fact be considered as financial assets of the employees:

“[Since] unfunded schemes are basically the same in principle as funded schemes, part of the total accruing liability should be treated as property income. In effect, the general government employer is ‘borrowing’ the money that it would otherwise have paid into the schemes, and interest should be payable on the ‘borrowed’ amount” (D-03: 6).

This suggestion is later taken up by many papers in the debate. It is argued that the costs recorded for the incurrence of pension obligations should not be different whether there are reserves or not. Specifically this means that the opportunity costs of funding are to be recorded. Transactions should be “recorded for the unwinding of the discount in the calculation of the net present value of future pension payments. This, in effect, is a substitute for the interest that government would have had to pay on the money it would have had to borrow to make actual contributions to a real pension fund” (D-39: 2).

In parallel to the debate about the equivalence between defined benefit pension claims and other financial assets, a second discussion about observational categories takes place. The question raised is for what kinds of pension schemes pension obligations should be included as liabilities in the system. Specifically there are a number of proposals to limit the recognition to *employer* schemes and hence to exclude social security pension systems. It is argued that for employer schemes the economic nature of pension claims is not controversial, since “the pension obligations directly arise from their deferred compensation nature and therefore should be either legally enforceable or constitute constructive obligations” (D-57: 3) but for pension obligations under social security some uncertainty would exist. For the government this would mean that obligations for its own employees would be part of the equivalence space whereas its pension promises under social security arrangements would remain outside:

“The main argument is that there is a much stronger contract, and thus liability, between the government as an employer with its employees than as the government as an organiser of the pension plans with the society at large. In the case of its own employee, there is an ‘exchange’ transaction: the employee gives the service, in return of what the government pays the compensation of the period plus the deferred compensation corresponding to the future benefits. In the case of the government as the organiser of a scheme for the entire society, there is no such strong link, and the government is more able to reconsider its past commitments, when they are difficult to achieve. What has been promised by law can be changed by a new law...” (D-06: 5)

The difference between government employer schemes and public pension schemes is thus used to declare that only in the former case promised pensions would be reasonably solid to be recorded in the system. The argument to stop short of including social security obligations uses the categorical boundary between employer and social security schemes. Indeed, a number of contributions highlight that the distinction between those schemes is reasonable as it is already employed in the SNA 1993 (D-57:6). It is stressed that this boundary would be sufficiently robust to allow for such a distinction:

“STA [the Statistics Department of the IMF] feels it acceptable to restrict, by convention, recognition of constructive obligations initially to employer retirement pension schemes, using the 1993 SNA existing life/non life and employer/social security schemes delineations. STA observes that those boundaries have proved reasonably solid and already impart very different recordings in the 1993 SNA” (D-38: 2).

The pragmatic constraint of the newly proposed equivalence space is then taken up by the EDG report to the AEG. The exclusion of social security pension obligations is not introduced as a matter of principle but as a convention, claiming that the issue is controversial among experts. In face of “lack of unanimity regarding the most appropriate methodological approach, the EDG considered that it was too early to make concrete recommendations regarding the recognition of implicit liabilities of social security for the present 1993 SNA update” (D-57: 8).

Based on the presented arguments the report of the EDG moderator concludes that the funding criterion should not be guiding the decision and that the new SNA should recognize defined benefit pension obligations as liabilities: “The funded character (existence of legally segregated assets) is not a criterion for asset recognition of pension obligations (instead the criteria are: will they be a source of benefits? and are they enforceable at law?) [...] Restricting pension obligations to legal obligations is too narrow and may be less applicable in some countries or for some schemes (including civil servants)” (D-36: 3f.). The core proposal of the EDG is thus to essentially give up the distinction between funded and unfunded pension obligations and to introduce an independent valuation of outstanding pension obligations. The recognition boundary, however, should be constrained to employer schemes while excluding obligations arising under social security arrangements.

II) Justification of the Equivalence Space

The proposition of the EDG report(s) to effectively drop the funding criterion as a marker for the liability recognition boundary proposed a major change to the system. The question is thus how this change is justified and framed in the debate, both on the basis of statistical and economic principles and practical considerations. It turns out that four different groups of justifications can be found. First, theoretical accounting principles concerning the measurement logic within the system of reference are debated.

Second, the adequacy of the existing principles to cover the perceived characteristics of economic events is discussed. Third, the impact of accounting treatments on outside decision making and general political incentives created is considered. Fourth, the outside perception of the reliability, quality, and adequacy of the statistical system as a whole is addressed.

a) Concepts and Accounting Principles

A substantial part of the discussion starts from statistical principles and their implications for measurement. This logic of the debate is what one probably would expect a technical accounting discussion to look like. Starting from explicit statistical principles, the logic of accounting for a specific economic event is considered. The inclusion of unfunded pension obligations in the liability boundary is in this context established as a logical derivation from general principles. Recognizing defined benefit pension obligations on the basis of an independent assessment of their value is highlighted by some discussants as something that is already contained in the system:

“While the 1993 SNA did not recommend that unfunded obligations be added to government liabilities, it did recognize the potential significance of UPL by recommending that a memorandum item treatment for these amounts - the net equity of households in employer-sponsored unfunded pension plans – be adopted and shown on the balance sheets of both households (asset) and governments (liability). (D-08: 6).

The inclusion of unfunded pension obligations as liabilities is then interpreted as a straightforward implication of the system’s accounting principles. Likewise another statistician stresses that the SNA 1993 actually does propose the inclusion and that this “seems to indicate a tacit acceptance by SNA93 that a liability does exist” (D-03: 4). The non-recognition in the core accounts is even considered a logical inconsistency of the system: “Indeed it is hard to allow the existence of imputed contributions and benefits for unfunded schemes that offer defined benefits without recognising that a liability to pay the benefits must exist” (ibid.). New statistical treatments are hence justified by reinterpreting the meaning of elements already contained in the system. The system is considered to have a logical structure from which detailed implications for individual treatments could be derived.

In a similar but more general vein, the EDG report includes the statement that the use of actuarial estimates for the measurement of pension obligations can be seen as a consequence of the core accounting principles employed in the SNA, the market valuation and accrual principle. It is argued that such a treatment would allow reconciling the observed patterns in market valuation of firms and would – theoretically – lead to a period specific recognition of costs independent of lump-sum transfers:

“The EDG believes the proposed recording will reinforce the two essential SNA principles: market valuation and the accrual basis. [...] It is often observed that the degradations (improvements) in net assets of pension funds lead to falls (increases) in

share prices of the sponsoring corporations. Currently, such falls (increases) are being reflected in a change in employer's SNA Net Worth. Under the proposed change, that part in share fluctuations related to pension fund performance would now be matched by a holding loss (gain) in the employer's financial position against the fund, and would be Net Worth neutral, which is appropriate. [...] [The] amounts recorded in a given period should reflect the change in assets and obligations originating from the event occurring during the period (i.e., the service rendered by the work performed or by the lending of funds, during that period), not the amount actually paid (the actual contribution)" (D-47: 9).

It is remarkable that at this occasion the reference to market valuation is introduced as straightforward argument, even though a major implication of the proposed treatment affects government as the major non-market producer. Hence the implicit connection embodied in this argument is that market and non-market employers should face the same accounting rules. It is from the equity valuation of corporations at financial markets that the liability treatment of government pension schemes is derived. The arguments made under this logic thus take elements and principles of the accounting frame as the starting point and ponder what the application of general principles to specific economic events implies. This approach also includes attempts to look at the characteristics of pension entitlements and to consider whether they match general criteria that are contained in the SNA 1993:

"A crucial consideration is whether an entity that seems to look like an element of wealth, i.e. an asset, is recognized in the 1993 SNA as such, that is, meets the criteria of 'economic assets': being both a store of value from which economic benefits may be derived and whose ownership rights are enforceable at law [...]. Hence, one question is whether pension entitlements are economic (financial) assets" (D-26: 14).

The debate does not only start from existing and established principles in the system, though. Rather some discussants explicitly or implicitly bring new conceptual tools in to render reality for statistical purposes. One important argument is for instance that the general business accounting concept of provisions should be included in the system¹⁵¹. This approach would thus abstain to force unfunded pension claims under the existing concept of "economic assets" but instead pleads to extend the currently applied concept. Remarkably, some experts introduce the accounting term of "constructive obligations" to guide the recognition space for liabilities in the SNA¹⁵². The reference to the respective IPSAS concept is sometimes made explicit; sometimes it remains implicit and is presented as a natural and legitimate starting point for statistical considerations. Though not being part of the statistical system so far it is then used in a taken-for-granted manner:

¹⁵¹ The issue of provisions was part of a more general discussion in the SNA updating process. At the OECD National Accounts Experts Meeting in October 2004 the topic was addressed: "By including these categories into the framework of the SNA, a new flexibility is introduced which will, first, help to clarify the treatment of some transactions and, more important, allow producers of national accounts to elaborate macro-economic information on "quasi-liabilities" and "quasi-assets", in particular in the domain of pension schemes, government guarantees, or non performing loans. [...] The aim of the paper is [...] to try to open a door which seems to be locked by a (false) debate on principles" (Lequiller 2004: 2).

¹⁵² The reference to this accounting concept clearly shows the shift towards a liability-centered perspective.

“While the conditions and benefits applying under non-employer related pension (or retirement benefit) schemes are generally set out in the relevant legislation, that legislation can be changed at any time by the government, and in any event does not usually confer legal rights on the recipients (i.e., does not give them the right to sue the government for their benefits). Therefore, any obligations resulting from the operation of non-employee pension schemes are generally not legal or contractual in nature, but are in the nature of constructive obligations” (D-02: 2f.).

Once introduced the IPSAS concept of constructive obligations is used by many other contributions in a similar self-evident manner. Another discussant argues for instance that governments “have constructive obligations for the future public pension payments that they have little practical ability to avoid” and that the “existence of the liability and the strength of the constructive obligation are the deciding criteria in recognizing the liability, not the organization of the scheme.” (D-12: 8). In a similar vein the accounting concept of “exchange transactions” is used to argue that social security pension obligations would be different from respective employer obligations (D-06: 5).

Some discussants highlight, however, that the introduction of provision-like concepts, such as constructive obligations, would require additional conceptual work in order to define their general scope and relevance in the system. It is thus stressed that the concept would not only apply to unfunded pension obligations but potentially also to other forms of obligations. Following the quadruple-entry principle in the national accounts, this could lead to more challenging evaluations than in the one-sided business context:

“If unfunded pension obligations are to be recorded in national accounts, a methodology would be needed to determine what other sorts of provision should be also be recorded. There is a complication for national accounts (compared with GAAP) in that for every financial liability recorded, in respect of a provision, a counterpart sector has to be identified to hold the asset. For pensions this is easy (it is households and possibly the rest of the world) but for other provisions recording an asset might not make sense. For example, government GAAP accounts might record a provision for the expected cost of clearing up some environmental damage for which government has accepted responsibility: but which sector holds the asset?” (D-39: 3)

The conceptual debate on where to draw the line for the recognition of pension obligations as liabilities in the system shows actually two crucial aspects: First, the economic characteristics of the pension claim are interpreted and assessed. This concerns the solidity of the claim and particularly whether the government has legally or de facto the possibility to change benefits retroactively. This question is obviously important to assess whether and to which degree the future fiscal discretion is actually constrained by the incurrence of pension liabilities. In this context, experts discuss how ‘solid’ the pension claims actually are. It is for instance argued that the recognition of unfunded pension claims in the government accounts in the form of notional obligations serves as evidence for an “intent on the part of governments to meet these obligations” (D-08: 3). But this is not the only question addressed. In a second dimension, it is pondered at which level of thus assessed solidity the respective figures should be part of the statistical frame. Some discussants argue for a rather high threshold. The liability figures should measure the degree to which governments are

actually loosing “control” over future resources. It is stated that if “there are such obligations, they will set limits to the degree to which governments can control the future flow of resources” (D-02: 1). Others argue that ‘softer’ claims should already be part of the calculative frame. It is stated that even if pension claims are subject to changes, the respective quantitative implications would provide meaningful information: “Governments can change the benefits unilaterally, but are unlikely to change them retroactively. If the liability were recorded, then demonstrating the magnitude of a change in benefits should be viewed as useful for policy analysis rather than a reason not to recognize the liability” (D-12: 10f.). The ability of governments to adjust pension entitlements should not justify their non-measurement.

It follows that the conceptual debate partly occurs against a conceptual framework. The expert debate reconsiders economic events and classifies them under existing principles and concepts. It is argued that new concepts should be introduced and refined for analytical purposes. The arguments also clearly show that discussants seek to justify their proposals in terms of logical consistency to the existing system. The fact that the “treatment of pension obligations as liabilities [...] is consistent with current international accounting” (D-02: 12) is also seen by some as a major benefit of the EDG proposal. Accounting concepts are thus used to derive statistical treatments in a logical manner. At the same time, the concepts themselves are developed as an epistemological tool-set and are considered open for new definitions.

b) Linking Principles and Reality

The arguments made on the basis of conceptual considerations form only a part of the arguments presented during the debate, though. A considerable and larger number of claims are made on the basis of more profound links between concepts, specific treatments, and claims of what ‘economic reality’ in this context would be. One contribution for instance studies in detail the reflection of nine stylized economic events and how they would be recorded under both a cash and an accrual environment. The author concludes that for “typical” economic events to be represented in a “transparent” way, an accrual recording of “credible actuarial” information was necessary (D-04:20):

“The statistical methodology for better understanding government pension schemes for government employees is the use of accrual accounting and the GFSM 2001 methodology. The proper classification and interpretation of pension “contributions” received by these schemes is government borrowing, and the proper interpretation of pension “benefits” is debt repayments” (ibid.).

Following the shift of emphasis on scheme liabilities rather than household assets, it is often pondered whether alternative treatment options would adequately present the “responsibilities” of employers towards their employees. It is for instance stressed that the non-recognition of pension obligations in the case of unfunded schemes and the

restriction of the recognized amounts to *actual* contributions in the case of funded schemes would lead to misrepresentations. It is stated that the “1993 SNA does not appear to adequately reflect the responsibilities that employers and government undertake by promising pensions to households” (D-57: 6f.). Specifically the existing treatment would “reflect amounts paid rather than the true cost to the employer of the pension entitlements [...]. Underfunding or overfunding of defined benefit employers’ pension schemes is not portrayed as an obligation or a claim respectively of the employers supporting these schemes” (ibid: 6f.). As the reference to the “true cost” of pension entitlements demonstrates, this argument is clearly based on a realist approach. Many claims explicitly try to debate the adequacy of existing treatments and principles with respect to ‘important’ aspects of economic reality. Experts see problems with the informational content of actual payments as measures for employer costs. Indeed, at several occasions, concern is raised about various payments diminishing the analytic value of the pension contributions actually made. It is stated that the provision of funds is actually a separate economic event from incurring the pension obligations and should be based on direct estimates, e.g. on an actuarial basis, rather than on observed payments (D-38: 2f.).

A number of authors suggest that the previous difference between funded and unfunded schemes in the system would produce results that do not reflect the ‘essence’ of the transaction. This implies that the previous conceptual tools to render reality are criticized and claimed to be insufficient or inadequate for the purpose of providing a standard for economic statistics. It is noted that the SNA 1993 bases its recognition criterion on the existence of a formally recognized reserve. Yet it is argued that “when the institutional unit which finances the reserve is also the payer of the liability, the criterion becomes purely formal, because it may organise things as it wants: without contributions, with contributions but without reserve, with contributions and reserves. It can even constitute ‘reserves’ consisting of special, unmarketable, or even ‘notional’, bonds” (D-06: 5f.). It is thus suggested that the statistical treatment should follow the idea that events which are considered to be equal from an economic perspective should lead to the same recording decisions.

The implication of this assessment of economic reality is that statistical concepts are subject to redefinition, if it is considered that this would improve the ability of the system to portray ‘reality’ in meaningful ways. It is here that the theoretical accounting principles become subject to ‘calibration’ approach towards common-sense categories. In the pension context this becomes evident when the general implications are considered that a recognition of unfunded pension obligations as liabilities in the system would have. In the EDG report different options for doing so are evaluated, reaching

from a possible reinterpretation of the economic asset concept, via allowing an explicit exception to the rule up to a substantial extension of the contained concept:

“Would there be a need to amend the definition of economic asset, or to enter an explicit additional exemption [...]? The question impinges on the issue of whether contingent assets cannot (as it is widely assumed) or can be recorded in the system. The 1993 SNA already provides an exemption for financial derivatives such as options, which are contingent instruments par excellence – but they are traded. In the same vein, transfers of pension rights give rise to lump sum payments – which points to an economic asset character. More generally, one may wonder whether contracts or rights that, owing to market conditions, have substantial value and could be exchanged against cash over the counter (such as government guarantees widely expected to be called) ought to be recognized” (D-26: 33f.).

It is here that the constructive impact of statistical rules becomes obvious: the concept of ‘economic assets’ is displayed as an abstract category that may be reinterpreted and redefined to cover specific economic events. Alternatively it is suggested that the concept could be broadened and extended to cover provisions. The mode in which this question is addressed is not one in which the conventional character of the definitions is admitted, though. Rather it is framed as a question of whether the system “can” cover contingent obligations, which is answered affirmatively, given that this is already the case. Finally, the characteristics of the economic events are subject to interpretation, thus implicitly establishing the observation of the economic case in the first place.

Other arguments clearly show that the presumption underlying these proposals is the theoretical idea of an efficient labor market providing a single and optimal wage. It is stated that the labor ‘costs’ recorded in the accounts should not differ; different institutional arrangements could not lead to deviations in the market price of labor. This argument is used to argue that from an economic-theoretical perspective, recognition of unfunded pension obligations needs to include a property income element. Otherwise, so is the claim, those implicit property income elements would lead to higher labor costs for unfunded schemes. It is stressed that the cost of employment should not depend on the funding method for the pension promises (D-23: 1). Explicit reference to an underlying market value is given: “The market value of the labor services does not depend on the means by which an employer makes the payment” (ibid.). This argument thus relies on theoretical principles to assess ideas on how reality should actually be from a model-perspective and hence develops the logic of statistical treatments.

c) Outside Impact

In addition to theoretical considerations on the level of accounting principles and their relation to a common-sense or paradigmatic ‘economic reality’, a number of different argumentative logics come up in the debate. Many discussants for instance stress that the statistical treatment creates information on which governments would make important economic decisions. It is argued that a specific statistical treatment would

attach visible costs to alternative policy options. Governments would “plan, monitor, and judge their fiscal policies using statistics from national accounts”. As a consequence, different accounting treatments could “lead to sub-optimal decision making in terms of economic efficiency” (D-39: 1). The reference point of this argument is here the “efficiency” of political decisions. It is assumed that different statistical treatments of pension schemes have an influence on how policy-makers decide on political projects and that the purpose of statistical rules is to ensure the efficiency of those decisions.

Others stress that it is less the information prepared but rather the broader incentives created under fiscal monitoring systems based on statistical indicators. The proposal to treat funded and unfunded schemes in an equal way is seen by some discussants as a major improvement in this respect, since it would avoid setting disincentives for privatization of funded pension schemes. Treating “public pension liabilities with the same standards as pensions provided by corporations or the private sector in general facilitates handling situations where pension rights are shifted from one sector to the other, either in the context of one-off transfers or partially privatising the public system” (D-51: 21). This position explicitly starts from a specific political reform project and judges whether the accounting ‘costs’ produced by the specific statistical treatment would influence the probability of certain options. Specifically, non-recognition of unfunded claims as liabilities would lead to a situation in which privatization was discouraged. The extension of the liability scope would in contrast remove this obstacle. Some discussants explicitly express that funding of pension systems and privatization is seen as a worthwhile endeavor that should not be hindered by statistical recordings. The accounting neutrality of specific treatments is evaluated and considered from a perspective of specific political programs. In this context the EDG was for instance informed that at the OECD workshop on pensions, similar adverse incentives of statistical treatments were brought up and discussed: The “Polish delegate [...] highlighted the risk that an adverse Eurostat decision could lead to severe statistical disincentives to undertake pension reform in Europe” (D-35: 4).

It is probably against this background of pension reform incentives set through statistical rules that the first EDG interim report argues that the statistical treatment of pension obligations is also a matter of international “fairness”. Specifically the report recommends that countries, which do recognize unfunded obligations as notional liabilities should not show higher levels of debt and deficit. Put differently, the treatment of pension obligations should not depend on the accounting recognition through governments, because this would create an unfair advantage in international comparisons for countries that do not recognize them. To avoid this, it is argued that the category of economic assets in the system needs to be broadened:

“In another perspective, the considerations related to the recording of ‘recognition bonds’ already drew the attention to an issue hitherto little discussed. They need to be amplified. [...] The economic asset character of such bonds seems well founded. This may raise an issue of cross-country comparability and even of fairness” D-26: 37).

A more pragmatic and less political justification is raised by another discussant. It is claimed that the treatment should start from the practical problem of under-funding of pension benefits in private companies. The expert states that there was “growing concern about unrecognised liabilities of enterprises in respect of pensions” and that this “suggests reviewing the treatment of pension provision in the SNA from the standpoint of how and when liabilities are incurred and how a full recording of these might be affected” (D-10: 1). The explicit aim of this expert is to establish accounting rules that would help to ensure an adequate funding of the respective entitlements, in particular by providing independent estimates of the accruing liabilities for both funded and unfunded schemes. This position thus explicitly starts from a concrete problem setting emerging from a specific (perceived) need of data users. The logic of the argument is that in practice there exists a problem that actual contributions may and often are deemed to be not sufficient to provide for future benefits:

“The additions representing the entitlement coming from the current year’s employment may be less than the net present value of that entitlement. This means that the value of the employer’s and employee’s contributions is too low. Alternatively, and more commonly, it may be that contribution supplements [i.e. investment returns] are insufficient to cover the increase in the net present value of previously accrued entitlement” (D-10:8).

In this case the statistical data regulation explicitly starts from a practical management problem. The difficulty described here has a different angle from many other positions by focusing first on *under*-funded rather than *unfunded* systems. It is suggested that actual payments may well differ from the analytically meaningful indicator, namely the increase in obligations that would guide funding decisions. Economic reality is thus something that is defined as being deviant from observational flows but relative to a specific analytic and practical interest. The application of this principle to unfunded schemes is then presented as a rather straightforward extension (ibid: 10).

d) Perception of the Statistical System

A final important logic of justification which can be found when statisticians ponder how the perception of the statistical system in general will be viewed, subject to its ability to measure specific economic events, the behavior of the figures, and the logic of its principles. An argument brought up in favor of recognition is for instance that non-recording of liabilities disclosed in the government financial reports would create an unwanted impression and users would probably not understand it. It is for instance stated that it “would be strange if the 1993 SNA would not recognize a liability that economic agents themselves record as such in their accounts” (D-57: 7). This aspect

relates to the consistency between source data and statistical reporting, taking into account that users have different sources of information for the same analytical interest. Given that in the case of fiscal statistics financial reports of the (central) government provide often an easily available alternative data source, the reconciliation seems to be particularly important. For instance a statistician from Canada claims that the inconsistency between different sources on public debt and deficit was seen as a major problem:

“This led to confusion among users with respect to the interpretation of the resulting different measures of government gross and net debt as well as surplus/deficit. It was felt that this situation should be addressed. As work proceeded leading up to the 1997 historical revision, one objective became to achieve improved harmonization between government financial information and national accounts statistics” (D-08: 3).

In addition to generally harmonizing various data reports, some discussants highlight the importance of recording events that are of particular public interest in a credible and plausible way. One important point raised in this context is for instance the transfers of pension rights between different schemes. During privatizations of public corporations several such transfers, often in exchange for lump-sum payments occurred in OECD countries. It is stressed that the measurement boundary between funded and unfunded systems has the potential to create some unwanted accounting impacts, since pension obligations would only be recorded on one side of the transaction as a liability. As a consequence they cannot be treated as financial transactions. This is then framed as a problem by statisticians:

“Transfers of pension entitlements or rights between pension funds, carried out by employees, in particular when they move from one employer to another, are straightforward: those are financial transactions, in the form of exchange of cash against liabilities in insurance technical reserves. However, the recording of transfers involving unfunded schemes, including social security schemes, needs to be clarified in the current 1993 SNA” (D-26: 14f.)

The recognition of unfunded pension obligations is proposed as a solution to this problem, since it would remove accounting treatments that could strike outside observers as implausible or artifacts. Another example in which this argument is made is the recording of pension reforms involving the transition from unfunded to funded elements. If unfunded pension obligations are not recorded the introduction of funding elements would lead to an increase in reported debt levels. This, however, is seen by many as an unwanted effect. Recognition of unfunded liabilities in contrast “ensures that total government liabilities do not spuriously increase when plans are converted from unfunded to funded schemes. In this case UPL amounts included in government liabilities are converted to either non-marketable or marketable bond debt when funding occurs” (D-08: 4).

At many points in the debate statisticians are hence concerned about being able to cover economic events in a way that secures a plausible outside appearance. This is especially

relevant in areas which are of substantial practical importance. The adequacy of the accounting principles are again calibrated to new economic entities and events that receive special public attention. The following quote shows that the ability to cover the Swedish case of a funded public pension scheme in a plausible way is considered to be a “quality” indicator for the statistical framework:

“The quality of the new SNA regarding its treatment of pension schemes could typically be measured by its capacity to incorporate new schemes like the Inkomstpension. [...] The current recording of the Inkomstpension in the Swedish national accounts may be fully consistent with the present SNA, but it is the present SNA which is not adapted to these new schemes and, in my view, needs to be changed” (D-64: 12).

The concern about the outside perception of the statistical treatments does finally also relate to the numerical surface of the figures. In a number of papers discussants express concern about the behavior of the final figures. For instance it is argued that the new treatment would in effect lead to less volatility in income and net worth:

“STA notes that the proposed approach will not lead to an increase in volatility of employers’ income or of the SNA Net Worth for corporations, as sometimes asserted. Instead the proposal would seem to have the potential to reduce such volatility: lump sums to underfunded schemes would now be recorded as financial transactions instead of as income; changes in prices of companies’ shares directly related to the over- or under-performance of the pension fund’s manager would now be matched by changes in the asset or liability position of the corporation (the employer) against the pension fund, neutralizing its effect on the net worth” (D-38: 5).

This argument made by the IMF statistics department is taken up by the EDG recommendation. It is again noted that the recommended treatment “will not lead to an increase in volatility of employers’ income” but would rather possibly reduce volatility (D-47: 11).

The outside acceptance of the system as a whole is also debated with respect to conceptual harmonization with accounting concepts. In this context it is important that many experts diagnose a “trend” towards recognition of unfunded employer liabilities in the government accounts. Statisticians are thus sensitive towards developments in the neighbored discipline of accounting. The lack of consensus in the accounting community on the adequate treatment of social security obligations is for instance used as an argument to ‘wait and see’. It is highlighted that “the opinion of public accounting bodies regarding the implicit liabilities of social security schemes is very split. It is therefore probably not the time to change this in the SNA” (D-06: 6). The existence of an expert consensus in the accounting discipline would hence probably be counted as an argument that the measurement attempt in a specific area was legitimate for outside observers. Moreover, it becomes clear that some discussants admit that concepts can be changed at will in a logical manner. But it is the outside acceptance of certain treatments that is often decisive for what can actually be taken in the statistical frame:

“Also, there is a case, in the social security scheme situation, that, if one recognises a liability for the future benefits to be paid, one would have to recognise an asset for the future contributions to be received. We would enter then in an uncontrolled domain of

starting to recognise the capacity of the general government to raise future tax as an asset, something which is probably not welcome” (D-06: 5).

This clearly demonstrates that the internal logic of the statistical system can be used to justify various treatments. Logical derivation of principles can obviously also lead to situations where statisticians fear that outsiders would reject the principles as such. The whole argumentative process is thus also about finding an adequate degree of statistical intervention. The idea of including pension obligations as government liabilities is for instance characterized by one public finance expert as “going one bridge too far” (D-28a: 2). It is thus not as a matter of principle that the treatment is rejected, but rather a process of pondering what would be feasible, adequate and accepted. All those arguments seem to be inherently linked with the attempt of statisticians to present their jurisprudence in a way that strengthens the appearance of the overall statistical system as a feasible and valid approach to measure public finances.

III) Counterclaims

While the moderator of the EDG concluded that there was consensus among experts regarding the recognition of unfunded employer pension obligations in the core accounts, after preparing and disclosing the issue paper to be handed in for the decision making at the AEG, statisticians from Eurostat raised sharp opposition against the proposal. First, the economic similarity of unfunded and funded pension schemes was questioned on their specific nature regarding contingency and uncertainty and limited measurability:

“[It] can be questioned whether unfunded or pay-as-you-go schemes are economically the same as funded schemes. Whereas many agree with the need to recognize such pension obligations as liabilities or at least to account for them separately in the system (satellite accounts), a specific treatment may be more appropriate in the light of the specific features of those obligations. This concerns the less solid nature of the claim—since its value can be unilaterally altered by the debtor. Moreover, it should be taken into account to what extent this value depends on all kinds of assumptions on uncertain future events and whether or not it can be estimated within narrow margins” (D-58: 2).

Additionally the observational equivalence which is highlighted by the EDG between funded and unfunded schemes is rejected. Especially household behavior and perception in face of funded vs. unfunded schemes is claimed to be different:

“[From] an analytical perspective there are no good reasons to impute funds for a pension scheme that is unfunded. Following the quadruple-entry principle in national accounts, financial assets would then be recorded in the household accounts and liabilities in the accounts of the employer’s sector implying the same economic behaviour as if a funded pension scheme existed. However, it is questionable whether households paying unfunded pension contributions and governments that maintain a pay-as-you-go system behave similarly to households and governments in an environment of a funded pension scheme. In fact, if this were the case, the rationale for advocating reforms of pension systems in countries with substantial unfunded schemes would completely disappear” (D-66: 6f.).

Counter the claims that the categorical boundary between social security systems and employer schemes was ‘solid’ it is argued that in fact the asset character is deemed

independent of this distinction, and could well differ between different subtypes of social security systems. In particular it is questioned whether households would consider pension claims an asset under employer schemes but not under social security schemes: “Some [Task Force] members noted that households may commonly perceive to have accumulated rights in exchange for the contributions paid over the years to some security schemes, whereas such an impression may be less common for contributions paid to other types of social security schemes” (D-58: 2f.). At the same time it is claimed that government employer pension schemes and social security schemes would in many cases be rather similar. The proposal of the EDG to restrict the liability recognition to the former, while excluding the latter is therefore considered problematic. The selective extension of the liability boundary is seen as “quite arbitrary”, especially since in countries with large pay-as-you-go systems “it is not possible to clearly distinguish those two types of pension arrangements, unfunded employer pension schemes and social security schemes” (D-66: 6).

The same argument was prominently made in an official statement by INSEE, the French statistical institute. It posted a comment on the UN discussion page which strongly rejected the proposed treatment. The note basically stressed that civil servant pensions in a number of European countries would indeed be much closer to social security systems than to private employer schemes. The recording of liabilities for those schemes is deemed to be unjustified, following two arguments: Firstly, the recognition of de facto social security liabilities in the system is considered asymmetric if not tax-raising power would be considered as an asset. Secondly, INSEE claims that civil servants pensions could be altered unilaterally and hence did not constitute direct liabilities (INSEE 2006: 2f.).

On these grounds the conventionalist restriction of the recording proposal to employer schemes was rejected. Creative ‘institutional engineering’ is seen as a potential threat so that small institutional reconfigurations could help governments to achieve non-recognition for their pension obligations: “Considering the proximity of some civil servant pension schemes and social security schemes, it has been suggested that it would not be implausible that the former to be merged with the latter at little transition costs in some countries. [...] Some argue that it would be a matter of concern if liabilities—and the impact on deficits—would disappear upon such events” (D-58: 3). Following the claim that unfunded government employer schemes would often be rather similar to social security schemes, the counter-proposal is to record both systems in a similar way as current transfer schemes. Given that “unfunded employer pension schemes and social security schemes are often close substitutes to each other” it is proposed to “treat both of them in the same way in the core accounts, i.e., as pay-as-you-go

systems” (D-66: 8). Encountering the claim made by may EDG discussants it is argued that this “better reflects economic reality than would be the case if unfunded schemes are treated like funded schemes in the accounts” (D-66: 8).

The counterclaim is thus based on a rejection of the equivalence space between funded and unfunded pension obligations. At the same time equivalence between government employer pension obligations and social security pensions is seen. It is stressed, however, that those liabilities are difficult to measure. The discussants question whether accounting and actuarial practices would provide the necessary source data for the statistical presentation¹⁵³. Moreover it is claimed that the conceptual evidence from the accounting profession could also be interpreted in a way that allows a more skeptical stance towards the recognition of government employer pension obligations:

“In this respect, it is worth noting that the Public Sector Committee (PSC) of the International Federation of Accountant (IFAC) has established a Sub-committee on Social Policy Obligations (SPO). An invitation to comment (by June 30, 2004) has been posted by the Subcommittee, including a chapter 8 dealing with old age (social security) pensions. Whilst its paragraph 8.47 would seem to refer to a majority view against extending widely liability recognition, the invitation to comment does not articulate the reasons whether and why civil servants unfunded employer pension schemes should be treated differently (i.e., treated as pension funds) from social security pensions [...] It is noted that the International Public Sector Accounting Standards (IPSAS) of the PSC does not include guidance yet on the recording of civil servants pensions. It is sometimes assumed that the International Accounting Standards Board (IASB)’s standard on pensions (IAS 19) applies [...]. However this would need to be clarified” (D-58: 3).

Finally, the usefulness of the concept of constructive obligations to guide the statistical treatment is questioned. Especially European statisticians express concern “whether the use of this concept of constructive obligations will be extended to other areas of SNA, and what would be the criteria against such extensions” (D-58: 2). Hence the guidance of accountants is first shown to be controversial, and second it is claimed that the inclusion of accounting concepts could lead to an unwanted dynamic of the principles in the system. The recommendation is thus to “record unfunded pension obligations in a set of supplementary accounts” (D-66: 4).

It is important to see that the EDG proposals are attacked in all of the above dimensions: First, it is claimed that the respective treatment does not follow from the accounting principles. Second, it is argued that no equivalence exists when considering the economic characteristics of the pension obligations. Third, it is highlighted that establishing an arbitrary distinction between employer and social security schemes could

¹⁵³ Finally, representatives of the UN express concern about the possibility to implement the recommendations in less developed countries in cases where actuarial calculations would have to be done by statisticians for want of adequate source data: “We would expect that many countries will have difficulties collecting actuarial estimated pension liabilities from private unfunded and underfunded schemes. The EDG should therefore offer specific recommendations on how the statistical offices should verify reported pension liabilities of private funds and how they should estimate (actuarial) pension liabilities when the coverage is incomplete. One method could be to apply the ratio between wages and salaries to the pension liabilities for reporting schemes for the unreporting schemes as well” (D-50: 3).

create adverse incentives for creative institutional changes to impact the deficit. Finally, a negative effect on the overall credibility of the system is predicted.

4.2.3.b *Debating Measurement*

In contrast to the debate on equivalence conventions, the expert discussion about measurement issues has taken only limited room in the EDG. This is understandable, given that measurement issues are usually perceived as second order problems. In fact, the bulk of the discussion on the measurement approach and logic was undertaken by later task forces, such as the *IMF/BEA Task Force on Employer's Retirement Schemes* in 2005 and 2006 and the *Eurostat/ECB Task Force on the Measurement of Government Pension Obligations* between 2006 and 2008. The discussions of the former group entered the AEG discussion process via an issue paper. The latter group undertook more concrete methodological work and presented first estimates on pension liabilities in its final report to the CMFB in early 2008 (Eurostat/ECB Task Force on Pensions 2008). Yet although having a somewhat subordinate weight in the discussion, the debate on measurement conventions was nevertheless important. Given that during the SNA 1993 discussions the lack of reliable estimates was one of the main explicit reasons for *not* recording unfunded pension obligations, the general assessment of the measurement logic and the reliability of the estimates has a crucial importance in the debate.

I) Proposed Measurement Conventions

The statistical regulations contained in the SNA 1993 create only limited measurement problems. The only transactions affecting saving or lending/borrowing indicators are actual transactions. While there are imputed elements, such as the implicit social contributions for employers with unfunded schemes, those estimates do only affect the value of compensation of employees¹⁵⁴ and not the major balancing lines. Moreover, while the estimation is theoretically supposed to reflect expected changes in pension liabilities, in practice the SNA 1993 allows the “practical alternative [...] to use the unfunded social benefits payable by the enterprise during the same accounting period as an estimate of the imputed remuneration that would be needed to cover the imputed contributions” (SNA 1993: § 7.46). As a consequence measurement issues in the context of pension funds were rather straightforward in the existing 1993 SNA.

With the proposed change to record unfunded pension obligations as liabilities, however, the situation changes fundamentally. Now, the imputed (implicit) social contributions would directly affect the financial balance, while “previously, it was the benefits paid. This reflects that we are now recording the change in the future

¹⁵⁴ This affected the measured operating surplus for corporations and GDP in the case of non-market producers.

commitments, not the realization of past commitments” (D-48: 7). The change discussed in the EDG thus implies the need to rely on much more challenging assessments of the value of the implicit contributions. In contrast to actual payments (either contributions to pension funds or benefit payments to current retirees) now direct estimates of the incurred future commitments were recommended. The issue of how those amounts could be measured enters the EDG debate in a seemingly innocent remark:

“[E]stimating the value of current household claims requires assumptions, projections, and approximations. Nevertheless, acceptable actuarial procedures have been worked out to estimate the present value of future benefits that have already been earned” (D-01: 11).

While admitting estimation challenges, it is argued that the problems in measuring pension obligations have already been adequately dealt with in the actuarial profession. Other contributions stress that the compilations performed in practice and contained in financial reports would rather directly match the requirements under the proposed statistical treatment. It is considered that the source data for the proposed approach was readily available. The respective standards would prescribe the use of actuarial amounts “to measure the ‘current service cost’ to business (i.e., labor cost), while the (actuarially based) property income on pension liabilities is often also to be reported. In many cases, both items are therefore observable in the books of the employers. In addition, the pension funds’ own accounts should be able to provide the required information” (D-57: 11).

