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Abstract

We present a new methodology for operationalizing growth models based on import-adjusted demand components. Applying the methodology to the latest release of OECD Input-Output Tables, we calculate the growth contributions of consumption, investment, government expenditures, and exports for sixty-six countries in the periods 1995 to 2007 and 2009 to 2018 and identify the respective growth models. We find that most countries are export-led or domestic demand-led and that other forms of growth are rare. Our results corroborate previous classifications in comparative political economy but also differ from them in significant respects. Importantly, our classification improves on previous ones by covering not just the advanced capitalist economies but also Central and Eastern European and South-East Asian and Latin American countries. In a further step, we illustrate how the new indicators can be used to analyze the "drivers" of different types of growth. This examination reveals that there is a clear trade-off between consumption- and export-led growth in advanced Western economies in the period 1995 to 2007 and a dependence of export-led growth in these countries on real exchange rate devaluation in the same period, while export complexity is not a significant predictor of export-led growth.

Keywords: advanced economies, emerging economies, export-led growth, growth models, input-output tables, political economy

Zusammenfassung

Wir stellen eine neue Methode zur Operationalisierung von Wachstumsmodellen auf der Grundlage importbereinigter Nachfragekomponenten vor. Dabei berechnen wir anhand der aktuellen Input-Output-Tabellen der OECD den jeweiligen Wachstumsbeitrag von Konsum, Investitionen, Staatsausgaben und Exporten für 66 Länder in den Zeiträumen 1995–2007 und 2009–2018 und ermitteln die entsprechenden Wachstumsmodelle. Es zeigt sich, dass die meisten Länder ein vom Export oder von der Inlandsnachfrage getragenes Wachstum aufweisen und andere Wachstumsformen selten sind. Unsere Ergebnisse bestätigen bisherige Klassifikationen der Vergleichenden Politischen Ökonomie und unterscheiden sich gleichzeitig in wesentlichen Punkten von ihnen. Vor allem hat unsere Klassifikation im Vergleich zu bisherigen den Vorteil, dass sie sich nicht nur auf die fortgeschrittenen kapitalistischen Wirtschaftsordnungen, sondern auch auf Länder in Mittel- und Osteuropa und in Südostasien und Lateinamerika bezieht. Darüber hinaus erläutern wir, wie die neuen Indikatoren genutzt werden können, um die „Treiber" verschiedener Wachstumsformen zu ermitteln. Unsere Auswertung der Daten legt offen, dass es in fortgeschrittenen westlichen Volkswirtschaften im Zeitraum 1995–2007 klare Zielkonflikte zwischen konsum- und exportorientiertem Wachstum und eine Abhängigkeit des exportorientierten Wachstums von realen Wechselkursabwertungen gegeben hat, während die Komplexität der Exporte keinen wesentlichen Einfluss auf das exportorientierte Wachstum hatte.

Schlagwörter: entwickelte Volkswirtschaften, exportorientiertes Wachstum, Input-Output-Tabellen, politische Ökonomie, Schwellenländer, Wachstumsmodelle

Contents

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1 Introduction

The past few years have seen a surge of interest in "growth models" among comparative and international political economists and post-Keynesian economists (Baccaro and Pontusson 2016; Behringer and van Treeck 2019; Blyth and Matthijs 2017; Hassel and Palier 2021; Kohler and Stockhammer 2021). This coming together of social scientists and heterodox economists is a welcome development, and it promises to revitalize "political economy" as an interdisciplinary field of study (Stockhammer and Kohler 2022).

Yet, research on growth models is hindered by the lack of consensus on their conception and operationalization. When talking about growth models, some researchers refer to the effects of changes in some of the underlying ultimate "drivers of growth" (e.g., the factor distribution of income), while others are interested in the actual growth contribution of some particular aggregate demand components (e.g., consumption or exports). The approaches used for measuring growth models vary accordingly.

In this paper, we present a new methodology for operationalizing growth models, which applies growth decomposition to "import-adjusted" demand components (Auboin and Borino 2018; Bussière et al. 2013). This methodology identifies the key demand contributors to growth for specific countries in given periods, thus providing an objective basis for the distinction between not only consumption- and export-led growth models, on which the discussion has mostly focused so far, but also investment- and government expenditure-led ones, or some combinations of the various components.

The main advantage of the import-adjusted demand component approach is that it distinguishes between different types of import expenditures according to their use: for consumption, investment, government expenditures, and export purposes. Growth decomposition focusing on net exports, that is, subtracting all imports from exports as it is usually done, understates the growth contribution of exports and overstates that of domestic demand (especially consumption). Furthermore, growth decomposition is a purely descriptive exercise, which does not require acceptance of the validity of any particular economic model. Moreover, the resulting data can be used to investigate the drivers of different types of growth (e.g., shifts in wage/profit shares, changes in the personal distribution of income, changes in household debt, trends in asset prices, price and non-price competitiveness of exports, etc.).

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The methodology developed in this paper requires input-output tables (IOTs) to calculate import-adjusted demand components. Until not long ago, IOTs were only available for a limited number of countries and years on a standardized basis. Furthermore, the data were based on different statistical standards for different periods, and thus not directly comparable. However, the OECD's most recent release of IOTs includes standardized data for sixty-six countries between 1995 and 2018. We use these data (7,069,392 observations in total) to construct measures of growth models for all countries in the OECD IOT database for two periods: the pre-financial crisis period (1995–2007) and the post-crisis period (2009–2018).

Our findings suggest that most countries are export-led or domestic demand-led (where domestic demand is the sum of consumption, investment, and government spending). Consumption-led economies are rare, and the US is consistently one of them. There are clear and durable differences between the continental European countries and the "liberal market economies" (LMEs). The former are overwhelmingly export-led, the latter domestically oriented. The Nordic countries sit uneasily with the continental European countries and deserve a category of their own, since household consumption and especially investment and government expenditures are more important for their growth profiles than for continental European countries. Both the Mediterranean and the Central and Eastern European countries (CEE) responded to the crisis by moving decisively towards export-led growth, while the South-East Asian and Latin American countries had more differentiated responses. The methodology described in the paper allows the notion of growth models to be extended beyond the advanced capitalist economies to emerging economies as well.

In a second step, we illustrate how the newly created indicators can be used for the analysis of growth drivers. We explore two questions about the advanced Western countries and Central and Eastern European countries: Is there a trade-off between export-led and consumption-led growth? In other words, is export-led growth stimulated by the repression of domestic consumption as hypothesized by Baccaro and Pontusson (2016) on the basis of four countries (Germany, Italy, Sweden, and the UK)? Relatedly, is export-led growth dependent on real exchange devaluation (Baccaro and Pontusson 2016), or is it better explained by the complexity (i.e., quality) of exports (Kohler and Stockhammer 2021)?

These analyses are illustrative and exploratory, but they produce some interesting results: there is indeed a trade-off between consumption- and export-led growth – countries with a high contribution of consumption to growth tend to have a low contribution of exports and vice versa – but it is limited to advanced Western countries in the period preceding the crisis and does not extend to the CEE countries or to the post-crisis period. Furthermore, real exchange rate devaluation strongly predicts export-led growth in advanced Western countries in the pre-crisis period, while export complexity is not a significant predictor of it. However, the relationship is again time- and region-specific: there is no statistical link between real exchange rate devaluation and export-led growth in the CEE countries or after the crisis.

The remainder of the paper is organized as follows: The next section reviews the existing literature on growth model operationalization. We then introduce our methodology before presenting our growth model indicators for sixty-six countries divided into thirteen regional groups and two time periods. This is followed by an analysis of the trade-off between export-led and consumption-led growth and of the determinants of export-led growth. The concluding section discusses avenues for empirical research using the data presented in the paper.

2 The literature on growth model classification and operationalization

The empirical research on growth models is rapidly expanding and now covers a growing number of topics: cross-country variation in growth trajectories (Baccaro and Pontusson 2016; Bohle and Regan 2021; Hassel, Palier, and Avlijaš 2020; Johnston and Regan 2018; Reisenbichler 2021), changes in growth trajectories over time (Baccaro and Benassi 2017; Erixon and Pontusson 2022; Höpner 2019; Baccaro and Pontusson 2021; Reisenbichler and Wiedemann 2022); variation in policy stance across countries (e.g., fiscal policy, tax policy) as a result of growth model differences (Haffert and Mertens 2021; Hopkin 2020; Hübscher and Sattler 2022); the impact of growth models on individual preferences (Baccaro and Neimanns 2022; Hübscher, Sattler, and Truchlewski 2022); the effects of cross-country institutional differences on patterns of inequality and growth (Behringer and van Treeck 2019, 2021); the impact of particular sectors on growth (Bürgisser and Di Carlo 2022); and the relationship between growth models and central bank policies (Reisenbichler 2020).

Despite the growing popularity of the notion of growth models and its deployment as dependent and independent variable in a number of empirical analyses, there is no consensus on the definition of growth models and no generally accepted methodology for operationalizing them. Different authors use the label to designate slightly different objects. It is therefore important to provide some conceptual and methodological clarification.

Baccaro and Pontusson (2016, 2021) have used growth decomposition between consumption, investment, government expenditures, and net exports to operationalize growth models. Thus, Germany was classified as an export-led growth model because net exports provided the largest contribution to German growth between 1994 and 2007, the UK as a consumption-led growth model for analogous reasons, Sweden as a balanced growth model for its ability to combine export-led and consumption-led growth contributions, and Italy as a case of stagnation due to the lack of any viable demand driver of growth. Growth decomposition was then coupled with a (rudimentary) analysis of the determinants of different types of growth, focusing in particular on wage growth, household debt, and the price sensitivity of exports. Recently, Mertens et al. (2022) have used the growth decomposition approach to classify the growth models of nine emerging market economies.

Cardenas and Arribas (2021, chap. 1) also use growth decomposition to identify growth models, coupling it with an analysis of the relationship between consumption and investment, respectively, and the net export share of GDP. Furthermore, they engage in an analysis of trajectories of institutional change for a number of European countries in the style of the regulation school approach (Boyer and Saillard 2005). They thus derive three growth models: (1) debt-financed consumption-led (associated with private-sector debt and a current account deficit); (2) export-led; and (3) domestic demand-led.

Hassel and Palier (2021) rely on multiple qualitative and quantitative criteria for identifying growth models. On the one hand, they use the share of a particular demand component (exports or consumption) to differentiate between export-led and domestic demand-led growth. On the other, they examine variation in countries' capacity to produce and export high value-added services, which they consider a function of their ability to effectively adopt information and communications technology. In conducting this analysis, they examine welfare state institutions and reform policies, as they see them as important facilitators of the transition towards a high value-added service economy. The combination of these criteria leads to five types of growth models: (1) export-led with dynamic services (e. g., Sweden); (2) export-led with manufacturing exports (e. g., Germany); (3) FDI-driven export-led (where exports depend on the ability of the country to attract foreign capital) (e. g., Ireland); (4) domestic demand-led, supported by finance and high value-added services (e. g., the UK); (5) domestic demand-led, with public expenditures as the key growth driver (e. g., Mediterranean countries).