The core convention proposed during the debate is thus to base the measurement of pension obligations on *actuarial* estimates. Actuarial estimates are seen as ‘better’ estimates, and as being able to measure reality ‘adequately’. It is argued that this switch in the measurement base “from actual to actuarial valuation [...] would bring national accounts more in line with economic realities” (D-49: 1). The preference of actuarial values over actual values even includes those situations, where actual transactions are observable, such as in the case of property income of funded pension schemes. It is claimed that the analytically best value is derived on the basis of theoretical considerations on a formula basis, similar to the approach applied to zero-coupon bonds¹⁵⁵. Proponents of this position claim that economic reality would be better

¹⁵⁵ Zero-coupon bonds are characterized by the fact that no regular interest payments are made. Rather bond is typically sold at a discount to the nominal value while being bought back at full value at maturity. This means that interest payments are included in the final redemption payment. The SNA 1993 and GFSM 2001 argue both that, in order to reflect economic reality, periodized interest payments should be imputed, hence basing the property income for zero-coupon bonds on theoretical considerations: “This treatment requires that the difference between issue price and the price at maturity be converted into a series of payments (quarterly or annual) recorded as interest (property income). The counterpart of this interest flow is entered in the financial account, under securities other than shares, and the effect is that the interest is reinvested. This treatment allows the costs of providing the capital to be matched to the periods for which the capital is provided” (SNA 1993: § 11.77).

assessed through an independent accounting estimate, rather than through observed monetary asset returns (property income receivable):

“The property income payable by the pension scheme on its pension debt (insurance technical reserves) would be more correctly measured, instead of using the property income receivable by the pension fund (current recording). The difference between amounts lent today (the ‘contribution’) and repayments well into the future (the ‘pension’) is analogous to the discount on a zero coupon bond—although its measurement is somewhat problematic, owing to the indexation character as well as to the uncertainty attached” (D-38: 3).

While measurement problems are admitted, the classification as “somewhat” suggests that this is not seen as a major obstacle for the inclusion of the respective amounts in the statistical core accounts. The EDG report to the AEG then concludes that “broad consensus” existed among statisticians in the discussion group that actuarial estimates would indeed constitute a feasible and “sound” way of assessing the incurrence of pension liabilities (D-57: 9).

Once actuarial estimates are accepted, additional measurement conventions are needed to treat changes in actuarial estimates in the system. This question relates to the distinction between transactions and other economic flows in the representation. This point is raised, because changes in various actuarial assumptions or data used to compile the estimates is likely to lead to changes in the reported level of obligations. In order to reconcile the changes in the stocks in an integrated accounting system it is necessary to decide where to record those events in the flow accounts. Some discussants consider the issue to be essentially unproblematic. Changes due to revisions in measurement “assumptions would be recorded as other flows”, whereas “changes in scheme benefits as a result of government decisions” should be recorded as a transaction (D-39: 2). It is thus argued that whenever governments’ decisions impact on the level of obligations, those changes should be recorded in the transaction accounts, whereas changes in actuarial assumptions should be recorded as other economic flow in order not to “distort” economic analysis of the fiscal indicators. Yet a survey undertaken by the moderator of the EDG in fall 2003 already addressed the question, how changes in actuarial estimates of the liabilities should be recorded in the accounts. The major conceptual distinction is between financial transactions and other economic flows, since the former affect saving estimates and net lending/borrowing. The results show that statistical experts are actually quite discordant on the issue. The granting of additional rights is seen by 20 respondents as a *financial transaction* and by 8 as an *other change of volume*¹⁵⁶, changes in the cost of living adjustment of pensions was seen by 11 respondents as a *financial transaction*, by 17 either as a *revaluation* or *other change in volume*. Changes in life expectancy were considered by 7 as a *financial transaction* and by

¹⁵⁶ The survey also provided the category “revaluation” but it for the sake of keeping the responses anonymous, the number of responses in categories with less than three answers was not disclosed.

22 respondents as an *other economic flow*, changes in the benefit structure would be treated by 12 as a *transaction* and by 18 not (D-34: 12).

II) Justifications and Assessments

The dominant line of argument is thus that actuarially based estimates provide sufficiently reliable and meaningful information to be used as source data for statistical purposes. This position enters the EDG recommendation to the AEG and is held up by further discussion contributions in the IMF/BEA task force. Actuarial estimates should be used for both, funded and unfunded schemes. In the former case, actuarial values would be introduced as an independent estimate of the liabilities incurred, thus providing information on over- or under-funding of the scheme. In the latter case, actuarial estimates would provide the data needed to create financial assets and liabilities on the balance sheets and to record their incurrence or reduction in the flow accounts.

a) *The Validity of Actuarial Estimates*

In the first meeting of the AEG the actuarial assessment of pension obligations was in principle accepted. The idea to record liabilities for unfunded schemes on an actuarial basis “was broadly welcomed, but subject to many caveats” (AEG 2004b: 14). The caveats included concern about the strength of the obligation (and hence an argument about the equivalence space) and situations in which primary data sources would not provide actuarial estimates and those compilations would have to be performed by statisticians directly. The general feasibility of actuarial estimates, however, appears to be tacitly accepted. This reflects the widespread articulation in the statistical debate that actuarial techniques are considered “standard” and denoted “well-known”, and “difficult measurement issues” would be “resolved routinely by the managers of private sector funded pension schemes” (D-39: 1). The very fact that actuaries do measure pension obligations is considered by the IMF/BEA task force members as an argument that those should be recognized in the core accounts:

“The liabilities of defined benefit schemes are regularly estimated by actuaries following well established procedures, and therefore there is also no reason in principle why such liabilities cannot be estimated reliably. Therefore pension obligations meet the accounting criteria for recognition as liabilities” (IMF/BEA Task Force on Employers’ Retirement Schemes 2005: 10).

Moreover, the claim that those actuarial values should be accepted is justified on the counter-claim that actual transactions could provide false information. Actual transactions for pension contributions and actual property income would have “no necessary relationship to changes in the pension liability, which must be calculated by actuarial models using parameters appropriate to the scheme” (Donaghue 2006: 6).

The concrete measurement logic for actuarial estimates is implicitly guided by the proposed construction of an equivalence space between unfunded and funded obligations. This becomes obvious when the need and logic for compilation of the implicit contribution rates is discussed. The argument raised is that accounting should be done in a way that reflects opportunity costs of the decision in terms of funding:

“Each time the employer makes a contribution, it no longer possesses those funds and cannot use them to earn property income (or a net operating surplus) on its own account. [...] The employer who does not make a contribution would retain the amount of the contributions plus any property income earned, the total of which would be exactly equal to the pension benefits. Thus, the employer is indifferent between making actual contributions to a pension fund and simply paying the pension benefits when due (D-23: 2).

Hence the reference for this guidance is the practical problem that the accounting rules should show the same costs independently of the method of financing.

While in the case of liabilities and implicit expenses the main proponents prefer actuarial values over actual transactions, the same possibility is rejected in the case of valuation of pension fund assets for funded schemes. The question if those assets should, too, be valued on an actuarial basis is answered negatively by an expert:

“[The] best estimate of the premature wind-up costs to the employer is not measured by the ‘actuarial value of fund’s assets’ but by their market value. Measuring the residual employer obligation (to the pension fund) (or claim) on the basis of the former would not be in line with the market principle. It is worth noting that the appearance of the claim against the employer (on poor performance of assets) under the proposition of the dissent would necessarily arise via an Other economic flow, which would not be reflecting (at time of entry in the accounts) any market (price) changes (but ones that occurred potentially long in the past)” (D-47: 28f.).

The argument brought up here is directly linked to accounting principles contained in the system, namely the priority towards the market price. The discussant rejects the idea that actuarial values of the pension fund assets should be used to compile their value on the balance sheet of the pension fund in order to compile the residual obligation of the employer for any unfunded amounts. The above quotes clearly show that actual transactions and actuarial assessments may provide rival values for similar economic phenomena. In the case of pension fund transactions and receivable property income actuarial estimates are given priority, in other cases it is claimed that the exchange value of assets constitutes the “best estimate”.

A broader view on the issue thus reveals that essentially the arguments brought up in the debate concern the assessment whether actuarial approaches are deemed legitimized approaches to quantify the incurrence of pension obligations. Proponents stress that experience on how to deal with those problems has grown and practices are “established”. The core question is hence a discretionary decision whether the respective source data is considered valid in the given context. At a joint meeting of national accounts experts organized by the UN Economic Commission for Europe, the OECD and Eurostat a senior statistical expert mirrors this rather ‘soft’ assessment of actuarial

practice. He expresses that an actuarial basis should be accepted for statistical purposes. He considers it “the right moment for the SNA to embark statisticians in such actuarial calculations”, especially since “businesses are going in this direction“ and “a number of OECD or non OECD governments have done or are starting these calculations, pushed by public sector accounting standards“(Lequiller 2006: 8).

b) Reconstructing Actuarial Estimates

Some discussants are concerned about the underlying actuarial procedures. Doubts about the underlying measurement assumptions are expressed, given that the financial balance will be affected through estimated values of pension obligations. While it is stated that it “may be considered useful that national accounts show deficits that reveal the true current costs of the employer’s commitments” it is demanded that “this should be done using solid and internationally comparable assumptions; otherwise this could result in a decrease of the credibility of the accounts” (D-48: 8). The discussant thus suggests that actuarial amounts reveal the “true” costs of employer liabilities. But the dependence of the estimates on assumptions is highlighted. He concludes that attention should be paid towards the assumptions entering the compilation process. While most statisticians more or less claim that actuarial information was available and sufficient for the purposes of measurement, others attempt to assess the measurement logic directly, and hence reject to accept actuarial data at face value. Some statisticians for instance confine the quality assessments somewhat. It is for instance recommended that actuarial estimates should be disclosed in separate statistical categories, e.g. as “provisions” in order to reflect the uncertainty attached to the figures (D-02: 1). This point is supported by others, who stress that economists using the figures would know about the uncertainty and would therefore like to separate estimated from directly observed values and to know the assumptions made for the estimation (D-48: 3).

At an early stage of the debate, one discussant for instance ponders, what exactly the pension obligation at a specific point of time constitutes:

“When I want a value to put in a balance sheet today, what do I use? If there is a market value, say of a share, that is fine, I can use that. If I want the value of a pension payable in 10 years time, what do I use? I think I use the value of the pension today. That is I take my salary as of today, with the number of years of service as of today and suppose that, at this moment, that is the basis of payments due to me in 10 years time so I discount it back to the present. I do not make projections about how many more years I might work or how many pay increases I might have. I do ‘expect’ that I will live to draw the pension but this is the only expectation which I build into my NPV [net present value]. This gives me a ‘correct’ value of the liability and then the question is how to get a matching value of the corresponding assets” (D-11: 3).

This clearly shows that the “value of the pension today” is actually a matter of definition. It is proposed to compile the net present value of the expected pension benefits, based on the assumption that one lives up to retirement age, but excluding the assumption

that one further accrues pension rights in the future and that the base salary to compile the benefits will probably increase. It is proposed that this would provide the “correct” value of the liability. The fundamental debate in this context refers to theoretical considerations, how pension claims arise.

The academic debate has shown that underlying the dominant accounting method, the projected benefit method, an assumption is made about an implicit working contract over the whole career (Bulow 1982). The core question is thus whether the value of the benefit claim is higher than the money that an employee would receive if he would immediately quit employment. Without much discussion the EDG paper considers the “projected unit method, towards which accounting standards seem to be converging at the moment, is an appropriate method” (D-36: 15). Hence, in deviation from the above reasoning, future pay and benefit raises are predicted. The Projected Benefit Obligation (PBO) method is preferred based on the claim that it “has the characteristic of spreading more evenly across time the cost of pension arising from many schemes” (ibid.). The justification of this approach is on the one hand based on a perceived tendency of accounting standards to converge on this approach and secondly a descriptive argument, that the method would lead to a steadier accounting for the pension costs through the prediction of the impact of future promotions. However, at a later point in the debate, also the preference for an approach that more closely describes only the accrued benefit obligations (ABO) is expressed:

“The task force consensus was that the ABO would be the more appropriate valuation to use for national accounting purposes. The accounting standards generally currently prescribe use of the PBO valuation in the balance sheet, with the ABO valuation being provided in the notes to the accounts. However the task force was informed that international accounting standards are also likely to move to the use of the ABO valuation on the balance sheet in the future” (IMF/BEA Task Force on Employers’ Retirement Schemes 2005: 8).

It is claimed that the actuarial estimates “should be calculated on the basis of service provided to the current date and using current wage and salary rates, i. e. as if the pension scheme were to be terminated at the balance date” (Donaghue 2006: 11). The AEG discussion does not decide between the two types of methods but rather discusses the two options and their main characteristics by stating that where “an individual’s ABO increases in steps as he is promoted, the PBO increases more steadily over time. For the individual, PBO is always higher than ABO until the moment of retirement when the ABO catches up with the PBO. For a cohort of employees, the increase in ABO entitlements is smoother than for the individual but the total will always be lower than the PBO equivalent” (AEG 2007: 20). In 2007 the CMFB expressed support for the ABO based on the explicit reasoning that assumptions in the gathering of statistical data should be restricted to a minimum (CMFB 2007: 4). The ISWGNA only generally proposes to the UNSC to use actuarial estimates for the purpose, but specifies that only

assumptions about life expectancy but not about future salary rises should be included in the estimation process:

“This amount must be determined actuarially, taking into account only the life expectancy of the employee and not any future earnings or the impact of any future pay increases on the ultimate pension benefit. While these estimates cannot be made accurately for any individual, robust estimates can be, and are, made for cohorts of employees. [...] To explain the steady increase in the net present value of future pension payments as retirement gets closer, it is appropriate to record property income payable to the employee and returned to the pension fund as a social insurance contribution supplement. This should be estimated by applying the discount rate used in the actuarial calculations to the pension liability accrued up to the beginning of the period” (ISWGNA 2007a: 11).

Again, later, this proposal was modified by the claim that assumptions about future wage and salary levels should be included in the compilation of the obligations. After work in the Eurostat/ECB task force began representatives sent a letter requesting to allow the use of the PBO method (ISWGNA 2007c: 3). The IMF representative then agreed to effectively leave the measurement question open according to “best practice” in the respective countries (ISWGNA 2007b: 2).

The debate thus shows that it is not at all clear which value would constitute the ‘correct’ measure of the actuarial pension obligations. The positions reach from a narrow perspective on actually accrued benefits to estimated projected benefit obligations. The former would record only those rights actually earned up to date, while abstaining from making any predictions about future promotions or salary increases. This recording would predictably lead to increases in the implicit pension contributions whenever salaries or increase over the career. The latter alternative would – at the extreme – attempt to anticipate all rises of the base salary used to compile future pension claims (and potentially also take the growth of benefit payments into account) and spread those costs either as a constant share of expected wages or as a constant absolute amount over the career.

A specific debate took place on the issue of the discount rate. A respective interest rate is necessary to compile the net present value of future obligations, once the cash flows are predicted. The EDG report in December 2003 highlights that it “is essential that a reasonable real discount rate [...] be used for actuarial calculations. A method is simply to use a real discount rate and disregard altogether future inflation [...]. Measures of real interest rate [...] suggest that yearly real interest rates are rather stable and close to 3 percent” (D-47: 26). A crucial question is, of course, what is considered a “reasonable” rate for the statistical purpose. One contributor highlights that the logic of the discount rate can either be the borrowing costs, an assumed investment return, or a theoretical time-preference parameter:

“An appropriate discount rate needs to be chosen for this purpose. This could be based on: a) the yield on long term government bonds. This has the advantage of reflecting the governments’ actual cost of borrowing and is close to the return that a real pension fund

would obtain if a large part of its portfolio were invested (to reduce risk) in domestic-currency AAA bonds; b) the long-term yield of a portfolio of investments typical of a private sector pension fund; c) a theoretical figure calculated by economists based on social time preference rates and other factors” (D-39: 3).

Another contribution also highlights that the choice of the discount rate is not a trivial endeavor. Rather an explicit or implicit assumption about both, the future inflation rate and, if it should reflect investment returns, about the risk-premium on a hypothetical portfolio. The discount rate applied by actuaries would include “an estimate of the net holding gains (whether nominal or real) expected on risk-free investments in the long term” (D-40: 2). Yet if the discount rate should be consistent over all schemes to guarantee funding neutrality, should the assumed interest rate then be risk-free or not? This question is explicitly addressed in the debate, and the question is raised whether the discount rate should “allow for some private risks (AAA rated bonds etc.)? Or should it more reflect the “expected return on assets” which may well exceed 3 percent in real terms, even for a diversified portfolio?” (D-47: 26).

The EDG report refers at several occasions to the discount rate “used by actuaries” but it does not specify a concrete procedure to derive the respective value. During the discussion in the IMF/BEA Task Force a concrete proposal is made. It is stated that there is some discretionary influence but that high quality bonds are typically used in practice: “This is a matter of some choice between the employer, the accountant and the actuary but the usual outcome is to choose the rate of high quality bonds relevant for the employer in question” (IMF/BEA Task Force on Employers' Retirement Schemes 2005: 8). At the OECD Working Party on National Accounts one month later, the representative of the BEA again stresses that the discount rate posed no challenge – even for the government. It is stated that the “difficulty of choosing the discount rate can be easily overcome: for government pension, the long-term government bond rate is totally adapted and acceptable by all” (OECD 2005: 3).

This argument is not unanimously accepted by the task force participants, though. Representatives from the ECB and Eurostat claim that the choice of the discount rate is difficult, while having substantial impact on the figures:

“One factor giving unease is that, as confirmed by the actuaries in the meeting, changes in the discount rate used can cause very significant changes in the estimated liabilities. This in turn significantly affects the figures for government debt both in absolute levels and as far as the movement over time is concerned” (IMF/BEA Task Force on Employers' Retirement Schemes 2005: 11).

Yet the concern is not embodied in the final recommendation of the Task Force. In an issue paper the group recommends to the AEG the choice of “the interest rate on high quality securities relevant to the sponsor of the pension scheme” with a maturity “consistent with the time horizon of the pension liability” (AEG 2006: 50). In the end it

becomes clear that the choice of how to operationalize the discount rate is essentially a pragmatic decision¹⁵⁷.

III) Measurement Problems

The acceptance of actuarial estimates is not shared by all contributors, though. The difficulty of deriving estimates for implicit pension contributions is discussed and it is highlighted that the methods applied in European countries differ (D-09: 3ff.). In contrast to the earlier claims it is stated that actuarial practices were not standardized and unproblematic. It is argued that the complexity and diversity of actuarial practices have become known over the years:

“The business press covered the issue in recent years. The impression is that so far the assumptions used vary quite enormously with respect to e.g. the assumed inflation rates, real rates of return on invested assets and real rate of increase of salaries (including among companies in the same industry and country). It is not clear to what extent these differences reflect economic reality” (D-32: 4).

This discussant thus questions whether actuarial estimates actually provide a better representation of “economic reality”. A fundamental critique is expressed by one discussant at an early point in the debate, who claims that the very idea to attach a precise periodized value to the accrual of pension obligations would be virtually impossible:

“I am also a little unhappy about breaking down the changes in liabilities, in an annual accounting system (which I accept is needed), into ‘this year's entitlement’ and ‘uprating of previous years' entitlements’, particularly if these are equated, respectively, to this year's contributions and contribution supplements. The whole thing is a continuum, and one can hardly say that in year 1 of employment the contributions plus accumulated supplements on these contributions produce exactly the same 1/40 of the eventual pension as the contributions in year 39.” (D-11: 2f.).

While this discussant does not reject the idea that obligations accrue over time he clearly raises doubts about the ability to measure this process reliably. The point is thus a fundamental one by claiming that the suggested precision of the estimates does actually not hold. In a similar vein, others state that a split between imputed property income and social contributions is challenging and could lead to measurement problems. Implicitly starting from the idea that ‘true’ costs of labor exist, it is argued that the measured costs based on actuarial practices could lead to deviations from this value. As a

¹⁵⁷ The problems associated with the discount rate affects other parts of the statistical debate as well. In the context of a discussion on the cost of capital services for government employed capital, too, the question of a discount rate and especially the question of consistency between the two recommendations came up. One statistician reconsiders the issue from a pragmatic perspective: “Another [question] was should there be a return on assets used by governments in production? Now one view said, the discount rate to be used in both cases is government's time preference for money. It must be the same for both of it, mustn't it? Seems like a good economic argument, but not all people agree to it. They said, no, pensions are quite different from production. We want to have a high discount rate for pensions, but we don't want to have any discount rate for the fixed assets. [...] If you're being very hardline you would say, there certainly some theoretical arguments about that. But this is a compromise between a theoretically perfect system and one you think is practical. Because at the end of the day it's not good having a really beautiful, theoretically correct system that you can't actually implement” (Interview III: 216ff.).

consequence of volatility in parameters used to predict future benefit levels the labor “costs may then fluctuate around some ‘true average’ [...]. The size of this bias is unknown to the author. Sizes of revisions of actuarial estimates suggest that an order of 30% is also easily attainable over a decade as e.g. real rates of return rise or fall” (D-32: 4).

While the majority of EDG participants claim that actuarial estimates would provide sufficiently reliable information set for the underlying economic phenomenon, others question if the suggested quality of the indicators is really given. In a critique to an early discussion paper recommending the recognition of unfunded pension obligations based on actuarial amounts one discussant criticizes that actuarial measurement is possibly too complex. While generally accepting the idea of the accrual principle he claims that another “key accounting concept is that of reliability” and that “the ability to measure, to quantify, or to place a valuation on an obligation” would not be sufficient to accept the respective value as providing reliable information (D-28b: 3). Two different situations under which measurement quality problems arise are discussed. First, the possibility that existing actuarial information may be of low quality or biased, and second that “an actuarial estimate simply does not exist as is currently the case for government schemes in many OECD and other countries” (D-42: 1f.). Indeed some statisticians claim that the quality of actuarial data sources is in fact too low to be included. It is argued that statisticians “have to judge the quality of their data sources. For imputed contributions, possible errors could be large” (D-32: 4). Additionally measurement problems are considered especially prevalent in cases where no actuarial source data is available at all and the calculations would have to be made by statisticians themselves. More generally it is argued that the measurement of government unfunded pension obligations on an actuarial basis was not readily possible “on the basis of standard actuarial valuation techniques as applied for private sector funded pension schemes” and hence “difficult measurement issues are bound to arise” with respect to the needed estimation parameters (D-66: 5).

This point is taken up by others. It is the overall credibility of the national accounts that is taken as a reference for the argumentation. Discussants claim that the deficit measure would heavily depend on discretionary parameters. The fact that “this construction is based on assumptions” is seen as problematic, since the “net lending/borrowing for the general government will now be significantly affected by imputed flows”. This “could result in a decrease of the credibility of the accounts” (D-48: 8). One of the Eurostat contributions to the EDG fundamentally criticizes that the proposed measurement of unfunded pensions would include too many imputations. European statisticians argue against the background of possible manipulations of the data. Again, the note sees the

problem that inclusion of estimates “may put at risk the overall quality of statistics produced” (D-58: 4). It is demanded that “the usage of models and the multiplication of imputations should be limited to the extent possible, to avoid volatility in data and reduce scope for manipulations” (ibid.)

4.2.3.c General References to Statistical Reality

At many points discussants mention ‘economic reality’ as a reference for guiding decisions on what and how to measure fiscal events. Statistics are for instance “intended to show the economic reality of a situation rather than just legal arrangements” (D-12: 8) or statistical concepts should “lay a basis for economic analysis” (D-51: 3). On a more general level two aspects are thus relevant for an assessment of how statistical negotiations of international standards construct reality. First, how is ‘reality’ referred to in the arguments? Second, how do statisticians deal with cases where statistics actually differ from source data, i.e. where statistics become constructive? The former question addresses the way in which experts frame their propositions in relation to ‘reality’. The latter question asks how statisticians, in case their assessment of reality differs from primary sources, deal with potential disparities and how they justify these differences.

I) Rival Concepts of Reality

Remarkably, the general tenor of the contributions is that the essential characteristics of reality are rather obvious and that interpretation is quite straightforward. A closer look, however, shows that very different notions of ‘reality’ come up and very different approaches to assess statistical reality are applied. Justifications for specific treatments are not only prepared on epistemological grounds but also on practical grounds, pondering for instance the specific purpose of the treatment or constraints in a given situation. At least three basically different approaches towards economic reality and their relation to statistics can be distinguished. In a nutshell, the first position essentially assumes that economic reality exists independently from statistical observation and that universally valid economic laws are revealed through cognitive orientations and behavior of actors. Implicit in this position is that accounting or statistical systems have no feed-back effect on economic decisions. The second position still assumes that there is a ‘true’ and objective economic logic inherent in accounting events, but that this logic might not be visible to decision makers. Hence the intended role of economic statistics (and accounting) is to reveal the ‘true’ economic nature of events. The third epistemological position that can be found in the contributions takes a somewhat ambivalent position. It is suggested that economic statistics do not really provide (new) information for individual or collective decision making, but rather have a summarizing, symbolic function. Informational systems thus play a role in wider reform

projects by either making major trends or imbalances visible or by defining economic variables for specific administrative purposes.

The first perspective mainly takes the perception and behavior of economic agents as the epistemological starting point. The - interpreted or observed - perceptions of households, employees, and policy-makers serve as indication for the universal economic laws that are operating in the fiscal and macroeconomic context. It is argued that the statistical information should reflect these perceptions in order to correctly present economic reality. One proposition is, for instance, that obligations arising from public pensions should be regarded as liabilities in the system because they would affect behavior of households and government:

“Statistics are intended to show the economic reality of a situation rather than just legal arrangements. In this case household and government behavior is influenced by the constructive obligations for public pensions and the belief that the pensions will be received” (D-12: 08).

In a similar manner, other contributions take the form and content of primary accounting reports as evidence for the economic content of the pension claims. As already stated above one statistician argues that the recognition of unfunded liabilities in the government accounts provides evidence for the solidity of the respective claims, making the distinction between funded and unfunded schemes immaterial:

“Employers have always had a legal and moral obligation to meet employee pension obligations. Recognition of pension liabilities in government official financial accounts in Canada provided clear evidence of this obligation as well as an indication of the intent on the part of governments to meet these obligations” (D-08: 3).

Conversely another statistician argues in the context of social security schemes, that the non-funding of pension claims could be interpreted in a way that the government would *not* recognize the full amount of the liabilities:

“[The] pension scheme has explicitly the choice of either constituting a specific reserve or not. In this case, the choice of not making a reserve could be a signal that the government does not recognise the liability” (D-06: 6).

We thus see that economic reality in this first perspective is treated as something externally given. The derivation of statistical data is thus based on interpretative assessments of the behavior and orientation of economic agents. Primary accounting information and observable economic behavior is used as a direct indicator of economic reality. The epistemological claim supporting this argument is that economic reality (and behavior) is essentially determined *before* statistical and accounting information is gathered. Statistics are thus considered in a mode of passive reconstruction rather than being a primary source of information.

The second position considers the orientation of economic agents not as the ultimate reference point. Instead, theoretical conceptions of ‘cost’ or the ‘market value of labor’ are introduced. It becomes clear that the compiled cost can be based on alternative

conceptions, but that there is an inherent, interpretative logic of accounting. Basing the statistical recording of pension costs on actuarial estimates for contributions and property income is for instance deemed to reveal the economic nature, irrespective of actually observed cash transactions made by economic agents:

“The cost of employment would be more appropriately measured. Supercontributions originating from under-performance of defined benefits pension funds’ assets (recapitalization of funds) would not any more be part of compensation of employees and affect the gross operating surplus of the employer (or its value added when the employer is nonmarket). [...] The property income receivable by households would be more correctly measured, on the basis of the discount rate used by actuaries” (D-36: 5f.).

The reference to an ‘appropriate’ and ‘correct’ measure of employment costs and property income suggests that there is a conception of an underlying ‘real’ value. At the same time it is expressed that this value is not self-evident and can hence not necessarily be directly observed by economic agents. For instance the derivation of the ‘correct’ value of imputed social contributions as part of recorded employment cost discusses the question whether those contributions should be discounted or not:

“Most simply, it seems odd that the cost to an employer of providing pension benefits to its employees should be higher if a scheme is unfunded than it if it is funded. The method of financing should not affect the cost. Put another way, the imputed social contributions reflect part of the cost to the employer of the employees’ labor services” (D-23: 1).

In this perspective the role of economic statistics and accounting is thus to *reveal* certain aspects of reality that are derived from theoretical principles. This is also highlighted by another contribution which argues that accounting information can mislead the economic perceptions of market participants:

“[There] is growing concern that a company’s true position is misrepresented if it has pension obligations which are not shown in its balance sheet because there are no assets set aside to meet these and equally no formal liability is shown. [...] The present lack of information affects the market valuation given to the firm via its share price and there have been recent examples of shares having fallen in the light of estimates being made of previously undisclosed pension obligations” (D10-7).

This *revealing* function of economic statistics (and accounting) becomes especially relevant for those discussants who consider economic statistics as relevant information basis for policy-makers’ decisions. Some argue for instance that the introduction of accruals was necessary because cash based data would “seriously constrain and possibly distort policy makers’ views of options and their consequences” (D-04: 6). Reconstructing the logic of funding arrangements it is for instance stressed that the non-recognition of unfunded liabilities can lead to incentives that would bias the costs towards keeping unfunded systems:

“At present, national accounts do not record financial liabilities for unfunded government-operated pension schemes. The impact on the government deficit is simply the payment of pensions to retired employees, net of any current employee contributions, and no liability is recorded in government debt. However, if a government makes payments to private-sector pension funds on behalf of its employees, the impact on the government deficit would be different. This difference in accounting for the cost

of different ways of proving public sector occupational pensions can lead to sub-optimal decision making in terms of economic efficiency” (D-39: 1).

This quote clearly highlights that the possibility to judge public decisions on the basis of *efficiency* is deemed possible and that measurement rules should be subject to those ultimate goals. Statistics are thus credited with the potential to attribute visible costs to alternative decisions, they are seen as constructive, but the idea that ‘better’ or ‘worse’ decisions in terms of economic efficiency can be made is kept up to evaluate alternative accounting principles. Specifically accounting rules that are biased against privatization or funding are criticized from this perspective.

The third perspective which can be found in the contributions to the debate shows a somewhat ambivalent stance with respect to the epistemology of the system. The idea that statistics would prepare information that was otherwise not available is basically dropped. At the same time it is not suggested that the numbers are irrelevant for the broader decision making context. Rather the role of statistics is conceptualized in a more symbolic, rhetorical manner. Economic statistics are deemed to receive special attention as a system that prepares data in a comparable and consistent manner. The publication of the data is thus clearly seen in the political context. Through the integration of specific information in the framework of economic statistics, broader incentives for specific reform agendas or political projects are set. An argument for the recognition of unfunded pension obligations in the SNA is thus brought up not on the basis that new primary information is gathered but by integrating them in official procedures:

“One may say that all these issues can be studied without changing the accounting system. While this is true, the advantage of the proposed SNA revision is that it brings these issues on the table under a coherent framework and feeds them into any procedure for setting targets for public debt and deficit” (D-51: 20).

In this context it is less the fine-grained optimization of individual management decisions but the provision of a broad picture of the fiscal stance that is aimed at. Statistical rules that are able

“to uncover major fiscal difficulties related to aging populations are necessary for all governments seeking transparent and appropriate fiscal policy” (D-59: 22).

This convention-based perspective on economic statistics is also revealed by the deliberate acceptance of the fact that alternative agreements on the presentation of statistical reality are possible. The questions discussed by proponents of this position are rather pragmatic assessments of the consequences of a change. This is for instance debated in the context of the Maastricht criteria or the EDP framework:

“[The] necessary recording, under the new treatment, of an imputed expense in property income will systematically increase the government deficit (or decrease its surplus). As a consequence, some will probably sustain that criterions based on absolute level of deficits (such as the Maastricht criterion of 3%) should be reviewed, or, conversely, that this new feature of national accounts should not be applied to the data used for the compilation of these criteria” (D-48: 7).

The main obstacle against a change in the statistical treatment is then seen by some discussants as the simple need to get used to different levels of deficit and debt:

“The need to become accustomed to a new order of magnitude for public debt and deficit and the practical problems of estimation of pension liabilities are probably the main difficulties in implementing the proposed changes to national accounting” (D-51: 5).

The last perspective thus rather pragmatically deals with the fact that the reality presented in statistics is a matter of definition and agreement and debates the implications of alternative treatments from the perspective of its application in the political context.

The above discussed different epistemological conceptions coexist and partly concur – they are seldom explicitly confronted, however, Rather people start from the different positions sometimes combining them within a single contribution. It follows that statisticians hardly reflect on their own epistemology throughout a debate. While it appears that many differences in the argumentative positions actually stem from fundamentally different positions with respect to implicit cognitive assumptions on what the purposes and principles of the statistical system at large should be, those paradigms remain largely implicit. Statisticians obviously lead the debate in a technical mode, while many constraints to their positions rest are cognitive and taken-for-granted.

II) Dealing with Statistical Construction

The proposal to recognize defined benefit pension obligations on an actuarial basis was made on the basis that in a number of countries the required actuarial information would be available in pension funds’ and government’s accounting reports. The change of the SNA would, however, also impact on countries in which actuarial data is not available. Moreover, some contributions also considered which actuarial assumptions should be used to derive the respective estimates. Essentially this comes down to the question to which degree economic statistics should be *constructive*, in the sense that they would compile data that is originally not available or differs from existing sources. So generally, whenever the statistical assessment of economic reality is different from perceptions of economic agents or from financial reports serving as source data the practical question occurs, how far economic statistics should deviate from direct observations of primary data. At several points in the debate, statisticians stress that such a deviation was feasible, if justified on the basis of conceptual principles:

“It is true, of course, that we have to use commercial accounts as our starting point, and other things being equal, it would be nice if exactly the same figures were used for the SNA. But when commercial accounting standards allow for variation from what we (pretend to) think is the correct economic value, then I would have little problem in moving away from them.” (D-11: 1).

In the context of the pension debate the decision to assess economic reality via the actuarial reports of individual units (including governments) does not solve all problems for statisticians. As stated above two aspects are discussed: The quality of existing actuarial estimates and the proceeding in cases where no actuarial information is available in the first place. In a critique of an EDG draft report one discussant complains that “it is not made clear whether all kinds of contingent obligations would have to be recognised as liabilities under a future SNA also in the case where the employer does not recognise them. [...] It is suggested to use the ratios taken from similar schemes when information is lacking. In practice this suggestion will often not be applicable. Comparable schemes are those with similar levels of benefits, similar employee gender and age structure etc. which are unlikely to exist in many countries” (D-42: 1). This unease with situations in which actuarial source data is not available is carried forward to the AEG:

“There were concerns about whether national accountants value the government liability if the government is not already making these calculations. Similarly, national accountants could not do actuarial calculations for funded schemes unless company accountants do so” (AEG 2004b: 14).

Some discussants reject the idea that economic statistics should themselves prepare actuarial estimates on the basis of the effort needed to do so and that the system so far does not prescribe the generation of such primary data where it is not available. It is argued that “actuarial estimates made by the national accountants do not seem feasible due to their resource intensity. ESA and SNA do not suggest that in practice the national accountants should produce actuarial estimates when these are not available from the employer” (D-09: 5).

At the second AEG meeting it is again stressed that the direct compilation of actuarial information in the absence of primary sources through national statisticians would not be feasible. A problem would be the “enormous amounts that are involved, based on uncertain demographical assumptions” (AEG 2004a: 63). It is stressed that countries recognizing unfunded defined benefit obligations in their national statistics did so on the basis of existing accounting sources. It is seen as “hazardous if the NSOs made the estimates” (ibid.). The idea to include actuarial estimates even in countries that cannot derive the necessary data from direct sources obviously creates a new situation for economic statisticians:

“[The] new proposal will significantly increase the number of situations where the statisticians would be in the position of actuaries, in particular leading them to choose or validate a ‘discount rate’, which value will have a very significant impact on the data. This is a situation which is necessary but that producers and users of national accounts are not accustomed to” (D-48: 2).

Yet this conservative standpoint is not shared by all discussants. In the IMF/BEA Task Force for instance experts claim that lack of source data should be

no argument against making conceptual changes that would in principle require this information. Rather the SNA “should be forward looking and not limited by possible temporary difficulties in obtaining suitable data. Actuarial estimates are needed for the pension contributions component of compensation of employees and these use exactly the same modeling as would be used for unfunded schemes” (IMF/BEA Task Force on Employers' Retirement Schemes 2005: 12).

In addition to the specific estimation procedures, the debate on how constructive economic statistics could and should actually be is also carried out with respect to concepts and classifications. As noted above, statisticians from Europe expressed concerns about the consequences of introducing the concept of ‘constructive obligations’ in the statistical framework. And indeed the apprehension that concepts, once introduced, would have further consequences seems to be justified. One discussant argues that the application of the accounting concept should not be constrained to pension obligations only:

“We are, however, somewhat concerned about accepting constructing obligations as liabilities only in the particular instance of employer pension obligations. If the circumstances that give rise to constructive obligations are sufficient to recognise these as liabilities in this instance, then if similar circumstances arise in other instances then they too should be recognised as liabilities” (D-45: 1).

It follows that the categorical decisions, and hence essentially the application of equivalence criteria in the system is also assessed on the basis of general considerations how much representational impact should be decided in the statistical realm. At several instances statisticians express that the categorization of pension schemes between redistributive types and individual insurance is challenging. In the case of constructive obligations it is highlighted that there is substantial discretion with respect to the assessment of the degree of contingency of the outstanding pension liability:

“The most likely event causing a cancellation or a reduction in pensions is a change in the law governing the scheme. Thus, it is a matter of judgment how likely it is that such a change might occur. Depending on that judgment, any amount could be recognized for the liability from zero to the entire amount based on the current law” (D-12: 6).

The difficulty of assessing economic reality becomes also prevalent when it comes to assigning a concrete value to an event for a specific period. A number of contributions express the difficulty of assessing the exact criteria on which the economic reality of pension arrangements could be assessed. For instance it is argued that between legal occupational schemes and softer obligations of social assistance schemes “there is of course a large grey area” (D-39: 2f.).

The statistical debate is thus essentially one of framing. As the discussion showed this does not only simply concern the question of what is recognized at all in the statistical system but also whether it is presented as part of the core accounts, or as supplementary information. Some experts do claim that some “fiscal analysts would [...] prefer that

there be disclosure of the possible scope of government liabilities, rather than full recognition of the liability in the financial statements. It is not clear precisely how ‘disclosure’ would differ from ‘recognition’” (Donaghue 2003: 12). But it is clear that in fact the decision whether or not to recognize liabilities impacts the major statistical indicators which are derived from the core accounts. The framing decision of statisticians is hence essentially an assessment whether an equivalence space between the elements of the core accounts exists:

“There are essentially two views on how to integrate such statistical information into the new SNA. First, it is proposed to treat unfunded employer pension schemes similar to funded schemes, despite their quite different legal status. This means that employer unfunded pension obligations are recognised as if they are normal liabilities, which implies the recording of corresponding financial assets and liabilities in the core accounts. Second, taking into account the various reasons why funded and unfunded schemes are different in an economic sense, it is recommended to record unfunded pension obligations in a set of supplementary accounts” (D-66: 4).

Others stress that social security obligations should be excluded from the core accounts, since contributions and benefits of social security schemes could be changed. Information on household net worth is seen as worthwhile data “as an alternative and broader measure” (D-08: 8) but not considered to be relevant for the core accounts. It follows that the framing decision thus occurs in steps: Whenever statisticians claim that something could be measured but perhaps not in a reliable way, they may exclude it from the core accounts. But then again, the crucial boundary of the statistical frame to be crossed by statistical concepts is whether something is assumed to be ‘hard’ statistical data in the ‘core’.

4.2.4 FINDINGS

The arguments we found in the debate can be structured along two dimensions. First, a part of the arguments are made with reference to the *internal* consequences for and the logic of the system. It is discussed how the system should measure certain events following its own principles. Second, arguments also address the consequences treatments rules will have on the *outside* world: Incentives and obstacles for political and social reform projects are considered and the outside acceptance of the statistics on the basis of its principles and the resulting figures is also addressed. Cross-cutting to this dimension are two levels of arguments: On the one hand statistical experts remain on the level of the *figures* and make arguments taking the facticity of the figures for granted. This relates to logical questions of classification or recording of certain measured events for their system and for data users. On the other hand the epistemological principles and the outside appearance of the data *system* as a whole are considered. This includes considerations whether the figures measure ‘reality’ and whether outside users will accept the statistical figures as ‘useful’ or ‘credible’.

ARGUMENTATIVE DIMENSIONS

		REFERENCE OBJECT	
		Figures	System
REFERENCE GROUP	External	4 <i>Social/political responsibility/purpose</i>	3 <i>Acceptance and perception of the statistical frame by outsiders</i>
	Internal	1 <i>Measurement logic/principles</i>	2 <i>Relation between figures and reality</i>

Figure 21: Argumentative Dimensions

Figure 21 provides an overview over the resulting types of arguments. Box 1 contains arguments that address the measurement logic and principles of the system. In a deductive mode the underlying principles are used as starting point and the treatment of a specific issue or an observational category is discussed. This level of argumentation resembles mostly what one would expect to be the technical level of measurement: Starting from a set of principles and axioms measurement of a specific issue is logically derived. Arguments classified in box 2, in contrast, do not take the figures for real but are concerned with the epistemological basis of the system. While assessing the ‘reality’ of considered economic events, it is pondered which principles and methods are best suited to produce the figures that reflect reality. It is thus the relation between figures and a conception of ‘economic reality’ which is discussed here. In this area a discrepancy between the ideas of what reality constitutes and underlying principles is allowed for. Statements in box 3 now take into account that outsiders’ support of the figures is conditional. It is the acceptance and credibility of the numbers and the system that is at stake here. Hence, in this dimension we observe that statisticians are potentially concerned that observers may reject the statistical system and its information as a whole. This can be due to both the appearance of the numbers at their numerical surface or the acceptance of the underlying measurement principles. Finally, arguments in box 4 start from the assumption that outside users would take the numerical information at face value for decision making. Being aware that measurement can be done in different ways statisticians ponder what the potential or probable consequences for the decisions taken by outside actors may be. Put differently, this type covers arguments reflecting the social and political responsibility of statisticians in their role of making things measurable in a specific way.

In the debate all four types of arguments occur, often more than one type is present in individual documents. We find that statisticians justify and rationalize their treatments on the basis of potentially all four streams: The internal logic of the system, its

epistemological basis, its outside credibility and acceptance, and its analytic consequences. The central claim put up here is that the way in which treatments are justified is not one of technical derivation from clear demands. The technical appearance of the decision taken can only be upheld if interest in the issue is either limited or consensus on the importance of the different categories or assessments of required answers is possible. Only then is it possible to tell a 'story' including all argumentative dimensions which satisfies decision makers and outside observers. If, on the other hand, controversy on an issue exists it may unfold on either the problem assessment in the four dimensions or the feasible solutions. The debate then centers on rather discretionary assessments whether actuarial data is sufficiently reliable to be credible, whether the intention of the system is to create funding neutrality or not, whether the funding criterion reflects differences in economic reality or is just a superficial deterrence, or whether actuarial measurement of pension contributions is a necessary and feasible interpretation of the accrual principle. It remains that accounting rules are social conventions. If they can be based on a consensus (either through persuasion or compromise) the technical façade can most likely be kept up. If assessments differ in the noted dimensions or their relative importance, however, even the conventional basis of statistical treatments becomes obvious.

A key finding is that the statistical debate does not necessarily remain on a level that we would consider technical (box 1). This is the type of justification often highlighted to outside observers whenever specific treatments are officially justified. We would probably even expect arguments on the epistemology of the system and the justification of new concepts and paradigms (box 2) in order to bring the analytical constructs of the system in line with economic reality. Instead, it turns out that many arguments made in the statistical debate are obviously related to the reputation of statisticians and the legitimacy of the knowledge they produce (box 3) and the decision making incentives created through specific statistical rules (box 4). This clearly shows that statistical standards do not reflect a neutral device to mirror reality but that the figures are created subject to specific perceived problem settings and to support professional and organizational legitimacy and credibility. Put simply, statistics are produced in a way to sustain professional and organizational reputation and specific political reform projects. Both of these dimensions can be partly decoupled from the actual processes in which the system creates knowledge from observations. The credibility of the figures will much depend on their surface (e.g. the absence of major revisions, the adequate reflection of large or symbolic economic events, a stylized basis for the credibility of sources and estimations, acceptance of the observational categories from a common-sense

perspective) and the feasibility of the figures will be assessed on the basis of the incentives they create for specific political decisions.

A major problem that becomes apparent in the pension debate is now that statisticians receive organizational and professional legitimacy in supposedly different ways and in different contexts, even within the OECD community. This leads to very different positions in the four argumentative dimensions. Put simply, most EU statisticians essentially rejected the inclusion of unfunded defined benefit pension obligations on an actuarial basis in the core statistical frame, whereas many non-EU statisticians (within the OECD) were in favor of such a step. This disagreement is obviously linked to systematic differences in the context in which the statistical data is used: EU countries mostly require data that follows the needs of financial monitoring of governments under the Stability and Growth Pact. For this, data needs to be reliable, credible and supposedly immune to potential manipulations. In non-EU countries, and here mainly Anglo-Saxon countries, data is used much less in the administrative context. Instead data is mostly taken to control the fiscal impact of governments from an analytical view on government activity. Therefore data may reflect softer, vaguer trends.

As long as the debate remained within the IMF-centered EDG, something like a technical consensus on the measurement of pension obligations seemed to emerge. The moderator concluded that there was unanimous support for the respective extension of the boundary for financial assets. Yet later the opposition from EU statisticians demonstrated that the decision on where to establish the boundary for calculative assessments of future obligations is essentially a discretionary one. Isomorphism does explain the treatments within the respective groups: the EDG position is strongly justified with accounting practice and concepts, such as the notion of 'constructive obligations', the reliance of leading accounting standards on actuarial practices etc. In contrast EU statisticians followed a more restricted definition of liabilities that was embodied in their countries official government reports, a more legally oriented interpretation. The main conflict line then turned into whether defined benefit pension obligations can be considered liabilities or not. Yet the debate clearly showed that this is a matter of definition. And the basis for the judgment whether a definition is feasible differed for the two groups.

From a sociological perspective, the controversy in the context of pension obligations provides us with the possibility to see the actual nature of the standard setting process: We can see that the process of agreement on statistical conventions can only keep up the technical façade if no disagreement on the resulting impact exists, especially if the statistical impact is low or if there is clear consensus about the requirement. The outcome of the debate clearly shows that a technical compromise on pensions was not

possible and there was a threat that two sets of standards emerged. It was probably due to the negotiation skills of core actors at the OECD that a compromise could be found in the end. However, this compromise left the core dispute actually unsolved. The implementation of the agreed standards is so flexible, that comparability of the figures is crucially endangered.

4.3 Conclusion

The debate about the recognition of pension obligations as liabilities in the System of National Accounts shows that, in contrast to the technical appearance of the discussions, the statistical rules are potentially highly controversial among experts. The pension issue is put on the agenda by some countries that changed their statistical practice on the national level. The obvious trigger for this was that governments in those countries began to recognize their unfunded pension obligations as explicit liabilities in their financial reports. In order to bring *national* data sources in line, the statistical definition of liabilities was extended in Australia, New Zealand, and Canada. This led to problems of comparability at the international level and to the need to adjust the level of gross government liabilities through the OECD in official statistical reports. Australia and Canada both explicitly justified the deviating treatment on the grounds that this would better reflect economic reality and could also be derived from the principles contained in the SNA 1993. It thus becomes explicit that the recommendations of the SNA are not strictly determining the actual statistical practice. The task of producing statistics is inherently an *interpretative* activity.

With the initiation of an update of the SNA 1993, the crucial question for the international statistical community thus became, whether the international standard should be changed to cover defined benefit pension obligations as liabilities, even if they are unfunded. The issue was formally hissed on the agenda by the Canadian statistical office at the OECD and strongly promoted by the IMF. The IMF already started changing the statistical recommendations by altering its own standard, the Government Finance Statistics Manual, which is under its sole jurisdiction. The question for the broader statistical community was then whether SNA should also adopt this recommendation.

The respective discussion is characterized first by rather concordant acceptance that indeed the analytical focus of the SNA should be shifted to study the nature of the pension liabilities. Various justification principles were brought up in the debate. Discussants stressed that the recognition of pension obligations was imperative on the basis of accounting principles, it was necessary to reflect economic reality, it was important for the whole system to be perceived as an adequate tool to analyze economic events, and finally it was stressed that the recognition was important to prepare for the

right decisions of policy-makers and to set the right incentives for pension reforms. From those divergent motifs it becomes clear that any given treatment is well *over-determined* by technical rationalizations.

At the time a respective issue paper containing this recommendation was prepared to be transmitted to the major decision making body, the AEG, statisticians from Eurostat and many EU countries suddenly entered the debate and expressed strong opposition to the proposal. The claims in all four dimensions, measurement principles, aspects of economic reality, the outside perception of the statistical system, and the incentives for policy-making were disputed, thereby making a 'technical' consensus impossible. Reflecting this strong opposition from European countries, the AEG did not take any decisions at first. The position of the expert body remained ambiguous, stressing that in principle the proposal made sense but that there are many reservations for its practical application. At the annual OECD meeting of national accountings experts, two groups emerged, one opposing the inclusion of the estimates in the core accounts, the other being in favor of the respective change. It turned out that the whole debate suddenly left the technical level and was directly linked to wider conceptions of what the role of statistics are, about the epistemological principles, about the legitimization context. In this constellation it was obvious that the numbers mean different things in different contexts. Put generally, the use of the fiscal indicators in the European context brings them into a position where they are somewhat 'official' declarations of the mutually acknowledged deficit figures. The highly political relevance of the figures puts different constraints on the statistical system in terms of measurement reliability, conceptual integrity, transparency, and plausibility of revisions etc. The ability of the statistical profession to measure fiscal indicators in a way that makes them useful in the political context is at stake. In non-EU OECD countries, especially in Anglo-Saxon countries, fiscal accounting moved much more in the direction of accrual accounting. Softer accounting constructs are relied upon, in order to promote the general idea of a managerial decision-making in the public sector, based on quantitative indicators. To a much higher degree recent private sector accounting concepts, and especially a fair-value perspective favored by the IFRS and IPSAS, are endorsed in those countries. At the same time, the deficit figures are much less used in an administrative context but more in a symbolic, softer context of broad economic analysis. As a consequence the debate that took place in the international statistical community was actually one that dealt with the boundaries of the calculative frame. It was debated whether pension obligations should enter the system as liabilities even if they were subject to potential alterations in order to show the impact of political decisions in quantitative indicators. There were obviously very different positions whether those types of obligations should be captured

within the frame of economic statistics or not. It turns out that between different statistical contexts the international standards are often *under-determined*, and the requirements of very different application contexts for economic statistics could not be reconciled on a technical level of negotiation.

So, what was the solution adopted and how was it found? For many reasons a clear compromise between the positions was not feasible. It appears that fiscal statistics cannot deviate too sharply from official government accounts within a given national context and hence the specific national cultural context that underpins the production of fiscal data. The cleavage between countries can thus be explained by the simple observation that in general only those countries for which governments already disclosed official estimates of its defined benefit pension obligations endorsed the recognition in the statistical framework. In contrast countries which lacked such information did not advocate the recognition of such estimates. The crucial question was thus how international statistical standards could bring those two positions in line. The answer finally found through a compromise was: by making the standard flexible! The recommendation of the SNA 2008 essentially claims that all pension obligations should be recorded in a compulsory but supplementary account thereby not affecting core fiscal indicators. In principle government employer schemes are to be recorded in the core accounts but social security pension schemes should remain outside. The crucial regulation is that for those countries, where the boundary between government employer schemes and social security systems is blurry and difficult to draw, the classification should be based on a detailed set of criteria. This introduces a substantial element of discretion in the statistical standard. This discretion will probably be captured in the European context through a quasi-legalistic decision making process that will develop respective criteria and monitor their interpretation. What is more, measurement questions were only partly addressed by the statistical community. The debate touched the issues of the adequate discount rate, the actuarial method, or the projection assumptions but essentially specified that “adequate” indicators should be used and that both, the projected and accrued benefit methods are accepted in the system. At the end of the day the SNA 2008 therefore does not regulate in detail what constitutes fiscal reality.

The whole expert discussion also shows the historical contingency of statistical conventions. In the expert discussions at the end of the 1980s, which led to the SNA 1993, the separation of government employer schemes and social security schemes has already been found difficult in some countries. The experts therefore pondered whether all government employee pension schemes, whether funded or not, should be covered under social security:

“The SNA for the government sector calls for separate treatment of these schemes from the social security schemes. However, in practice it has been found that the SNA distinction was not being followed in many countries, as national accountants found it difficult to make the distinction. Because the government's role as employer and as provider of social security overlaps in many cases, many such schemes are considered a part of social security or indistinguishable from it. This proposal for simplification was justified, therefore, from both a theoretical and practical point of view. It would bring no change in the total of employee and employer contributions and of benefits registered in the SNA for the government sector” (Expert Group 1988a: 14).

We thus see that the same problem, the difficulty of drawing a borderline between social security and government employer pension schemes has already been addressed in the preceding statistical debate. Yet twenty years ago, the problem was solved on a pragmatic basis by simply stating that employer schemes for the government are in many ways like social security schemes. The current debate now disregarded this earlier finding and claimed, again, that employer schemes were essentially different from social security schemes.

It remains that neither the equivalence conventions nor the measurement conventions are derived from technical necessities in the debate. Rather the quantification rules are at the heart of wider political and social reform agendas. What economic statisticians consider as ‘real’ and ‘appropriate’ is potentially controversial. In the case of the recognition of pension obligations the disagreement could, in the end, not really be solved through a compromise. The accrual recording of labor costs, and especially the costs incurred through the installation of defined benefit pension schemes, is highly problematic. The conventions adopted in the form of international statistical standards reflect the ambiguity inherent in the quantification process.

5 Sensitivity Analysis

The previous chapters demonstrated that fiscal statistics cannot be produced in a purely technical manner. Quantification of fiscal events is only possible on the basis of conventions. The analysis of the pension debate and the general epistemology of macroeconomic statistics suggested that, when defining those conventions, statisticians operate under substantial uncertainty and face growing obstacles to establish consensus. What is more, the results show that even if statisticians would unanimously agree on a measurement approach there still is a need to consider whether the specific approach chosen actually permits the use of the resulting data for a specific purpose. We clearly saw that the answers to specific measurement questions were not (only) given on the basis of general principles and axioms but in reaction to specific problem-settings and also to sustain the credibility of the statistical system at large. Moreover, there was a tendency to hide ambiguity or uncertainty within the system, thus suppressing information on the reliability and precision of the data. An important but still open question is thus: Does the content of international standards make any meaningful difference or is the discretionary impact quantitatively rather unimportant? Does the degree of ambiguity and uncertainty or the scope for potentially controversial conventions meaningfully alter the picture of fiscal reality which is presented? Most individual and collective users appear to implicitly assume that the data is feasible for their analytical purposes. This section intends to exemplarily study whether this assumption is indeed always justified.

Building on the example of recognition and measurement of the periodized costs of defined benefit pension schemes in the government sector this chapter will test how the necessary actuarial and accounting conventions impact on government spending figures. To do so I will first set up a stylized model working population and perform a simple sensitivity analysis to show how implicit pension contribution rates depend on forecast parameters, actuarial methods, and the level of the discount rate. A second step is then to apply a set of typical parameter scenarios in the respective dimensions on empirical data. For this I will use disaggregated information on the working population of US federal government civilian employees. The resulting ambiguity-intervals for the implicit pension cost share will then be applied to aggregate wage cost indicators drawn from macroeconomic sources. This allows testing for the impact of the accounting conventions on the level and dynamics of fiscal indicators. The third approach even goes one step further. A semi-empirical model will use data on empirical characteristics of the US federal civilian employees to construct a quarterly time-series of implicit pension contribution rates from 1960-2007. Again the various accounting scenarios will be applied to model the impact of accounting conventions on the pension contribution

rates. Those cost ratios will then be used to compile respective time-series for total government spending. Additional measurement conventions on the recognition of holding gains and losses arising from pension obligations and on capital accounting will be tested (historical and current valuation of capital as well as including or excluding depreciation and gross investment respectively). In total 369 different quarterly time-series will be compiled. The resulting data is then used to reconstruct a typical econometrical model in the field of fiscal policy research, a structural vector auto-regression model testing for the stabilization impact of government spending. The analysis will examine whether the accounting conventions have a significant impact on the model results.

5.1 The Quantitative Impact of Public Sector Accounting Conventions

With the shift to an accrual basis, the notion of government *expenses* and *expenditure* loses its link to current cash outlays. “Accounts payable” for instance bridge the difference between amounts “due” on an accrual basis and payments that have already been made or received (IMF 2001a: §3.42). Those positions typically cover short-term differences between cash outlays and recognized amounts. In addition a number many non-cash entries are related to capital asset valuation and a broader recognition of long-term liabilities. Accountants often stress – typically in defense of the soundness of their principles - that the difference between cash and accrual accounting is essentially one of timing (e.g. Guthrie 1998: 3). In theory both approaches should lead to the same cumulated results over the medium term. While this rightly points out that most accrual accounting principles are eventually linked to (future) cash flows, it is nevertheless misleading. First, given that most accruals are forward looking estimates of future cash flows their predictive precision becomes an important aspect (Dechow/Dichev 2002). Given that some accounting objects’ life span is very long - infrastructure assets are typically depreciated over decades and unfunded pension obligations might be recognized more than 45 years before they become payable – there may be considerable delays before accrual and cash treatments match (Marti 2006: 46). This is especially relevant in the fiscal context where budget responsibility of incumbent politicians lasts only for a limited number of years. Yet accrual accounting also deals with non-cash generating assets and assets that are never sold but used in the production process. This makes many of the monetary entries hypothetical in the terms of foregone revenue or opportunity costs and hence as expenses ‘not made’. Many cost components are therefore linked to cash flows that never occur and are only derived from theoretical or pragmatic principles seeking to establish a virtual and assumption-based value of a transaction. Third, accounting conventions also exert an influence on key indicators through the categorization of receipts or expenditure in operational or non-operational

expenditures and distinctions between financial and non-financial transactions. By grouping a specific event in one of the categories the qualitative result of the financial report may substantially be altered.

What then is the quantitative impact of accrual accounting on public finance indicators? To start with, the possibility to quantify the impact of specific accounting rules is severely limited. The reason for this is simple: Source data is typically collected and aggregated only after the accounting rules have been specified. Criticizing accounting rules on the basis of their impact thus often enters the realm of speculation. It generally presupposes either that the processes of data generation are completely transparent and therefore accessible for methodological critique or there must be a possibility to replicate the data from different sources (Heintz 2007: 79). Both conditions are rarely given in the context of public financial data: Although knowledge on how data is generated is sometimes available – it is scattered and often no systematic view on the concrete steps applied to the raw data is possible. Even within the EU, where Council Regulation 3605/93 requires member countries to provide inventories of the methods and sources they use to compile the national deficit statistics, it is highly challenging to get an overview on how the data are actually compiled¹⁵⁸. In the context of GDP calculation a senior statistician claims that even within a country's statistical office it is not easy to get a respective overview:

“It's very hard to know in one country for one person to know how the GDP is calculated – it is very decentralized and a lot of people are involved. You must make an internal query in the statistical office to find out how people are doing it” (Interview VIII: 263-265)

In principle the effects of accrual accounting on fiscal indicators could be ambiguous. Accrual accounting shifts payments over time. The direction of this impact is twofold: Costs and revenues can either be deferred or moved forward. Future cash expenses can be recognized when incurred (i.e. potentially much earlier) and revenues from revenue sales can be offset by reductions of asset-value on the balance sheet. On the other hand marginal costs of investment can be reduced by delaying cost recognition through capitalization of capital expenditure (Marti 2006: 46). When setting a focus on the main aggregates of public finance analysis accounting rules can –theoretically – have three different impacts: They can either impact on (1) accounted resources on (2) accounted uses or (3) on both aggregates to equal amounts. The ‘drawing of the line’ then decides which of the recorded resources/uses affect the deficit. Following the general sources of ambiguity analyzed in the first chapter, accounting rules first affect the translation of economic events into recorded figures (resource/uses). These records then constitute the

¹⁵⁸ The EDP Inventories can be assessed under:
[\[http://epp.eurostat.ec.europa.eu/portal/page?_pageid=2373,67499807&_dad=portal&_schema=PORTAL\]](http://epp.eurostat.ec.europa.eu/portal/page?_pageid=2373,67499807&_dad=portal&_schema=PORTAL)

base for the presentational impact, i.e. the definition which of the resources/uses counts as revenue/expenditure with an effect on the main balancing line(s).

THE IMPACT OF ACCOUNTING CONVENTIONS ON HEADLINE AGGREGATES

Type	Treatment		Impact on reported Items			Effect over time	
	ABOVE LINE	BELOW LINE	RESOURCES	USES	DEFICIT	TIME-SHIFT	PERMANENT
1(a)	○		●	=	●	○	
2(a)	○		=	●	●	○	
3(a)	○		●	●	=	○	
1(b)	○		●	=	●		○
2(b)	○		=	●	●		○
3(b)	○		●	●	=		○
1(c)		○	●	=	=	○	
2(c)		○	=	●	=	○	
3(c)		○	●	●	=	○	
1(d)		○	●	=	=		○
2(d)		○	=	●	=		○
3(d)		○	●	●	=		○

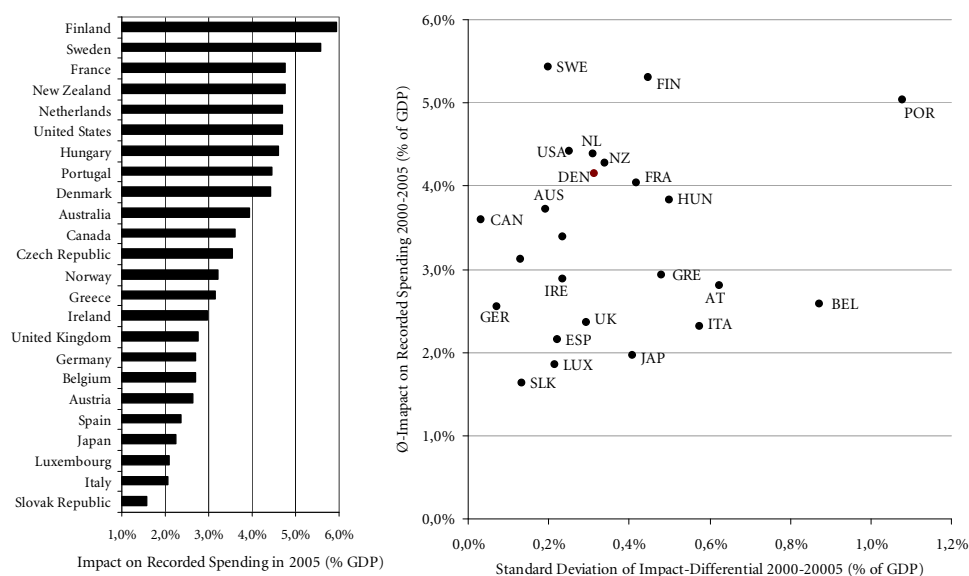
Figure 22: The Impact of Accounting Conventions on Headline Aggregates

To complete the picture we must finally integrate the time-dimension. Some accounting decisions will have a permanent effect on the figures, i.e. they will alter the reported amounts without having a countervailing impact in other reporting periods. Other rules will only lead to a shift of income and expenditure over time thereby leaving the values for a longer time period unaltered. Figure 22 aims to systematize these theoretical types of accounting impacts. The combination of the three basic impacts with the drawing of the line and the dynamic perspective thus leads to twelve different potential effects of an accounting treatment. In order to affect the deficit, for example, a treatment must classify the flow above the line and affect resources and uses in a disproportional manner. This can then have a temporary or a permanent effect on the reported deficit.

An example for the simultaneous increase or decrease of uses and resources, and hence a deficit neutral convention, is the redefinition of the concept of total spending in the government accounts. As was documented before, the national accounts do not directly prescribe any notion of total government spending or revenue. Alternative specifications of the indicator are hence possible. This is evidenced by a change in the respective definition applied by the OECD (Lequiller 2002b). For a long time the OECD compiled total spending based on government consumption as contained in the national accounts. When Eurostat introduced a new definition of total spending for the purpose of deriving government finance statistics from the national accounts, the OECD changed the definition respectively. The core difference is merely one of gross or net

accounting for payments received by the government for services, such as fees or charges.

ALTERNATIVE DEFINITIONS OF TOTAL GOVERNMENT SPENDING



Source: OECD General Government Accounts, own calculations

Figure 23: Alternative Definitions for Total Spending

As Figure 23 shows, this rather minor change in definition affects the level and dynamics of the total spending indicator in meaningful ways. The newly applied gross recording raises recorded spending in 2005 in the Slovak Republic by about 1.5% of GDP and in Finland by nearly 6%. This shows that the level is significantly and differently affected in OECD countries. Moreover, while in some countries the impact difference is rather constant - suggesting that revenues are not very volatile - in other countries, such as Portugal, both the average impact between 2000 and 2005 and the standard deviation of the difference is high. International comparisons of level and dynamics may thus be affected by this seemingly technical redefinition of the spending indicator.

As stated above, other accounting conventions will affect spending and revenue measures differently and hence have an effect on the deficit. This effect can either be permanent or temporary. A broad possibility to assess the scope in which accrual accounting conventions can influence periodized expenditure and revenue figures is to look at the currently recognized production costs in the national accounts, i.e. the amount of non-market production in the respective economies. In contrast to total expenditure indicators as a share of GDP this indicator puts emphasis on production-related costs and thus excludes the often huge amounts of social and economic transfer payments. As Figure A 8 in the annex shows, the importance of non-market production, most of which is the measured general government 'production' activity is between 10 % and 30% of GDP in OECD countries.

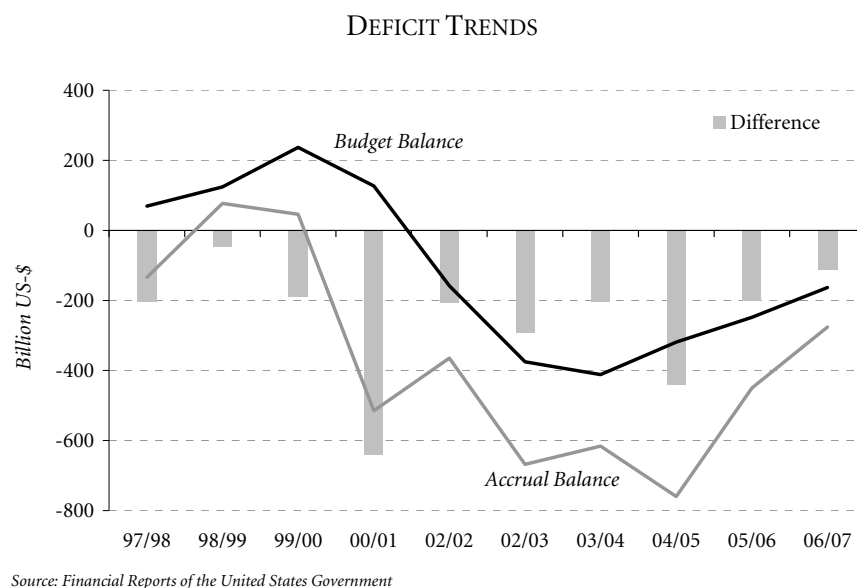


Figure 24: The Unified Budget Deficit and Net Operating Cost in the US

Another broad test of the impact of accrual accounting conventions is to simply compare cash and accrual indicators, as was done already with the analysis presented in Figure 9 on page 81. The US federal government publishes its financial reports since 1997, which allows for an investigation of cash and accrual indicators over time. So how do in practice the accrual components alter the level and dynamics of the deficit? Figure 24 shows the Unified Budget Deficit/Surplus and the Net Operating Cost over fiscal years 97/98 to 2006/07. Two things are noteworthy: First, the accrual balance is constantly below the cash deficit. In two fiscal years, 97/98 and 2000/01, the surplus in the budget is even changed into a deficit. Second, while the lines roughly move in the same direction over the years, the difference between the two lines is significant and varies over time, reaching from less than \$ 50 billion in fiscal year 1998/99 to more than \$ 600 billion two years later. This suggests that while both accounting frameworks will show roughly the same trend over several years, the level and volatility will be sharply different.

Figure 25 displays the year-on-year absolute changes in the respective indicators. Now the two accounting concepts present completely different pictures. In nearly half of the cases the sign of the change is reversed: While the Budget balance improves in fiscal year 99/2000 and 2004/05 the accrual balance deteriorates in the same years. The reverse pattern can be observed in fiscal year 2001/02 and 2003/04. What is more, the magnitudes of the changes are also significant. In fiscal year 2005/06 for instance the difference in the changes amounts nearly to the total value of the budgetary deficit. It follows that when looking only at the surface of accounting conventions, a significant impact can be detected.

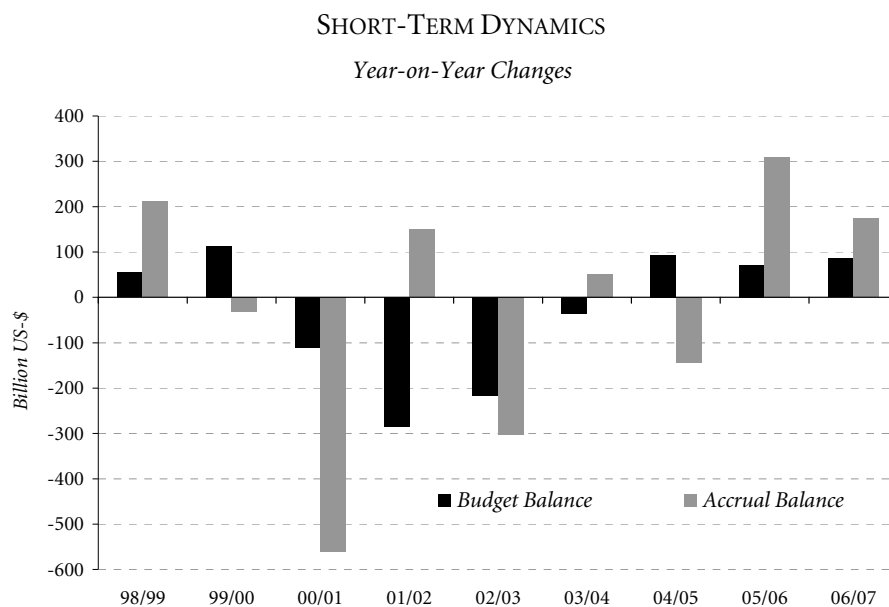


Figure 25: Accounting Dynamics of the Unified Budget and Net Operating Cost

Yet these approaches only allow assessing the impact of a switch to accrual measures under a specific accounting system. The gross difference between the cash and the accrual indicator forms the basis of this analysis. We argued that the transition to accruals is not a simple all or nothing decision, however. In fact the US approach mostly relies on historical valuation of assets, has a specific asset and liability boundary and applies a bunch of specific accounting rules. To evaluate the impact of accounting conventions in more detail it is thus necessary to investigate a specific treatment in more detail. Only then will it be possible to test for the actual discretionary impact of accounting conventions and the respective ambiguity on the data and potentially the conclusions drawn from it. This chapter will now follow this aim by reconstructing the quantitative impact of measurement conventions for government defined benefit pension obligations.

Sporadically some hints on the quantitative impact of accounting rules can be found. The IMF statistics department recently investigated data differences between the institution's country reports and internationally harmonized statistics. The study shows data resulting compiled on national concepts differ often significantly and in highly relevant magnitudes from data based on internationally harmonized concepts (Pellechio/Cady 2005; Pellechio/Cady 2006). Soroka et al. re-estimated functional government spending time series for the UK showing that functional classifications and different aggregation periods fundamentally matter for the dynamics of the time series (Soroka/Wlezien/McLean 2006). A study of the Congressional Budget Office in 1990 found significant impact of alternative operationalizations of the budgetary deficit.

However the study was concerned with the explanation of broad macroeconomic trends and concluded that even under alternative accounting treatments the resulting figure would still be able to explain the observed decline in the national savings rate (Congressional Budget Office 1990). When reading the results from a different perspective, however, the study tells a different story: The investigated adjustments altered the deficit by more than 5% of the gross national product, with a high volatility in individual years (ibid.: 31). It follows that the dynamics and the level of the deficit are substantially altered by alternative measurement conventions.

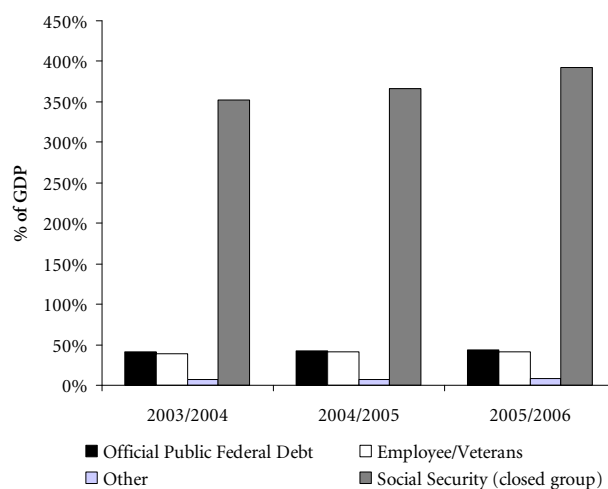
Yet although a number of countries adopted accrual accounting there is only little literature on public sector accruals from a comparative perspective (for exceptions see Lüder 2000; Lüder/Jones 2003b; Marti 2006; Pina/Torres 2003) let alone systematic investigation of the quantitative impact of specific treatments and approaches. An exception is Carlin who uses unit financial reports to assess the impact of accrual accounting practices by comparing public and private sector accounting practices in New South Wales, Australia. His analysis clearly shows that implicit depreciation rates and valuation approaches tend to inflate capital charges in the public sector relative to private sector (Figure A 7 in the annex).

The evidence on the impact of accrual accounting is thus surprisingly thin. Yet the existing evidence clearly suggests that general rules and their interpretation have a major influence on the resulting figures. This chapter now attempts to directly investigate the impact of accounting conventions on key fiscal indicators. The recognition and measurement of the defined benefit pension obligations will serve as the major example.

5.2 The Accounting for Pension Liabilities

For most governments, pension obligations are of fundamental economic importance by *any* measure. The US financial reports contain unaudited estimates for the liabilities incurred for the Federal Old-Age and Survivors Insurance and Disability (OASDI) and the Medicare Program. Based on the actuarial estimates of the Trust Funds' annual reports to Congress, the government financial reports contain estimates of the net present value of predicted future cash flow deficits¹⁵⁹. These projections are based on explicit economic assumptions. Over the 75 year horizon the reports predict expenditures to the public (thus ignoring intergovernmental flows) of \$ 88,354 billion and revenues from the public of \$ 49,498 billion. The estimated net liability is thus \$ 38,754 billion. This dwarfs the 'official' federal debt in 2006 of \$ 4,867.5 billion (Figure 26).

¹⁵⁹ Due to earmarked taxes and contributions the Hospital Insurance (HI) Trust Fund of Medicare and the OASDI Fund currently generate surpluses. The respective reports state, however, that beginning in 2018 (HI) and 2040 (OASDI) the Funds will create a deficit.

(ESTIMATED) LIABILITY POSITIONS OF THE US FEDERAL GOVERNMENT¹⁶⁰

Source: Financial Report of the US Government 2006; OECD Quarterly

National Accounts

Figure 26: Estimated Liability Positions of the US Federal Government

In a similar vein the ECB/Eurostat Task Force on Pensions recently presented first estimates of pension obligations to the CMFB (Eurostat/ECB Task Force on Pensions 2008). The report shows that the inclusion of unfunded pension obligations would significantly increase the level of recorded public debt. With an estimated obligation of 53% of GDP in France interest costs alone would then amount to 1.6% of GDP at a 3% interest rate. Under a steady state regime and a growth rate of 2% the pension costs would then worsen the deficit by another 1.1% of GDP. Even if the accounting recognition of liabilities is constrained to government employer liabilities and thus excluding public pension schemes, pension obligations in many countries amount to significant levels of implicit debt. The specific accounting conventions that determine how those obligations would be recorded in the official fiscal statistics are thus of crucial importance. The previous chapter demonstrated at length that the crucial accounting questions are *whether* an estimate of future pension obligations should be included in the framework of fiscal statistics and *how* this value should be compiled theoretically and practically. Any amount of the promised benefits that has not yet been paid to the employee or a separated pension fund could in principle be considered a liability. The following section discusses which measurement conventions are necessary to compile the periodized implicit pension costs arising from defined benefit pension schemes.