Picot (2021) focuses on how countries could engineer a demand stimulus, arguing that they essentially have three ways to boost aggregate demand: they can bring their private sector into deficit; they can run a public sector deficit; or they can rely on the rest of the world to go into deficit (which corresponds to a current account surplus for the country in question). It is also possible to combine different demand stimuli. With three sectors (private, public, foreign) and two possible states of the world (deficit or no deficit), there are eight potential combinations, but one of them is impossible (private deficit, public deficit, current account surplus) because if the whole domestic economy is in deficit, the country *must* borrow from the rest of the world and hence be in external deficit.

Based on this framework, Picot (2021) collects data on twenty-eight OECD countries divided into three periods (1995–2000, 2001–2007, and 2010–2016) and then analyzes them using the methodology of fuzzy-set qualitative comparative analysis (Ragin 2000), identifying seven types of growth models: (1) finance-based (aggregate demand stimulation is achieved through private deficit); (2) export-led (a sustained current account surplus stimulates growth); (3) state-led (based on large public deficits); (4) domestic demand-led (based on the combination of private and public deficits); (5) private- and export-led (based on the combination of private deficits and current account surpluses but with public surpluses); (6) state- and export-led (based on the combination of public deficits and current account surpluses but with private surpluses); and (7) balanced (no private or public deficit, no current account deficit). The author finds that export-

led growth is dominant in continental European and Nordic countries and finance-led growth is dominant in English-speaking countries, while Mediterranean and CEE countries are more internally diverse.

Picot's (2021) methodology is essentially based on a simplified sectoral balance approach. As such it shares some similarities with that of Hein et al. (2021). These authors use two criteria for identifying growth models: growth decomposition across consumption, investment, government expenditures, and net exports; and the net financial balances of sectors (household, non-financial private firms, financial private firms, public sector, and foreign sector). The latter criterion is used to shed light on the manner in which demand is financed. They thus infer four types of growth models, as follows: (1) Export-led mercantilist is characterized by a large growth contribution of net exports, while the growth contribution of domestic demand is small or negative. (2) Weakly export-led has a similar configuration to the previous type, but the growth contribution of export surpluses is lower. The Mediterranean countries after the euro crisis are classified as weakly export-led, too. (3) Domestic demand-led is characterized by a government sector in deficit and a private sector in financial surplus, while the current account is in balance or moderate deficit. (4) Debt-led private demand boom has the private sector as a whole in deficit, including the household sector (which finances its dissaving by increasing its debt exposure), and sees endemic current account deficits.

Hein et al. (2021) also clarify the distinction between the concept of "demand regime" as used by post-Keynesian and regulationist economists (e. g., Boyer 1988) and that of "growth models" as used by comparative political economists. A demand regime is a counterfactual entity, which depends on an underlying structural model of the economy – for example, neo-Kaleckian (Bhaduri and Marglin 1990) or neo-Sraffian (Girardi and Pariboni 2016). This model defines the ultimate determinants of growth: for example, propensity to consume, sensitivity of investments to profits and aggregate demand, price sensitivity of exports and imports, demand sensitivity of imports and exports, autonomous (debt-financed) consumption. To identify a demand regime, it is necessary to examine what would happen to aggregate demand if, for example, the functional distribution of income between wages and profits were to change at the margin in favor of wages. If demand expands, the demand regime is wage-led; vice versa, it is profit-led. Capital accumulation can also be wage-led or profit-led depending on whether investments are more responsive to the expansion of demand or to the profit share. Labor productivity, too, is affected by shifts in the functional distribution of income and can be wage-led or profit-led (Storm and Naastepad 2012).

A country having a wage-led or profit-led demand regime is not the same as actual growth being caused by an increase in the wage share or profit share. Actual growth is determined by the combination of the structural features of an economy, which shape the demand regime, and the policies enacted in the country, which could be pro-labor or pro-capital (Lavoie and Stockhammer 2013). If there is congruence between the demand regime and the policy regime (for example if pro-labor policies are implemented in a

wage-led demand regime), growth will ensue; if there is a mismatch (for example if pro-capital policies are implemented in a wage-led demand regime), there will be stagnation.

Building on the distinction between structural determinants of growth and actual growth processes, Kohler and Stockhammer (2021) critique the use of growth decomposition for classifying growth models. Looking at the growth contributions of consumption, investment, government expenditures, and net exports, they argue, says little about the ultimate sources of growth. For example, consumption-led growth may be driven by an increase in the bargaining power of workers, or by an increase in households' access to debt, or by the wealth effect of appreciating asset prices, or by some combination of these factors. In addition, they argue that growth accounting *per se* may lead to misclassification of a country's growth process. For example, after the sovereign debt crisis, the Mediterranean countries were forced to drastically reduce the volume of imports without exports increasing much. The application of a growth accounting methodology would lead to these countries being classified as examples of export-led growth, but in reality the increase in the growth contribution of net exports was due to the drastic contraction of imports. Furthermore, in financialized capitalism, growth is subject to endogenous cycles (Minsky 1992). Countries relying on debt-led growth first experience a period of boom, which is followed by a bust period when the private sector starts to deleverage. If a growth decomposition approach is used, these different phases of the same cycle will appear as shifts in the growth model unless the time frame is sufficiently long.

As a result, Kohler and Stockhammer (2021) recommend focusing on growth drivers through econometric analyses in which the dependent variable is either GDP or some specific components of it (e.g., consumption, investment, exports, imports) and the independent variables are selected based on a model of the structural determinants of growth. The ultimate drivers of growth are shifts in wage or profit shares as underscored by neo-Kaleckian models, as well as shifts in the distribution of personal income, changes in household debt, and asset prices. Econometric analysis reveals that shifts in factor income play a limited role when compared with the role played by household debt and house price movements (Stockhammer and Wildauer 2016).

In brief, an analysis of the literature reveals that so far there is no consensus on the number and type of growth models and on the most appropriate approach for operationalizing them. Most authors adopt some form of growth decomposition, but others recommend against its use. In our view, growth decomposition has several advantages, as it is a purely descriptive exercise, which does not require acceptance of the validity of any particular model of the economy. By contrast, estimating the ultimate drivers of growth requires acceptance of a particular model as correct. Neo-Kaleckians underscore movements in factor shares (wage or profit shares), and neo-Sraffians the autonomous demand components, as the ultimate drivers (Girardi and Pariboni 2020; Morlin, Passos, and Pariboni 2022). Relatedly, the estimation of the effects of growth drivers relies on often questionable assumptions about the exogeneity of variables. Furthermore, differences in specification, time period of the analysis, and estimation approach often

produce different estimates (Blecker 2016). Growth decomposition is instead model-free and assumption-free. In addition, the required data series are generally available for numerous countries and for long periods. However, growth decomposition needs to be adjusted to correct a problem of interpretation, which we discuss in the next section.

3 Problems with traditional growth decomposition

The methodology of growth decomposition is simple and straightforward and requires little specialized knowledge. Starting from the expenditure-based representation of GDP (Y) as the sum of consumption (C), investments (I), government expenditures (G), and exports minus imports ($X - M$), the growth contribution of each demand component K is equal to the percentage change of the demand component times the share of the demand component in GDP at time zero:[1]

$$Y = C + I + G + (X - M) \quad (1)$$

$$for\ K = [C, I, G, (X - M)]$$

$$growth\ contribution\ of\ K = \frac{\Delta K}{K_0}\frac{K_0}{Y_0} = \frac{\Delta K}{Y_0} \quad (2)$$

However, by subtracting imports entirely from exports, this method of growth decomposition leads to an underestimation of the economic importance of exports and an overestimation of the importance of the domestic demand components (especially consumption). Exports only absorb a portion of imports. The vast majority of imports are consumed. Some imports are also used as investment goods or purchased by governments and should thus be deducted from consumption, investment, and government expenditures, respectively.

Consider the extreme example of an economy that produces solely for export, has no investment and no government expenditures (but the argument would not change if they were included), and uses the export revenues to pay for imports, which are then consumed. By design, this is an export-led economy with a balanced trade account. Let us assume that all components of aggregate demand equal 100 at time zero:

$$Y_0 = C_0 + (X_0 - M_0) = 100 + (100 - 100) \quad (3)$$

Let us now increase all demand components by 10 percent:

$$Y_1 = C_1 + (X_1 - M_1) = 110 + (110 - 110) \quad (4)$$

1 Sometimes the relative growth contribution of demand component K is calculated by dividing for the growth rate: $relative\ growth\ contribution\ of\ K = \frac{\Delta K}{K_0}\frac{K_0}{Y_0} / \frac{\Delta Y}{Y_0} = \frac{\Delta K}{\Delta Y}$.

If we conduct growth decomposition according to the formula described in (2), we find that the economy has grown by 10 percent and all growth is consumption-led, while the growth contribution of (net) exports is zero, which is patently false in substantive terms.

Let us now distinguish between imports that are absorbed by consumption (M_C) and imports that are absorbed by exports (M_X) (such as raw materials or intermediate products used in the production of exports), which in this particular case are assumed to be zero. For all demand components, and not just for exports, we calculate their net values:

$$M_0 = M_{C0} + M_{X0} = 100 + 0 \quad (5)$$

$$Y_0 = (C_0 - M_{C_0}) + (X_0 - M_{X_0}) = (100 - 100) + (100 - 0) = 0 + 100 \quad (6)$$

If we assume again that all demand components grow by 10 percent and we apply the growth decomposition formula, we find that all growth is export-led and the growth contribution of consumption is nil, which is correct both arithmetically and substantively.

This example shows that traditional growth decomposition may lead to misclassification. While subtracting imports solely and entirely from exports makes sense if one is interested in the net financial balance of a country vis-à-vis the rest of the world (net trade and current account balance), it leads to an underestimation of the growth contribution of exports and an overestimation of that of domestic demand. In order to obtain the correct answers from growth decomposition, *import-adjusted demand components* are required. However, national accounts data do not distinguish between the portion of imports that is absorbed by each demand component and only provide the total value of imports. In order to calculate import-adjusted demand components, it is necessary to use input-output tables and apply the methodology we lay out in the next section.

4 Methodology for deriving import-adjusted demand components

Our goal is to reformulate the expenditure-based formula for GDP (Y) as the sum of net (import-adjusted) demand components. For this we need to decompose imports (M) into the import expenditures absorbed by each demand component:

$$M = M_C + M_I + M_G + M_X \quad (7)$$

$$Y = (C - M_C) + (I - M_I) + (G - M_G) + (X - M_X) \quad (8)$$

The four terms in brackets represent the import-adjusted contribution to aggregate demand of consumption, government spending, investment, and exports, respectively.