¹⁶⁰ The estimated Social Security Obligations refer to the 75-year horizon and display the net present value of expected outlays less expected earmarked revenues and existing assets. The GDP for the fiscal years has been compiled as the average of the annualized respective quarterly amounts.

5.2.1 NECESSARY ACCOUNTING CONVENTIONS

The decision to recognize pension obligations is only the first step on the way to an accounting figure: The amount to be recorded still needs to be estimated and attributed to a specific period. The measurement process generally consists of three steps: (1) First, the expected future cash flows of the benefits need to be estimated; (2) Second, the share of additional rights earned *in* and hence attributed *to* the current accounting period needs to be defined; (3) the thus ‘earned’ benefits need to be discounted to the current period and interest costs imputed for the obligations already accrued at the beginning of the period.

5.2.1.a Cash Flow Projection

The first necessary step is the prediction of future cash flows of the defined benefit pension plan. The actuarial practice emerged out of the need to compile the periodized *funding* requirements for such schemes. As a matter of principle all “feasible funding strategies must satisfy the following general funding equation: Current value of the fund + Expected present value of future contributions = Expected present value of future benefit outgo” (Booth 2005: 579). To compile the present value of the expected benefit outflows of a scheme it is necessary to estimate the cash outflows on an individual or an aggregate level. This requires a bunch of assumptions related to various individual characteristics of the employee, the features of the pension system, and some general parameters derived from demographic projections (European Actuarial Consultative Group 2001). In practice additional assumptions on salary increases, promotion-patterns, and benefit increases are often applied. All those parameters bear some scope for discretion¹⁶¹. The projection parameters provide room for optimistic or pessimistic assumptions.

Put generally, the pension cash flows are compiled on the basis of the retirement age (T_R), the survival probability until year t in retirement (p_t) and the benefit (b_t) to be received in year t . To compile the undiscounted sum of the pension cash flows (P) over the whole retirement period one needs to weigh the expected cash benefits with the probability of payment:

$$P = \sum_{x=1}^{100-T_R} P_{T_R+x} * b_{T_R+x}.$$

The present value of those cash flows at the time of retirement can then be computed on the basis of a discount rate (r), yielding the pension annuity (PA):

¹⁶¹ A simple extrapolation of past trends might be considered feasible, yet this is not automatically the most reasonable approach, since the projection period is sometimes 40 years and obviously much can change over such a long period.

$$PA = \sum_{x=1}^{100-T_R} \frac{P_{T_R+x} * b_{T_R+x}}{(1+r)^x}.$$

The projection of the cash flow thus depends on the pension entry age, the survival probability, and the level of the benefits. The benefits themselves are again a matter of projection, given that for final-salary plans they will depend on future payment rises due to promotions or increases in the general wage level. Moreover, the benefits themselves will most likely increase and possibly be adjusted for changes in the cost of living. It follows that various parameters contribute to the prediction of future cash flows.

The compilation of actuarial estimates for pension obligations occurs typically not at free discretion of plan sponsors or actuaries. Historically the actuarial practice has been influenced via regulation of funding requirements (Pugh 2006: 6ff.): First tax authorities were concerned with constraining the maximum amount for tax-deductible contributions, later social and labor ministries became concerned with securing the claims of plan members and minimum funding requirements were introduced. Country regulations vary widely as regards the assumptions for the estimation process, however (European Actuarial Consultative Group 2001). It is obvious that through various ways of regulating the parameters which enter the estimation process either higher or lower benefit outflows are predicted. In the case of the projection of future cash-flows, ex-post verification of the methods would in principle possible – even though in practice only after very long periods and subject to constancy of the underlying conditions. Accounting figures must necessarily start from actuarial estimates of future benefit payments.

5.2.1.b *Accrual Methods*

The thus projected cash flows then need to be attributed to individual service years of the employee. Actuarial standards denote the present value of the projected benefits allocated to a specific accounting period as “normal cost” (Actuarial Standards Board 2007: 3). It is important to note here that various funding methods, ranging from ‘pay-as-you-go’ to complete up-front funding for current employees is feasible to ensure funding for the predicted benefits (Booth 2005: 579). It is hence not from funding practices that the annual costs of a pension scheme can be directly derived.

For the task of attributing the incurrence of pension obligations to specific periods over the career, different approaches have been applied in the actuarial practice. To simplify matters, I will only briefly describe the three most typical approaches: The current unit credit (CUC) method allocates the pension benefits earned on the basis of current salary levels and service years, and attributes an equal share of this liability to every year of service (unit credit). Whenever salaries increase, the estimated benefits rise respectively, not only for the current service year but also retroactively for past years of employment.

The projected unit credit (PUC) method in contrast projects future salary levels and hence anticipates the future level of the final wage that is used to compile the final benefits at the time of retirement. Again, a unitary charge for every expected service year is compiled. As a result, the PUC method leads to higher upfront recording of annual costs as compared to the CUC method. Finally the entry age normal (EAN) method also predicts the future levels of salary, but does not attribute a unit credit. Instead annual contributions are calculated in such a way that a constant level share of the respective salary will be withdrawn over the whole service period.

THE ACCRUAL PATTERN OF ACTUARIAL METHODS – NORMAL COSTS

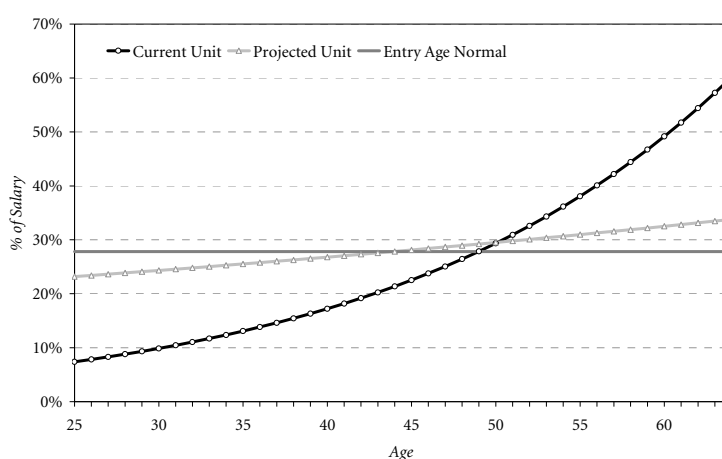


Figure 27: Actuarial Approaches - Normal Costs

Figure 27 displays a stylized example of respective contribution rates for a final salary plan. The difference in the three actuarial methods is that under CUC the contribution rate will be lower initially but increase significantly over the employee's lifespan. This reflects the fact that any salary increases in one year will increase the total claims that have been accrued in the past, since in the benefit formula a higher wage will be used to compile the benefits. What is more, the hence credited amount of the estimated obligation is discounted by one less period. This difference can be seen when comparing CUC to PUC. Here any future increases of benefits are already included in the estimation. The annual charge still increases over the employee's working life, following the decrease of the discount factor. Finally, the EAN method also accounts for service rendered in the future periods and hence allows keeping the contribution rate constant over the whole career.

Figure 28 shows the accrual of total costs (including imputed interest charges for previously accrued obligations). Again, CUC is flatter at the beginning and steeper towards the end of the career. PUC and EAN are rather similar, the difference being that

EAN already anticipates future service years and hence front-loads the provision of the benefits.

THE ACCRUAL PATTERN OF ACTUARIAL METHODS – TOTAL COSTS

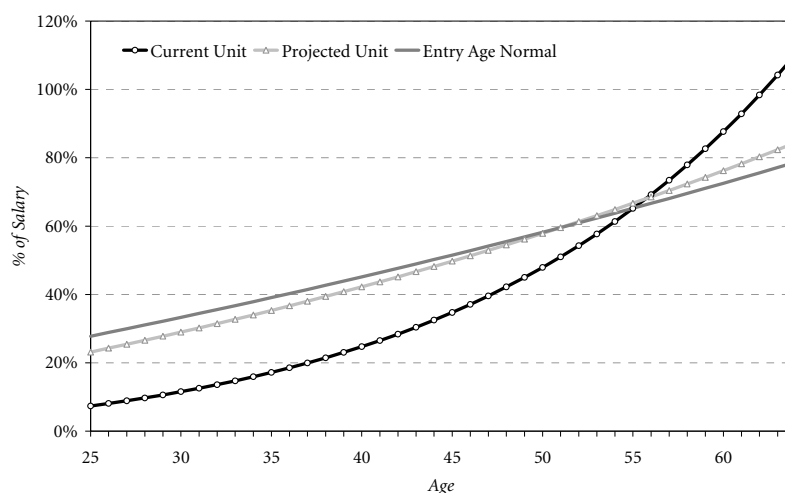


Figure 28: Actuarial Approaches - Total Costs

From an analytic point of view all three methods can be justified: the EAN method can claim that the implicit pension supplements should be proportional to the wages paid. The CUC method does correspond more closely to the benefits actually earned up to the accounting period - future salary increases are *future* events that have not yet occurred. The PUC method could claim that it is a more “realistic” approach on how the pension claims actually accrue, since both the employee and the employer probably anticipate the increases of the salary. While accounting standards seem to converge towards the PUC method (Pugh 2006) this is not a purely logical choice, though¹⁶². The PUC anticipates future salary rises, which is justified in the economical and accounting literature through the assumption that there was an implicit contract between the employer and the employee for endured occupation. However, there are also critical voices stressing the one-sided risk of losing benefits that employees actually encounter through these accounting methods, suggesting that instead an orientation towards claims actually earned, and hence the CUC, would be more feasible (Gold 2003). If the attempt is to really measure the claims accrued up to the reporting date, as is contained in the liability definition of accounting standards, it can well be argued that future salary increases should not be taken into account. At the same time proponents of the EAN method can claim that effectively the distinction between individual amounts in single

¹⁶² The international standards recommend the PUC method (IASB 2006) while the FASAB prescribes the EAN method, but allows for reasoned departures (FASAB 1995: §64). The GFSM 2001 does not specify the method at all, and the SNA 2008 will effectively allow all three approaches (ISWGNA 2008a: §17.170-17.176).

years is arbitrary and if one considers the whole incurrence to be a continuous event, a constant wage share could be seen as a convincing alternative. It follows that on theoretical grounds it is not possible to disentangle between the three selected methods.

5.2.1.c Discounting the Obligations

Once the future benefits have been estimated and the share that is to be attributed to the current year is determined, the future cash flows need still to be discounted to the present period. Hence, the third step of the measurement process is the choice of an adequate discount rate. The discount rate affects the annual cost in two ways: First, it is used to derive the *normal cost* in present value terms, which is part of the recorded labor costs. Second, the liabilities already accrued at the end of the last accounting period are deemed to generate investment income, reflecting the roll-back of the discounting procedure. Hence, the interest rate is also used to compile an imputed property income on the outstanding liabilities.

TYPICAL ACTUARIAL ASSUMPTIONS IN SELECTED EUROPEAN COUNTRIES

Country	Discount Rate	Salary Increase	Inflation
Austria	6%	2-5%	2.2 - 3.0%
Belgium	2-3,5%	2.5-4%	1.5-2.5%
Germany	6%	0%	0%
Finland	3.5-4.25%	0%	0%
Ireland	2-3%	5%	3%
Netherlands	4%	0%	0%
Sweden	3,75%	0%	0%
United Kingdom	2-3%	4,5%	3%

Source: European Actuarial Consultative Group 2001

Table 7: Country Variance between Actuarial Assumptions

The choice of the discount rate is, again, subject to discretion: For funded schemes one could argue that the expected return on the assets should be used. The actuarially determined contributions would then in theory suffice exactly to provide the expected cash outflows. Alternatively one could claim that they should reflect the “time-value of money”. But this again could be derived purely theoretically or operationalized through the financing costs, such as a long-term government bond interest rate. If the latter concept is chosen, there is the problem of which rate to choose, though: The interest rate at the end of the accounting period, the middle of the period, an averaged value, or an expected future value. The FASAB for instance prescribes that the discount rate should be based on an “estimated long-term investment yield for the plan [...] or if the plan is not being funded, other long-term assumptions”¹⁶³ (ibid.: §66) and hence leaves room

¹⁶³ The discount rate does indeed play a crucial role in the annualizing of pension costs. In the financial reports of the US government a special section is devoted to the estimation of benefit liabilities of the

for discretion. A comparison of the values employed by the actuaries in different countries reveals that in fact very different assumptions are made in this respect (see Table 7).

Another important component of actuarial approaches is the treatment of gains and losses (Dreher 1960) due to changes in the present value of outstanding obligations, following movements in the discount rate. There is an inherent trade-off between recognizing market values and “best-estimates” for all relevant parameters and prices, and approaches towards smoothing the values in order to avoid volatility of reported values in face of unstable market conditions.

In practice discount rates are hence controversial along two dimensions: First, the amount of risk covered in the interest rate, ranging from fixed-income high security interest rates reaching to actual or hypothetical asset portfolios including a substantial risk premium on returns. Some experts sharply criticize the current practice of including a risk-based equity return without taking the “price” of risk into account (Gold 2000). The risk spread in the discount rates can be substantial, however. Second, either observable current (market) values can be used or some type of expected longer-term return with the effect of smoothing the estimates towards long-term trends. It is not clear and heavily contested which concept comes closer to “economic reality”.

To summarize, cash flow projections of the defined benefit pension claims require assumptions about mortality, the pension entry age, inflation, wage growth, and increases in the benefits once in retirement. The actuarial profession developed different approaches to account for pension costs. All aim to ensure full funding of the pension obligation. From an accounting perspective it is not clear which method shows the periodized costs of the accrual of pension commitments incurred. Finally, the choice of a discount rate is necessary to derive the periodized normal costs and the imputed property income. Both the theoretical idea of what the respective accounting rate represents and how it should be operationalized leaves substantial discretion at the level of implementation. Choices in all three dimensions can thus be seen as leading to either optimistic or pessimistic scenarios, since they differently affect the overall level and dynamics of implicit pension contributions for defined benefit schemes.

5.2.2 QUANTIFICATION OF THE IMPACT

The costs which are recognized annually (or quarterly) for defined benefit pension schemes thus depend on a number of accounting conventions: First, different

department of veteran affairs (VA). The VA bases the estimation of benefit obligations on the end of period long-term bond rate, whereas other departments work with an explicitly assumed interest rate. As a consequence the former interest rate is more volatile and the report stresses that the changes in the actuarially estimated costs accounted for substantial part of the fluctuations in reported operating costs (US Department of the Treasury 2007: 23).

parameters need to be assumed to allow a prediction of expected future cash flows. Second, an actuarial method needs to be chosen to attribute the incurrence of the respective benefit obligations to individual accounting periods. Thirdly, the accordingly derived periodic increase in the obligations needs to be discounted to the present period by defining a relevant discount rate. In addition the treatment of actuarial gains and losses resulting from changes in the parameters needs to be selected. Choices in all three dimensions have essentially a conventionalist character. Therefore accounting decisions have a discretionary impact on the presentation of government finances. This section now attempts to study how big this impact is in the quantitative dimension. It does so in two different ways: First, a simple working population model is developed that allows for the calculation of periodized pension contribution rates subject to different parameters and approaches. Second, using data from the *FedScope* database for US federal civilian government employees the implicit annual pension costs are compiled empirically for the years 1998-2007 using various scenarios for key parameters.

5.2.2.a A Model Based Approach

The easiest approach to evaluate the impact of measurement conventions on periodized pension expenditure is to construct a simple model working population. This allows for a stylized derivation of accounting costs under varying measurement approaches holding the empirical characteristics of the population constant. The following analysis is based on a simple model structure: It replicates a defined-benefit pension scheme based on a final salary¹⁶⁴ plan. The benefit formula attributes 2% of the final salary per year of service up to a replacement rate of 80%. The employees are assumed to enter the workforce at the age of 25 and to retire when they turn 65. For the sake of simplicity early and deferred retirement options and gender differences in mortality are disregarded. The scheme is assumed to be mature (hence there are members of all ages) and all cohorts are of equal size (assuming no demographic change). The demographic data is based on the gender-neutral mortality rates of the US life tables from 2003. It is assumed that all current employees will reach their retirement age. The annual normal and interest costs using the three different actuarial approaches (CUC, PUC, EAN), discussed in the previous section, are then compiled. I further studied the partial impact of variations in the assumed discount rate, the salary increase rate, and the benefit increase rate¹⁶⁵. The EAN normal costs are compiled as

¹⁶⁴ The final salary is defined as “high 3” salary, i.e. it constitutes the average salary of the three years with the highest salaries over the career. This typically corresponds to the final three years of service.

¹⁶⁵ This approach thus disregards the prediction of effective retirement ages, does not consider any special aspects, such as turn-over rates, early retirement, and does not model demographic change.

$$EAN_{NC}(t) = S_t \frac{PA_{EAN}}{(1+r)^{T_R-T_E}} * \left(\sum_{x=T_E}^{T_R} \frac{S_x}{(1+r)^{x-T_E}} \right)^{-1}$$

where EAN_{NC} denotes the constant share of the individual salary that will be expensed over the whole working life for the respective employee, T_E denotes the age of entry in the working population, and S_x the predicted salary in the respective year¹⁶⁶. The PUC normal cost is compiled as

$$PUC_{NC}(t) = \left[\frac{PA_{PUC}}{T_R - T_E} \right] * \frac{1}{(1+r)^{T_R-AGE}},$$

where AGE is the employees current age. The matter is slightly more complex with the CUC method, since the pension annuity now changes with promotion or seniority related increases in the wage level. Hence the pension annuity receives an index t:

$$CUC_{NC}(t) = \left[\frac{PA_t + (PA_t^{CUC} - PA_{t-1}^{CUC}) * (AGE - T_E)}{T_R - T_E} \right] * \frac{1}{(1+r)^{T_R-AGE}}.$$

The crucial variable that remains to be calculated is now the benefit-path. It depends on the assumptions about the salary increases and increases of the benefits themselves. The benefit in year t (starting from the current age) is compiled as

$$b_t = S_{H3} (1+n)^{T_R-AGE} * PF * (1+m)^{t-T_R}$$

where PF is the pension factor expressing the replacement rate with respect to the high-3 salary¹⁶⁷, n is the wage growth rate, and m the benefit increase rate. The three accrual methods also yield different levels of outstanding liabilities necessary to compile the property income on the individual level. Under all three methods the outstanding obligations can be derived as the cumulated past contributions plus the property income accrued so far. For the PUC method the outstanding obligations can be compiled as

$$PUC_{OB}(t) = \left[\frac{T_S}{T_R - T_E} \right] * \frac{PA_{PUC}}{(1+r)^{T_R-AGE}}$$

with T_S denoting the service years rendered so far (thus AGE - T_E). For the CUC method the same formula applies, the sole difference being that the pension annuity is based on the current salary and benefits are assumed to be constant:

$$CUC_{OB}(t) = \left[\frac{T_S}{T_R - T_E} \right] * \frac{PA_{CUC}}{(1+r)^{T_R-AGE}}.$$

¹⁶⁶ To make these calculations accurately it would have been necessary to model individual level historical earnings. To derive the EAN implicit contribution share an assumed value of the empirical wage growth was used to backward calculate the entry wage level.

¹⁶⁷ To compile the high-3 salary the arithmetic average of the last three predicted salaries (or the current wage corrected for the impact of the wage increases in the past 3 years, respectively) has been compiled.

For the EAN the obligations accrued are composed by the contributions paid so far over the service period on the basis of constant wage-share contribution rates and the respective salaries. To account for the additionally accrued property income the cumulated net present value of the past contributions is calculated (\bar{c}_{EAN} denoting the EAN contribution rate):

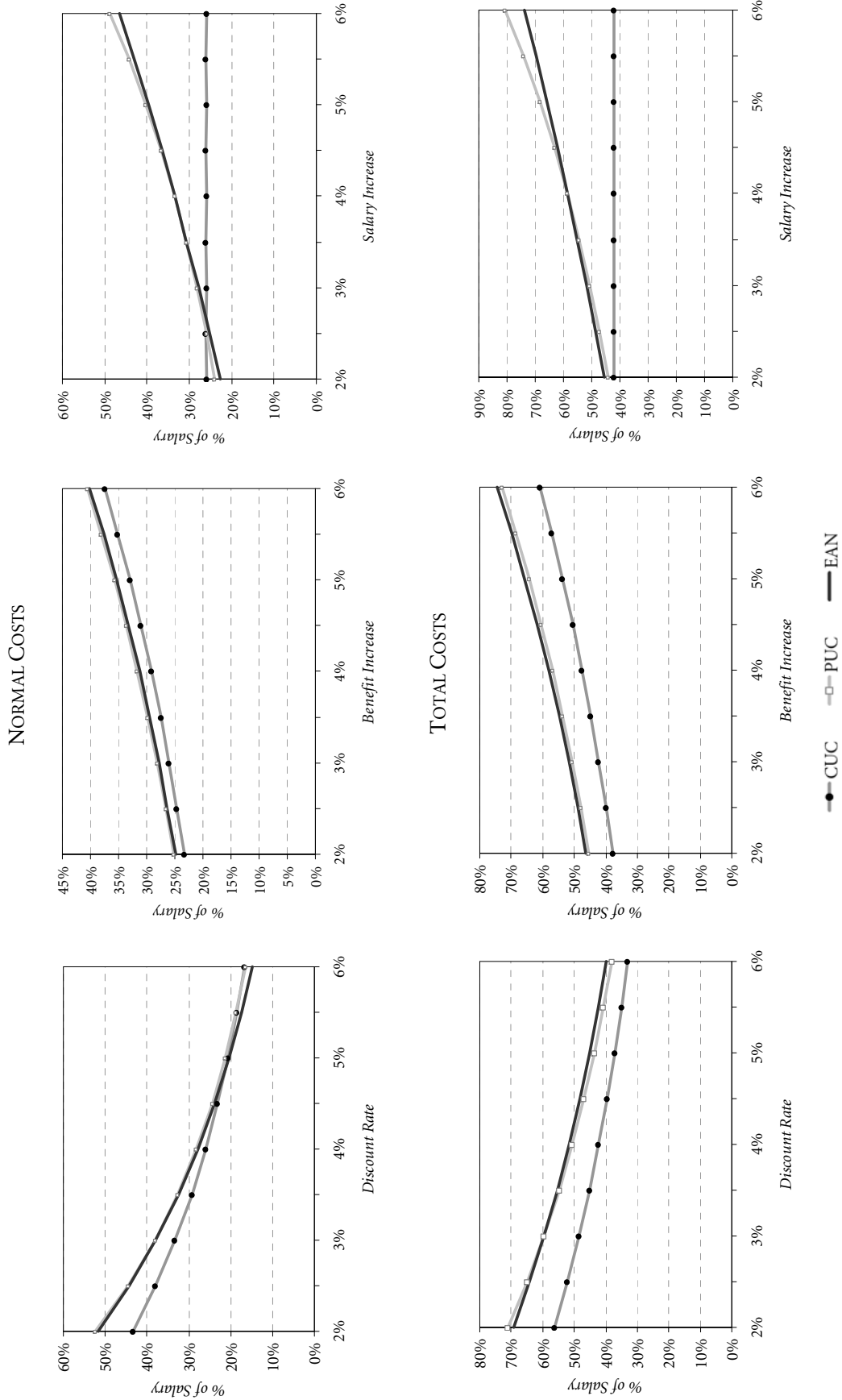
$$EAN_{OB}(t) = \sum_{x=1}^{T_s} \left(S_x * \bar{c}_{EAN} * (1+r)^{T_s-x} \right)$$

Starting from the outstanding liabilities the period specific interest costs can be compiled and hence together with the normal costs the total costs at the individual level. The model then summarizes the individually derived normal costs and interest costs and expresses them as a share of the total wages paid in the respective period. For the sake of simplicity no seniority effect is assumed in the simple model – thus there are no age-specific differences in the general wage level¹⁶⁸.

The results are striking: The normal cost and total cost contributions vary substantially between the values assumed in the three dimensions. The accrual methods, the values for the discount rate, and the benefit and salary increase rates all substantially alter the pension contribution rates. The discount rate has a negative impact on normal and total costs. It is negative since future benefits count less in current money terms: a change of 0.5% points from 2 % to 2.5% reduces normal costs by nearly 8% of the salary and total costs by 6% for the PUC method¹⁶⁹. Both, salary and benefit increases have a significant positive effect on the accounted costs. Normal costs are 26.3% of current wages for EAN with an assumption of 2.5% of benefit increases and 31.3% at an assumed growth rate of 4%. Total costs rise in the same interval from 48.9% to 58.1%. While the difference between EAN and PUC is in all cases rather small, the difference between the two and the CUC method is remarkable. Especially for total costs the estimates are about 10 percentage points lower. Since the CUC does not depend on the assumption of future salary increases, but rather on the current realization of wage increases, the partial impact curve is flat. This leads to enormous differences between the three actuarial methods, the higher the salary increase assumption is.

¹⁶⁸ The respective modifications have been employed in the mode but resulted only in minor changes of the data.

¹⁶⁹ The effect on total costs is comparatively smaller since a higher discount rate also leads to higher imputed interest payments.



Notes: EAN – Entry Age Normal method; CUC – Current Unit Credit method; PUC – Projected Unit Credit method. The simulation is based on an equally distributed working population that enters the work force at the age of 25 and retires at 65. Gender-neutral mortality is based on US Life Tables 2003. Mortality data is only used to compile the pension annuity factor, i.e. during working life. Mortality is assumed to be zero. The simulation is based on a defined benefit pension scheme with an accrual rate of 2% per service year and a maximum replacement rate of 80%. For the simulation of the respective parameters the other variables were held constant at 3% (benefit increase and salary increase) and 4% (discount rate). To compile the CUC method an empirical wage increase in the current year of 2% was assumed. For the EAN method, the assumed salary increase factor was assumed to equal the actual average wage increase so that the constant share contribution rate could be compiled for the entry age of all cohorts. No actuarial gains or losses have been considered.

Figure 29: Results of the Model Based Approach

5.2.2.b *The Empirical Assessment*

The model calculations demonstrate that the measurement approach and assumptions can have a profound impact on the implicit contribution rate for defined benefit pension schemes. This section now studies the magnitude of this impact in the aggregate, when the different approaches are applied to actual data. Contrary to the simplifying assumptions of the model, the demographic structure in the working population is now derived directly from empirical data and hence changes over time. Moreover, people enter the work force at different ages, and wage levels vary between different subgroups. Also, gender-specific mortality is taken into account.

It would be necessary to have access to individual level data to derive the exact actuarial costs. This data is of course not publicly available. Nevertheless the US Office of Personnel Management (OPM) publishes employment statistics on a reasonable level of detail to allow an empirical calculation. The respective information was extracted from the *FedScope* database¹⁷⁰ reflecting the status at the end of the fiscal year (the September edition). The data was organized according to subgroups by *gender, work schedule, salary level, occupation, type of appointment, and length of service group*. The data content gathered for the respective categories was *number of employees, average salary, and average service years*¹⁷¹. The analysis only considers full-time permanent employees; part-time and temporary workers and people older than 65 were disregarded. The data set finally consisted of 3594 observations, containing data on the age, gender, service years, number of employees in the respective group, and the total salary in the group, all available over the years 1998-2007.

To compile the implicit pension contribution rates for the respective fiscal years some additional assumptions were necessary. First, for the sake of simplicity the overall retirement age was assumed to be 65 for all employees¹⁷². Since age-information was only available in five year steps, all members of an observational unit were assumed to have the middle age of this group (e.g. 22 for the age group 20-24). To model the characteristics of the defined benefit pension scheme, the regime change in the 1980s has been taken into account. Two different formulas were applied. For employees having

¹⁷⁰ [<http://www.fedscope.opm.gov/employment.asp>] assessed at November 10th 2007. The FedScope database provides data based on the Central Personnel Data File (CPDF) of the OPM. This file covers Federal civilian employees, but excludes a number of executive branch agencies, the judicial branch and coverage of the legislative branch is limited to the Government Printing Office, the US Tax Court, and other selected commissions.

¹⁷¹ The earnings variable is composed of up to 18 categories; age consists of eleven categories; occupation, contract, and gender (of course) of two categories. The extraction of earnings and service years twice, by category and average value allowed for a more precise description of subgroup characteristics. The average number of employees in each group is only 141 and is considered to be a reasonable approximation to individual level data for the purpose of this study.

¹⁷² Likewise vesting periods were not taken into account and hence no amortization of prior normal costs was modeled. Instead pension contributions were assumed to accrue right from the beginning of the individual's career. Moreover, there are specific retirement benefit rules for some employment groups such as firefighters. Those were not considered, but rather a standard stylized version of the defined benefit pension scheme was assumed to cover all employees.

started government service up to 1984 the benefit formula of the old system was applied. For those having started since 1985 the new formula was used. The older scheme's benefit formula attributes 1.5% for each service year up to the fifth, 1.75% for year 6-10 and 2% thereafter up to a maximum of 80%. The new system attributes 1% for every service year up to a maximum replacement rate of 40%.

EMPIRICAL IMPLICIT PENSION CONTRIBUTION RATES

Scenario	benefit growth (%)	wage growth (%)	interest rate	method	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
A 1	0	3	SEP	CUC	13.0%	12.1%	13.7%	13.7%	14.1%	14.3%	14.2%	15.1%	13.9%	12.8%
				PUC	13.2%	12.4%	13.2%	13.9%	13.9%	13.7%	14.0%	14.8%	14.2%	12.9%
				EAN	13.6%	12.9%	13.6%	14.3%	14.0%	13.8%	14.1%	14.9%	14.2%	12.9%
A 2	1.5	4	SEP	CUC	15.0%	13.8%	15.7%	15.7%	16.3%	16.4%	16.4%	17.4%	16.0%	14.8%
				PUC	17.2%	16.0%	17.0%	18.0%	17.9%	17.6%	18.0%	19.1%	18.2%	16.4%
				EAN	17.6%	16.6%	17.5%	18.3%	18.1%	17.7%	18.2%	19.2%	18.2%	16.5%
A 3	3	5	SEP	CUC	17.4%	15.9%	18.1%	18.2%	18.9%	19.1%	19.1%	20.3%	18.6%	17.2%
				PUC	22.7%	20.9%	22.2%	23.4%	23.5%	22.8%	23.5%	25.0%	23.6%	21.3%
				EAN	22.8%	21.4%	22.6%	23.6%	23.4%	22.9%	23.5%	24.9%	23.5%	21.3%
B 1	0	3	APR	CUC	11.9%	12.9%	13.6%	13.4%	12.7%	14.6%	13.8%	14.7%	13.6%	12.7%
				PUC	12.2%	13.2%	13.2%	13.7%	12.8%	13.9%	13.7%	14.6%	13.9%	12.8%
				EAN	12.7%	13.6%	13.6%	14.0%	13.0%	14.1%	13.8%	14.6%	14.0%	12.8%
B 2	1.5	4	APR	CUC	13.6%	14.8%	15.6%	15.4%	14.6%	16.9%	15.9%	17.0%	15.6%	14.6%
				PUC	15.7%	17.1%	17.0%	17.6%	16.3%	17.9%	17.6%	18.8%	17.8%	16.3%
				EAN	16.3%	17.5%	17.5%	18.0%	16.6%	18.1%	17.7%	18.8%	17.9%	16.4%
B 3	3	5	APR	CUC	15.7%	17.1%	18.0%	17.8%	16.9%	19.6%	18.5%	19.8%	18.1%	17.0%
				PUC	20.6%	22.4%	22.2%	23.0%	21.1%	23.4%	22.8%	24.5%	23.0%	21.1%
				EAN	21.0%	22.7%	22.5%	23.2%	21.4%	23.4%	22.8%	24.4%	23.0%	21.1%
C 1	0	3	12M	CUC	11.8%	12.9%	13.2%	13.5%	13.2%	14.7%	13.9%	14.7%	13.9%	12.7%
				PUC	12.1%	13.2%	12.8%	13.7%	13.1%	14.0%	13.7%	14.5%	14.2%	12.8%
				EAN	12.6%	13.7%	13.3%	14.1%	13.4%	14.1%	13.9%	14.6%	14.2%	12.8%
C 2	1.5	4	12M	CUC	13.5%	14.8%	15.1%	15.5%	15.1%	17.0%	16.0%	17.0%	16.0%	14.6%
				PUC	15.7%	17.2%	16.5%	17.7%	16.9%	18.0%	17.6%	18.7%	18.2%	16.3%
				EAN	16.2%	17.6%	17.0%	18.1%	17.1%	18.2%	17.8%	18.8%	18.3%	16.4%
C 3	3	5	12M	CUC	15.6%	17.2%	17.4%	17.9%	17.5%	19.7%	18.5%	19.8%	18.7%	17.0%
				PUC	20.5%	22.5%	21.5%	23.0%	21.9%	23.5%	22.9%	24.4%	23.7%	21.1%
				EAN	21.0%	22.8%	21.9%	23.3%	22.0%	23.5%	22.9%	24.3%	23.6%	21.1%
D 1	0	3	6%	CUC	11.8%	12.2%	13.4%	12.9%	12.5%	13.1%	12.7%	12.7%	12.3%	11.3%
				PUC	12.1%	12.5%	13.0%	13.2%	12.5%	12.8%	12.8%	12.9%	12.8%	11.6%
				EAN	12.6%	13.0%	13.4%	13.6%	12.8%	13.0%	13.0%	13.1%	13.0%	11.7%
D 2	1.5	4	6%	CUC	13.4%	13.9%	15.3%	14.7%	14.3%	15.0%	14.6%	14.6%	14.1%	13.0%
				PUC	15.6%	16.2%	16.7%	16.9%	16.0%	16.2%	16.3%	16.4%	16.2%	14.7%
				EAN	16.2%	16.7%	17.2%	17.4%	16.3%	16.5%	16.5%	16.6%	16.4%	14.8%
D 3	3	5	6%	CUC	15.5%	16.0%	17.7%	17.0%	16.5%	17.3%	16.8%	16.8%	16.3%	15.0%
				PUC	20.4%	21.1%	21.7%	22.0%	20.7%	20.9%	20.9%	21.0%	20.8%	18.7%
				EAN	20.8%	21.5%	22.2%	22.4%	21.0%	21.2%	21.1%	21.3%	21.0%	18.9%

Notes: The calculation was based on three scenarios with different assumptions for the benefit growth and salary growth of 0%/3% (scenario 1); 1.5%/4% (scenario 2), and 3%/5% (scenario 3). Four different operationalizations for the interest rate were employed. First, the 30 year government bond rate of September (end of fiscal year); second, the government bond rate of April (~mid of fiscal year), the 12 month average until September, and a fixed rate of 6%.

Table 8: Implicit Pension Contribution Rates 1998-2007

The compilation of the annual costs was again performed for all three different actuarial methods. To account for the current wage increase under the CUC method, empirical salary increases were compiled based on the total salary per full-time employee¹⁷³. Moreover three different scenarios for assumptions on the benefits and salary increase were employed. Scenario 1 assumed no benefit increase and a salary increase rate of 3%; scenario 2 assumed a benefit growth of 1.5% and wage growth of 4%, scenario 3 used values of 3% and 5%, respectively.

The discount rate was operationalized in four different ways: The first approach was to take the end of fiscal year 30 year bond rate¹⁷⁴ (month of September), the second was to take a mid of period discount rate (April), the third approach was to take the average monthly rate, a fourth to use an average over the past 2 years, and finally a fixed discount rate of 6% was employed. Again the empirically derived normal and interest costs were aggregated for all cohorts and employees and expressed as a share of total salaries. The costs compiled thus only reflect the estimates of pension obligations incurred for current federal civilian government employees covered by the *FedScope* database.

Table 8 shows the different implicit contributions rates which resulted from the compilation. We clearly see that between the scenarios and actuarial methods the implicit contribution rate varies substantially. While the CUC method in most cases yields the lowest contribution rate, the EAN method leads nearly always to the highest share. The same actuarial methods yields very different implicit contribution rates, depending on the specific accounting scenario. For instance the EAN cost share in 1998 increases from 13.6% of total wages in scenario A1 to 22.8% in scenario A3. The discount rate operationalization also leads to some, although not very large variation.

Figure 30 displays the differences graphically. The time series for four randomly selected scenarios show substantially different levels, with the PUC method under scenario C3 showing contribution rates of nearly one quarter of wage costs and the EAN method under scenario A1 wandering around 14% of salary. What is more, the compiled implicit contribution rates show substantially different volatility and dynamics. Reflecting the long-term predictive approach the EAN turns out to be very stable, but the PUC under scenario D3 is rather flat, too. The CUC method shows some significant jumps between 17% and nearly 20% in fiscal years 2002 and 2003.

¹⁷³ This method does not correct for differences in the actual working time and cannot control for the effect of overtime hours. However data on full-time-equivalent employment was not available for all years.

¹⁷⁴ The data on the monthly 30 year government bonds stems from the federal reserve assessed under [<http://www.federalreserve.gov/releases/h15/data.htm>]. Between 03/2002 and 01/2006 no 30 year government bonds were issued. For this period the respective 20 year government bonds were taken adjusted by a factor published by the US Treasury available at: [www.treas.gov/offices/domestic-finance/debt-management/interest-rate/ltcompositeindex_historical.shtml].

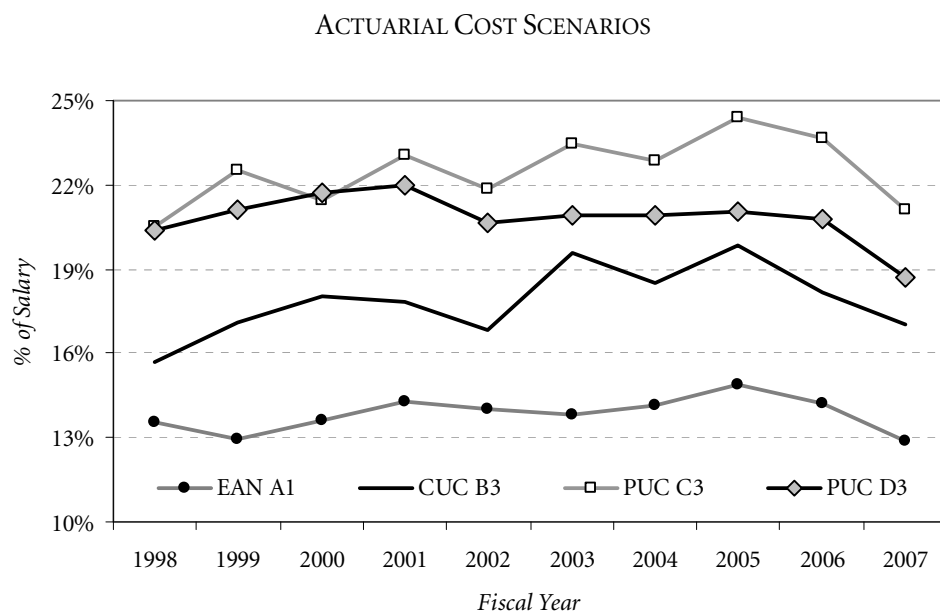


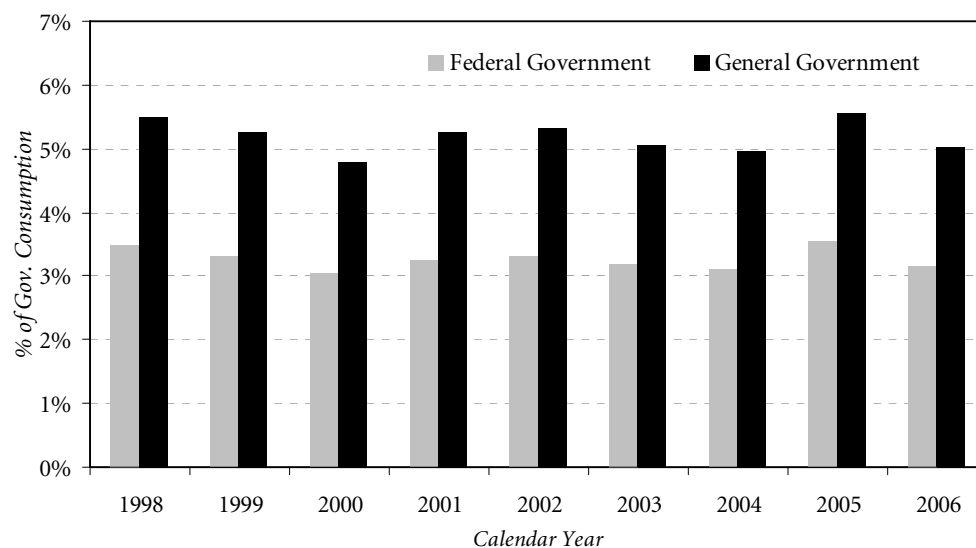
Figure 30: Constructing Actuarial Costs

The next step of the analysis is now to apply these empirically assessed implicit contribution rates to aggregate pay roll of the federal and general government. This step basically works with the assumption that similar differences in the accounted implicit contribution rates would result if federal military personnel and state and local government employees would be included in the compilation¹⁷⁵. Applying the different contribution rates to the (calendar) years 1998-2006 yields the estimated aggregate accounting impact. Figure 31 shows the maximum difference between the different scenarios and methods as a share of government consumption (derived from the National Income and Product Accounts) for the Federal Government and General Government, respectively. The data clearly reveal that the impact is remarkable: The difference between the approaches is at about 3% of government consumption on the federal level and about 5% for all government levels.

The compiled actuarial cost shares are not constant over the years, reflecting the different impact of actual wage increases, changes in the structural components of the working population, and movements in the discount rates. It is thus important not to look only at the level impact, but also at the dynamics that result from the individual accounting conventions. In a next step the real growth rates of General Government consumption based on the different accounting scenarios and methods were compiled. Figure 32 displays the results.

¹⁷⁵ The point here is not to show the precise actuarial costs for the respective years but to highlight the impact of typical accounting conventions. Hence the implicit underlying and reasonable assumption is that the characteristics of military retirement system and the state and local pension schemes show similar accounting challenges.

SENSITIVITY: GOVERNMENT CONSUMPTION



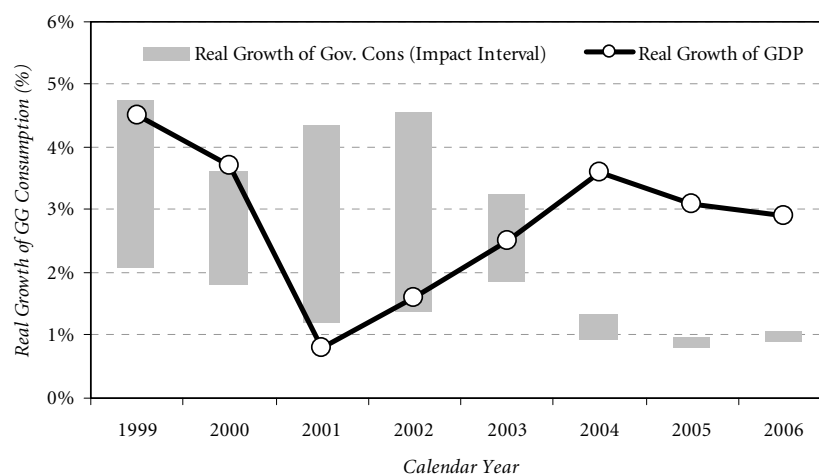
Notes: The different actuarial cost shares derived from the simulation of federal civilian employees were used to compile an estimate for the total actuarial cost for federal and general government. The underlying basic pay was compiled by correcting the total figure for included wage supplements (based on NIPA table 3.23.U). The final actuarial estimates are expressed as a share of – traditionally compiled – government consumption expenditure.

Figure 31: The Impact of Actuarial Costs on Government Consumption

The grey bars show the impact interval between the maximum and minimum real growth rate of the respective calendar year¹⁷⁶. The black line shows the respective real growth rate of GDP for comparison. The data clearly show that not only the level but also the dynamics of government consumption critically depend on actuarial approaches and hence on the chosen measurement conventions: Subject to the approach taken, the size of government (consumption) can either shown to be constant, declining, or increasing relative to GDP. In the years 1999 and 2000 measured real consumption growth was either slower than real GDP growth or roughly equal. In the following two years the intervals are much larger and have an impact to the other side. In 2003 the employed accounting conventions may even determine on whether the observation is that government has expanded or shrunk relative to GDP. It follows that the choice among accounting conventions matters profoundly for the measurement of fiscal aggregates. Level and dynamics of core aggregates depend on choices between quite plausible different approaches to quantify the periodized impact of defined benefit pension schemes.

¹⁷⁶ Again, a simplifying assumption underlies the calculation since the actuarial cost shares are based on the limited sample of federal civilian employees and on fiscal years whereas NIPA cost deflators and consumption data relate to calendar years.

SENSITIVITY: REAL GROWTH OF GOVERNMENT CONSUMPTION



Notes: The different actuarial cost shares derived from the simulation of federal civilian employees was applied to the total figure of general government compensation of employees. The underlying basic pay was compiled by correcting the total figure for included wage supplements (based on NIPA table 3.23.U). Alternative measures for general government consumption were then calculated by adding the estimated actuarial costs to the total and subtracting the employer contributions for employee pension and insurance funds (based on NIPA table 3.23.U). Nominal growth rates were then deflated, using the price index for general government consumption from NIPA table 3.9.4. Data on wage supplements was only available for calendar years, whereas the actuarial cost shares are based on fiscal years.

Figure 32: Accounting Conventions and Government Consumption - Dynamics

5.2.3 ECONOMETRIC SENSITIVITY

This final empirical section now aims to investigate whether the impact of actuarial assumptions also matters for econometrical studies in the field of fiscal policy research which rely on quarterly data. Before discussing the study chosen for the sensitivity analysis and describing the estimation process, the following paragraphs will briefly provide some background on current fiscal empirical research in economics.

5.2.3.a Some Background on the Economic Debate

Fiscal policy has always been a core issue of economics. The effects of fiscal policy measures (i.e. the impact of government spending, tax policy, or deficits) on the macroeconomy occupied large parts of the theoretical debate. Major political debates around structural fiscal reform are based on different claims about the effects of fiscal impulses or retrenchment. Yet despite this long-enduring conceptual importance, systematic empirical research is surprisingly scarce. Only recently have scholars begun to test the macroeconomic effects of fiscal policy with increased emphasis (Fatás/Mihov 2001: 2; Blanchard/Perotti 2002). Still, the empirical findings on the interaction of the fiscal policy parameters and other macroeconomic variables are rather thin and controversial (Giavazzi/Jappelli/Pagano 2000: 1260).

This rather late interest in the empirical assessment of fiscal policy effects is surprising. It appears that during the Keynesian period macroeconomic effects of fiscal policy have been widely assumed and taken for granted rather than systematically tested (Blanchard/Perotti 2002: 1329). The large-scale econometric models of the 1960s and 70s set a focus on the estimation of the parameters of the predetermined macroeconomic equations. The relationships between the macro-variables were thus directly implemented and not tested. With the monetary turn, practical emphasis shifted towards monetary policy instead - fiscal policy was more studied as a *dependent* variable. The public choice literature was for instance on the lookout for rational explanations for the occurrence of high deficit and debt levels and to find tools to avoid “unsustainable” fiscal paths. Accordingly, theoretical and empirical interest set a focus on political-institutional determinants of budget policy¹⁷⁷ (Alesina/Perotti 1994). In this period the effects of fiscal policy became secondary and the main task was rather to effectively impede governments from accumulating high levels of debt. In recent years, however, empirical interest in fiscal policy has gained momentum. The reason is essentially an obvious decline in the potential of monetary policy to stabilize economies during business cycle fluctuations. With the widespread delegation of monetary authority to currency boards or central authorities in monetary unions, fiscal policy received again attention as a potential tool for macroeconomic stabilization (Enderlein 2004).

Yet, still theoretical implications on the impact of fiscal policy are controversial. There is substantial debate among economists over the expected impact of fiscal policy measures. Although the prediction that government spending will affect output positively can be derived from various theoretical models there is unanimity regarding the composition and magnitude of this expansion¹⁷⁸ (Gali/Lopez-Salido/Valles 2007: 227; Giavazzi/Jappelli/Pagano 2000: 1260). Real Business Cycle theories have a skeptical perspective on discretionary fiscal policy, claiming that the impact on output is neglectable and would come at high cost in terms of economic efficiency. New Keynesian approaches adopt a more positive view on fiscal stabilization potential,

¹⁷⁷ At least three broad explanations of the “deficit bias” emerged: One strand of articles tried to explain the persistence of deficits through opportunistic politicians trying to follow voters’ preferences (Nordhaus 1975; Rogoff 1990; Shi/Svensson 2006; Brender/Drazen 2005). A second strand highlighted the importance of interest conflicts between parties or social groups over spending levels or targets that led to either strategic use of budget deficits (Persson/Svensson 1989; Alesina/Tabellini 1990) or delayed fiscal adjustment (Alesina/Drazen 1991; Velasco 1999). A third explanation focused instead on budget institutions and hence on financial management procedures that influence spending in a common pool setting (Alesina/Perotti 1999; von Hagen/Harden 1995; von Hagen/Eichengreen 1996).

¹⁷⁸ The core of the theoretical controversy consists of the role attached to household behavior in face of spending or tax changes. The traditional Keynesian view would assume that a deficit financed spending increase would increase consumption, push up interest rates and partially crowd out private investment. Real business cycle theories in contrast would assume that households act predominantly Ricardian, thus linking increased spending (or reduced taxation) to future tax rises and therefore reducing current consumption in reaction to government spending (Romer 2001: 217ff.).

mainly due to differing assumptions about the role of expectations and the existence of rigidities and market constraints¹⁷⁹ (Romer 2001).

Yet in practice many OECD countries still or again employ sizeable fiscal stimuli during economic downturns. The empirical question on the impact of fiscal variables on output and its components is thus highly relevant. For nearly 10 years now, economists are engaged in an empirical investigation of the impact of fiscal policies (Fatás/Mihov 2001: 2; Blanchard/Perotti 2002). Evidence for non-Keynesian relationships has been found predominantly when studying the effects of large fiscal contractions. On the basis of two case studies for instance Giavazzi and Pagano provide evidence that households tend to consume more rather than less when governments under fiscal stress reduce their expenses (Giavazzi/Pagano 1990). Perotti finds that in the 1980s, a period of fiscal stress, the effect of government spending cuts was different than in “normal” periods by leading to increased consumption rather than reduction and hence a negative spending multiplier (Perotti 1999). The interpretation of this effect is basically that households change their expectations about future policies¹⁸⁰. Alesina and Ardagna provide some evidence that these expansionary effects are triggered by supply-side effects, rather than increases in aggregate demand (Alesina/Ardagna 1998). But another strand of empirical research focusing on deliberate fiscal policy interventions in normal times has recently become dominant. Starting with a paper of Blanchard and Perotti in 1999 and published in 2002 (Blanchard/Perotti 2002) fiscal policy shocks were assessed in a structural vector autoregressive framework. Fatás and Mihov (Fatás/Mihov 2001: 2) follow a similar approach but they drop all assumptions towards the tax elasticity and leave the variables unconstrained. It is in this context that a substantial part of the current empirical economic research on the effects of fiscal policy takes place.

5.2.3.b *The SVAR Approach*

To test the sensitivity of econometric results the seminal study by Blanchard and Perotti (2002) is selected as a benchmark and replicated in a first step. The authors employ a Structural Vector Autoregression (SVAR) approach to study the dynamic impact of spending and revenue shocks on GDP and various output components. VAR models have been developed in the 1980s as an alternative to the large-scale Keynesian models (Sims 1980). They have originally been applied to study the effects of monetary policy (Bernanke/Blinder 1992 ; Sims 1992 ; Eichenbaum/Evans 1995 ; Strongin 1995 ;

¹⁷⁹ The micro-foundation of macroeconomics provides many results that are at odds with the traditional understanding of the effects of fiscal policy (Akerlof 2007).

¹⁸⁰ The role of expectations in the functional relationship between fiscal variables and consumption behavior is also stressed by Bertola and Drazen. They argue that current fiscal policies may show Keynesian effects although the underlying mechanism is neoclassical. The idea is that expectations about future consequences of these policies would be taken into account by households and unsustainable policies would induce the assumption of future contractions (Bertola/Drazen 1993).

Bernanke/Mihov 1998). Blanchard and Perotti were the first to apply the approach to the field of fiscal policy. Since then VARs became the standard tool for empirical fiscal analysis. They thus provide an excellent benchmark approach to study the impact of accounting conventions on econometrical results.

VARs model the economy as a dynamic system in which variables respond to past and current shocks of related variables. In the basic VAR model every time-series variable depends on a number of its own past values and the current and past values of all other variables. Additionally exogenous factors modeling the time series properties of the variables, such as different forms of time trends, seasonal patterns, or structural breaks may be included. VARs are an extension of univariate time-series methods based on autoregressive specifications. By specifying and estimating several equations simultaneously, VAR models can be used to make predictions. Most importantly, it can also be used for structural analysis. Using different, often theoretically guided identification approaches, the models are used to infer causality instead of correlation. This supposedly allows the conditional prediction of effects of shocks in certain (policy) variables. Most often the results are presented as impulse response functions or variance decomposition of forecast errors. The general specification of a VAR¹⁸¹ with n time-series variables is given by

$$y_t = c + A_1 y_{t-1} + A_2 y_{t-2} + \dots + A_k y_{t-k} + \varepsilon_t \quad (1)$$

with y_t denoting the $(n \times 1)$ vector of the endogenous time series variables; c denoting a $(n \times 1)$ vector of constants; A_i the $(n \times n)$ coefficient matrices that enter the equation with k lags of all variables and ε_t denoting the $(n \times 1)$ of serially uncorrelated error terms having a covariance matrix Σ . This VAR specification can be thought of as the reduced form of a system of dynamic simultaneous equations:

$$B_0 y_t = d + B_1 y_{t-1} + B_2 y_{t-2} + \dots + B_k y_{t-k} + e_t \quad (2)$$

where the B_i again are $(n \times n)$ matrices of parameters, d is a constant, and e_t is a $(n \times 1)$ vector of errors which are homoscedastic and uncorrelated across equations. This system is not directly estimable since the different endogenous variables are contemporaneously correlated. In order to transform the system into the reduced form

¹⁸¹ The literature differs widely in the notation for SVAR models. The formal presentation in this chapter borrows from Greene's econometric text book (Greene 2003), various articles (Sims 1980; Breitung/Brüggemann/Lütkepohl 2005; Lütkepohl 2005; Stock/Watson 2001), and the stata time-series manual (Stata 2005).

the system needs to be pre-multiplied with B_0^{-1} (assuming that B_0 is non-singular). The equation system then becomes

$$y_t = B_0^{-1}d + B_0^{-1}B_1y_{t-1} + B_0^{-1}B_2y_{t-2} + \dots + B_0^{-1}B_ky_{t-k} + B_0^{-1}e_t. \quad (3)$$

Substituting with the following parameters

$$c = B_0^{-1}d, \quad A_i = B_0^{-1}B_i, \quad \text{and} \quad \varepsilon_t = B_0^{-1}e_t$$

yields (1) which can be directly estimated from the data. The contemporaneous correlation of the endogenous variables is now contained in the variance-covariance matrix Σ . While the errors of the VAR are assumed to be serially uncorrelated and homoscedastic they will probably be correlated across the equations. Σ will then have off-diagonal elements and the shocks in ε_t have no causal interpretation. Shocks in one variable will be associated with shocks in other variables and it will not be possible to determine which shock caused the other without making further assumptions.

This problem is a classical identification problem of econometrics. The empirical literature proposes generally three different approaches to deal with the issue (Stock/Watson 2001: 102ff.): (1) *Reduced form* VARs estimate the endogenous variables without integrating contemporaneous values of the other variables. The estimated regression includes for each variable only the lagged values of all variables. This approach basically abstains from providing causal interpretations; (2) *Recursive* VARs analyze the contemporaneous correlations in the errors in steps. The assumption is that in a specified sequence, variables are not correlated to error terms of the preceding equations; (3) *Structural* VARs (SVARs) implement identification assumptions based on theory to allow a causal interpretation of the correlations and hence the compilation of instrumental variables.

Blanchard and Perotti apply the third approach. They use quarterly data on government spending, net taxes and GDP in real per capita units in logarithmic terms. The identification adopted by Blanchard and Perotti is basically to use institutional information on the interrelation between the variables to conclude that spending decisions will not be systematically contemporaneously correlated with the other variables. Likewise they assume that no discretionary feedback on taxing decisions will exist in quarterly data. By estimating the elasticity of taxes towards output they can compile the cyclically adjusted tax residuals. Via external information they estimate the overall elasticity to be 2.08. The remaining degree of freedom, the ordering of spending and taxation is tested by the authors in both specifications, yielding similar results. I

only replicate the variant with spending ordered first. Blanchard and Perotti also employ two different specifications for secular trends in the data. For the sake of simplicity I only re-estimate the variant based on a deterministic quadratic trend in logs. Following the authors the four quarter lag-coefficients are modeled as dependent on the quarter of the dependent variable given seasonal variation in tax collection patterns.

5.2.3.c *Modeling the Time-Series*

Building on the above approaches, the attempt is to recompile the time-series data underlying the Blanchard/Perotti model based on varying accounting conventions. Blanchard and Perotti used data stemming from the NIPA¹⁸². I use the same data but modify selected components to simulate the impact of the measurement choices. To derive alternative data series I first used the already introduced set of conventions to derive respective implicit pension contribution rates. Second I test for alternative specifications to account for capital costs. Thirdly, I account differently for the impact of revaluations arising from changes in the discount rate.

The first step of the simulation process is hence to estimate different implicit cost contribution shares based on the characteristics of the federal civilian employee workforce. The age distribution of the sample is based on the OPM Central Personal Data File. Annual data on the age distribution by category was available for the years 1985 to 2006¹⁸³ (see Table A 8 in the annex). To derive quarterly values the data between the observation points have been linearly interpolated. Since only a small fraction of people in the dataset were younger than 20 years or older than 65, the former have been subsumed under the 20-24 year olds and the latter have been dropped from the sample. Again, the mean value of the age was assumed to apply to all employees within a specific group. The gender ratio within the sample was estimated on the basis of full-time permanent employees in years 1998-2007 and was assumed to be constant (with women constituting 43% of the working population). The entry age pattern was derived from *FedScope* data from 1998-2007 for permanent full time employees. The respective distribution (see Table A 9 in the annex) was assumed to be constant over the whole observation period. Resulting service years in the compilation process were rounded and people with more than 45 service years were not considered. The impact of wage seniority and empirical wage growth was based on empirical information on full-time permanent employees in the *FedScope* database from 1998-2007. For earlier years empirical wage growth was compiled from average wage development (derived by

¹⁸² The only exception is cash data on corporate income taxes. I follow the approach of the authors and substitute the respective accrual values in the NIPA through cash values drawn from various monthly editions of the Treasury Bulletin. The resulting cash data was seasonally adjusted based on the X12 method using the Demetra software provided by Eurostat.

¹⁸³ For want of detailed data it was necessary to assume that before 1985 the distribution was constant.

dividing the total value of compensation of employees by the number of full time employees). The resulting annual wage growth was then distributed equally to the four respective quarters using the harmonic mean. Again, all pension costs for persons having entered the workforce before 1985 are calculated based on the basic pension formula of the old system – younger cohorts are based on the new pension formula. The pension age was now assumed to be 60 (which is close to the actual empirical retirement age) for those people in the sample who are younger than 60. For the remaining population the assumed pension age was 65.

Having defined the necessary basic characteristics of the working population, the alternative accounting conventions to derive the implicit pension contribution rates could be employed. 45 different scenarios of actuarial cost estimates were used. These consist of the three different parameter-combinations already introduced above, the three actuarial approaches, and five different operationalizations of the discount rate¹⁸⁴. Figure 33 shows the respective implicit pension contributions rates for total costs that do result from the application of the accounting conventions on the empirical characteristics of the federal civilian work force. The chart shows the minimum, maximum, lower and upper 25% percentile and the median value of the respective contribution rates. For the 1960s there are huge differences in the contribution rates narrowing somewhat down during until 1970. Over the remaining period the span between the maximum and minimum contribution may still amount to more than 20 percentage points. Even if one only considers the contribution rates between the 25% percentiles, i.e. half of the estimated series, differences of significantly more than 5 percentage points are common. Figure A 9 in the annex shows a similar pattern for normal costs.

Using these different estimates for the contribution rates, aggregate values of the general government defined benefit pension costs have been compiled¹⁸⁵. A necessary step is hence to gather data on the aggregate quarterly base salary of all government employees. The NIPA quarterly tables only contain information on overall compensation of employees. These values thus include a number of wage supplements that do not constitute basic pay in the terms of the pension system. Unfortunately information on the wage supplements is only available on an annual basis starting in 1998. To derive the relevant base, salary information from NIPA tables 6.10 and 6.11 was used. These tables contain government pension and social security contributions and could be used to derive the respective annual share of wage supplements as a percentage of compensation

¹⁸⁴ The five variants are: end of quarter monthly rate of 30 year bond yield rate, mid quarter monthly rate, average monthly quarter, average 1 year lagged monthly average, and a fixed discount rate of 6%.

¹⁸⁵ Again a somewhat coarse assumption is here that the characteristics derived from federal civilian employees can be attributed to all general government employees and their respective pension schemes.

of employees. These shares could, in a next step, be used to adjust the quarterly data series on compensation of employees to be reduced by wage supplements.

TIME SERIES SENSITIVITY – TOTAL COSTS IMPLICIT CONTRIBUTION SHARE

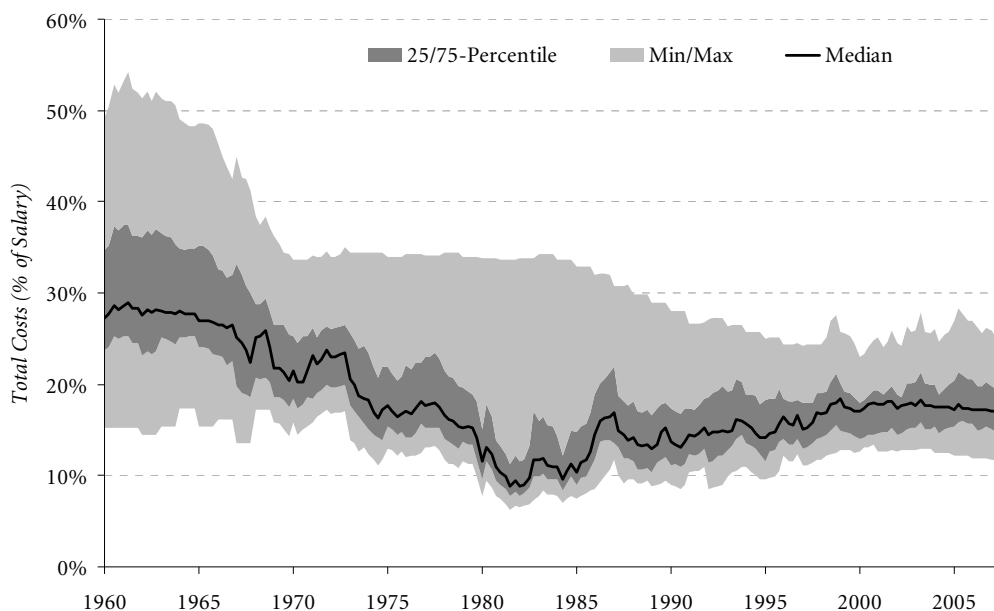


Figure 33: Time-Series Sensitivity - Total Costs Implicit Contribution Share

The resulting 45 time series for actuarial costs have then been combined with other accounting conventions: First, some alternatives on how to account for capital spending were tested. (1) the benchmark specification adopted by Blanchard/Perotti consisting of government consumption *and* gross investment. This approach thus accounts for government investment through consumption of fixed capital as measured in the NIPA and gross investment. I also tested for the following alternatives: (2) excluding capital consumption and hence recording only gross investment; (3) excluding investment expenditure and only accounting for capital consumption¹⁸⁶. Variants (1) and (3) were then again modified by calculating capital consumption not on a current price basis but on a historical price basis, thus removing the effect of fixed capital revaluation. This models the effect of what consumption of fixed capital would be if assets had been valued on a historical cost basis rather than at current costs, as is still widespread practice in financial accounting¹⁸⁷.

¹⁸⁶ The former approach thus reflects a more financial approach, since imputed consumption is not taken into account. The latter approach takes more of a net worth perspective assuming that investment outlays are no expense since government receives assets in return.

¹⁸⁷ To derive historical cost estimates of consumption of fixed capital it was helpful that the NIPA employ a geometrical depreciation pattern, hence applying a constant share depreciation method to the capital stock. All that was necessary was to re-estimate the capital stock based on historical investment data and to employ the same quarterly depreciation rates to the historical values.

In addition, four further accounting conventions were modeled based on different approaches of dealing with revaluations. Changes in the discount rate lead to sometimes substantial changes in the value of outstanding liabilities. As stated above, integrated accounting systems need to account for those valuation changes in order to fully explain the changes in government net worth¹⁸⁸. Since the first approaches implicitly test the non-recognition variant (i.e. the treatment in the revaluation accounts) I also specified variants that employed the impact of immediate recognition combined with the three capital spending variants (1-3). Alternatively I allowed for a delayed recognition in the case of capital spending variant 3 by averaging the revaluation impact over five consecutive periods. In the end 369 time-series for government spending resulted from the modeling process¹⁸⁹.

5.2.3.d Results

The natural first step is to replicate the results of Blanchard and Perotti. The authors first estimate a simple three variable VAR: The equation includes government spending (measured as government consumption plus gross investment expenditure), net taxes (measured as taxes less transfers and interest payments) and GDP. All variables are included with four lags and are expressed in log of real, per capita values. In addition the authors test the impact of fiscal variables on specific output components, such as private consumption and investment. Since we are here concerned with the measurement of government spending this paper does only consider respective models. I replicated the basic three variable VAR and the consumption-VAR. For both I used data first only from 1960 until 1997, as in the original study. The crucial outputs of the VAR are the so called Impulse-Response-Functions which are derived from the estimates of the lag-based decay matrix and the estimated contemporaneous correlations between the time series. The estimated values show the extrapolated, estimated impact of a one unit increase in government spending on economic output. Whereas the original parameters are estimated as elasticities, I transformed them into dollar-terms for the sake of interpretability¹⁹⁰. Table 9 shows the results of the replication.

¹⁸⁸ Pension accounting has followed different approaches about how to deal with changes in actuarial valuation. While some standards prescribe immediate recognition in the income statements, others allow for a deferred recognition. The IAS opted for a corridor approach, prescribing deferred recognition only when a band of 10% difference between the value of assets and liabilities is exceeded (IASB 2006). Economic statistics in contrast do not treat revaluation gains or losses as income but treat them separately in the revaluation accounts (UN 1993: §12.2).

¹⁸⁹ 45 variants times 9 additional specifications yields 405 series to be tested. However the impact of revaluation under the constant discount rate is always zero. Hence, the three scenarios with three actuarial methods under the four specifications considering revaluation (36 variants) could be excluded.

¹⁹⁰ I use the average values of real per capita spending, GDP, and private consumption in the 1960-1997 sample to compile the dollar-amounts.

THE IMPACT OF SPENDING ON GDP AND PRIVATE CONSUMPTION (BENCHMARK)

<i>Sample 1960(1)-1997(4)</i>				
	1 Qrt	4 Qrts	8 Qrts	12 Qrts
GDP	0.88 *	0.28	0.47	1.01 *
CONSUMPTION	0.48 *	0.34 *	0.51 *	0.85 *

<i>Sample 1960(1)-2007(2)</i>				
	1 Qrt	4 Qrts	8 Qrts	12 Qrts
GDP	0.97 *	0.66 *	0.49 *	0.59 *
CONSUMPTION	0.55 *	0.41 *	0.30	0.28

Notes: Figures show the impulse response of a one dollar shock in government spending. An asterisk indicates that zero is outside the one-standard deviation band.

Table 9: The Impact of Spending on GDP and Consumption

The results very well match the original estimates of the authors¹⁹¹. In a next step I extended the data sample to work with all currently available data. The sample underlying the sensitivity analysis is hence nearly 10 years longer and reaches from 1960:1 until 2007:2. This altered the results somewhat. The impact of government spending on GDP is now significantly different from zero in all periods up to three years, whereas before the error bands included the zero in the fourth and eighth quarter. The impact on consumption in contrast became insignificant in the longer run. While it was significant at all four observation points in the short sample, it is now not significant anymore after two years¹⁹².

IMPACT SENSITIVITY

<i>GDP</i>					
	1 Qrt	4 Qrts	8 Qrts	12 Qrts	20 Qrts
Min	-0,48	0,10	-0,06	-0,83	-1,53
25%	1,38	1,29	0,51	-0,13	-0,73
Med	1,96	1,92	0,87	0,23	-0,35
75%	2,39	2,28	1,12	0,39	-0,07
Max	2,73	2,74	1,72	1,33	0,81

<i>Consumption</i>					
	1 Qrt	4 Qrts	8 Qrts	12 Qrts	20 Qrts
Min	-0,04	0,17	-0,17	-0,51	-0,52
25%	0,50	0,59	0,21	-0,07	-0,02
Med	0,63	0,79	0,37	0,11	0,23
75%	0,81	0,92	0,49	0,28	0,38
Max	0,95	1,16	1,13	1,05	0,87

Table 10: Impact Sensitivity - 3 and 4 Variable SVAR

The crucial step was now to rerun the regression with all 369 alternative time-series for spending that were derived from the empirical model. The three variable and four

¹⁹¹ The small remaining differences could not be completely reconciled. They obviously reflect revisions of the data by the BEA between 1999 and 2008. Further I did not use time-varying elasticities to construct the cyclically adjusted tax shocks but rather used the constant value from Blanchard/Perotti of 2.08.

¹⁹² Figure A 10 and Figure A 11 in the annex show the full IRF plots.

variable VAR were hence re-estimated and the results stored. The IRF for the impact of spending on GDP and on consumption were compiled for a 20 quarter horizon. For the sake of simplicity I abstain from reviewing the estimated error-bands and concentrate solely on the point-estimates of the IRFs. For all subsequent analyses the estimated elasticities have been transformed to their dollar-values.

Table 10 summarizes the estimation results. For both VAR specifications the minimum, median and maximum values as well as the 25 and 75 percent percentile for the respective point estimates are provided. The results clearly show that the modeled accounting conventions have considerable impact on the results under both specifications, reaching from negative impacts to very positive impacts. To simplify matters, Figure 34 shows selected IRF functions for the VAR testing the impact of spending on GDP. For instance the PUC method under the high-parameter scenario (S3)¹⁹³, the historical cost estimation including capital spending (HC1) under the 12 month smoothed discount rate yields a very high impact of spending of over 3 dollars after 2 quarters that slowly fades out after more than one year. In contrast the EAN method under the low-parameter scenario (S1), only current capital spending with immediate recognition of revaluation gains (R3) and the end-of-quarter interest rate as discount factor predicts essentially no effect of spending on GDP. Other specifications yield initially positive reactions to varying degrees but in the longer run (between 8 and 14 months) become negative.

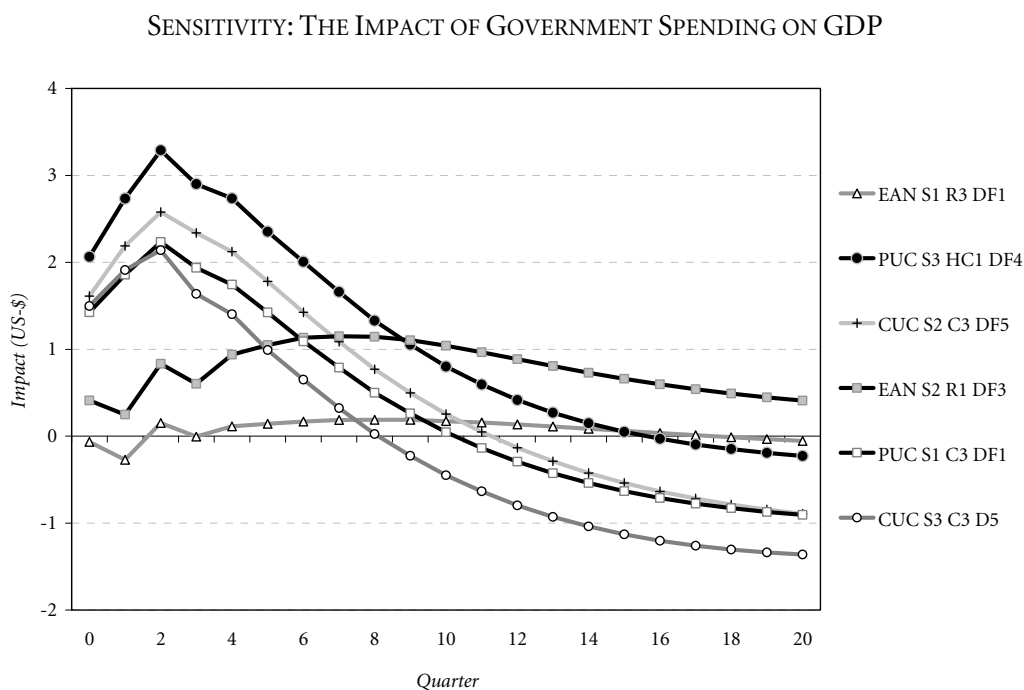


Figure 34: The Sensitivity of Spending Impulse-Responses - GDP

¹⁹³ The codes for the accounting variants are provided in Table A 10 in the annex.

A similar pattern is produced for the four variable VAR, testing the impact of spending on private consumption (Figure 35). Here the PUC method in the high parameter scenario with depreciation and capital spending included and average quarter discount rate yields a particularly high impact on consumption after 2 periods. This impact slowly fades out until after one year, but still remains positive. The CUC method under the low parameter scenario, recognizing revaluation gains immediately, not accounting for depreciation and using the end of period interest rate as discount factor, predicts only a mild response of consumption that remains stable at about 20 cent in every quarter. The same actuarial approach under the high-parameter scenario, taking account of depreciation but not investment and applying a constant 6% discount rate, is somewhat positive at first, but becomes strictly and enduringly negative after 7 quarters. Again, the other specifications occupy space between the extremes.

SENSITIVITY: THE IMPACT OF GOVERNMENT SPENDING ON PRIVATE CONSUMPTION

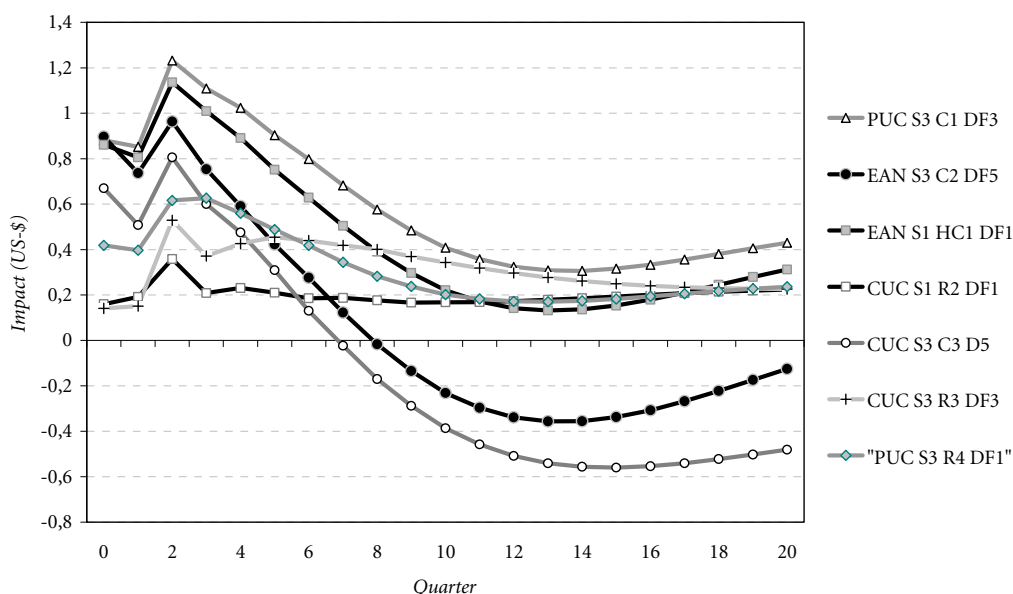


Figure 35: The Sensitivity of Spending Impulse-Responses - Consumption

In order to be able to study the partial impact of specific conventions more systematically the cumulated responses of GDP on spending over 8 quarters were compiled for all combinations of accounting conventions (Table 11). This allows disregarding slight differences in the estimated time-profile between the IRFs and studying more thoroughly the qualitative implications of the different measurement decisions. It turns out that the cumulated responses differ fundamentally, reaching from 0,6 dollars to 21,1 dollar. Over the time span of two years the choice of measurement

conventions thus predict in one case an impact that is more than 30 times (!) than one derived from a different measurement approach.