Input-output tables provide the information needed to derive the import-adjusted demand components. A stylized representation of an IOT is reported in Table 1:

Table 1 Stylized structure of input-output tables

<table>
<tr><td colspan="3"></td><td colspan="4">Intermediate</td><td colspan="4">Final demand</td><td></td></tr>
<tr><td rowspan="6">Domestic</td><td></td><td>Ind. 1</td><td>Ind. 2</td><td>…</td><td>Ind. n</td><td>C</td><td>I</td><td>G</td><td>E</td><td>Total</td></tr>
<tr><td>Ind. 1</td><td colspan="4" rowspan="4">Z^d (n x n)</td><td colspan="4" rowspan="4">F^d (n x 4)</td><td rowspan="9"></td></tr>
<tr><td>Ind. 2</td></tr>
<tr><td>…</td></tr>
<tr><td>Ind. n</td></tr>
<tr><td rowspan="4">Import</td><td>Ind. 1</td><td colspan="4" rowspan="4">Z^m (n x n)</td><td colspan="4" rowspan="4">F^m (n x 4)</td></tr>
<tr><td>Ind. 2</td></tr>
<tr><td>…</td></tr>
<tr><td>Ind. n</td></tr>
<tr><td>Value added</td><td></td><td colspan="4"></td><td colspan="4"></td></tr>
<tr><td>Total</td><td></td><td colspan="9"></td></tr>
</table>

The economy is composed of n sectors. The rows of the IOT record the output of each sector i as the sum of the sales of intermediate outputs to the j domestic sectors of the economy (matrix Z^d) plus final demand (matrix F^d) – consumption, investment, government expenditures, and exports. The columns of the IOT report the inputs used by each sector j to produce its output as the sum of intermediate inputs purchased from the i domestic sectors of the economy plus foreign imports of intermediate inputs (matrix Z^m) purchased by sector j from sector i plus value added (Miller and Blair 2009, chap. 2). Notice that the IOT also reports, sector by sector, the direct imports of goods and services that satisfy each component of final demand (matrix F^m). This information is not available in standard national accounts data. For each sector i and each final demand component k, the total value of the sectoral output x is:

$$x_{i,k} = \sum_{j=1}^{n} z^d_{i,j} + f^d_{i,k} \quad (9)$$

where $z^d_{i,j}$ is the output sold by sector i to sector j and $f^d_{i,k}$ is one of k final demand components satisfied by the output of i.

Data on direct imports are important to calculate import-adjusted demand components, but they are not sufficient on their own. In addition, we need to calculate indirect imports, that is, the value of imports "induced" by spending on goods and services produced domestically. Imports of intermediate inputs from foreign suppliers, as well as imports incorporated in intermediate inputs bought from domestic suppliers, fall into this category. In order to estimate indirect imports, we follow the methodology of Bussière et al. (2013, 123–27; see also Auboin and Borino 2018, 36–38).

First, we transform the matrices Z^d and Z^m into the matrices A^d and A^m by dividing each cell of Z^d and Z^m by the sum of the respective column (total output of sector j):

$$a^d_{i,j} = \frac{z^d_{i,j}}{x_j} \text{ and } a^m_{i,j} = \frac{z^m_{i,j}}{x_j} \quad (10)$$

Second, we express the domestic output of sector i that satisfies the final demand component k as follows:

$$x_{i,k} = \sum_{j=1}^{n} a^d_{i,j}\, x_{j,k} + f^d_{i,k} \quad (11)$$

In matrix form:

$$X = A^d X + F^d \Rightarrow X = (I - A^d)^{-1} F^d \quad (12)$$

Third, for each final demand component k, we calculate the imports of intermediate inputs from sector i induced by domestically produced products and services satisfying the demand component k with the following formula:

$$m^{ind}_{i,k} = \sum_{j=1}^{n} a^m_{i,j}\, x_{j,k} \quad (13)$$

This formula tells us that each sector i uses the sum of imported inputs from sectors j ($z^m_{i,j} = a^m_{i,j} x_j$) to produce its output. In matrix form:

$$M^{ind} = A^m X \quad (14)$$

Plugging the formula for X into the formula for M^{ind}:

$$M^{ind} = A^m (I - A^d)^{-1} F^d \quad (15)$$

Since imports are the sum of direct and indirect (induced) imports, and direct imports are given by F^m, total imports M^{tot} are given by:

$$M^{tot} = M^{ind} + M^{dir} = A^m (I - A^d)^{-1} F^d + F^m \quad (16)$$

The total final expenditures linked to each demand component are given by the sum of final expenditures on domestically produced goods and services (F^d) and on directly imported goods and services (F^m):

$$F^{tot} = F^d + F^m \quad (17)$$

We can now calculate the import-adjusted final demand components:

$$F^{imp.adj.} = F^{tot} - (M^{ind} + F^m) = F^d - M^{ind} \quad (18)$$

The formula above shows clearly that the import-adjusted demand components are expenditures on domestically produced goods and services minus the expenditures on imports that are indirectly induced by domestically produced goods and services.[2]

Having derived the import-adjusted values, we then apply the growth contribution formula (equation (2)) discussed above to obtain the import-adjusted growth contributions of consumption, investment, government expenditures, and exports:

$$for\ K = [C, I, G, X]$$

$$growth\ contribution\ of\ K^{imp.adj.} = \frac{\Delta K^{imp.adj.}}{Y_0} \quad (19)$$

Appendix A provides more details about the methodology. Before presenting the import-adjusted demand contributions to growth for several countries, the next section discusses the data used.

5 The OECD Input-Output Tables

We use the latest release of the OECD Input-Output Tables (IOTs) database, which covers sixty-six countries[3] for all years between 1995 and 2018. While other sources of IO tables exist, most notably a series of standardized IO tables made available by the World Input-Output Database (WIOD) for forty-three countries between 2000 and 2014 (Dietzenbacher et al. 2013), the latest release of OECD data offers several advantages: it has the largest coverage of countries (66) and sectors (45, based on ISIC Rev 4); it uses the same statistical classification for all years, differently from the previous release of OECD IOTs, which followed ISIC Rev 3 (34 sectors) between 1995 and 2011 and ISIC Rev 3 (36 sectors) between 2005 and 2015; and using standardized data makes it possible to construct a relatively long time series between 1995 and 2018 without gaps. Importantly, the latest OECD IOT release seems to have a higher quality of data than both the WIOD and previous releases of the OECD IOTs, particularly with regard to direct re-exports,

2 The methodology of import-adjusted demand components can also be used to quantify the demand contribution of sectors, which is another central construct in the growth model framework (Baccaro and Pontusson 2016). Space constraints prevent us from pursuing this type of analysis in this paper.

3 Argentina, Australia, Austria, Belgium, Brazil, Brunei, Bulgaria, Cambodia, Canada, Chile, China, Colombia, Costa Rica, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hong Kong, Hungary, Iceland, India, Indonesia, Ireland, Israel, Italy, Japan, Kazakhstan, Laos, Latvia, Lithuania, Luxembourg, Malaysia, Malta, Mexico, Morocco, Myanmar, Netherlands, New Zealand, Norway, Peru, Philippines, Poland, Portugal, Romania, Russia, Saudi Arabia, Singapore, Slovakia, Slovenia, South Africa, South Korea, Spain, Sweden, Switzerland, Taipei, Thailand, Tunisia, Turkey, UK, US, Vietnam.

which lead to very high values of import-adjusted contributions of exports for some countries (such as the Netherlands and Belgium) when other datasets are used.[4]

The validity of the OECD IOT data for any particular country depends on gross domestic product (GDP) being a valid measure of economic activity in that country. This assumption is, however, dubious for countries that are legal hosts to a large number of multinational companies (Ergen, Kohl, and Braun 2022; Linsi and Mügge 2019). For such countries, gross national income (GNI) is generally preferable to GDP, because it excludes the net income sent to or received from abroad, and hence the repatriated profits of foreign multinationals.[5] However, we are unable to calculate the GNI from the IOT data. To obviate this problem, we have compared the growth of GDP (calculated from our data) with the growth of GNI (from the World Bank World Development Indicators database). We find that the growth of GDP is on average considerably higher than the growth of GNI for four countries: Luxembourg (1.08 percent), Ireland (0.92 percent), Singapore (0.54 percent), and Malta (0.51 percent). Therefore, although we calculate demand contributions to growth for these countries as well, we exclude them from the statistical analyses that follow.

6 Demand contributions to growth

In this section we provide the average annual growth rate of GDP for each country and the average relative import-adjusted growth contribution of four demand components – consumption, investment, government expenditures, and exports – for two periods, 1995 to 2007 and 2009 to 2018. All values are at basic prices, that is, before taxes less subsidies on final products.

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4 IOTs set the direct imports of exports (defined as the short-term transit of goods and services in an intermediary country without undergoing any value-adding processes) to zero. Existing research relying on IO tables argues that this is a plausible assumption in advanced countries (e.g., Auboin and Borino 2018; Bussière et al. 2013). However, empirical analyses suggest that the assumption may not be warranted (Guo, Webb, and Yamano 2009). Therefore, if direct imports of exports are set to zero, their corresponding values when they are re-exported should also be excluded from exports. Working with WIOD IO Tables and the previous OECD releases of IOTs prior to the latest OECD release, we notice that for certain countries (the Netherlands and Belgium in particular) the growth contribution of exports reached extreme values that suggest overestimation due to re-exports not being netted out from exports.

5 For Ireland, even GNI is no longer a valid measure. This is due to multinational IT and pharmaceutical companies deciding to legally locate their intellectual property (which is classified as investment) in Ireland in order to take advantage of a favorable tax regime, and aircraft leasing companies doing the same (Regan and Brazys 2018; Tedeschi 2018). The Irish Central Statistical Office now prefers to use a modified measure, "GNI*," which is net of depreciation on these two classes of assets.

For presentation purposes, we group the sixty-six countries in the OECD IOT database into the following categories: (1) continental European countries (Austria, Belgium, Germany, Luxembourg, Netherlands, and Switzerland); (2) liberal market economies (Australia, Canada, Ireland, New Zealand, UK, and US); (3) Nordic countries (Denmark, Finland, Iceland, Norway, and Sweden); (4) Mediterranean/mixed countries (Cyprus, France, Greece, Italy, Malta, Portugal, and Spain); (5) advanced Asian countries (Japan and South Korea); (6) other countries of the Western bloc (Israel and Turkey); (7) former Communist Central and Eastern European countries (Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia); (8) South-East Asian countries (Cambodia, Hong Kong, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Taipei, Thailand, and Vietnam); (9) China; (10) India; (11) African countries (Morocco, South Africa, and Tunisia); (12) Central and Latin American countries (Argentina, Brazil, Chile, Colombia, Costa Rica, Mexico, and Peru); (13) natural resource-rich countries, defined as those that have rents derived from natural resources (variable available in the World Bank World Development Indicators database) whose average value is higher than 10 percent of GDP between 1995 and 2018, which are Saudi Arabia (37.56 percent), Brunei (23.68 percent), Kazakhstan (19.39 percent), and Russia (14.20 percent).

A few clarifications about these country groupings are in order. We start from the varieties of capitalism (VoC) distinction between coordinated and liberal market economies (Hall and Soskice 2001). In the former, a logic of strategic coordination among actors prevails; in the latter, market coordination prevails. We then distinguish between continental European and Nordic countries, which VoC regards as cases of coordinated market economies (CME), while other researchers (e.g., Pontusson 2005) place them in a separate group. The Mediterranean/mixed economies category is also drawn from VoC. In these countries, the state traditionally plays a key role in economic coordination (Ferrera 1996; Hancké, Rhodes, and Thatcher 2007; Schmidt 2002). The other country groups are based on geographical proximity, population size (China and India), or high rents derived from natural resources.

We associate a country's growth model with the demand component that provides the largest growth contribution in a given period. Specifically, we use the following criteria to classify growth models:

(1) If the growth contribution of a demand component is greater than 40 percent, the growth model is "led" by that component. With this rule, there can in principle be two leading demand components simultaneously, but this is rare.

(2) If the growth contribution of a demand component is greater than 50 percent, the growth model is *very* reliant on that component.

(3) If any two demand components jointly account for 70 percent or more of growth, the growth model is led by a combination of the two components.