CUMULATED IMPULSE RESPONSES (2 YEARS) – SPENDING ON GDP

Discount Rate Accrual Method	End of Period			Mid Period			Average 3M			Average 12M			6%		
	CUC	PUC	EAN	CUC	PUC	EAN	CUC	PUC	EAN	CUC	PUC	EAN	CUC	PUC	EAN
<i>Scenario I</i>															
<i>Total Spending (1)</i>	16,8	16,8	16,8	17,2	17,3	17,4	17,4	17,5	17,4	18,0	18,1	13,8	13,7	13,7	
<i>Gross Investment (2)</i>	16,6	16,7	16,7	17,0	17,2	17,2	17,2	17,4	17,3	17,8	17,9	13,4	13,3	13,2	
<i>COFC (3)</i>	12,7	13,0	13,0	13,3	13,7	13,8	13,5	13,8	13,8	14,4	14,6	10,6	10,8	10,9	
<i>1 at Historical Cost</i>	18,0	18,0	18,0	18,4	18,5	18,5	18,6	18,7	18,6	19,2	19,2	15,7	15,7	15,6	
<i>3 at Historical Cost</i>	14,1	14,4	14,4	14,8	15,1	15,2	14,9	15,2	15,2	15,7	16,0	16,1	12,2	12,5	12,6
<i>(1) with Revaluation</i>	4,9	3,2	3,0	7,1	5,6	5,7	8,7	7,0	7,0	17,9	17,5	...	...	...
<i>(2) with Revaluation</i>	4,5	2,8	2,6	6,8	5,3	5,4	8,4	6,7	6,7	17,8	17,4	...	...	...
<i>(3) with Revaluation</i>	1,9	0,7	0,6	4,0	2,9	3,1	5,0	3,7	3,8	13,2	13,1	...	...	...
<i>(3) with del. Reconition</i>	9,0	8,4	8,4	9,8	9,5	9,6	9,9	9,7	9,8	11,7	12,4	...	...	...
<i>Scenario II</i>															
<i>Total Spending (1)</i>	17,1	17,3	17,3	17,7	18,1	18,0	17,9	18,3	18,3	18,7	19,3	19,1	13,8	13,7	13,6
<i>Gross Investment (2)</i>	17,0	17,4	17,3	17,6	18,2	18,0	17,8	18,4	18,3	18,5	19,2	19,1	13,4	13,3	13,2
<i>COFC (3)</i>	13,0	13,6	13,5	13,8	14,6	14,5	13,9	14,7	14,7	15,0	15,9	10,6	11,0	11,0	
<i>1 at Historical Cost</i>	18,1	18,1	18,2	18,7	18,9	18,9	18,8	19,1	19,1	19,7	20,2	20,1	15,7	15,7	15,6
<i>3 at Historical Cost</i>	14,3	14,7	14,7	15,1	15,8	15,7	15,2	15,9	15,9	16,3	17,1	17,1	12,2	12,7	12,7
<i>(1) with Revaluation</i>	4,7	4,2	3,8	7,0	6,8	6,5	8,4	7,7	7,5	18,2	18,1	...	...	...
<i>(2) with Revaluation</i>	4,3	4,0	3,6	6,7	6,7	6,4	8,1	7,6	7,4	18,1	18,1	...	...	...
<i>(3) with Revaluation</i>	1,7	1,8	1,5	3,9	4,3	4,1	4,7	4,7	4,5	13,5	13,9	...	...	...
<i>(3) with del. Reconition</i>	8,7	7,8	8,0	9,6	9,2	9,4	9,7	9,5	9,7	12,0	13,0	...	...	...
<i>Scenario III</i>															
<i>Total Spending (1)</i>	17,3	17,5	17,5	18,1	18,5	18,4	18,3	18,8	18,8	19,4	20,5	20,2	13,8	13,8	13,7
<i>Gross Investment (2)</i>	17,3	17,8	17,7	18,1	18,8	18,6	18,3	19,1	19,0	19,3	20,7	20,4	13,4	13,4	13,3
<i>COFC (3)</i>	13,2	14,1	13,9	14,2	15,5	15,1	14,4	15,5	15,4	15,7	17,4	17,1	10,6	11,2	11,2
<i>1 at Historical Cost</i>	18,2	18,0	18,1	18,9	18,9	18,9	19,1	19,2	19,3	20,2	21,1	21,0	15,7	15,7	15,7
<i>3 at Historical Cost</i>	14,5	14,9	14,9	15,4	16,3	16,1	15,6	16,3	16,3	16,9	18,3	18,1	12,2	12,9	12,9
<i>(1) with Revaluation</i>	5,0	6,1	5,2	7,4	8,8	7,8	8,5	9,3	8,5	18,5	18,7	...	...	...
<i>(2) with Revaluation</i>	4,7	6,1	5,1	7,2	8,9	7,9	8,4	9,4	8,6	18,5	18,9	...	...	...
<i>(3) with Revaluation</i>	2,0	4,1	3,1	4,3	6,7	5,7	4,9	6,8	5,9	13,9	15,1	...	...	...
<i>(3) with del. Reconition</i>	8,4	7,1	7,5	9,5	8,9	9,1	9,6	9,2	9,5	12,3	13,6	...	...	...

Table 11: Cumulated Impulse-Responses - Spending on GDP

A significant impact seems to stem from the decision whether to recognize revaluation gains or not. Most accounting alternatives relying on revaluation show a significantly lower estimated impact of government spending on GDP. Yet this is only part of the variance observed. To make the analysis of the relative partial impact of the respective conventional dimensions easier, the respective impact bands have been compiled holding all other choices stable. Five dimensions have been distinguished: the discount factor operationalization, the decision whether to account for revaluation gains or not, the three different parameter-scenarios, the different specifications of capital cost accounting, and finally the accrual method.

For every dimension the differences between all possible combinations holding all other accounting choices constant have been compiled. The differences between the

maximum and minimum value as well as the arithmetic average¹⁹⁴ were calculated. Figure 36 shows the resulting “impact intervals”. It turns out that the discount rate operationalization makes a difference of at least 3 dollar and can amount to about 15 dollars at maximum. Equally important is the choice whether or not to take revaluation into account. The partial impact on the cumulated spending impact on GDP reaches from zero to about 14 dollars. Still considerable influence on the estimated result stems from the prediction scenarios (zero to 3,8 dollars), the capital cost concept (0,4 to 4,1 dollar), and the accrual method (0 to 2,4 dollars).

THE ACCOUNTING DIMENSIONS OF IMPACT-SENSITIVITY (SPENDING ON GDP)

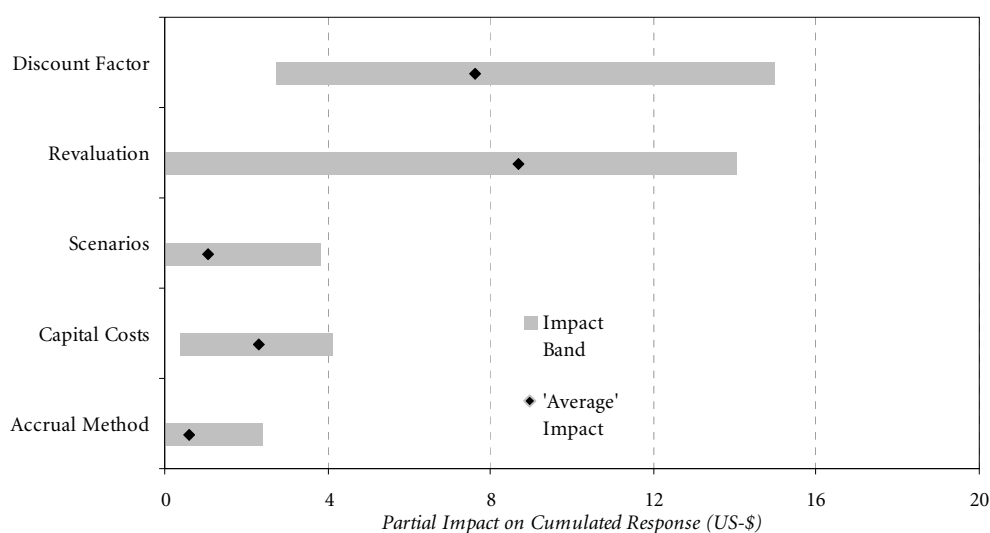


Figure 36: The Sensitivity of Econometric Results towards Measurement Decisions

It follows that the empirical estimation results of the investigated econometric study crucially depend on the choice of accounting conventions. Measurement matters, not only for level and broad dynamics of the figures in the annual reports, but also for the short term dynamics used in econometric studies to test and predict implications of economic policies. The results which can be derived from the dataset allow very different conclusions – reaching from a very positive, Keynesian view on the potential to stabilize the economy through fiscal interventions to a neutral, neoclassical view that suggests that short-term fiscal activity has virtually no effect at all.

¹⁹⁴ The compilation of an arithmetic average is of course not justified in this context since the individual accounting options do not have any scale interpretation. Nevertheless the mean value of the estimated impacts can provide some rough insight in the distribution of the estimates within the group of selected alternatives.

5.3 Conclusion

The starting point of this chapter was the finding that the statistical debate could not easily find a consensus on whether and how to measure the periodized costs for defined benefit pension schemes. The qualitative analysis suggested that statisticians (and accountants) often face demands to measure economic events that are not easy to quantify. The conventions embodied in international standards may then either be based on essentially arbitrary decisions, they may be politically motivated or influenced, or even leave crucial aspects of the quantifying work unregulated. This section looked at the issue from a quantitative perspective and tried to test whether the uncertainty inherent in the measurement matters, in the sense that it alters the picture of fiscal reality that is presented. The section was based on semi-empirical modeling work to reconstruct the necessary source data basis to test for the impact of crucial accounting conventions.

First, a stylized model of a working population was established. Building directly on the pension discussion of the previous chapter, it was shown that the measurement conventions which are necessary to quantify the liabilities arising from defined benefit pension schemes have substantial impact on the imputed pension contributions. At least in three dimensions important decisions have to be made: first, how should the expected future cash flows arising from the pension scheme be estimated? Second, how should the incurrence of those liabilities over the individual's career be accounted for, i.e. how should the costs of the future pension be attributed to specific accounting periods? Third, what is the relevant comparison of cash flows over time; what is the appropriate discount rate to be applied? It turned out that the measured and recognized employment cost is significantly shaped by those conventions, thereby making labor cheaper or more expensive, depending on the measurement approach chosen.

In a second step, the alternative accounting conventions have been applied to empirical data. The pension scheme and work force characteristics of US federal government employees have been modeled and the impact of accounting conventions on the resulting total spending figures was compiled. It turned out that the ambiguity arising from pension accounting matters profoundly in the aggregate. Assuming that the accounting problems in the federal civilian government work force can be applied to other government units the figure for government consumption could easily be altered by up to 5%. What is more, the accounting conventions for pensions also change the measured growth rates in meaningful ways; they may even decide on whether the government sector is shown to be shrinking or growing relative to GDP.

In a third step, alternative quarterly time-series on government spending have been compiled to provide a data set that is typically used in econometric studies. Again empirical data on the federal civilian government work force was used to construct

different estimates of periodized costs for the defined benefit pension schemes. In addition to pension costs, alternative specifications for capital costs and the different possibilities to account for the change of the valuation of outstanding liabilities following changes in the discount rates have been employed. The results are striking: re-estimating the chosen econometric study in the area of fiscal policy research shows that the results crucially depend on the measurement conventions.

6 Conclusion

When Durkheim argued that “social facts” require a sociological explanation (1982 [1895]: 1ff.) he relied on statistical data to find examples for such phenomena. He for instance used differences in statistical suicide rates between catholic and protestant regions to stress that these patterns could only be explained taking their social determinants into account (Durkheim 1951 [1897]). His study raised much controversy in the aftermath, mostly about the type of causal explanation he proposed. Yet when looking at the issue again, it seems necessary to go back to his very starting point. This is because Durkheim might have started from a false observation in the first place. Recent studies suggest that the difference in the statistical indicators between the confessional groups was probably an artifact. The lower suicide rates in catholic regions can most likely be attributed to different statistical recording practices, showing a bias towards reporting suicidal deaths as natural deaths (Day 1987). The “social fact” of Durkheim’s study is thus obviously not as objective as initially thought¹⁹⁵. It follows that the need for scientific explanation does not end at the surface of databases. We should rather extend our inquisitiveness to the statistical production of ‘social facts’.

The observation that much of what is perceived as ‘reality’ is actually socially constructed is not new (Berger/Luckmann 1967). Yet surprisingly, the field of accounting has received rather little attention in this respect and economic statistics have barely been covered. This thesis has chosen the comparatively ‘hard’ case of fiscal statistics to investigate how the social creation of reality in the numerical realm actually takes place. The whole endeavor started from a simple problem setting: on the one hand we observed that fiscal data are increasingly used in the context of public sector governance and that a calculative mode of decision making is gaining importance. Ever more decisions are delegated to the ‘authority of numbers’ and many political options are presented and evaluated in terms of quantitative efficiency or cost-benefit analyses. On the other hand little is known about how these numbers are actually produced. The details of the process of data gathering are willingly delegated to specific organizations and professional experts and interest in their practices is surprisingly limited. A

¹⁹⁵ To be fair, Durkheim discussed the generation of the observational category in the introduction: “Our first task then must be to determine the order of facts to be studied under the name of suicides. Accordingly, we must inquire whether, among the different varieties of death, some have common qualities objective enough to be recognizable by all honest observers, specific enough not to be found elsewhere and also sufficiently kin to those commonly called suicides for us to retain the same term without breaking with common usage. If such are found, we shall combine under that name absolutely all the facts presenting these distinctive characteristics, regardless of whether the resulting class fails to include all cases ordinarily included under the name or includes others usually otherwise classified. The essential thing is not to express with some precision what the average intelligence terms suicide, but to establish a category of objects permitting this classification, which are objectively established, that is, correspond to a definite aspect of things” (Durkheim 1951 [1897]: 43).

functional-rationalistic perspective on accounting and statistics is prevalent: The practice of data gathering is essentially reduced to a technical task that is at best handed over to respective experts and should be governed by professionalism.

At a closer look, however, we find that the production of economic statistics is not such a straightforward task at all. Some insiders openly talk about measurement challenges, the indeterminacy of analytic or theoretical concepts, misuse of statistical data, or at least limitations of its reliability or precision. A glance at the statistical work revealed that the conventions on which the quantification is based are subject to significant controversy. Especially in the fiscal sector different principles and interpretations are heavily debated. Remarkably, however, the tone of the debate also suggests that statistical experts aim to solve these struggles in a rational, technical mode. This implies that the cognition of statisticians is embedded in a cultural and scientific context which structures their way of reasoning and dealing with the challenge of framing a complex and often ambiguous economic reality.

This thesis started from the claim that the process of data gathering and, more specifically, the development and maintenance of statistical standards should be studied as a social rather than a purely technical phenomenon. The content of statistical and accounting conventions, their (re)negotiation, and their impact on the presentation of fiscal reality should be directly assessed instead of assuming that the figures are feasible for the purposes of fiscal analysis and management. This section reconsiders and analyzes the overall evidence provided in this study. First the main results of the four sections of the thesis are summarized and reviewed. Then three main conclusions with respect to the two sets of questions raised in the introduction are drawn: How is fiscal reality actually created through the definition of international statistical standards? And what is the impact of those conventions? The final section will then discuss some theoretical and practical implications of the findings.

6.1 Summary of the Findings

This thesis has shown that fiscal data are not just facts. Fiscal statistics do not just mirror an externally given reality but construct it in important ways. Even if there is a consensus about the general characteristics of an economic phenomenon, statisticians and accountants often face substantial challenges in linking analytic concepts to actually available numerical records. The process of accounting and statistical data production is based on manifold judgments and interpretations. The core insight of the study is hence that fiscal measurement can never be *objective*. Often, it is even not possible to reach an *inter-subjective* agreement on how measurement of seemingly straightforward economic entities should practically occur. The *factual appearance* of fiscal data is hence an empirical phenomenon that requires a sociological explanation.

The first part of this thesis argued that in order to understand how fiscal reality is constructed, one has to look at data generation as a socially embedded process. Broad evidence from critical accounting studies demonstrates the manifold ways in which accounting systems interact with their organizational and institutional environment. Accounting practices show many non-technical features and are shaped by their social surroundings and feed back on them by defining, selecting, and hence creating numerical reality. It was shown that the production of economic statistics, like that of accounting information, largely happens in a black box. To keep up the façade of the black box it is necessary to develop and demonstrate respective expertise. The choice among alternative conventions is performed by national and international organizations and actors in an institutional context. Statisticians in national statistical institutes collect data from manifold public sector entities, adjust the data, transform it, estimate gaps, and enter the data into databases. It was stressed that this process is strongly influenced by international statistical standards. To understand national practices, one thus has to investigate the content and origin of these standards. Moreover the section analyzed why and in which dimensions accounting is ambiguous. It was argued that much of the vagueness stems from the fundamental principles of integrated accounting systems. When applying integrated balance sheet accounting concepts, accounting constructs significantly influence the timing and valuation of transactions that are recorded in the accounts. It was further shown that government accounting and fiscal statistics recently moved in the direction of accrual accounting and now have to deal with the same challenging accounting obstacles as business accounting – in many ways the situation is even more complex in the public sector.

The second part of the thesis then analyzed the specific epistemology of macroeconomic statistics in general and fiscal statistics in particular. It was shown that the system of economic statistical standards was initially drafted by only a small number of experts. Over time it involved an increasing number of experts. Today the System of National Accounts is an inter-organizational agreement between five major international organizations and a large community of statisticians at national institutes. At the same time it was argued that the standards themselves are not sufficient to guide measurement. This highlights a characteristic feature of institutions which (as generalized rules system necessarily) remain partly abstract and receive their operative meaning only through additional interpretation at the practical level (Streeck/Thelen 2005: 16ff.). The system also employs a specific perspective on the government. It was argued that here, probably even more than in the business sector, pragmatic accounting conventions influence how the activity is measured. Moreover the system does not directly contain a public finance perspective, thus leaving additional discretion for the

definition of fiscal aggregates, such as total expenditure, revenue, or the deficit. Different notions of the respective indicators between the GFSM 2001, the European public finance indicators or the redefinition of the OECD total spending indicator clearly reveal the conventional basis of this information.

The section then continued to show how economic statisticians generally define their relationship to reality, and which strategies guide their work, when debating on conventions. Based on evidence from the statistical literature, interviews, and documents from statistical discussions it was demonstrated that economic statistics have no systematic epistemology but rather appear to have established a pragmatic compromise between different, sometimes competing logics. Economic theory, which is often claimed to provide guidance for statisticians, is actually insufficient in practice, thus leaving statisticians with much ambiguity on the operative level. Also, there is no clear statistical conception of observational reality. A study of how statisticians generally cope with the remaining discretion showed that in practice various strategies are applied, reaching from political pragmatism, plausibility calibration, surface management, the implementation of an accounting realism, to procedural legitimization of specific treatments.

The third part of the thesis then studied the process of definition of statistical standards in more detail. It was analyzed how the SNA is being transformed during the most recent updating process. First a brief general description of the process features and the organizational field in which it takes place was provided. Using the example of the debate on the recording of employer pension obligations and their periodized incurrence, this section could provide five major insights: First, the debate showed substantial technical indeterminacy of the issue. The general question *whether* the incurred defined benefit pension obligations should be recognized as expenditure at the time employees render the services or, alternatively, when the benefits are paid is a heavily debated equivalence convention. Moreover, even within the group of recognition proponents, the question *how* measurement should be undertaken is subject to substantial controversy and uncertainty. Second, the expert debate remains only partially in a “technical” mode. It was found that four different types of arguments are made: (1) arguments with respect to measurement principles and concepts, (2) arguments with respect to the impact numbers will have on decision making and wider perceptions of economic conditions, (3) arguments on the epistemological bases of the systems data, categories and principles, and (4) arguments with respect to the credibility of the whole system of fiscal or economic statistics. The respective argumentative dimensions are often combined in contributions to the debate and in case of harmonic conclusions a consensual derivation of accounting conventions be made. If experts differ

in their assessment of the respective implications and the importance of regulations, however, any resulting decision will be based on arbitration. Third, there was clear evidence that statisticians also set up their rules as a form of 'reputation management'. There is a tendency to demonstrate measurement capability and hence to actively highlight the jurisdiction of the statistical profession. A substantial part of the debate addressed the basic question how much of potentially ambiguous economic characteristics of an event should be framed within the statistical system and how measurement rules could best keep up the jurisprudence of the profession. Fourth, evidence was provided for a systematic struggle between different actors in the field. In particular statisticians from EU countries and Anglo-Saxon countries expressed very different assessments about how to treat unfunded pensions in the system of macroeconomic statistics. The controversy between these groups clearly shows the contingent nature of statistical arguments, which is linked to the wider purposes of the statistical system. Fifth, the difference in the political positions between countries willing to endorse the recognition of unfunded defined benefit pension obligations and those rejecting it could essentially not be solved. As a consequence the resulting standard (the SNA 2008) remains basically ambiguous with respect to the question of recognition and even more so with respect to the measurement details.

The fourth part of the thesis then followed the results of the preceding chapters. The reopening of the black box of statistical standard negotiation has shown that substantial indeterminacies occur in the context of how to record defined benefit employer pension obligations. These problems can either be solved by logical or arbitrary conventions or the standards can be left ambiguous and the decision hence be delegated to the implementation level. As the thesis has shown earlier, the very effect of statistical standardization is that outsiders will most likely use the resulting data in a factual manner and the discretion and ambiguity attached to the measurement process will not be visible. The last section therefore analyzed the quantitative impact of selected accounting conventions on the figures and conclusions drawn from it. Based on a stylized model of a working population and disaggregated empirical data on federal civilian US government employees it was shown that respective measurement conventions substantially influence the level and dynamics of fiscal indicators. Implicit pension contribution rates vary significantly, subject to assumptions on how the liabilities accrue, different scenarios for future benefit and wage growth, and alternative operationalizations of the discount rate. Fiscal indicators are not very robust towards these (necessary) interpretations of the accrual principle. Moreover, the reconstruction of alternative quarterly government spending time series showed that the suggested precision of short-term indicators is misleading, too. Relying on a partly model-based,

partly empirical approach 369 variants of historical time series have been recompiled and entered as source data in an exemplary econometric model. It could be shown that in the chosen Structural Vector Autoregression framework the empirical estimates of the macro-economic stabilization potential of government spending varied fundamentally. Very different conclusions, reaching from the neutrality of government spending up to a strongly Keynesian impact were possible, depending on the underlying measurement conventions. It follows, that conclusions drawn from a database without looking into the underlying assumptions are based on statistical artifacts and the conclusions are much less 'objective' than suggested by the formal appearance of the numbers.

6.2 The Social Construction of Fiscal Reality

We saw that fiscal measurement is a complex, collective endeavor. The reality presented in fiscal statistics is not directly given in 'nature'. Seemingly straightforward fiscal aggregates can be measured in rival ways and the production of respective data is a highly interpretative process. Fiscal indicators show substantial ambiguity on the measurement level and the concrete implications of theoretical concepts are often vague. Income, expenditure, wealth or the deficit can only be observed by implicitly or explicitly starting from *equivalence* and *measurement conventions* (Desrosières 2006). The specific conventions chosen influence the level of the main aggregates, they attach relative weights to different components and they shape trends and dynamics of core indicators. Accounting and statistics are thus necessarily selective and constructive – they cannot provide neutral 'representations' of fiscal reality. The practices of statistical agencies when measuring fiscal events are significantly constrained and supported through a set of *formal rules* contained in a statistical manual, the System of National Accounts. Reference to the SNA legitimizes the practices of national statistical institutes in important ways. I argued that we should therefore consider the standard framework as a *social institution*, that if we want to grasp how fiscal reality is constructed, we need to understand the nature of this institution, its regulative content, how it evolves, and how it is stabilized and transformed.

Three main conclusions can be drawn from this study: First, the fiscal accounting process is highly ambiguous on the level of conceptual questions and on the operative level. For the selected empirical case, the recognition and valuation of defined benefit pension obligations, it was shown that the quantitative importance of the indeterminacy is so large that qualitative conclusions drawn from the figures are altered. Second, the respective conventions that are applied in the form of statistical standards are established in a way that emphasizes the appearance of the figures as neutral and precise, thereby hiding the ambiguity inherent in the measurement process. The facticity of the figures is actively kept up by relying on institutional elements supporting the

professional and organizational legitimacy of economic statisticians. These elements are, however, partly independent from the actual content of the standards and their effective regulative impact and allows to hide ambiguity. Third, the actual decisions made when agreeing on the are not functionally determined, but embedded in a cultural, scientific, social, and political context. The definition of international statistical standards is the result of a complex inter-organizational development process which is characterized by elements of both structural determination *and* purposeful agency. It is a *collective* endeavor of sense-making which is influenced by different actors in its organizational field pursuing different interests. The (perceived) interests of organizations themselves are again a phenomenon worth an explanation, being partly shaped by taken-for-granted, cognitive frames and partly by contextual factors. The resulting statistical treatments are the response to perceived social and political problem sets, and they implement wider conceptions of how statistical reality should be measured.

I. The Ambiguity of Fiscal Accounting

The opening of the black box of accounting has clearly demonstrated that the choices that fiscal statisticians have to make when debating accounting conventions are *ambiguous* on two levels: First, there are rival theoretical and epistemological bases for measurement of core concepts such as income or wealth. This shows that at a very basic level of definition of accounting constructs, different concepts concur. Statisticians have to make choices between rival concepts when debating what they consider as relevant 'data' on government financial activity. Second, even if there was a consensus on the general characteristics of an economic entity, its operational consequences are still potentially controversial. Significant indeterminacy of accounting definitions occurs on the measurement level. This clearly suggests that the definition of statistical conventions on the conceptual level (which influences the equivalence conventions) and the operational level (which influences the measurement conventions) can never be fully determined by functional demands. Rather analytical demands are potentially *controversial* and *ambiguous* on the measurement level.

This study demonstrated at length that statisticians attempting to measure government spending actually face those challenging questions. Over time, the concept of government spending experienced substantial redefinitions. While initially it was closely associated with actual cash expenses, increasingly accounting constructs, derived from accrual principles, altered this information. It was demonstrated that an important assessment in this respect is the decision how to deal with the incurrence of future obligations. Statisticians endorse the basic principles of market valuation and the accrual principle to guide their measurement decisions. Yet the debate on the measurement of

defined benefit pension obligations clearly showed that neither those principles, nor economic theory, nor primary accounting information could provide meaningful guidance on what should be considered as representing 'real' fiscal spending in one period. The analysis of the underlying logic of the debate and its actual course showed that it is highly ambiguous, whether defined benefit pension obligations actually constitute liabilities. The arguments made by the experts in this respect reveal that this is essentially a matter of definition. Based on general ideas of what the defining characteristics of financial assets are, experts argued that certain types of government obligations would meet those criteria. The issue groups' proposal was that employer pension obligations would fall in this category, whereas non-pension and non-employer obligations would remain outside. Yet others sharply opposed this position and argued that government employer pension obligations were actually similar to social security obligations, were *not* liabilities or financial assets, or that actually even other types of future obligations should be recognized. The debate clearly showed that the 'correct' treatment could *not* be unequivocally derived. Rather analytic demands and economic characteristics were interpreted by statisticians and arguments reflecting the likely consequences of treatments for political decisions and the outside perception of statistical expertise were employed. The hefty controversy that unfolded in this process clearly demonstrates that the *equivalence conventions* employed are not 'technically' determined. It clearly follows that statistical experts deal with conflicting logics and demands on the operational level, when defining solutions based on expertise. The decision, where to draw the line between current transactions and financial assets and liabilities is highly ambiguous and controversial within the expert community.

The same holds for the conventions that are adopted as *measurement conventions*. Some experts claimed that actuarial information, following the approaches of financial accountants, should be directly integrated in the statistical frame. Based on general assessments of the 'soundness' of the respective procedures, and their perception as 'standard' and 'established' practices, it was claimed that their informational content would sufficiently represent the reality that is intended to be measured. Yet here again, the statistical debate showed many features that highlighted the inherently ambiguous basis of the respective conventions. Reconciling the way in which actuarial estimates are constructed, many experts claimed that the relationship of those estimates to 'reality' is essentially unclear. Some argued that statisticians should directly prescribe the approaches and parameters needed to derive the respective estimates. Others fundamentally questioned the possibility to measure the periodized incurrence of pension obligations in a precise manner at all. This mirrors debates within the actuarial

profession showing that fundamental aspects of the estimation approaches are still heavily debated (Bader/Gold 2003).

The quantitative part then showed that the numerical importance of the controversial conventions is substantial. The reconstruction of the 'logic' of the accounting debate about pension obligations was used to 'measure' exemplarily a typical area that requires active regulation by standard setters. The outcome was striking: The interpretation of the accrual principle had a crucial impact on the resulting figures. The level and dynamics of public consumption figures and government spending crucially depend on the underlying accounting conventions. It follows that the knowledge produced through the figures is not very robust. The sensitivity analysis of the selected econometric study showed that also estimates of the impact of fiscal spending depend importantly on the contested measurement conventions. We saw that standards in the area of pension accounting can either implement pragmatic solutions, conventions reflecting a compromise, or remain ambiguous and thus leaving the details to the level of implementation. In the analyzed case the accounting conventions could *not* be determined as technical necessities. Rather they reflected active and partly arbitrary choices. We saw that the impact of this discretion is large. Hence we can conclude that fiscal statistics create reality in a way that is quantitatively and qualitatively fundamental. Both the measurement precision and neutrality of fiscal indicators are thus obviously overestimated in practice.

II. The Formal Presentation of Standards

Despite these inherent controversies, statistical standards support the factual appearance of fiscal statistics. The statistical community develops a set of standards that gives answers to the challenging questions posed when measuring economic reality. National statistical institutes then adopt the statistical standards to let their work appear legitimate and give their work a rational appearance. This whole endeavor makes especially sense if one follows Ted Porter's (1995) argument that numbers achieve their social efficacy through their ability to coordinate action and legitimize behavior rather than being the keys to universal truth. It would then be more important for statisticians to come to *some* guideline or recommendation in a specific context than *which specific* approach they recommend. The content of the figures is potentially of minor importance – as long as they *appear* neutral and impartial and get accepted as such.

But Porter's thesis is of course a simplification. Numbers are not always in themselves a means to ensure trust. Rather the objective appearance of numbers is contingent on a complex relationship of production aspects, communication aspects and feasibility of the data for the user context (Heintz 2007: 81f.). Given that fiscal statisticians face the

task of measurement in a world of theoretical indeterminacies and conceptual ambiguities, one important phenomenon found in practice is that of accounting pragmatism. Statisticians appear to make pragmatic choices when measuring phenomena. Surprisingly little of the tensions statisticians are facing in this context become public, however. Similar to accountants, statisticians seem to consider the task to bridge divergent demands within their area of expertise as a matter of professionalism. The expert debates clearly show that statisticians aim to solve those problems in order to demonstrate their capability to measure economic 'reality' by finding the right trade-offs between reliability and relevance (Laliberté 2004b). In fact, statisticians appear to receive professional credit when they manage to produce data that is accepted by different social actors so that all parties can refer to the same data without having to debate about their sources. This, in turn, creates clear motivations for statisticians to keep the black box of fiscal measurement closed.

For outsiders international standards then supposedly reflect expert consensus on measurement questions, the 'best practice' in the field. The standards represent the formal knowledge of the profession. The development of international standards and their formal implementation thus serves to keep up the rationale façade of the whole accounting endeavor. This also explains well the observed pattern in accounting and economic statistics of the recent years: The different international statistical and accounting frameworks are increasingly harmonized, suggesting that there is a trend towards finding consensus on many measurement questions. But from an institutionalist perspective harmonization of organizational practices and the willing agreement on international standards is not necessarily a sign of 'technical' efficiency or nature of the issues involved. Rather organizations tend to mimic approaches by neighbored disciplines and bodies and they develop common principles especially when they are uncertain about what the best approach would be (Meyer/Rowan 1977). Institutionalized elements may also remain ambiguous on the actual working level, therefore decoupling the formal presentation of the organizational activity and actual practices. The management of the professional reputation of economic statisticians may become a partly independent dimension. The impression of data 'objectivity' and 'neutrality' may be cultivated by those engaged in the measurement process, while measurement ambiguity gets hidden.

We clearly find that the surface of the statistical system is managed, stressing the need of reputation of the statistical profession. Much weight is put on providing internally and externally consistent databases, the avoidance of artifacts in politically sensitive domains. Moreover, statisticians exert self-constraint in areas where the assessment of individual cases is both controversial and closely monitored from outside. Strategies

such as providing only a logical decision making tree with guiding principles for the level of application tend to immunize statistical standard setters from the burden of making full sense of complex situations. The economic rationale of a specific statement is provided, subject to evaluation of the individual conditions, rather than detailed guidance in concrete situations. A deductive mode of reasoning, coming from abstract principles over more specific guidelines to concrete interpretations of individual cases, allows statisticians to change politically sensitive treatments without sacrificing the logic of their framework. Additionally, statisticians import measurement legitimacy from source data and financial accounting principles. In face of uncertainty about what the adequate representation of 'economic reality' would be in specific circumstances, statisticians are in the need to demonstrate their ability to regulate the data generation process.

III. The Development of the Standards

The third conclusion that can be drawn from this study is that the actual content of the standards is determined through a collective endeavor of reality interpretation, involving significant struggles over meaning. While the challenge to keep up a neat and clean surface of the data generation process seems to be shared by most actors in the field, there are at the same time substantial debates about the detailed characteristics of the system. Statisticians are far from perceiving their work as random or arbitrary. The analysis of the historical and current debates within the profession clearly reveals that there is significant struggle about key aspects of economic or fiscal reality. The international standards are an organizational product – shaped by expert communities in complex negotiations and debates.

Over time the system of macroeconomic statistics developed a specific epistemology that obviously constrains the logics of argumentation and the experts' perception of feasible alternatives and extensions. It was shown that this specific epistemology is not a completely logical system, however. While some statisticians clearly refer to an institutional approach, stressing that economic statistics should only work with data actually prepared by primary units and hence constrain themselves to the aggregation of already existing information, others highlight the need for a set of theoretically established principles. Over the years the national accounts developed a specific approach – essentially as a compromise – for instance based on the idea that economic statistics should measure government production, income, and consumption even in the absence of observable market transactions. This of course requires the imputation of output and consumption value, conventionally done on the basis of defined cost components. The resulting principles and traditions of the system are used by many

statisticians in the debate in a taken-for-granted manner. In many ways categories, principles, logics of the system seem in themselves to justify certain treatments. This provides evidence for the existence of structural determination of the expert debate.

At the same time the structural elements of the system are not beyond actors' scope of influence. Fiscal statisticians for instance rejected for a long time the imputations and estimates which national accountants applied. The stated rationale was that fiscal data should be 'hard' to underpin the budgetary process and liquidity management. Concepts such as economic 'costs' were not part of the analytic frame. But with the introduction of an integrated, accrual perspective in the field of public sector accounting this position was increasingly modified. Today, the frontiers within the domain of fiscal statistics are significantly on the move: Softer estimates that are supposedly more meaningful gain some ground from harder cash data. Likewise the concepts of the SNA, such as the notion of economic assets, are subject to purposeful attempts of redefinition in the debate. Some discussants argue for an extension of the concept of financial assets to include the accounting concept of "constructive obligations". Others reject this concept both on the basis of its content and on the basis of possibly unwanted dynamics of the concept of provisions, once it is integrated in the system.

This clearly shows that statisticians are partly determined by structural elements of the institution - sometimes even in a way that cognitively restricts the perceived options. But the structural elements of the institution are also subject to evaluation and potential redefinition. The case of provisions clearly shows that at least some actors quite consciously intend to transform the conceptual basis of the system, being aware that this will influence and constrain decisions in future debates. Moreover, the observed stalemate between two organizational groups of statisticians in the field of pension accounting could for two years not be reconciled. It was the social skills of individual actors being able to promote a compromise that was decisive in the end.

To summarize, the formal institutionalized elements of organizational practice cannot be considered to be the result of a technical determination from analytical or policy demands. A functionalist-rationalist perspective on accounting and statistics is thus shortsighted and in many cases wrong. The assumption that statistical information systems would more or less automatically provide information that is feasible for administrative purposes or analytic needs simply neglects the fact that many basic economic phenomena are themselves highly complex and that the figures are loaded with meaning attached to them. The scope and content of the calculative frame is subject to substantial discretion. Moreover, the expert discussion shows that the basis on which facts are produced is controversial. The international standards that supposedly

guide measurement as 'best practice' are the results of institutional stickiness and strategic action based on different political-ideological motivations or different cognitive frames. The chosen rules are the results of struggles and often based on compromises. Sometimes they do not even really decide on the issues at all but remain ambiguous or very general. But the conventions underlying the data production do matter. It is suggested that, would users and the wider public be aware of the shaky grounds underlying the measurement process, the argumentative power of the numbers would substantially be weakened if not annihilated. Put differently, the authority of fiscal statistics seems - at least partly - to rely on the ignorance of their actual content and their production conditions.

6.3 Theoretical Implications

How do these findings relate to more general insights of the institutional literature? The primary claim of this study needs to be read against the background of the often implicit perspective of economic scholars who argue or assume that institutions would evolve as the result of efficient rational design. Institutions are seen as a means to coordinate economic action in a rational planning manner. The formal rules are considered as mutually beneficial. The reason of their existence, their evolution and impact are seen as functionally determined. This completely rational perspective has already been criticized by economic institutional scholars. Reviving his transaction cost approach Ronald Coase argued that the neoclassical paradigm would fail to fully explain economic behavior when ignoring the scope for and impact of institutions (Coase 1988: 15). Likewise, North has prominently argued that institutions emerge out of the incapacity of markets to provide full information on transactions and hence derives an impact of formal rules on economic development (North 1990). Yet even though these scholars admit that institutions exert influence on actors' decisions, they still essentially consider the role and impact of institutions from a rational-choice point of view, mostly as voluntaristic agreements in a principle-agent framework based on asymmetric information. In these studies a generally optimistic belief prevails that institutions could be designed and dealt with in a rational manner. The capacity of individual actors to cope with deficiencies of institutions is emphasized. In the context of accounting systems, for instance, Oliver Williamson claims that the respective institutions could show deficiencies, yet he argues that they would nevertheless eventually be shaped by laws of informational efficiency. He expects that any potential limits quantification systems could have would eventually be recognized, anticipated, and taken into account by actors dealing with them and thus leave the analytic power of calculative approaches intact (Williamson 1993: 453).

The findings of this thesis cast fundamental doubt on this perspective. Instead the evidence provides strong support for the core insight of *sociological new institutionalism*,

namely that institutionalized elements must be understood as a separate dimension of organizational life (DiMaggio/Powell 1991; Scott 2001) and that institutions could well lead to permanent inefficient or sub-optimal practices (Powell 1991). Often institutional practices and their adoption through organizations cannot be explained by technical demands but rather by the attempt of organizations to gain legitimacy and resources. At the same time the perception of the technical features of organizational practice may only be loosely coupled to what it actually does (Meyer/Rowan 1977). Put differently, the content of the statistical standards is not (completely) determined by functional demands and the technical characteristics of the statistical standards do not (completely) determine their social impact. In fact, this study shows that the formal appearance of statistical standards overshadows substantial controversy and ambiguity in the actual measurement process. What is more, the insights in the black box of fiscal accounting suggest that actually an unambiguous measurement of fiscal reality is strictly not possible. The very idea of using measurement for broadly designed calculative systems of decision making is thereby drawn into doubt.

Moreover, this study clearly confirms insights from newer institutional research which stresses that important institutional change can occur incrementally and be motivated endogenously (Streeck/Thelen 2005). This essentially questions the idea that institutions primarily develop in a reactive, adaptive way strictly following changes in the external context. While many of the debates within the statistical community are sensitive towards changes in analytical demands and broader movements in the environment, the findings suggest that change is predominantly motivated by endogenous interpretations of external requirements. Often mutually conflicting logics exist within the framework of economic statistics. Change can be induced by reinterpreting an implication or shifting relative importance to different patterns of justification or assessment of critical features. Many institutionalists tend to overstate stability in institutional arrangements, suggesting that important change would only occur in reaction to critical junctures. Yet this perspective tends to overlook smaller but nevertheless fundamental changes that occur in historical sequence (Pierson 2004: 9). The present study clearly provides evidence that it is the continuous reinterpretation of the statistical system that gives rise to fundamental changes in the presentation of fiscal reality. It is shown that the formal statistical rules are always contingent and embedded in a wider social and economic context. They are most often not self-evident, but their concrete implications for measurement need to be constantly (re-)interpreted (Streeck/Thelen 2005: 14). Streeck and Thelen convincingly argue that fundamental, transformative change can then occur as a result of actors changing their practical interpretation of a rule. The basic features of most institutions are that they are never fully prescriptive of resulting practice, and that

cognitive limitations of institutional ‘designers’, and freedom at the level of application modify the practical implications of a rule.

This sheds light on the basic question of whether institutions are structurally determined or actively reformatted according to actors’ interests. While there is clear evidence for institutional stickiness, either in the form of structural conservatism or in the form of cognitive routines (Jepperson 1991), we also find clear signs for individual and organizational actors actively trying to redefine the formal elements of the standards. Accounting pragmatism and harmonization through isomorphism is hence only part of the explanation we need. Whenever there are ambiguities and potentially different interests, the organizations and actors involved in the process and their strategies will matter (Clemens/Cook 1999; Friedland/Alford 1991; D’Aunno/Sutton/Price 1991). There is clear evidence that the cultural and political context influences the preferences and choices of statisticians. But there is also a substantial degree of indeterminacy between different pressure-contexts - different logics are inherent in the system. In the case of pension obligations for instance a fundamental cleavage between EU statisticians and Anglo-Saxon statisticians occurred. The differences in the positions were so large that the project of keeping up a common standard for economic statistics was at times endangered. The general problem of uncertainty about adequate measurement leads statisticians to refer to conventions, which can be understood as “culturally anchored understandings of situations” (Beckert 2007: 11). Statistical rules are hence not established independently of their context. Rather there is sort of a dialectic process between measurement principles, the analytic purpose, and dominant problems discussed in the public sphere. Statistics are a ‘reflexive’ tool of societies. Measurement relies on concepts that are loaded with *ex ante* priors on the functioning of the world. The proposed statistical treatments obviously relate to specific world views and assumptions about the functioning of the world. They frame the way people look at economic phenomena. If those contexts differ in substantial dimensions, a ‘technical’ consensus is beyond reach in the statistical community. When those demands are conflictuous neither path dependence nor isomorphism can sufficiently explain the actual choices of actors in these situations (Schneiberg 2007).

The statistical debate appears to remain in a technical mode, but in fact it is fundamentally different conceptions about the role and purposes of the statistical system that shapes the debate. An institution can be actively changed through the continuous reinterpretation of institutional rules following the actors own goals (Streeck/Thelen 2005: 19). The actual propositions regarding treatments are justified on the basis of a variety of arguments, referring to indeterminate principles, epistemological paradigms, assessments of the credibility of the system and the impact on political decision making.

The pension debate clearly showed that institutional change does not stem from fundamentally new insights into the issues, but rather from the shift of attention to a rival logic or relevant consideration. The statistical treatment of an issue is not determined by technical considerations but rather by complex attributions of relevance to competing logics and assessments. The resulting process can perhaps best be described as a calibration. The solutions found are historically contingent - they depend on wider social and political context and are related to political-cultural frames or ideologies.

The content of the debate is embedded in broad projects of social reform, and economic and political management. Especially with the decline of Keynesian paradigms, measurement in the fiscal realm became increasingly controversial. Keynesian paradigms provided a theoretical basis for an aggregate realism that was necessary for the development of national accounting in the first place. Moreover, the initial purpose of macro-accounting was macroeconomic management, so that pragmatic measurement decisions were generally considered feasible. The cash impact of government operations on disposable income was the prevalent analytical and practical fiscal interest. A look at the system today reveals that now the theoretical basis in the system is highly ambiguous: While the Keynesian skeleton still remains in place, a general orientation towards neoclassical principles has gradually been introduced. In the public sector the analytical perspective focusing on sustainability and long-term budget balancing was implemented. Balance sheets and market-oriented cost measurement principles increasingly play a crucial role for fiscal analysis. The accounting treatment of public-private partnerships relies on the assessment of risks assessed with corporate finance theory, and the valuation of pension liabilities is logically derived from the task to derive a virtual 'market value' of the government. The implicit aim of many fiscal accounting experts is to make private and public sector economic activity comparable. In the expert discussions now different world views collide: Keynesian vs. neoclassical theoretical orientations, institutional vs. analytic perspectives, financial vs. real (production-oriented) perspectives. The positions along those dimensions can best be explained by different political-ideological projects in which the measurement task is embedded.

Conflicting logics and technical indeterminacies increase the scope for actors influence on the actual content of the standards. This highlights the importance of analytical conceptions dealing with agency directed towards institutions (DiMaggio 1988; Fligstein 1997; Lawrence/Suddaby 2006). If clear conflicts emerge, such as in the case on pension obligations, the whole project of institutional maintenance can crucially depend on key actors. This confirms Fligstein's claim that capacities of social actors can have an important impact on actual institutional outcomes in a field (Fligstein 2001). But again,

we have to take note that in the observed case, the actual outcome is actually an ambiguous standard that pays the price for its continued universal existence in the form of abdicating regulative demands.

6.4 Final Remarks

The evidence presented in this study is hardly new. For financial accountants the ambiguity of capital valuation approaches is an old story. Government accountants are well aware that there is a trade-off between the reliability of cash indicators and the potential relevance of more comprehensive accrual based accounting figures. Actuaries spend most of their education trying to find answers to the challenging problems of prediction of future pension benefit outflows and their net present valuation and hence know about the crucial role of measurement assumptions. Economic statisticians at the national level know that they have only partial control over the content of their data sources and are constrained by concepts applied through the primary measurement process. International statisticians know that there is an inherent conflict between national source data consistency and international harmonization of concepts. All the professions involved in the quantification process seem to work hard to overcome the basic problems of measurement to which this study pointed. And indeed much 'progress' in terms of increased supply of data and higher transparency in the data generation process has been made. So what is the point of this study?

The core point is that – in contrast to the economic efficiency paradigm – those partial insights in the measurement problems are not believed to self-correct the institution of fiscal statistics. Rather the collective endeavor of gathering fiscal data has become so complex that it is increasingly challenging or sometimes strictly impossible to deconstruct the way knowledge is created in this context. Initially the system of economic statistics was developed by a small group of experts involved in all relevant aspects, such as raw data production, the definition of measurement concepts, theoretical innovations, and the practical (political) purposes of the system. In this situation, statisticians, such as Richard Stone in the 1940s/50s, could still take a very general view on the whole system and reflect on the critical aspects of statistical knowledge production. Today, however, the international statistical system has been handed over to the second and third generation of statisticians, is negotiated and debated in a large field of international and national organizations - embedded in different political and cultural contexts - and competes with harmonized business accounting standards etc. At the same time measurement problems have become much more complex, due to increasingly sophisticated instruments on financial markets and a highly complex role the government plays in the economy. Economic theory and analytical demands are highly ambiguous. Moreover, the gathering of fiscal data is a

collective endeavor. Various professions in numerous accounting units, statistical agencies and international organizations cooperate to provide the resulting data. As a result, the knowledge on the underlying conventions is scattered and cannot be controlled by a single actor or organization. In fact even getting an overview over how data is actually prepared is challenging. The coordination between the involved groups does not follow an efficient, functionally determined process, however. At every step of the compilation process actors will tend to overstate the neutrality and precision of the produced data and to claim that the respective arbitration is a matter of professional expertise. The ambiguity and discretion in the measurement process is hence dissolved in a long chain of legitimization between different groups of compilers and organizations. The final appearance of the data becomes partly decoupled from its actual content. It seems that at every layer, data producers and reporters interpret the demands for their specific contribution and employ pragmatic arbitrations and principle based justifications within the local context in which they operate.

The ignorance of the impact of problematic measurement conventions leads to fundamental problems, however. It allows specific groups which are aware of the impact to influence political decisions in a subtle way. Currently mostly people favoring small government favor an extension of the quantitative approach in the public sector. Some statisticians therefore step back and critically review the features of their system. With regards to the scope of the measurement frame, some suggest that economic statistics have been potentially selective with regards to the effects of public policies:

“In at least some small measure, the continued inadequacy of information about government impact in these areas of official activity may have had something to do with the strength with which the new neo-liberal orthodoxy of the 1980s took such a dominant hold on policy makers with its obsessive emphasis on growth. The concern with promoting markets through the widespread implementation of policies for the privatization of public sector operations may have been less strongly held if data had been readily available about the more positive and successful aspects of official actions to support people’s well-being” (Ward 2002: 4).

The widespread impression of technicality and neutrality of fiscal data is thus wrong – we should spend more attention investigating the potentially controversial bases underlying measurement. We need to be aware of the presumptions made to compile the data and remaining room for discretion. Only then can we judge which *answers* are actually provided by the data. Despite their clean surface, numbers are not self-explanatory. Whenever one argues with numerical facts one needs to know at least the general concepts and limitations underlying the data. Especially the move of fiscal statistics to an accrual basis should be critically assessed rather than simply taken as expert-induced progress in measurement. As Schumpeter noted already more than 50 years ago – in the context of methods of inductive statistics – we need to know how statistical information is produced. Otherwise we risk producing questionable results:

“It is impossible to understand statistical figures without understanding how they have been compiled. It is equally impossible to extract information from them or to understand the information that specialists extract for the rest of us without understanding the methods by which this is done – and the epistemological backgrounds of those methods. Thus an adequate command of modern statistical methods is a necessary (but not a sufficient) condition for preventing the modern economist from producing nonsense [...]: our stake in these methods is too great for us to leave judgment on the virtues or shortcomings, say, of the variance-difference method to specialists, even if they were unanimous about it” (Schumpeter 1954: 14).

This of course risks damaging the nice and clean surface of the numerical data. But it is necessary in order not to delegate political questions to arbitrary or unwanted conventions underlying the numbers. We need to read fiscal statistics actively in order to understand their meaning and limitations or decide to alter the accounting conventions. The databases won't do the work for us. After all, the deficit is just a number.

7 Annex

THE STRUCTURE OF THE GFS ANALYTIC FRAMEWORK

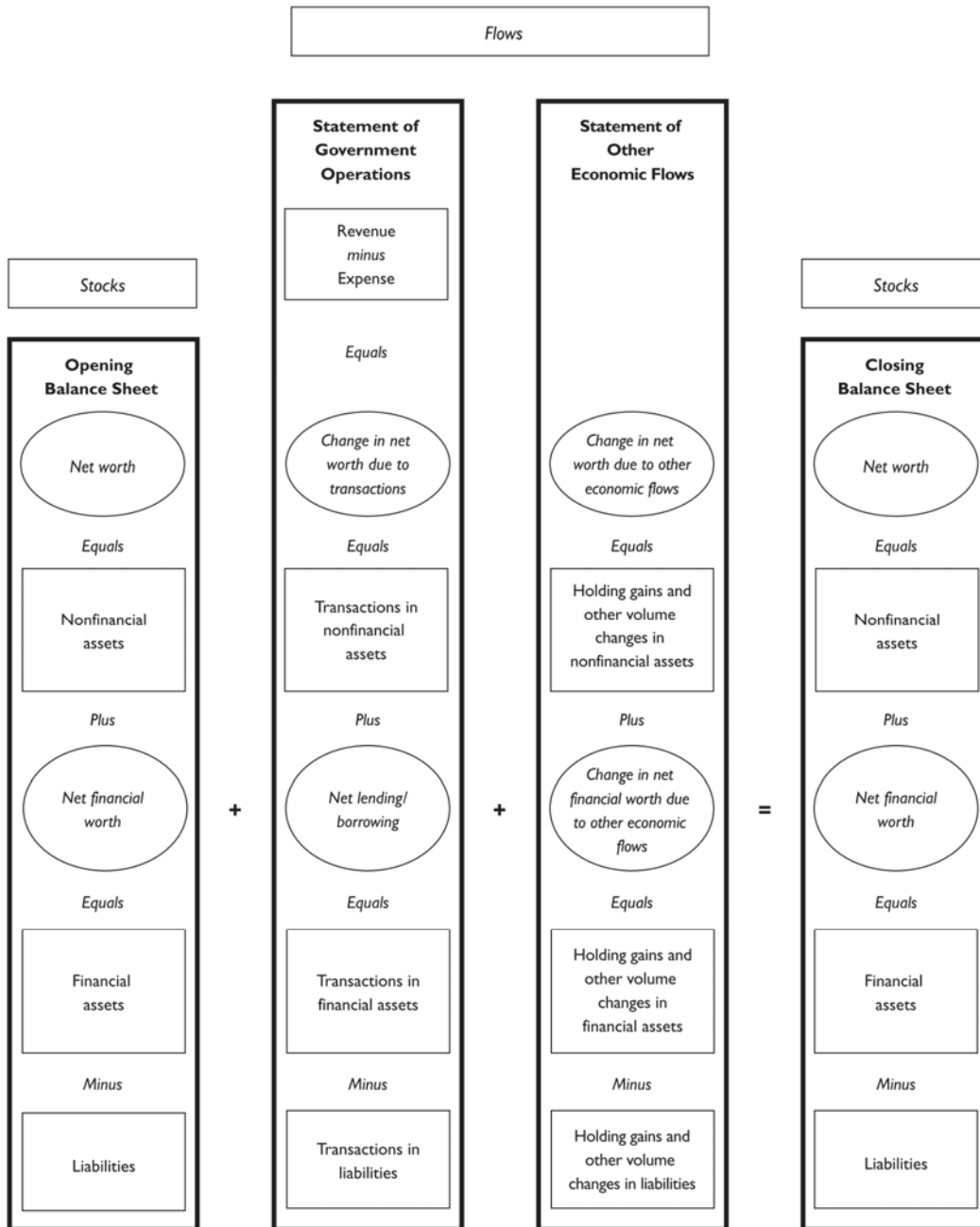


Figure A 1: The Structure of the GFS Analytic Framework

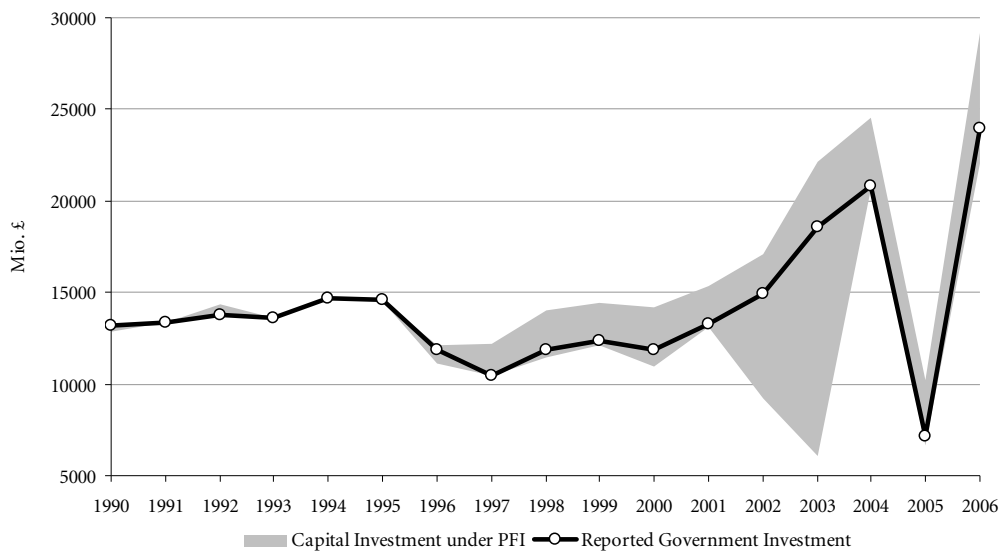
A COMPREHENSIVE PUBLIC SECTOR BALANCE SHEET

ASSETS	LIABILITIES
Social overhead capital (nonmarketable)	Net interest-bearing debt (national currency)
Equity in public enterprises (potentially marketable)	Net interest-bearing debt (foreign currency)
Land and mineral assets (marketable)	Stock of high-powered money
Present value of future tax program (incl. social security contributions etc.)	Present value of social insurance and other entitlement programs
Imputed net value of governments cash monopoly	Public sector net worth

(Source: based on Buiter 1993: 301)

Table A 1: A Comprehensive Public Sector Balance Sheet

THE PRIVATE FINANCE INITIATIVE IN THE UK



Source: UK Ministry of Finance, PFI Signed Projects List

Figure A 2: The PFI in the UK

CAPITAL VALUATION IN THE IFRS

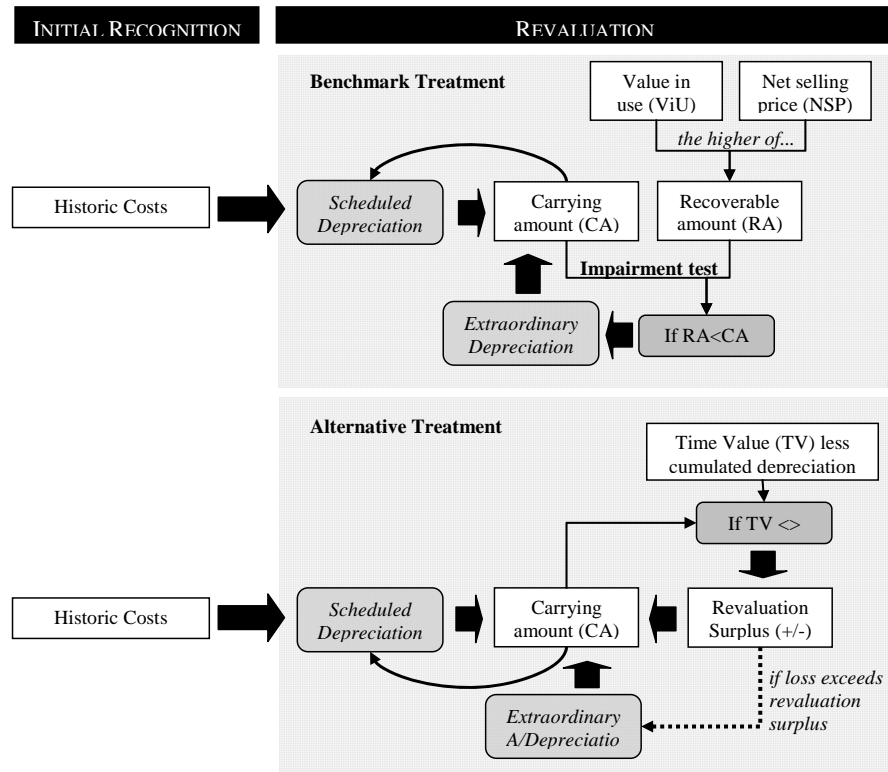


Figure A 3: Capital Valuation in the IFRS

SIMPLIFIED ACCOUNTS FOR THE GENERAL GOVERNMENT SECTOR

Production account	
1. Output	1 = 2 + 3
2. Market output and output for own final use	2
3. Non-market output	3 = 4 + 5
4. Payments for non-market output	4
5. Non-market output, other	5
6. Market output, output for own final use and payments for non-market output	6 = 2 + 4
7. Intermediate consumption	7
8. Value added, gross	8 = 1 - 7
9. Consumption of fixed capital	9
10. Value added, net	10 = 8 - 9
Generation of income account	
11. Compensation of employees, payable	11
12. Other taxes on production, payable	12
13. Other subsidies on production, receivable	13
14. Operating surplus, net	14 = 10 - 11 - 12 + 13
Allocation of primary income account	
15. Taxes on production and imports, receivable	15
16. Subsidies, payable	16
17. Property income, receivable	17
18. Property income, payable	18 = 19 + 20
19. Interest, payable	19
20. Other property income, payable	20
21. Balance of primary incomes, net	21 = 14 + 15 - 16 + 17 - 18
Secondary distribution of income account	
22. Current taxes on income, wealth etc., receivable	22
23. Social contributions, receivable	23 = 24 + 25
24. Actual social contributions	24
25. Imputed social contributions	25
26. Other current transfers, receivable	26
27. Current taxes on income, wealth etc., payable	27
28. Social benefits other than social transfers in kind, payable	28
29. Social transfers in kind (via market producers) payable	29
30. Social benefits and Social transfers in kind (via market producers), payable	30 = 28 + 29
31. Other current transfers, payable	31
32. Disposable income, net	32 = 21 + 22 + 23 + 26 - 27 - 28 - 31
Use of disposable income account	
33. Final consumption expenditure	33 = 34 + 35
34. Individual consumption expenditure	34
35. Collective consumption expenditure	35
36. Adjustment for the net equity of households in pension funds	36
37. Saving, gross	37 = 38 + 39
38. Saving, net	38 = 32 - 33 + 36
Capital account	
39. Consumption of fixed capital	39 = 9
40. Capital transfers, receivable	40 = 41 + 42
41. Capital taxes	41
42. Other capital transfers and investment grants, receivable	42
43. Capital transfers, payable	43
44. Gross capital formation and acquisitions of non-produced assets	44 = 45 + 48
45. Gross capital formation	45 = 46 + 47
46. Gross fixed capital formation	46
47. Changes in inventories and acquisitions of valuables	47
48. Acquisitions less disposals of non-produced assets	48
49. Net lending (+)/Net borrowing (-)	49 = 37 + 40 - 43 - 44
50. Total expenditure	50 = 7 + 11 + 12 + 16 + 18 + 27 + 30 + 31 + 36 + 43 + 44
51. Total revenue	51 = 6 + 13 + 15 + 17 + 22 + 23 + 26 + 40

Source: OECD General Government Accounts

Table A 2: Simplified Accounts for the General Government Sector

THE ACCOUNTS IN THE SNA 1993

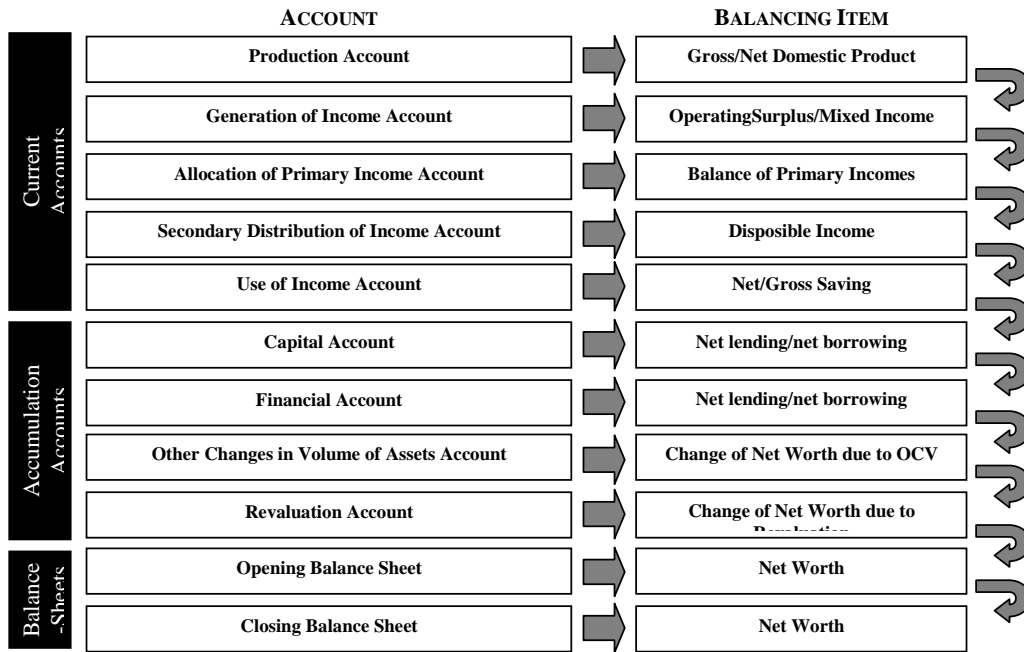
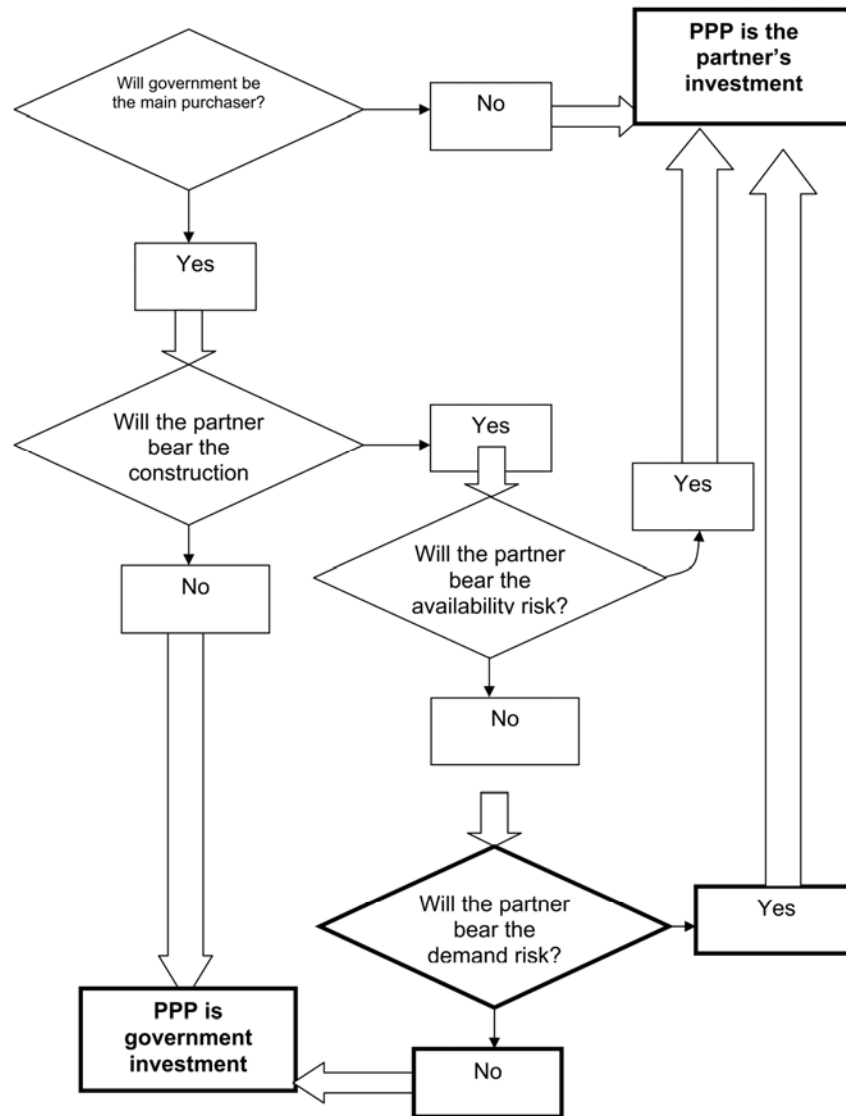


Figure A 4: The Accounts in the SNA 1993

DECISION TREE FOR PPP CONTRACTS



Source: Eurostat Manual on Deficit and Debt (2002), p.26

Figure A 5: Eurostat Decision Tree for PPP Contracts

EUROSTAT DECISIONS ON FISCAL STATISTICS

Eurostat Decisions	Date
<i>Recording of military equipment expenditure</i>	09.03.06
<i>Accounting implications of the "International Finance Facility for Immunisation" initiative</i>	02.08.05
<i>Three decisions on Italy: SCIP, ISPA and Concessionari d'imposta</i>	23.05.05
<i>The treatment of transfers from the EU budget to the Member States</i>	15.02.05
<i>Classification of funded pension schemes in case of government responsibility or guarantee</i>	02.03.05
<i>Payments to government by corporations in the context of the transfer to government of their pension obligations</i>	02.02.04
<i>New decision of Eurostat on deficit and debt - Treatment of public-private partnerships</i>	11.02.04
<i>Payments to government by public corporations in the context of the transfer to government of their unfunded pensions obligations</i>	21.10.03
<i>Liquidation of the EFTA Industrial Development Fund for Portugal</i>	21.08.03
<i>Capital injections by government units into public corporations</i>	21.08.03
<i>Treatment of non-returned banknotes and coins in the context of the cash changeover to the Euro</i>	22.07.02
<i>Securitisation operations undertaken by general government</i>	03.07.02
<i>Treatment of the transfer of Government real estate to a publicly-owned corporation in Austria</i>	31.01.02
<i>Eurostat decision on the allocation of Mobile Phone Licenses (UMTS)</i>	14.07.00
<i>Treatment of taxes on capital gains realised by a public holding company in the context of privatisation</i>	19.10.98
<i>Payment to the state following the sale of monetary gold by UIC to the Central Bank</i>	27.01.98
<i>Payments from Central Bank to the State - Changes in the due for payment dates on taxes, social contributions and benefits</i>	17.12.97
<i>Treatment of linear bonds. Financing and exploiting of "public infrastructure" by the enterprises sector. Treatment of export insurance guaranteed by the State</i>	30.04.97
<i>Treatment of deep-discounted bonds and index-linked bonds. Financing and exploiting of "public infrastructure" by the enterprises sector</i>	26.03.97
<i>Treatment of certain taxes. State guarantees on public enterprise debt. Financing and exploiting of "public infrastructure" by the enterprises sector</i>	21.02.97
<i>Capitalised interest on deposits and other financial instruments covered by ESA79</i>	03.02.97
<i>Treatment of fungible bonds issued in several tranches (coupons courus)</i>	
<i>Swaps on interest rates and currency swaps. Sales of gold by Central Banks</i>	
<i>Financial leasing</i>	
<i>Classification of national bodies acting on behalf of the EC (FEOGA etc)</i>	
<i>Pension funds</i>	
<i>Treatment of interest in the case of zero coupon bonds</i>	

Table A 3: Eurostat Decisions on Fiscal Statistics

SNA 1993 REV. 1 – LIST OF UPDATING ISSUES

NO.	MAIN GROUP	ISSUE
1	TFPIFS	Repurchase agreements
2	TFPIFS	Employer retirement pension schemes
3	TFPIFS	Employee stock options
4a	TFPIFS	Non-performing loans
4b	TFPIFS	Valuation of loans and deposits; Write-off and interest accrual on impaired loans
5	TFPIFS	Non-life insurance services
6a	TFPIFS	Financial services
6b	TFHPSA	Allocation of the output of central banks
7	TFHPSA	Taxes on holding gains
8		Interest under high inflation
9	Canberra II	Research and development
10	Canberra II	Patented entities
11	Canberra II	Originals and copies
12	Canberra II	Databases
13	Canberra II	Other intangible fixed assets
14	Canberra II	Cost of ownership transfers
15	Canberra II	Cost of capital services: production account
16	Canberra II	Government owned assets
17	Canberra II	Mineral exploration
18	Canberra II	Right to use/exploit non-produced resources between residents and non-residents
19	Canberra II	Military expenditures
20	Canberra II	Land
21	Canberra II	Contracts and leases of assets
22	Canberra II	Goodwill and other non-produced assets
23	Canberra II	Obsolescence and depreciation
24	Canberra II	Public-private partnerships (PPPs) (including buy-own-operate-transfer (BOOT) schemes)
25a		Ancillary units
25b		Holding companies, special purpose entities, trusts
25c	BOPCOM	Treatment of multi-territory enterprises
25d	BOPCOM	Non-resident unincorporated units
25e	TFHPSA	Non-resident SPEs controlled by government
26	Canberra II	Cultivated assets
27	Canberra II	Classification and terminology of assets
28	Canberra II	Amortization of tangible and intangible non-produced assets
29	Canberra II	Assets boundary for non-produced intangible assets
30	Canberra II	Definition of economic assets
31	Canberra II	Valuation of water
32		Informal sector
33		Illegal and underground activities
34	TFHPSA	Super dividend, capital injections and reinvested earnings (government transactions with public corporations (earnings and funding))
35	TFHPSA	Tax revenue, uncollectible taxes, and tax credits (recording of taxes)
36	TFHPSA	Private/public/government sectors delineation (sectorization boundaries)
37	TFHPSA	Activation of guarantees (contingent assets) and constructive obligations
38		Transaction concept
38a	BOPCOM	Change of economic ownership (as term)
38b	BOPCOM	Assets, liabilities and personal effects of individuals changing residence ("migrant transfers")
38c	TFPIFS	Application of accrual principles to the debt in arrears
39		Residence
39a	BOPCOM	Meaning of national economy
39b	BOPCOM	Predominant center of economic interest (as term)
39c	BOPCOM	Clarification of non-permanent workers and entities with little or no physical presence
39d	BOPCOM	Non-permanent workers
40	BOPCOM	Goods sent abroad for processing
41	BOPCOM	Merchanting
42	BOPCOM	Retained earnings of mutual funds, insurance companies, and pension funds
43		Interest and related issues
43a	BOPCOM	Treatment of index linked debt instruments
43b	BOPCOM	Debt indexed to a foreign country
43c	BOPCOM	Interest at concessional rates
43d	BOPCOM	Fees payable on securities lending and gold loans
44	BOPCOM	Financial assets classification
45		Decisions on additional issues submitted to the AEG

Source: <http://unstats.un.org/unsd/sna1993/issues.asp> [14.01.2008]; ISWGNA 2007 p. 6gg.