(4) If the three domestic demand components (consumption, investment, and government expenditures) account jointly for at least 70 percent of growth, the growth model is domestic demand-led.

(5) If the growth contribution of exports is between 30 and 40 percent (i.e., the contribution of domestic demand is less than 70 percent), the growth model is balanced.

Since growth patterns can be erratic in the short term, we compute GDP growth over two long periods. These are 1995 to 2007 (the period before the financial crisis), and 2009 (the first year after which GDP starts growing again for all countries after the financial crisis) to 2018 (the last available year). Table 2 (see pages 16 and 17) reports the calculations, distinguishing between the pre- and the post-financial crisis period. For reasons of space, we do not comment on all findings, especially in the case of non-advanced countries for which we lack sufficient substantive knowledge.

Continental European countries were almost all export-led in the pre-crisis period (with the exception of the Netherlands) and became even more export-led in the post-crisis period (including the Netherlands). In Germany, the post-crisis growth contribution of exports declined slightly in the second period, that is, the export-led model rebalanced somewhat, but the growth model remained very export-led overall. The LMEs are domestic demand-led or consumption-led and they remain so even after the crisis. The US is very consumption-led, which means that more than 50 percent of both pre- and post-crisis US growth is due to consumption expenditures on domestically produced goods and services (net of indirect imports). Ireland does not fit at all into the LME category, as it is heavily export-led before and after the crisis.

The Nordic countries are more domestically oriented than the continental European countries, and only Denmark clears the bar for inclusion in the export-led camp in both periods. Interestingly, these countries, again with the exception of Denmark, responded to the crisis by increasing their reliance on domestic demand, again differently from their continental counterparts. Instead, the Mediterranean countries moved, or rather were forced to move, in the opposite direction: they were all domestic demand-led or consumption-led economies before the crisis, but they all became very strongly export-led after the crisis, including France. With its strong export-orientation in both periods, Malta is an outlier in this group. Recall that the import-adjusted demand components are net of imports, so the phenomenon of Mediterranean countries becoming export-led is not due to the collapse of imports but to the fact that with growth rates close to zero, the small positive contribution of exports stands out in relative terms.[6]

6 For Greece and Brunei, the average growth rate of 2009 to 2018 was negative. Thus, it makes little sense to determine the growth model of these two countries, because they are cases of degrowth. For this reason, no growth model label is attributed to these two countries in Table 2. In addition, after 2008, in several instances in other countries some demand components show negative contributions to growth. Since the relative growth contributions of the four demand components sum up to 100 percent by definition, it is possible for some components to have a

Coming to the two advanced Asian economies, we see that Japan is very export-led in both periods, while South Korea combines growth led by internal demand components as well as by exports in both periods. When looking at two countries with strong ties to the West, we note that Turkey is domestic demand-led throughout the observation period, despite the government's push to replace wage-led growth with export-led growth after 2007 (Apaydin 2022). Israel engineered a transition to export-led growth before the financial crisis but switched to domestic demand-led growth after 2008 with policies such as increases in the minimum wage in 2010 and 2015 (Bondy and Maggor 2021; Krampf 2020).

The CEE countries behave similarly to the continental European countries: most were export-led before the financial crisis (except the Baltics), and all relied more heavily on foreign demand in the post-crisis period (Ban and Adascalitei 2022). Even the Baltics, which had a balanced growth model before the crisis, became strongly export-led economies. The experience of Croatia, and to a lesser extent Bulgaria and Romania, resembles that of the Mediterranean countries: they experienced a collapse of domestic demand and the only positive contribution to growth came from exports.

The South-East Asian countries are internally diverse: some are clearly export-led economies (Cambodia, Singapore, Taipei, Thailand, Vietnam), others are clearly consumption-led (Indonesia, Laos, Myanmar, Philippines). The only country that dramatically changed its growth model between the two periods is Malaysia, which moved from export-led to consumption-led. Perhaps surprisingly, China's growth model is not export-led, and investment is the most dynamic demand contributor, especially after 2008. Indeed, investment has for decades been one of the main engines of growth adopted by the Chinese central government, an engine which at the same time serves as the main driver of technological progress and structural change (Riedel, Jin, and Gao 2020). In line with our findings, the focus on investment has increased further since 2009 in response to the global financial crisis. In no other country in the sample is investment so important as a driver of growth as in China. As for the second large country in Asia, India is very clearly domestic demand- and consumption-led, especially in the post-crisis period (Nölke et al. 2022).

Two of the African countries in our dataset (Morocco and Tunisia) appear to be characterized by an unstable growth trajectory with important shifts in their growth models, while South Africa relied heavily on internal consumption in both periods and experienced a decrease in the importance of exports after 2008. In Latin American countries, growth models seem to change dramatically, and this may be due to the high volatility of commodity markets, on which these countries often depend (Sierra 2022). With

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contribution to growth greater than 100 percent, compensating for the negative growth share of other components. The only exceptions are Greece and Brunei after 2008, in which the sum gives –100 percent, because we have adjusted the calculation of the relative growth contributions in the case of negative GDP growth (used as denominator) so that positive/negative absolute contributions in the numerator remain positive/negative.

Table 2 Average growth and average relative growth contributions before and after the financial crisis

Country	1995–2007						2009–2018					
	Annual growth	Consumption	Investment	Government	Exports	Growth model	Annual growth	Consumption	Investment	Government	Exports	Growth model
Continental European												
Austria	2.64%	20.97%	11.25%	11.93%	55.86%	very export-led	1.62%	7.40%	14.37%	2.88%	75.36%	very export-led
Belgium	2.55%	17.05%	16.39%	17.44%	49.12%	export-led	1.60%	16.68%	21.32%	7.75%	54.24%	very export-led
Germany	1.59%	14.91%	–5.52%	5.54%	85.08%	very export-led	2.10%	2.99%	22.04%	15.96%	59.02%	very export-led
Netherlands	2.95%	24.14%	19.43%	21.30%	35.13%	balanced	1.40%	–7.10%	1.62%	5.78%	99.69%	very export-led
Switzerland	2.23%	14.64%	5.14%	5.73%	74.49%	very export-led	2.02%	31.68%	7.87%	9.25%	51.21%	very export-led
Luxembourg	4.61%	1.79%	12.12%	10.41%	75.68%	very export-led	3.30%	5.46%	18.37%	10.99%	65.18%	very export-led
Liberal market economies												
Australia	3.51%	39.73%	25.38%	14.47%	20.41%	domestic demand-led	2.16%	41.68%	11.70%	22.20%	24.42%	consumption-led
Canada	3.18%	36.06%	24.21%	11.81%	27.92%	domestic demand-led	2.22%	35.20%	19.35%	13.18%	32.27%	balanced
New Zealand	3.46%	35.59%	20.43%	19.57%	24.41%	domestic demand-led	2.87%	36.87%	30.00%	12.95%	20.19%	domestic demand-led
UK	2.85%	43.14%	16.52%	23.31%	17.03%	consumption-led	1.84%	37.94%	29.42%	–1.09%	33.73%	consumption & export
US	3.26%	56.41%	20.56%	14.01%	9.02%	very consumption-led	2.30%	55.50%	28.49%	1.35%	14.66%	very consumption-led
Ireland	6.93%	14.56%	20.96%	11.50%	52.98%	very export-led	6.64%	1.98%	9.03%	–1.69%	90.67%	very export-led
Nordic												
Denmark	2.21%	7.46%	21.18%	19.31%	52.05%	very export-led	1.69%	14.00%	31.95%	–0.83%	54.88%	very export-led
Finland	4.06%	25.83%	24.59 %	15.17%	34.41%	balanced	1.14%	22.34%	38.00%	6.64%	33.02%	balanced
Iceland	5.68%	29.96%	30.74%	22.77%	16.53%	domestic demand-led	2.78%	20.59%	33.55%	16.60%	29.25%	domestic demand-led
Norway	3.01%	9.95%	20.76%	12.57%	56.72%	very export-led	1.48%	19.67%	31.37%	31.07%	17.89%	domestic demand-led
Sweden	3.33%	19.06%	19.07%	19.11%	42.76%	export-led	2.58%	12.47%	27.79%	24.95%	34.79%	balanced
Mediterranean/mixed												
Cyprus	3.93%	42.72%	8.55%	22.77%	25.96%	consumption-led	0.81%	38.03%	–56.87%	–37.88%	156.72%	very export-led
France	2.39%	29.49%	24.55%	16.57%	29.40%	domestic demand-led	1.32%	8.76%	22.92%	12.18%	56.15%	very export-led
Greece	4.86%	31.80%	21.67%	21.00%	25.54%	domestic demand-led	–2.42%	–66.19%	–28.21%	–38.20%	32.59%	
Italy	1.48%	31.27%	21.03%	24.30%	23.41%	domestic demand-led	0.15%	–110.76%	–141.25%	–138.60%	490.61%	very export-led
Portugal	2.41%	36.91%	14.81%	23.91%	24.37%	domestic demand-led	0.48%	–35.63%	–65.20%	–88.76%	289.58%	very export-led
Spain	3.66%	28.40%	32.19%	14.87%	24.54%	domestic demand-led	0.76%	13.81%	–51.04%	–10.28%	147.50%	very export-led
Malta	4.57%	23.12%	3.67%	14.66%	58.54%	very export-led	6.01%	12.65%	10.55%	8.91%	67.88%	very export-led
Advanced Asian												
Japan	1.19%	37.76%	–23.87%	29.14%	56.97%	very export-led	1.24%	0.19%	27.09%	17.33%	55.39%	very export-led
South Korea	5.59%	38.37%	13.81%	14.94%	32.87%	consumption & export	3.37%	26.24%	24.14%	18.25%	31.37%	balanced
Other Western												
Israel	4.13%	37.37%	6.86%	14.47%	41.30%	export-led	4.14%	34.20%	21.80%	22.96%	21.04%	domestic demand-led
Turkey	4.90%	39.92%	21.79%	17.90%	20.39%	domestic demand-led	6.45%	36.15%	26.27%	11.13%	26.45%	domestic demand-led

Table 2, continued

Central and Eastern European												
Bulgaria	2.40%	–6.53%	40.93%	15.98%	49.62%	export & investment	1.65%	7.66%	–43.73%	12.99%	123.09%	very export-led
Croatia	4.16%	22.54%	31.66%	7.87%	37.93%	balanced	0.56%	–48.78%	–52.75%	–30.30%	231.83%	very export-led
Czech Republic	3.36%	17.38%	11.14%	15.32%	56.16%	very export-led	2.14%	3.67%	4.63%	13.03%	78.67%	very export-led
Estonia	6.97%	26.75%	29.15%	7.55%	36.55%	balanced	3.52%	8.44%	22.36%	11.61%	57.59%	very export-led
Hungary	3.48%	12.70%	9.47%	9.67%	68.16%	very export-led	2.51%	3.46%	18.49%	8.29%	69.76%	very export-led
Latvia	7.33%	29.85%	32.97%	11.48%	25.69%	domestic demand-led	2.33%	12.07%	7.78%	10.58%	69.57%	very export-led
Lithuania	6.61%	34.58%	18.77%	12.50%	34.15%	balanced	3.34%	0.35%	26.58%	–1.33%	74.40%	very export-led
Poland	4.42%	31.24%	16.46%	13.42%	38.88%	export&consumption	3.50%	13.42%	10.15%	12.60%	63.83%	very export-led
Romania	3.27%	35.40%	27.75%	20.23%	16.62%	domestic demand-led	2.92%	22.90%	–4.26%	16.80%	64.56%	very export-led
Slovakia	5.23%	21.91%	16.28%	7.33%	54.48%	very export-led	3.00%	10.05%	11.38%	8.79%	69.77%	very export-led
Slovenia	4.28%	14.40%	20.60%	14.08%	50.91%	very export-led	1.80%	6.85%	–4.36%	0.38%	97.12%	very export-led
South-East Asian												
Cambodia	8.93%	32.52%	11.38%	4.73%	51.38%	very export-led	7.03%	32.24%	9.30%	2.27%	56.19%	very export-led
Hong Kong	4.06%	37.66%	0.26%	9.68%	52.40%	very export-led	3.38%	39.33%	15.17%	10.92%	34.59%	consumption & export
Indonesia	3.38%	57.95%	6.00%	10.86%	25.19%	very consumption-led	5.41%	44.00%	32.60%	8.08%	15.32%	consumption-led
Laos	6.64%	34.00%	28.16%	6.81%	31.03%	balanced	6.87%	41.02%	6.41%	17.22%	35.34%	consumption-led
Malaysia	4.79%	25.29%	1.49%	9.58%	63.64%	very export-led	5.43%	44.20%	22.05%	10.04%	23.70%	consumption-led
Myanmar	11.26%	49.37%	4.84%	8.72%	37.07%	consumption-led	8.04%	27.35%	24.28%	20.98%	27.39%	domestic demand-led
Philippines	4.37%	58.44%	–0.41%	5.65%	36.31%	very consumption-led	6.27%	46.97%	18.74%	10.62%	23.67%	consumption-led
Taipei	5.21%	33.56%	8.40%	10.37%	47.66%	export-led	3.39%	25.47%	14.18%	9.13%	51.22%	very export-led
Thailand	3.56%	23.10%	–7.93%	14.72%	70.10%	very export-led	3.71%	19.87%	15.12%	15.60%	49.41%	export-led
Vietnam	7.03%	21.57%	20.20%	2.22%	56.02%	very export-led	6.25%	23.53%	1.21%	4.29%	70.97%	very export-led
Singapore	5.98%	15.26%	8.98%	7.47%	68.29%	very export-led	5.27%	10.41%	13.46%	7.12%	69.01%	very export-led
China												
China	9.79%	26.33%	28.80%	14.81%	30.06%	balanced	7.92%	33.25%	36.48%	17.37%	12.90%	domestic demand-led
India												
India	6.60%	37.15%	30.99%	9.26%	22.60%	domestic demand-led	6.88%	50.27%	21.66%	10.04%	18.03%	very consumption-led
African												
Morocco	4.50%	22.25%	20.41%	20.45%	36.90%	balanced	3.51%	25.43%	9.96%	20.26%	44.35%	export-led
South Africa	3.57%	36.73%	12.09%	15.30%	35.89%	consumption & export	1.89%	38.18%	7.59%	26.95%	27.28%	domestic demand-led
Tunisia	4.16%	28.84%	14.38%	15.81%	40.97%	export-led	1.17%	48.52%	–13.66%	50.91%	14.23%	very government & consumption
Latin and Central American												
Argentina	3.04%	33.56%	2.31%	10.47%	53.67%	very export-led	1.68%	57.38%	40.73%	17.34%	–15.45%	very consumption & investment
Brazil	3.11%	42.28%	16.44%	13.94%	27.34%	consumption-led	1.15%	48.54%	–8.81%	18.29%	41.98%	consumption & export
Chile	5.12%	32.55%	9.13%	9.20%	49.11%	export-led	3.41%	53.82%	17.93%	19.23%	9.01%	very consumption-led
Colombia	2.84%	55.40%	2.02%	18.62%	23.96%	very consumption-led	3.72%	50.38%	17.47%	18.51%	13.64%	very consumption-led
Costa Rica	4.69%	33.88%	17.68%	12.74%	35.70%	balanced	3.62%	38.34%	15.49%	19.79%	26.37%	domestic demand-led
Mexico	3.40%	44.36%	17.97%	13.12%	24.55%	consumption-led	2.82%	23.69%	11.20%	9.23%	55.88%	very export-led
Peru	4.26%	24.00%	10.26%	11.94%	53.80%	very export-led	4.67%	42.26%	22.26%	16.57%	18.92%	consumption-led
Natural resource-rich												
Saudi Arabia	2.83%	–28.24%	14.62%	6.94%	106.68%	very export-led	3.75%	37.02%	12.47%	25.63%	24.88%	domestic demand-led
Brunei	1.85%	–9.53%	10.11%	15.89%	83.53%	very export-led	–1.01%	14.84%	59.88%	–14.13%	–160.59%	
Kazakhstan	7.14%	14.96%	23.59%	6.81%	54.65%	very export-led	3.88%	50.94%	20.86%	1.43%	26.76%	very consumption-led
Russia	4.46%	32.83%	19.28%	12.14%	35.75%	balanced	1.90%	–4.29%	49.43%	2.33%	52.53%	very export & investment

some countries shifting from export-led to domestic demand-led growth (Argentina, Chile, Peru) and Mexico moving in the opposite direction before and after the crisis, there is no clear pattern in the region. In Brazil and Colombia, growth is heavily reliant on domestic consumption both before and after the financial crisis. All things considered, the development model of Latin American countries seems to rely on domestic demand more than among South-East Asian countries.

Focusing on resource-rich countries, as the biggest oil exporter in the world, Saudi Arabia was very export-led before 2008 but rebalanced its growth strategy after 2008 by relying much more on internal domestic demand, in line with long-term objectives of the Saudi government (Nurunnabi 2017). In a similar way, Kazakhstan was very export-led before 2008 and became very consumption-led after 2008. By contrast, Russia showed a balanced growth model before 2008, with both consumption and exports making important contributions. After 2008, a fall in consumption made export-led growth the dominant pattern, accompanied by a comparatively strong role of investment.

Overall, the methodology of import-adjusted demand components yields results that are consistent with earlier analyses and classifications, and it appears to be applicable to developing capitalist economies as well. The majority of countries are driven by exports or domestic demand. Consumption-led economies are not common, yet the United States is clearly one of them in both the pre-crisis and the post-crisis period. Investments and government expenditures are never a primary growth engine as defined above. There are distinct and long-lasting contrasts between continental European and LME countries. The former are largely export-oriented, whereas the latter are focused on the domestic market (see Hope and Soskice 2016). However, the Nordic countries sit uneasily with the continental European countries under the CME umbrella (contrary to Hein, Meloni, and Tridico 2021; Hope and Soskice 2016; Picot 2021). Household consumption, investment, and government expenditures are more important for the growth profile of the Nordic countries, which is not surprising given the larger size of their public sector and welfare states and the greater strength of their labor movements. Both the Mediterranean and the CEE countries responded to the crisis by moving decisively towards export-led growth (Bulfone and Tassinari 2021; Perez and Matsaganis 2017), while the South-East Asian and Latin American countries had more differentiated responses.

7 Analysis of growth drivers

After laying out our methodology for quantifying the demand contributions to growth, in this section we illustrate how the new data can be used to explore the drivers of growth as recommended by Kohler and Stockhammer (2021). We begin by comparing the old and new (import-adjusted) measures of growth contributions (see Table 3). As expected, import-adjusted demand contributions are lower for the domestic de-

Table 3 Difference between growth contributions calculated with and without the import-adjustment method (whole sample), in percent

Variable	Mean difference	S.d.	Min	Max	Correlation
Consumption	–0.79	0.58	–3.98	0.35	91.07
Investment	–0.54	0.55	–2.58	1.04	89.17
Government expenditures	–0.10	0.08	–0.40	0.16	98.58
Exports	1.43	1.04	–1.55	6.32	51.22

mand components, especially consumption, and higher for exports. For example, the yearly growth contribution of import-adjusted consumption is on average, over the entire sample of countries, 0.8 percent lower than the growth contribution of consumption calculated with unadjusted data. For exports, import adjustment leads to yearly growth contributions 1.4 percent greater than the export contributions calculated with the traditional method. The two measures, import-adjusted and non-import-adjusted, are relatively highly correlated for consumption, investment, and government expenditures (between 89 percent and 99 percent), and more moderately correlated for exports (51 percent). This implies that using import-adjusted demand components is unlikely to make a major difference for statistical analyses focusing on the domestic demand components, while it could make a difference for analyses focusing on the growth contribution of exports, as we will verify below.

Trade-offs between demand components

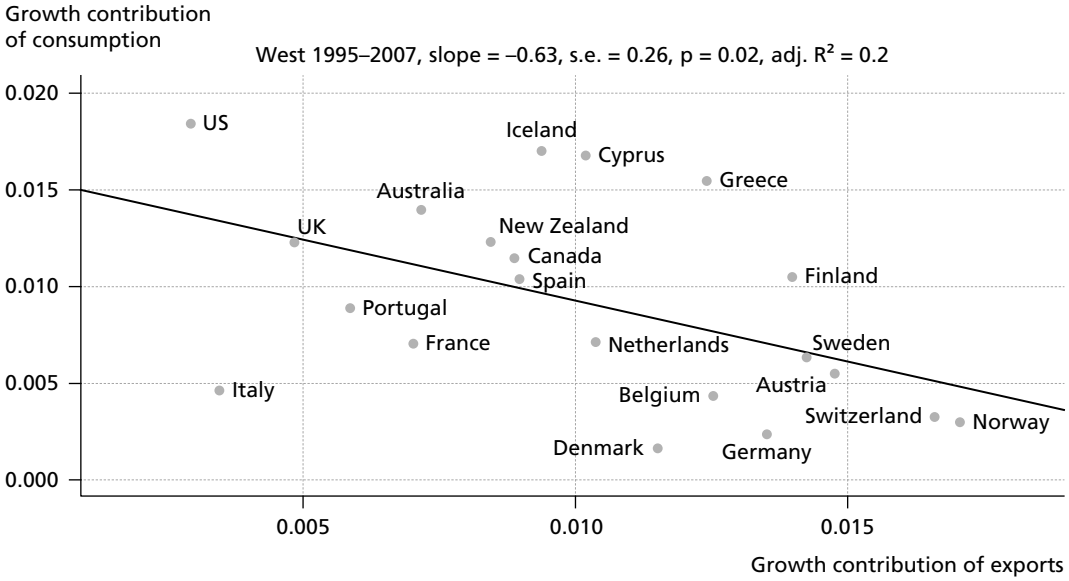
Analyzing the experience of Germany, Italy, Sweden, and the UK in the fifteen years before the financial crisis, Baccaro and Pontusson (2016) hypothesized the existence of a trade-off between consumption-led growth and export-led growth. The reason for the trade-off was that buoyant domestic consumption produces domestic inflation and this undermines price competitiveness. Conversely, when domestic consumption is repressed, domestic prices grow more slowly than for trade partners and this should stimulate exports.

In this subsection, we test whether a trade-off between consumption and export contributions to growth exists for the sample of Western and Central and Eastern European countries.[7]

If we pool Western and CEE countries, there is no relationship between consumption- and export-led growth. However, this is due to the very different behavior of advanced

7 Statistical relationships change quite a bit depending on the sample composition, and it makes little sense to assume that the same relationships will characterize countries at different levels of development. Our sample of advanced and CEE countries is approximately the same as in Kohler and Stockhammer (2021).