Table A 4: SNA Updating Issues

CHRONOLOGY OF THE SNA-PENSION DEBATE

DATE	EVENT
October 2001	<i>ISWGNA decides that IMF shall open an EDG on unfunded pension employer schemes</i>
October 2002	<i>ISWGNA expands discussion to all pension funds (incl. social security and social assistance schemes). OECD proposes workshop in 2003 – Establishment of the EDG</i>
November 2002	<i>Initial Discussion Paper</i>
24 Sep 2003	<i>Draft of Interim report</i>
17 Sep 2003	<i>Straw Poll questionnaire circulated</i>
February 2004	<i>Interim Report to the AEG; EU countries want to defer decision;</i>
04 June 2004	<i>OECD workshop on implicit pension liabilities</i>
8 October 2004	<i>OECD National Accounts Expert Group Meeting</i>
December 2004	<i>AEG asks for a task force to prepare further discussions</i>
	<i>Further papers to the AEG by the IMF (12/2004; 07/2005)</i>
2004/2005	<i>CMFB/FAWP votes against pension proposal (18:2)</i>
October 2005	<i>Controversy at OECD Working Party on National Accounts</i>
February 2006	<i>Discussion in the AEG in Frankfurt</i>
June 2006	<i>Establishment of Eurostat/ECB TF on pensions</i>
July 2006	<i>“Paris compromise” – inform. meeting at the OECD, excl. the IMF</i>
October 2006	<i>Compromise proposal to the ISWGNA/AEG</i>
March 2007	<i>UNSC accepts compromise</i>
March 2007	<i>TF proposes table to AEG</i>
March 2008	<i>UNSC accepts text of Volume 1</i>
March 2008	<i>Final report of the ECB/Eurostat Task Force</i>

Table A 5: Chronology of the SNA Pension Debate

THE CONTRIBUTIONS TO THE EDG ON PENSIONS

Code	Title	Contributor	Contribution Date
D-01	Government implicit liabilities in respect of their employees' unfunded pension plans	F. Lequiller	10. Jan. 03
D-02	Recognition of government pension obligations	Brian Donoghue	10. Jan. 03
D-03	The Treatment of Government Employee Pension Funds in the Australian National Accounts	ABS	23. Jan. 03
D-04	Properly Treating Activities of Nonautonomous Pension Schemes for Government Employees	David V. Pritchett	13. Feb. 03
D-05	The OECD Task Force on Pension Statistics	Jean-Marc Salou (OECD)	20. Feb. 03
D-06	International Differences in the Recording of General Government Pension Schemes in the National Accounts	F. Lequiller	3. Mrz. 03
D-07	Interview of Anne Harrison	Moderator	3. Apr. 03
D-08	Revised treatment of government employer unfunded pension plans in Canadian national accounts	Patrick O'Hagan	2. Jun. 03
D-09	Employer's unfunded insurance schemes and GDP - practical and conceptual issues	Anton Steurer (Eurostat)	9. Jun. 03
D-10	Accounting in full for pension liabilities	Anne Harrison	10. Jun. 03
D-11	Exchange on the recording of under and over funding of pension schemes	John Walton and Anne Harrison	11. Jun. 03
D-12	RE: Recognition of government pension obligations	John Pitzer	20. Jun. 03
D-13	Post-Employment Benefits Convergence IASB Project Summary	Anne McGeachin	24. Jun. 03
D-14	RE: The Definition of a Social Insurance Scheme and its Classification as Defined Benefit or Defined Contribution	John Pitzer	30. Jun. 03
D-15	RE: Comments on John Pitzer's paper on the definition and classification of a social insurance scheme	Anne Harrison	30. Jun. 03
D-16	Pension Terms	John Pitzer	2. Jul. 03
D-17	Pension Funds and Life Insurance Companies	John Walton	2. Jul. 03
D-18	Pension Schemes: Social Insurance and Social Protection	John Walton	2. Jul. 03
D-19	Background documents to Pension Schemes: Social Insurance and Social Protection	Eurostat, unit E.4	2. Jul. 03
D-20	IAS 19 - a Summary	Ahmad Hamidi-Ravari	1. Aug. 03
D-21	Background on PSC Standard Program and Note on Pension Accounting Developments	Paul Sutcliffe and Ahmad Hamidi-Ravari	8. Aug. 03
D-22	Questionnaire on recording of flows and stocks relating to pension schemes in national accounts	Eurostat Unit B.4	14. Aug. 03
D-23	The Valuation of Imputed Contributions to Unfunded Pension Schemes	John Pitzer	19. Aug. 03
D-24	Pension Funds with Securities Issued by the Employer	John Pitzer	19. Aug. 03
D-25	Old Age Provisions and Old Age Institutions	Gabe H. de Vries	19. Aug. 03
D-26	Interim Report of the Moderator - Draft 1	Moderator	25. Aug. 03
D-27	Recent Developments in Occupational Pension Plan Accounting	Juan Yermo	10. Sep. 03
D-28	Comments by external fiscal experts of the panel of the Fiscal Affairs Department (IMF)	Henry Aaron, Nicholas Barr, Barry Bosworth, Richard Disney, Robert Holzmann, Edwards Gramlich, Robert Palacios and Murray Petrie	22. Sep. 03
D-29	Interim Report of the Moderator	Moderator	24. Sep. 03
D-30	Financial Reporting Standard 17 (UK) on retirement benefits	UK Accounting Standards Board staff	21. Nov. 03
D-31	Some thoughts on the UK FRS 17	John Walton	21. Nov. 03
D-32	The property income element in contributions to unfunded schemes and the international comparability of labor costs	Anton Steurer (Eurostat)	25. Nov. 03
D-33	Treatment of unfunded public sector employee pension schemes in UK government accounts	David Watkins	25. Nov. 03
D-34	Results to the Straw Poll questionnaire	Moderator	25. Nov. 03
D-35	Notes on the OECD National Accounts Experts Meeting - Session on Pension (October 7, 2003)	Moderator	25. Nov. 03
D-36	Draft EDG Position Paper on Employer Retirement Pension Schemes	Moderator	1. Dez. 03
D-37	EDG Questionnaire on Employer Pensions	Moderator	16. Dez. 03
D-38	STA Position on Employer Retirement Pension Schemes	The IMF Statistics Department	22. Dez. 03
D-39	The treatment of government controlled pension schemes in national accounts	Jeff Golland	23. Dez. 03
D-40	What are "actuarial" contributions and property income? (defined benefits schemes)	John Walton	23. Dez. 03
D-41	RE: Draft EDG Position Paper on Employer Retirement Pension Schemes	F. Lequiller	23. Dez. 03
D-42	RE: Draft EDG Position Paper on Employer Retirement Pension Schemes	Anton Steurer (Eurostat)	23. Dez. 03
D-43	RE: Draft EDG Position Paper on Employer Retirement Pension Schemes	Paul Cotterell	23. Dez. 03
D-44	RE: Draft EDG Position Paper on Employer Retirement Pension Schemes	John Walton	23. Dez. 03
D-45	RE: Draft EDG Position Paper on Employer Retirement Pension Schemes	Peter Harper (ABS)	23. Dez. 03
D-46	RE: Draft EDG Position Paper on Employer Retirement Pension Schemes	Moderator	23. Dez. 03
D-47	The Treatment of Employer Retirement Pension Schemes in Macroeconomic Statistics -- the EDG on Pensions December 2003 Report	Moderator	29. Dez. 03
D-48	Conditions for the proposed change in the treatment of unfunded employer pension schemes in the SNA: illustration for general government accounts	The OECD Statistics Directorate	23. Jan. 04
D-49	A note on the economic effect of company pension fund contributions	Enrica Detragiache	8. Mrz. 04
D-50	UNSD's present position on the statistical treatment of employer pension schemes	Vetle Hvidsten and Ivo Havings (UNSD)	25. Jun. 04
D-51	Public Pensions in the National Accounts and Public Finance Targets	Heikki Oksanen	25. Jun. 04
D-52	Imputing Liabilities of Unfunded Employer Pension Schemes	John Walton	25. Jun. 04
D-53	Presentations to the OECD Workshop on Implicit Liabilities (June 4, 2004)	Moderator and F. Lequiller	25. Jun. 04
D-54	Presentation to the AEG of the EDG December 2003 Report on the SNA Treatment of Employer Retirement Pensions	Moderator	25. Jun. 04
D-55	Lessons from the OECD workshop on Accounting for Implicit Pension Liabilities (Paris, June 4, 2004).	F. Lequiller	7. Jul. 04
D-56	Views of the Eurostat Task Force on SNA Review (financial accounts and government finance statistics) on Accounting for Implicit Pension Liabilities (Luxembourg, September 15, 2004).	Dieter Glatzel	6. Okt. 04
D-57	THE STATISTICAL TREATMENT OF EMPLOYERS' PENSION SCHEMES	The Moderators	2. Dez. 04
D-58	EUROSTAT COMMUNICATION TO THE ADVISORY EXPERT GROUP	Eurostat	3. Dez. 04
D-59	RE: Properly Treating Activities of Nonautonomous Pension Schemes for Government Employees -- A follow up paper on Government Pension Schemes	David V. Pritchett	4. Jan. 05
D-60	COMMENTS on the paper EUROSTAT COMMUNICATION TO THE ADVISORY EXPERT GROUP	F. Lequiller	11. Jan. 05
D-61	Annex on the accounting sequences describing the main options	Philippe de Rougemont (Eurostat)	11. Jan. 05
D-62	Pension schemes: towards an efficient compromise proposal for the new SNA	F. Lequiller	13. Jan. 05
D-63	Abstract from the Summary Conclusions of the Second Meeting of the Advisory Expert Group on National Accounts (AEG) -- (Session on the statistical treatment of employers' pension schemes), 8-16 December 2004	The Moderators	19. Jan. 05
D-64	Recording liabilities of pension schemes: The very interesting case of the Swedish "Inkomspension"	F. Lequiller	24. Jan. 05
D-65	Japan: Impact on Net lending Borrowing of Pension "Returns"	F. Lequiller	12. Mai. 05
D-66	Employer retirement pension schemes: Issue note prepared for the meeting of the Financial Accounts Working Group meeting in Luxembourg on 10 and 11 May 2005	Mink and Walton	2. Jun. 05
D-67	Towards a compromise for the new SNA	F. Lequiller	24. Aug. 05

Table A 6: The Contributions to the Pension EDG

THE PARIS COMPROMISE ON PENSIONS

“(i) All employer pension-related flows and stocks, including pension entitlements, provided by schemes where the government has no direct responsibility for paying future pensions are recorded in the core accounts, even if they are unfunded.

(ii) The updated SNA will include a new standard (supplementary) table on pensions which will become a requirement. In this table, all flows and stocks of all pension schemes will be shown. This table will thus include details of pension flows and stocks that are recorded in the core accounts plus any that are not included in the core accounts, giving a complete view of households’ pension entitlements;

(iii) For the benefit of users of the accounts, all countries will be expected to produce the new standard (supplementary) table. It is suggested that this table would be compulsory for European Union member states through ESA regulation.

Concerning government sponsored schemes:

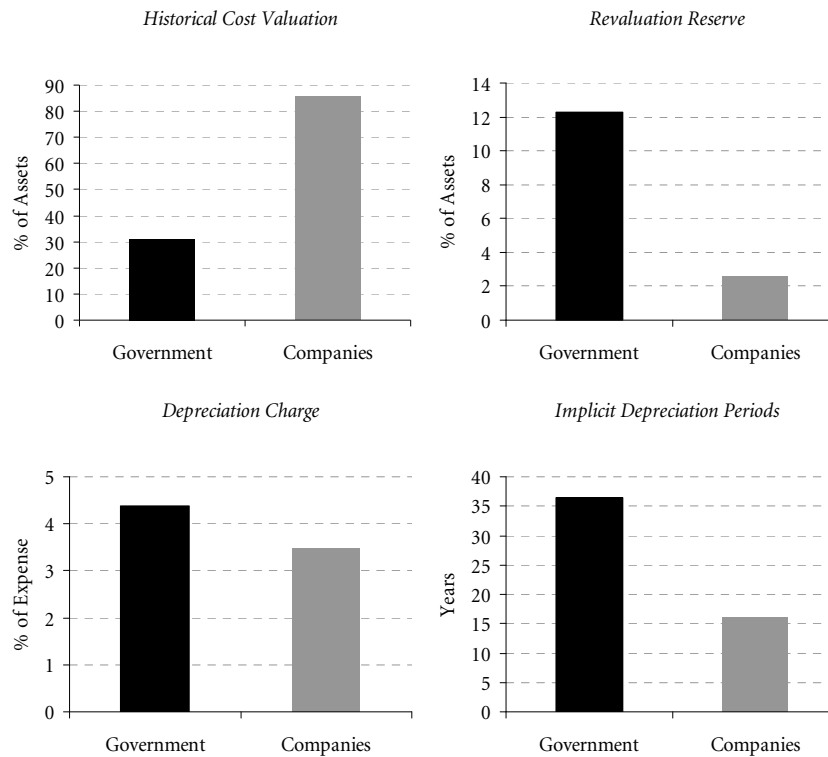
(iv) Pension entitlements of unfunded, pay-as-you-go government sponsored schemes which provide the basic social safety net type of provision, will be recorded only in the new standard (supplementary) table (but not in the core accounts);

(v) The recommendation of the updated SNA regarding the recording of unfunded pension schemes sponsored by government for all employees (whether private sector employees or government’s own employees) will be flexible. Given the different institutional arrangements in countries, the updated SNA will permit recording only some of these pension entitlements in the core accounts. However, it will be a requirement that the rationale and criteria be provided to explain the distinction between those schemes whose entitlements are carried forward to the core accounts and those for which they are recorded only in the new standard (supplementary) table. Providing a set of internationally recognized criteria for this distinction should be on the SNA research agenda, and will also be considered during the update of the ESA;

(vi) Pension entitlements of funded systems sponsored by the government will be recorded in the core accounts” (Eurostat/ECB Task Force on Pensions 2006).

Figure A 6: The Paris Compromise on Pensions

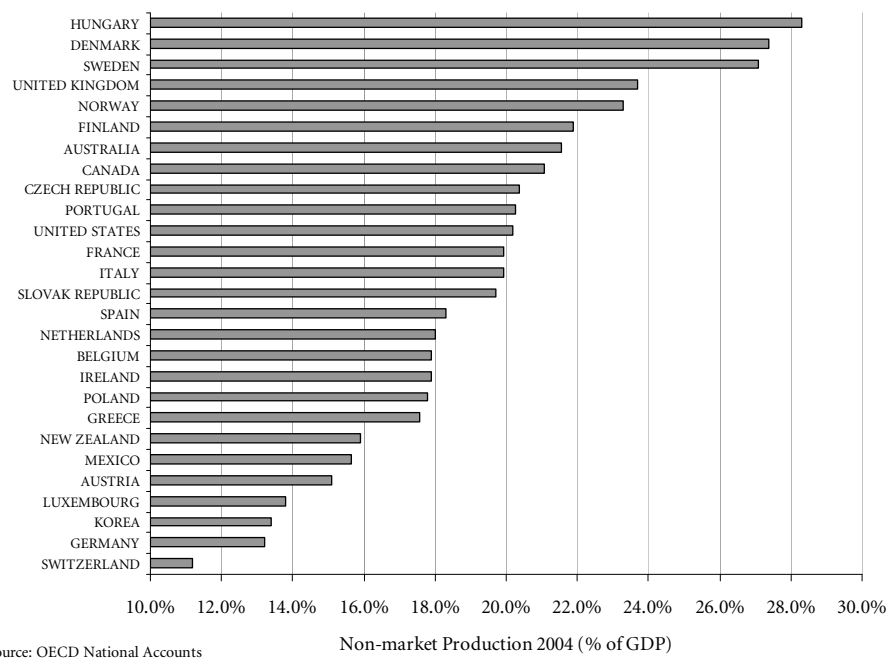
THE IMPACT OF INTERPRETATION: PUBLIC SECTOR ACCRUALS



Source: Carlin 2005

Figure A 7: The Impact of Accrual Accounting Rules in the Public Sector

NON-MARKET PRODUCTION IN THE NATIONAL ACCOUNTS



Source: OECD National Accounts

Non-market Production 2004 (% of GDP)

Figure A 8: Non-Market Production in the OECD

DISCOUNT RATE OPERATIONALIZATIONS

	Sep	April	Mean12	Mean24
1998	5,2%	5,9%	5,9%	6,4%
1999	6,1%	5,6%	5,5%	5,7%
2000	5,8%	5,9%	6,1%	5,8%
2001	5,5%	5,7%	5,6%	5,9%
2002	4,9%	5,8%	5,5%	5,6%
2003	5,3%	5,0%	5,0%	5,3%
2004	5,0%	5,2%	5,2%	5,1%
2005	4,4%	4,7%	4,7%	4,9%
2006	4,9%	5,1%	4,8%	4,7%
2007	4,8%	4,9%	4,9%	4,8%

Table A 7: Discount Rate Operationalizations

AGE-DISTRIBUTION

	<25	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64
Sep-85	4.3%	9.7%	14.8%	18.1%	14.3%	12.7%	12.5%	9.0%	4.7%
Sep-86	3.9%	9.3%	14.4%	18.6%	15.2%	12.9%	12.4%	8.8%	4.4%
Sep-87	4.1%	9.4%	13.9%	17.8%	16.8%	13.2%	12.1%	8.6%	4.2%
Sep-88	3.9%	9.4%	13.3%	17.2%	17.9%	14.0%	11.9%	8.4%	4.0%
Sep-89	3.8%	9.4%	12.8%	16.6%	18.8%	14.5%	11.9%	8.3%	3.9%
Sep-90	3.4%	9.1%	12.4%	16.2%	19.6%	15.1%	12.1%	8.2%	3.9%
Sep-91	3.3%	8.8%	12.1%	15.9%	19.8%	15.8%	12.2%	8.2%	3.9%
Sep-92	2.7%	8.1%	11.9%	15.3%	18.8%	17.5%	12.7%	8.6%	4.2%
Sep-93	2.2%	7.4%	11.9%	15.0%	18.5%	18.8%	13.5%	8.6%	4.2%
Sep-94	1.6%	6.7%	11.8%	14.7%	18.3%	20.2%	14.1%	8.6%	4.1%
Sep-95	1.3%	6.1%	11.5%	14.5%	18.3%	21.4%	14.6%	8.4%	3.9%
Sep-96	1.0%	5.5%	10.8%	14.2%	18.2%	21.9%	15.6%	8.8%	4.0%
Sep-97	0.9%	4.9%	10.1%	14.0%	17.8%	21.2%	17.7%	9.2%	4.1%
Sep-98	0.9%	4.5%	9.4%	14.0%	17.3%	20.7%	19.0%	10.0%	4.2%
Sep-99	0.9%	4.1%	8.8%	13.7%	16.8%	20.3%	20.3%	10.7%	4.4%
Sep-00	1.1%	3.9%	8.3%	13.2%	16.3%	20.1%	21.2%	11.3%	4.6%
Sep-01	1.4%	3.8%	8.1%	12.6%	16.0%	19.7%	21.6%	12.0%	4.8%
Sep-02	1.8%	4.2%	8.0%	12.0%	15.8%	19.1%	20.5%	13.6%	5.1%
Sep-03	1.8%	4.5%	7.8%	11.3%	15.7%	18.6%	20.1%	14.5%	5.6%
Sep-04	1.9%	5.0%	7.6%	11.0%	15.6%	18.2%	19.7%	15.1%	5.9%
Sep-05	1.9%	5.3%	7.4%	10.8%	15.4%	18.0%	19.6%	15.5%	6.1%
Sep-06	1.8%	5.7%	7.3%	10.7%	14.9%	17.9%	19.5%	15.8%	6.4%

Source: US OPM, Statistics based on Central Personnel Data File [http://www.opm.gov/fedata/html/Age_Dist.asp]

Table A 8: Age Distribution

SERVICE-YEAR DISTRIBUTION

<5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	>39
2.1%	20.8%	27.6%	18.1%	11.8%	9.1%	6.0%	3.0%	1.5%

Source: Fedscope, Full-time/Permanent Employees 1998-2006

Table A 9: Service Year Distribution

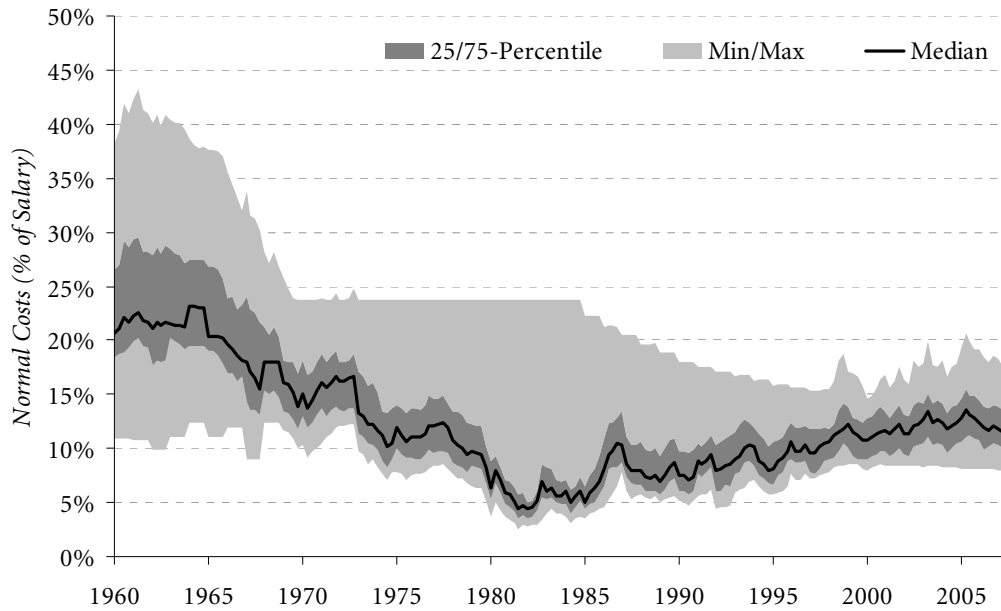


Figure A 9: Time Series Sensitivity – Normal Costs

SCENARIOS FOR ACCOUNTING CONVENTIONS

CODE	ACCOUNTING CONVENTION
C1	Inclusion of Gross Investment and Consumption of Fixed Capital (current valuation)
C2	Inclusion of Gross Investment only (current valuation)
C3	Inclusion of Consumption of Fixed Capital only (current valuation)
HC1	Inclusion of Gross Investment and Consumption of Fixed Capital (historical valuation)
HC3	Inclusion of Consumption of Fixed Capital only (historical valuation)
R1	C1 with immediate recognition of revaluation gains for pension obligations
R2	C2 with immediate recognition of revaluation gains for pension obligations
R3	C3 with immediate recognition of revaluation gains for pension obligations
DR	C3 with delayed recognition of revaluation gains for pension obligations
S1	Parameter Scenario 1: benefit increase 0%, wage increase 3%
S2	Parameter Scenario 2: benefit increase 1.5%, wage increase 4%
S3	Parameter Scenario 3: benefit increase 3%, wage increase 5%
DF1	End of period 30 year bond rate
DF2	Mid quarter 30 year bond rate
DF3	Average quarter 30 year bond rate
DF4	12 month moving average 30 year bond rate
DF5	Fixed 6% interest rate

Table A 10: Accounting Scenarios

IRF: SPENDING ON GDP 1960-2007

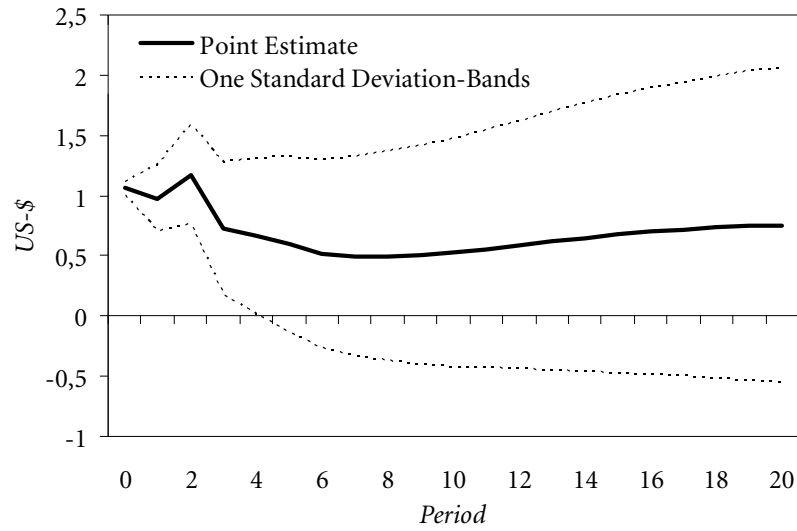


Figure A 10: Impulse-Response - Spending on GDP 1960-2007

IRF: SPENDING ON CONSUMPTION 1960-2007

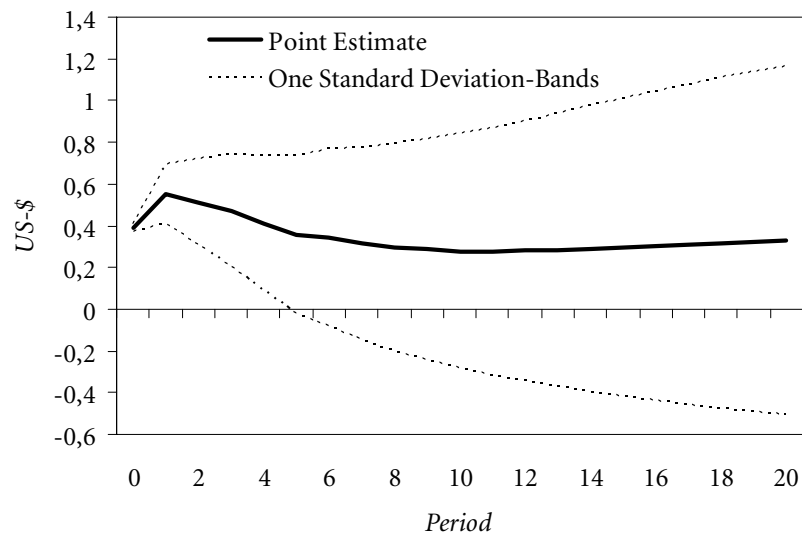


Figure A 11: Impulse-Response - Spending on Consumption 1960-2007

IRF-SENSITIVITY – SPENDING ON GDP

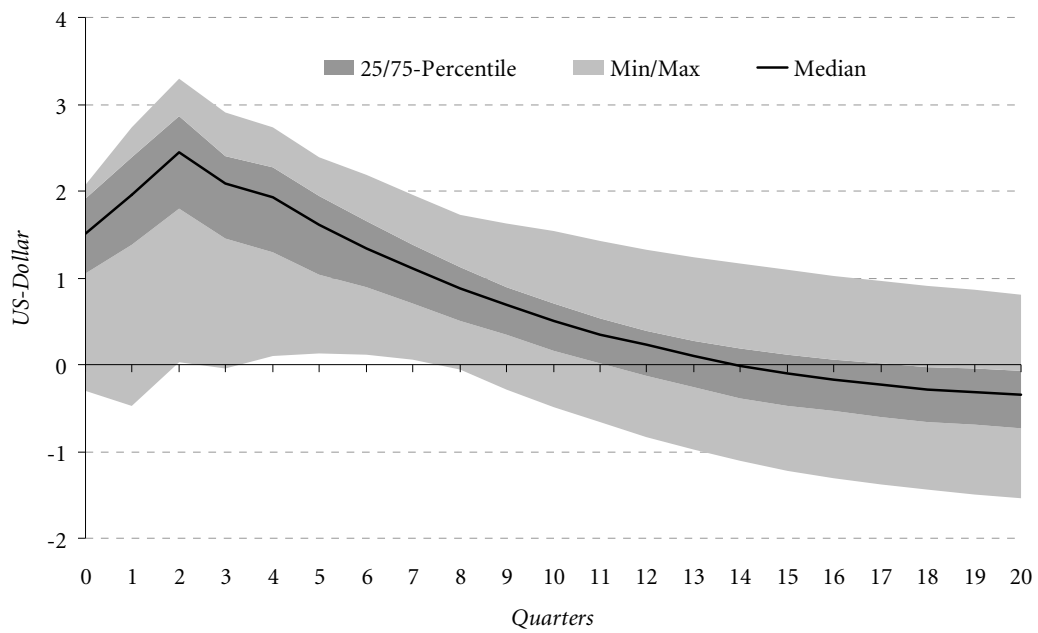


Figure A 12: Impulse-Response Sensitivity - Spending on GDP

IRF-SENSITIVITY – SPENDING ON CONSUMPTION

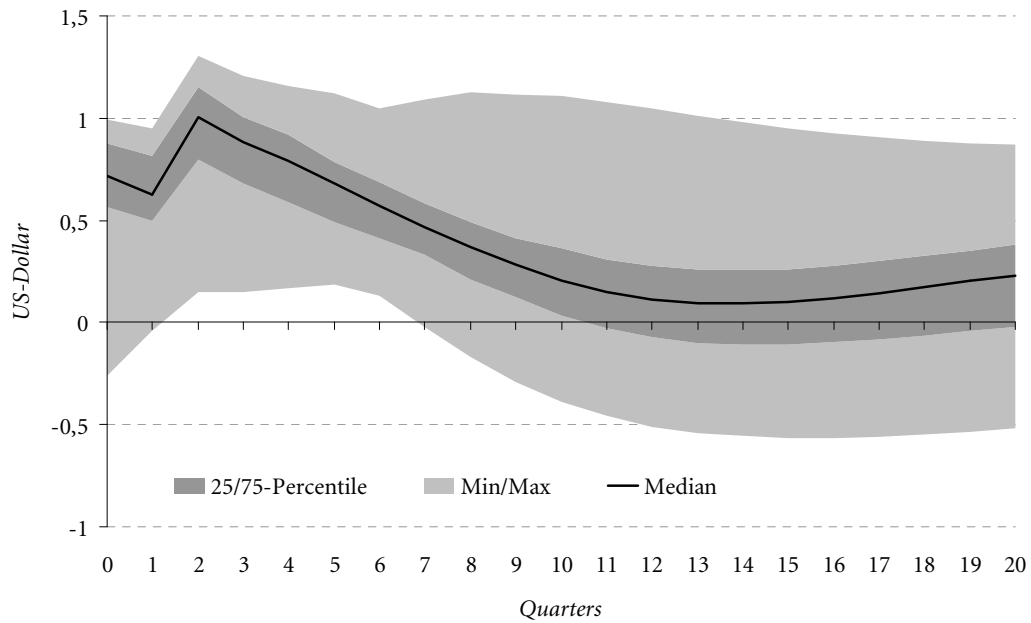


Figure A 13: Impulse-Response Sensitivity - Spending on Consumption

IMPACT BAND OF THE DISCOUNT FACTOR OPERATIONALIZATION

	CUC			PUC			EAN		
	S1	S2	S3	S1	S2	S3	S1	S2	S3
<i>Total Spending (1)</i>	4.2	4.9	5.6	4.3	5.6	6.7	4.4	5.5	6.6
<i>Gross Investment (2)</i>	4.4	5.1	5.9	4.5	5.9	7.3	4.6	5.8	7.1
<i>COFC (3)</i>	3.8	4.4	5.2	3.8	4.9	6.2	3.9	4.9	5.9
<i>1 at Historical Cost</i>	3.5	4.1	4.6	3.6	4.5	5.3	3.7	4.5	5.3
<i>3 at Historical Cost</i>	3.5	4.0	4.7	3.4	4.4	5.4	3.6	4.4	5.2
<i>(1) + Revaluation</i>	13.0	13.5	13.5	14.3	13.8	12.6	14.7	14.4	13.6
<i>(2) with Revaluation</i>	13.3	13.8	13.8	14.6	14.0	12.7	15.0	14.6	13.7
<i>(3) with Revaluation</i>	11.3	11.8	11.9	12.4	12.1	11.0	12.7	12.5	11.8
<i>(3) with del. Recognition</i>	2.7	3.3	3.9	4.0	5.2	6.4	4.1	5.1	6.1

Table A 11: Impact Band - Discount Factor Operationalization

IMPACT BAND OF THE SCENARIOS

	CUC					PUC					EAN				
	End	Mid	3M	12M	6%	End	Mid	3M	12M	6%	End	Mid	3M	12M	6%
<i>Total Spending (1)</i>	0.6	0.9	0.9	1.4	0.0	0.7	1.2	1.3	2.5	0.1	0.7	1.0	1.3	2.2	0.0
<i>Gross Investment (2)</i>	0.8	1.1	1.1	1.5	0.0	1.1	1.6	1.7	2.9	0.1	1.1	1.4	1.7	2.5	0.1
<i>COFC (3)</i>	0.6	0.9	0.9	1.4	0.0	1.1	1.8	1.7	2.8	0.4	0.9	1.4	1.6	2.3	0.3
<i>1 at Historical Cost</i>	0.2	0.5	0.5	1.0	0.0	0.2	0.4	0.5	1.8	0.1	0.2	0.4	0.7	1.6	0.0
<i>3 at Historical Cost</i>	0.4	0.7	0.7	1.1	0.0	0.5	1.2	1.1	2.3	0.4	0.5	0.9	1.2	1.9	0.3
<i>(1) + Revaluation</i>	0.3	0.4	0.3	0.6	0.0	3.0	3.2	2.3	1.2	0.0	2.2	2.2	1.5	1.0	0.0
<i>(2) with Revaluation</i>	0.4	0.5	0.3	0.8	0.0	3.3	3.7	2.7	1.5	0.0	2.5	2.5	1.9	1.3	0.0
<i>(3) with Revaluation</i>	0.3	0.4	0.3	0.7	0.0	3.4	3.8	3.0	2.0	0.0	2.5	2.6	2.1	1.6	0.0
<i>(3) with del. Recognition</i>	0.6	0.3	0.2	0.6	0.0	1.2	0.6	0.5	1.1	0.0	0.9	0.5	0.3	1.0	0.0

Table A 12: Impact Band - Scenarios

IMPACT BAND OF THE ACCRUAL METHOD

	Scenario 1					Scenario 2					Scenario 3				
	End	Mid	3M	12M	6%	End	Mid	3M	12M	6%	End	Mid	3M	12M	6%
<i>Total Spending (1)</i>	0.1	0.2	0.2	0.1	0.1	0.2	0.4	0.5	0.6	0.2	0.2	0.4	0.5	1.1	0.1
<i>Gross Investment (2)</i>	0.1	0.2	0.2	0.1	0.2	0.4	0.6	0.6	0.7	0.2	0.5	0.7	0.8	1.4	0.1
<i>COFC (3)</i>	0.3	0.4	0.4	0.4	0.3	0.6	0.8	0.8	0.9	0.4	0.8	1.2	1.1	1.7	0.6
<i>1 at Historical Cost</i>	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.5	0.1	0.2	0.0	0.2	0.8	0.1
<i>3 at Historical Cost</i>	0.3	0.4	0.3	0.4	0.3	0.4	0.7	0.7	0.8	0.5	0.5	0.8	0.8	1.4	0.7
<i>(1) + Revaluation</i>	1.9	1.5	1.7	0.4	0.0	0.8	0.5	0.9	0.2	0.0	1.2	1.4	0.8	0.2	0.0
<i>(2) with Revaluation</i>	1.9	1.5	1.7	0.4	0.0	0.7	0.3	0.7	0.2	0.0	1.4	1.7	1.0	0.4	0.0
<i>(3) with Revaluation</i>	1.3	1.1	1.3	0.2	0.0	0.3	0.4	0.2	0.6	0.0	2.1	2.4	1.8	1.1	0.0
<i>(3) with del. Recognition</i>	0.6	0.3	0.2	0.8	0.0	0.9	0.4	0.3	1.1	0.0	1.2	0.6	0.4	1.2	0.0

Table A 13: Impact Band - Accrual Method

IMPACT BAND OF CAPITAL COST TREATMENT

	CUC			PUC			EAN		
	S1	S2	S3	S1	S2	S3	S1	S2	S3
<i>End of Period</i>	4.1	4.1	4.1	3.8	3.8	3.7	3.8	3.8	3.8
<i>Mid Period</i>	3.9	3.9	3.8	3.6	3.5	3.3	3.6	3.5	3.4
<i>Average 3M</i>	3.9	3.9	3.9	3.7	3.7	3.6	3.7	3.6	3.6
<i>Average 12M</i>	3.6	3.7	3.6	3.4	3.4	3.3	3.3	3.2	3.3
<i>6%</i>	3.2	3.2	3.2	2.8	2.7	2.5	2.8	2.6	2.5

Table A 14: Impact Band - Capital Cost Treatment

IMPACT BAND OF DEPRECIATION BASIS

Capital Costs 1

	CUC			PUC			EAN		
	S1	S2	S3	S1	S2	S3	S1	S2	S3
<i>End of Period</i>	1.4	1.3	1.2	1.4	1.2	0.9	1.4	1.2	1.0
<i>Mid Period</i>	1.4	1.3	1.2	1.4	1.2	0.8	1.4	1.2	0.9
<i>Average 3M</i>	1.4	1.3	1.2	1.4	1.1	0.8	1.4	1.2	0.9
<i>Average 12M</i>	1.4	1.3	1.2	1.4	1.1	0.8	1.4	1.2	0.9
<i>6%</i>	1.7	1.6	1.6	1.7	1.7	1.7	1.7	1.7	1.7

Capital Costs 3

	CUC			PUC			EAN		
	S1	S2	S3	S1	S2	S3	S1	S2	S3
<i>End of Period</i>	1.2	1.0	0.8	1.2	0.8	0.4	1.2	0.9	0.6
<i>Mid Period</i>	1.2	1.0	0.8	1.1	0.8	0.4	1.2	0.9	0.6
<i>Average 3M</i>	1.2	1.0	0.8	1.1	0.8	0.4	1.2	0.8	0.5
<i>Average 12M</i>	1.2	1.1	0.9	1.2	0.9	0.6	1.3	1.0	0.7
<i>6%</i>	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.0

Table A 15: Impact Band - Depreciation Basis

IMPACT BAND OF REVALUATION RECOGNITION

	(1) CUC			(1) PUC			(1) EAN			(2) CUC			(2) PUC			(2) EAN		
	S1	S2	S3	S1	S2	S3	S1	S2	S3	S1	S2	S3	S1	S2	S3	S1	S2	S3
<i>End of Period</i>	11.9	12.4	12.4	13.6	13.1	11.4	13.8	13.5	12.4	12.1	12.7	12.6	13.9	13.3	11.7	14.0	13.7	12.6
<i>Mid Period</i>	10.1	10.7	10.7	11.8	11.3	9.7	11.7	11.5	10.5	10.3	10.8	10.9	11.9	11.4	9.9	11.8	11.6	10.7
<i>Average 3M</i>	8.7	9.5	9.8	10.6	10.6	9.5	10.5	10.8	10.3	8.8	9.6	9.9	10.7	10.8	9.7	10.6	10.9	10.4
<i>Average 12M</i>	0.1	0.5	0.9	0.5	1.2	1.8	0.4	0.9	1.5	0.0	0.4	0.8	0.4	1.2	1.8	0.2	0.9	1.5

	(3) CUC			(3) PUC			(3) EAN		
	S1	S2	S3	S1	S2	S3	S1	S2	S3
<i>End of Period</i>	10.8	11.3	11.2	12.3	11.8	10.0	12.4	12.0	10.8
<i>Mid Period</i>	9.3	9.9	9.9	10.8	10.3	8.7	10.7	10.5	9.4
<i>Average 3M</i>	8.4	9.2	9.5	10.1	10.0	8.8	10.0	10.2	9.5
<i>Average 12M</i>	1.2	1.5	1.8	1.5	2.0	2.4	1.4	1.8	2.2

Table A 16: Impact Band - Revaluation

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9 Lebenslauf

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10 Erklärung nach §6 der Promotionsordnung der Wirtschafts- und Sozialwissenschaftlichen Fakultät der Universität zu Köln 09.02.2005:

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