Figure 1 Relationship between growth contributions of exports and consumption, Western countries, 1995–2007



Western countries, for which a negative relationship exists (cf. Figure 1), and CEE countries, for which the sign of the slope is positive but statistically insignificant. For advanced countries, the trade-off between consumption and exports has almost the same magnitude in the post-crisis period, but it is no longer significant because many more countries become export-led and this leads to a greater variance in the association between the two types of growth.[8] In Figure 1, we provide only the plot of the statistically significant negative relationship we find in Western countries between 1995 and 2007, while the remaining plots (CEE countries before 2008, Western and CEE countries after 2008) are provided in Appendix C, Figures C1–3.

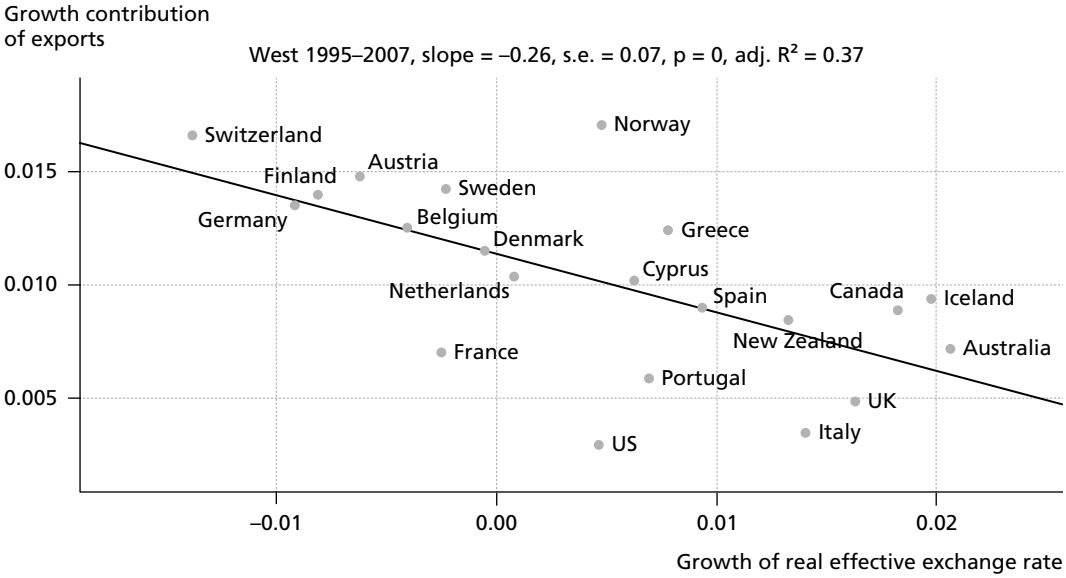
In brief, the hypothesis that higher growth contributions of import-adjusted exports are associated with lower contributions of import-adjusted consumption (trade-off) is confirmed for the advanced Western countries but not for the CEE countries. The finding for the Western countries is in line with the negative relationship between export-led growth and the real exchange rate, which we discuss later.

Drivers of export-led growth

We next consider the determinants of export-led growth, on which there is no consensus in the literature, with Baccaro and Pontusson (2016) emphasizing the role of real exchange rates and Kohler and Stockhammer (2021) the quality of exports. We rely on

8 Cardenas and Arribas (2021) suggest a trade-off between between investment and exports. We find no evidence for this trade-off with our data.

Figure 2 Relationship between growth of real effective exchange rates and growth contributions of exports, Western countries, 1995–2007



cross-country correlations at two points in time, before and after the financial crisis, using country averages and descriptive bivariate graphs followed by multiple regressions. The analysis focuses on Western countries and CEE countries separately, but it again excludes three countries for which GDP is not an appropriate measure of economic activity as discussed above (Ireland, Luxembourg, and Malta). The twenty-one Western countries considered are Australia, Austria, Belgium, Canada, Cyprus, Denmark, Finland, France, Germany, Greece, Iceland, Italy, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, UK, and US. The eleven CEE countries are Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia.

There is a clear negative and statistically significant relationship between the real effective exchange rate (REER), a proxy for price competitiveness, and export-led growth for the twenty-one advanced Western countries in the pre-crisis period (cf. Figure 2). However, there is no statistical association between these two variables for the eleven CEE countries in the same period. The relationship between REER and export-led growth disappears for advanced Western countries in the post-crisis period. In the post-crisis period, the growth contribution of exports becomes much smaller than in the previous period. For CEE countries, REER continues to be an insignificant predictor in the post-crisis period as well. In Figure 2 we provide the plot of the negative relationship found in Western countries before 2008, while the remaining plots (CEE countries before 2008, Western and CEE countries after 2008) are available in Appendix C, Figures C4–6.

The second bivariate relationship examined is between export-led growth and an index of economic complexity (not available for Cyprus and Iceland). The index, described in Table B2, Appendix B, is based on disaggregated trade data at the product and export market level and captures both the diversification of export products and destination

markets. Kohler and Stockhammer (2021) use it as an indicator of non-price competitiveness of exports (see also Gräbner et al. 2020). A country with a highly diversified product portfolio and export markets has a higher economic complexity score and is expected to have better export performance. However, we find no significant correlation between the economic complexity index and export-led growth among advanced Western countries in the pre-crisis period. The regression line is positive as expected, but the countries are scattered across the two-dimensional plane. The relationship is instead more clearly positive for CEE countries in the pre-crisis period. In the post-crisis period, the relationship is insignificant for both advanced Western and CEE countries. Overall, economic complexity does not seem to be a driver of export-led growth.[9] All four plots relating to the link between the economic complexity index and growth contributions of exports are available in Appendix C, Figures C7–10.

To disentangle the effects of different determinants, we use regression analysis. We focus on the advanced Western countries due to the small sample size for CEE countries. The dependent variable is the growth contribution of import-adjusted exports. The independent variables are the REER and the proxy for non-price competitiveness. The former is a trade-weighted measure of price competitiveness: if the REER increases, domestic prices are growing faster than in trade partners and a decline of the growth contribution of exports is expected (Baccaro and Pontusson 2016). Based on an analysis of the determinants of gross national income (GNI) growth, Kohler and Stockhammer (2021) have argued that the importance of price competitiveness for growth has been exaggerated and that non-price competitiveness, captured by the economic complexity index, is a more important driver of growth. Others have made similar arguments (Gräbner et al. 2020; Hope and Soskice 2016; Storm and Naastepad 2015). We also test whether the magnitude of export-led growth contributions is positively related to the growth of foreign demand, alone and in interaction with non-price competitiveness. If a country's exports have high complexity, they should be able to capture a larger share of expanding foreign markets than a country with low levels of export complexity.[10]

The regression results for 1995–2007 (Table 4) confirm the results of the bivariate graph above: the change in REER has a negative and highly significant impact on export-led growth, controlling for economic complexity and growth of foreign demand. The point estimate around −0.4 indicates an economically very significant effect of an average reduction of 4 percent in the export contribution to growth for every 10 percent of competitiveness loss. Economic complexity is not significantly associated with export

9 The indicator of economic complexity has little time variation, hence our use of the *level* as opposed to the *change* (see Kohler and Stockhammer, 2021, for a similar choice). Using the change does not alter any substantive conclusion.

10 The indicator of foreign demand for country *i* is a trade-weighted sum of import volume growth in all *j* countries in our database, with the weights equal to the share of exports to *j* in total exports of *i* in a baseline year (1995 for the 1995–2007 period and 2009 for 2009–2018). Substantive conclusions are robust to alternative operationalization of the foreign demand variable. We refer to Appendix B for an explication of the way all variables have been operationalized.

Table 4 Regression analysis on the drivers of export-led growth, Western countries 1995–2007

	(1)	(2)	(3)
Variables	Export-led growth	Export-led growth	Net export-led growth
Growth of REER	–0.383***	–0.344**	–0.233
	(0.128)	(0.134)	(0.173)
Economic complexity	–0.00223	0.0330	0.00196
	(0.00190)	(0.0368)	(0.00257)
Growth of foreign demand	0.132	0.533	0.390
	(0.322)	(0.529)	(0.435)
Complexity x Foreign demand		–0.593	
		(0.619)	
Constant	0.00656	–0.0177	–0.0242
	(0.0183)	(0.0312)	(0.0247)
Observations	19	19	19
Adjusted R-squared	0.379	0.376	0.140

Standard errors in parentheses; ***$p<0.01$, **$p<0.05$, *$p<0.1$.

growth either alone or in interaction with the growth of foreign demand. The results also suggest that growing foreign markets per se are not associated with higher export-led growth. It should be noted that when the growth contribution of net exports (exports minus all imports) is used as a dependent variable, as it usually is (column 3 of Table 4), the coefficient of REER is attenuated and statistically insignificant, which highlights the usefulness of using the new and more precise indicator of import-adjusted export-led growth. As already indicated by the bivariate graph, the relationship between export-led growth and REER breaks down in 2009–2018, due to many more countries, particularly the Mediterranean ones, turning into export-led growth models and the growth contributions of exports declining massively on average as a result (Scharpf 2021). The regressions for 2009–2018 have no significant results and we do not report them here, but they can be found in Table C1, Appendix C.

8 Concluding discussion

This paper has introduced a new methodology for operationalizing growth models using the most recent IOTs made available by the OECD for a number of countries. Our methodology does not require acceptance of any assumptions about the underlying structure of the economy and calculates the growth contributions of consumption, investment, government expenditures, and exports after subtracting direct and indirect imports from each of these demand components. We have used simple rules (e.g., if the relative contribution is higher than 40 percent, the growth model is driven by that component) to classify growth models in two periods: 1995–2007 and 2009–2018.

The results resonate with a number of stylized facts in the literature on comparative capitalism. They suggest that all continental European economies were export-led before the crisis (with the partial exception of the Netherlands) and have further accentuated their reliance on export-led growth on average after 2008. The English-speaking LMEs instead have a very different type of growth model, being either consumption-led or domestic demand-led. In the Nordic countries, domestic demand was more important for growth even before the crisis. This is not surprising, since these are countries with large welfare states and still strong labor movements, which increases the domestic orientation of the growth process. After the crisis, the Nordic countries have been boosting the contribution of domestic demand, moving further away from the continental group. The Mediterranean countries were domestic demand-led before the crisis but were forced by the euro crisis to reorient their growth profile towards export-led (Perez and Matsaganis 2019; Scharpf 2021). As a result, their domestic demand has collapsed and the only positive contribution to growth has come from exports, even though the absolute growth contribution of exports has been low in these countries. The CEE countries were already export-led before the crisis, with the exception of the Baltics, and have become even more so after the crisis. We have refrained from commenting on the growth model results and classifications of countries for which we lack substantive knowledge (especially the non-advanced ones). We hope the data we have provided will inform the work of country and regional specialists.

In a further step, we have used the data to address two questions: Is there a trade-off between consumption-led growth and export-led growth as hypothesized by Baccaro and Pontusson (2016)? And what are the determinants of export-led growth? Specifically, what role do price- and non-price competitiveness play?

In response to these questions, we have explored the cross-sectional variation at two points in time, before and after the crisis, based on bivariate graphs and regression analysis. Although this part is intended to illustrate the potential of this kind of approach, more than providing definitive answers, we were able to reveal some interesting empirical patterns. The first is that there was indeed a trade-off between consumption-led and export-led growth among advanced Western countries in the pre-crisis period. Countries in which the absolute growth contribution of exports was greater also tended to have a low growth contribution of consumption, and vice versa. However, this trade-off does not apply to the CEE countries and shows a higher variance in the post-crisis period in advanced Western countries, when many more countries, including the Mediterranean ones, shifted toward export-led growth, thus contributing to a lower growth rate for everybody. Second, cost competitiveness, captured by movements in the real exchange rate, is a statistically and economically highly significant determinant of export-led growth for advanced Western countries in the pre-crisis period, but not for CEE countries or for advanced Western countries in the aftermath of the financial crisis.

The methodology and data on different demand contributions to growth that we have developed in this paper open up an interesting research agenda at the intersection between comparative political economy and heterodox economics. What, for example, is the role of partisanship in determining the prevalence of different types of growth? Do labor market, welfare state, and financial institutions have a differential impact on growth models? To what extent do trade and financial interdependencies affect growth models at the country level? We hope that other scholars will join us in exploring these and other questions.

Appendix A Derivation of indirect imports through input-output tables

In this appendix, we describe the steps used to derive the import-adjusted growth contributions of every aggregate demand component using the OECD national Input-Output Tables (1995–2018). The procedure follows Auboin and Borino (2018, 36–38).

The raw national IO tables used to derive import-adjusted growth contributions are provided in the form of excel or csv sheets, each one containing data about a given country in a given year (country-year data). For every country-year, original data come in the form of five block matrices, organized as follows:

Table A1 Structure of original OECD Input-Output Tables

<table>
<tr><td colspan="2"></td><td colspan="4">Intermediate</td><td colspan="3">Final demand</td></tr>
<tr><td rowspan="6">Domestic</td><td></td><td>Ind. 1</td><td>Ind. 2</td><td>…</td><td>Ind. 45</td><td>Household consumption</td><td>…</td><td>Total</td></tr>
<tr><td>Ind. 1</td><td colspan="4" rowspan="4">Z^d (45 x 45)</td><td colspan="3" rowspan="4">F^d (45 x 10)</td></tr>
<tr><td>Ind. 2</td></tr>
<tr><td>…</td></tr>
<tr><td>Ind. 45</td></tr>
<tr><td rowspan="4">Import</td><td>Ind. 1</td><td colspan="4" rowspan="3">Z^m (45 x 45)</td><td colspan="3" rowspan="3">F^m (45 x 10)</td></tr>
<tr><td>Ind. 2</td></tr>
<tr><td>…</td></tr>
<tr><td>Ind. 45</td></tr>
<tr><td rowspan="3">Tot</td><td>Taxes in foreign countries</td><td colspan="7" rowspan="3">Tot (5 x 55)</td></tr>
<tr><td>…</td></tr>
<tr><td>Output</td></tr>
</table>

Z^d represents the flows of intermediate inputs between domestic industries. Z^m gives the flows of imported intermediate inputs needed by domestic industries (columns) from foreign industries (rows). F^d reports the final demand expenditures on domestically produced goods and services, while F^m gives the direct imports from foreign industries (rows) needed by each final expenditure component. The final five rows (Tot) provide summary indicators related to each column: taxes less subsidies on intermediate and final products (paid in foreign countries); taxes less subsidies on intermediate and final products (paid in domestic territory); total intermediate consumption at purchasers' prices; value added at basic prices; output at basic prices.

All data are provided at basic prices (except "total intermediate consumption at purchasers' prices") and expressed in current US dollars. We convert these prices into local currency by multiplying the original values with the country-year-specific exchange rates provided alongside the 2021 release of the OECD Inter-Country Input-Output Tables (ICIOs), covering all sixty-six countries between 1995 and 2018. We then de-

flate these values, expressed in national currency, through the deflators available in the OECD Economic Outlook data for total GDP by setting 1995 as reference year.[1] We then reduce the size of the block matrices. From the original ten final demand expenditures (two columns being imports and total, which we do not use), we computed the vectors with final demand expenditures for consumption, government spending, investment, and exports from the original OECD IO Tables as follows:

Consumption = Final consumption expenditure of households +
Final consumption expenditure of non-profit institutions serving households (1)

Government spending = Final consumption expenditure of general government (2)

Investment = Gross fixed capital formation + Changes in inventories (3)

Exports = Exports (cross border) + Direct purchases
by non-residents (exports) + Direct purchases abroad by residents (imports) (4)

By summing up together the corresponding rows and columns, we also merge the initial forty-five sectors into six economically meaningful and relatively homogeneous macro-sectors. The merging into macro-sectors could be implemented even subsequently after performing the matrix operations we describe below. We prefer to merge sectors immediately because this offers some advantages in terms of the numeric approximation implied by the computation of an inverse (the Leontief inverse) in one of the following steps. As with every statistical software, the inverse is computed through numerical methods that always imply a certain amount of approximation in the final result. By reducing the dimensions of the matrix to be inverted (6 x 6 in this case instead of 45 x 45), we reduce the impact of these approximations. Nevertheless, it should be noted that the results we obtain by merging sectors immediately (as we did in this paper) or subsequently are virtually equivalent and the small differences that appear do not have any influence on the substantive empirical patterns we describe in the paper.

1 While OECD data also provide component-specific deflators, these deflators have been developed to be used with non-import-adjusted components at purchasers' prices that are not equivalent to those we work with. Using them would in particular imply that the results we obtain would become dependent on the chosen reference year. We hence preferred to use the overall GDP deflator for all components. Nevertheless, it should be noted that the results we obtain are very similar to those we derived by experimenting with the use of component-specific deflators. OECD deflators are only available for forty-seven of the sixty-six countries OECD data offer IO tables on. In order to consider even the remaining countries, we used deflator data from the World Bank (eighteen countries) and from Nasdaq (Taipei). The eighteen countries for which we use World Bank data are: Brunei, Cambodia, Croatia, Cyprus, Hong Kong, Kazakhstan, Laos, Malaysia, Malta, Morocco, Myanmar, Peru, Philippines, Saudi Arabia, Singapore, Thailand, Tunisia, Vietnam. Since deflator data on Taipei is missing in both OECD and World Bank data, we additionally considered the deflator data offered by Nasdaq for the geographic entity labeled "Taiwan Province of China" (labeled "Chinese Taipei" in OECD IO Tables).

We hence obtain the following reduced block matrix structure:

Table A2 Reduced structure of OECD Input-Output Tables

<table>
<tr><td colspan="2"></td><td colspan="4">Intermediate</td><td colspan="3">Final demand</td></tr>
<tr><td rowspan="5">Domestic</td><td></td><td>Ind. 1</td><td>Ind. 2</td><td>…</td><td>Ind. 6</td><td>Household consumption</td><td>…</td><td>Exports</td></tr>
<tr><td>Ind. 1</td><td colspan="4" rowspan="4">Z^d (6 x 6)</td><td colspan="3" rowspan="4">F^d (6 x 4)</td></tr>
<tr><td>Ind. 2</td></tr>
<tr><td>…</td></tr>
<tr><td>Ind. 6</td></tr>
<tr><td rowspan="5">Import</td><td>Ind. 1</td><td colspan="4" rowspan="4">Z^m (6 x 6)</td><td colspan="3" rowspan="4">F^m (6 x 4)</td></tr>
<tr><td>Ind. 2</td></tr>
<tr><td>…</td></tr>
<tr><td>Ind. 6</td></tr>
<tr><td rowspan="4">Tot</td><td>Taxes in foreign countries</td><td colspan="7" rowspan="4">Tot (5 x 10)</td></tr>
<tr><td>…</td></tr>
<tr><td>Output</td></tr>
</table>

On this modified input-output table, for every country-year we perform the calculations described in Auboin and Borino (2018, 36–38) and in the main text.

Appendix B Auxiliary variables and structural determinants of growth

Table B1 Definitions and sources of auxiliary variables and growth drivers

Underlying concept	Original data	Operationalization	Source	Country-year availability (if data not available since 1995, averages computed since first available year)
Gross national income	Gross national income (GNI) in current local currency unit: deflated with 2018 as reference (since 1995 missing for some countries)	Average of yearly GDP growth – GNI growth 1995–2018	World Bank	All available except Taipei. Partial availability for two countries: Estonia (since 2000), Greece (since 2006)
Natural resources rents	Rents from natural resources as percentage of GDP	Average of yearly in-level values 1995–2018	World Bank	All available except Taipei
Real effective exchange rate	Index data (annual rates based on 170 trading partners): 1995 set as reference (100)	Average of yearly growth 1995–2007 and 2009–2018	Bruegel	All available except Myanmar
Economic complexity	Economic complexity index (6 digits, revision hs92): measure of the relative knowledge intensity of an economy	Averages of yearly in-level values 1995–2007 and 2009–2018	Observatory of Economic Complexity	Missing seven countries: Brunei, Cyprus, Estonia, Iceland, Latvia, Luxembourg, Malta. Partial availability for five countries: Belgium (since 1999), Cambodia (since 2001), Kazakhstan (since 1996), Laos (since 2010), Myanmar (since 2001)
Weighted aggregate imports demand of trade partners	Inter-country flows of goods and services in current USD: converted into local currency and deflated with 1995 as reference year	$\sum_{i=1}^{67} average\ (\psi_i * growth\ (imports_i))$ ψ_i being the proportion of exports from the origin country absorbed by the destination country *i* with reference always to the starting year in the period of interest for all yearly growth rates (e.g., proportion of exports absorbed in 1995 for growth between 2002 and 2003) and *growth* $(imports_i)$ giving the yearly growth in imports for the same country *i*. ψ is set to 0 if origin and destination country coincide. The weighted sum runs from 1 to 67, including the 66 countries covered in ICIO Tables and "Rest of the World." Average of yearly weighted sums 1995–2007 and 2009–2018	ICIO Tables	All available

Appendix C Additional figures and tables

Figure C1 Relationship between growth contributions of exports and consumption, CEE countries, 1995–2007

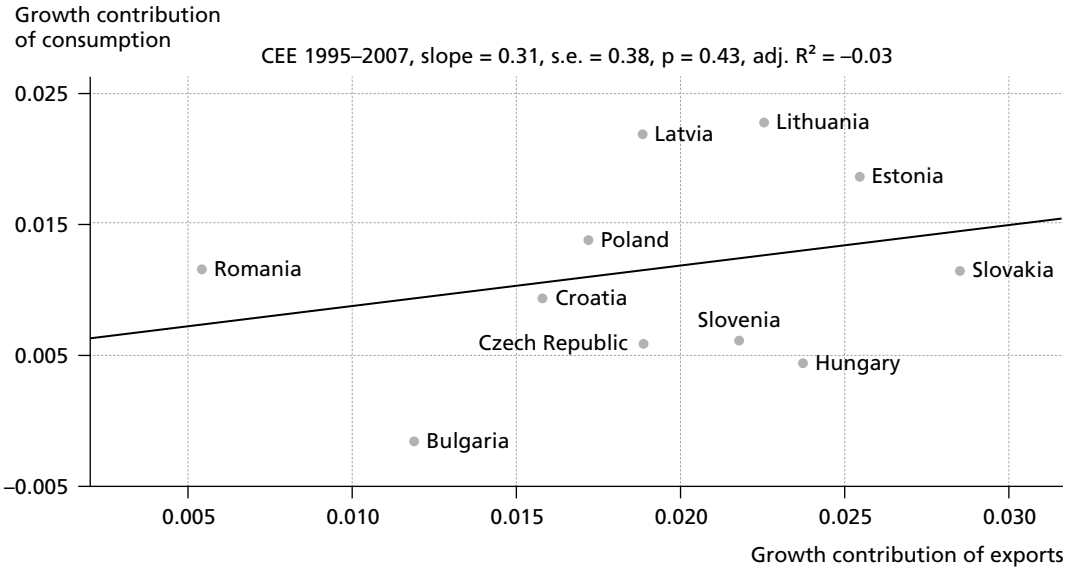


Figure C2 Relationship between growth contributions of exports and consumption, Western countries, 2009–2018

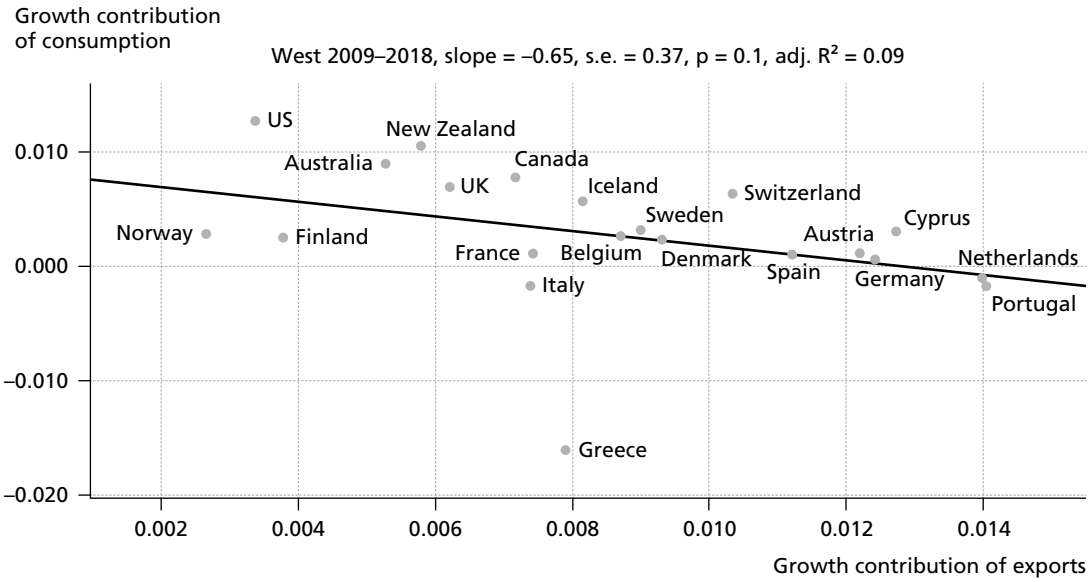


Figure C3 Relationship between growth contributions of exports and consumption, CEE countries, 2009–2018

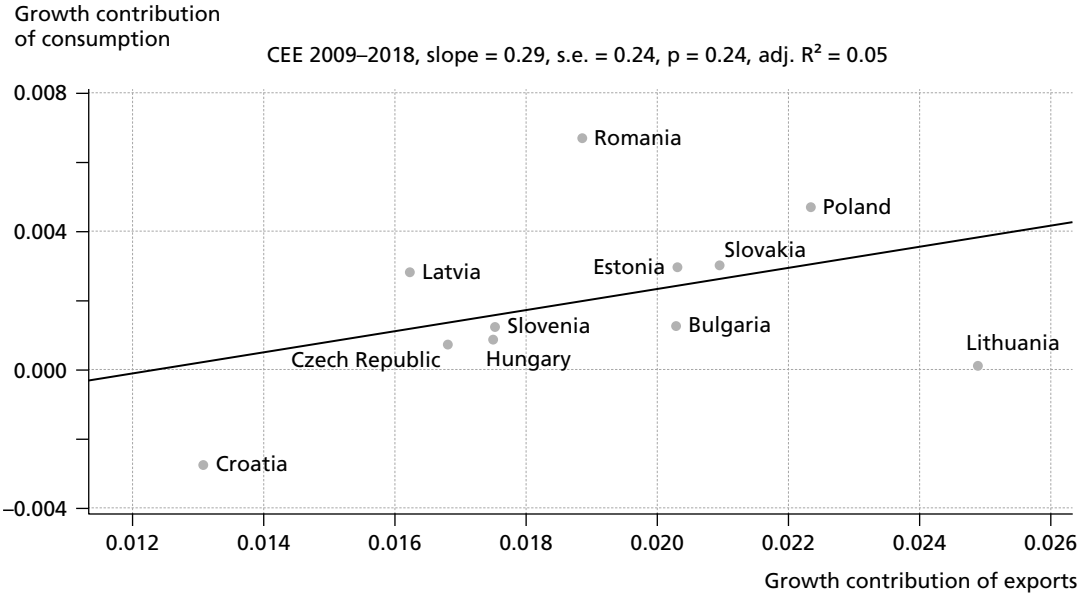


Figure C4 Relationship between growth of real effective exchange rates and growth contributions of exports, CEE countries, 1995–2007

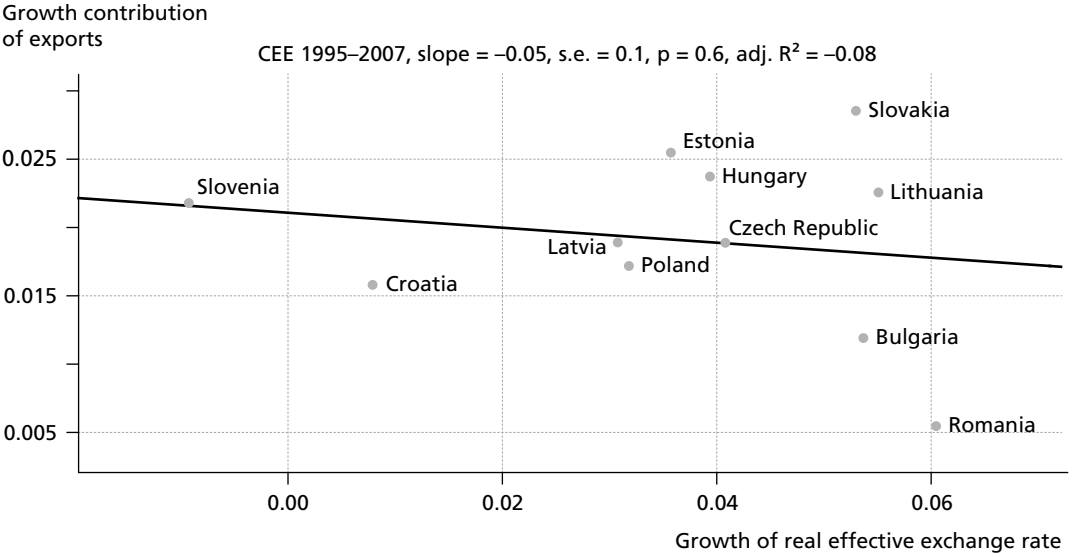


Figure C5 Relationship between growth of real effective exchange rates and growth contributions of exports, Western countries, 2009–2018

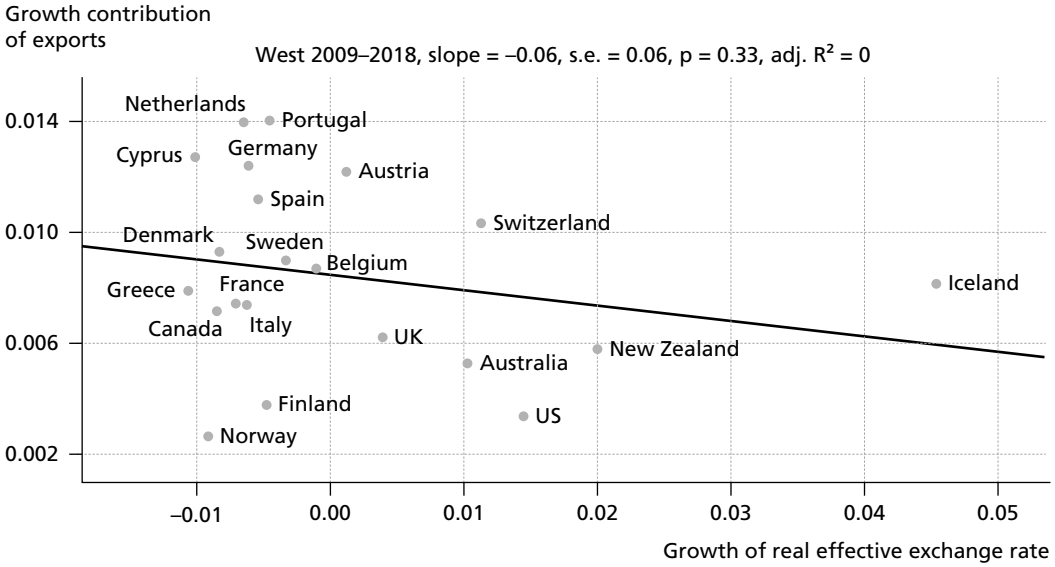


Figure C6 Relationship between growth of real effective exchange rates and growth contributions of exports, CEE countries, 2009–2018

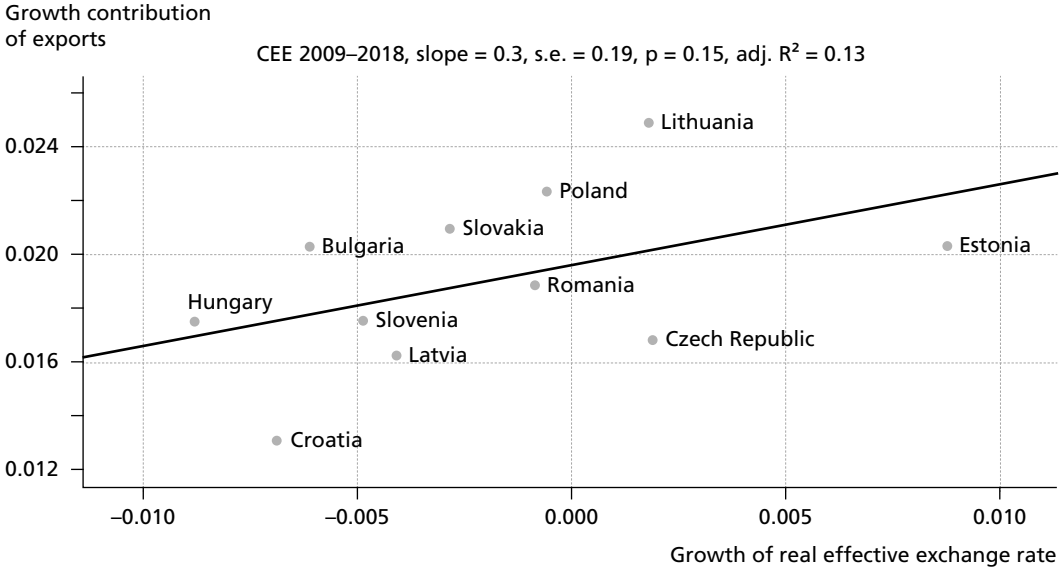


Figure C7 Relationship between economic complexity index and growth contributions of exports, Western countries, 1995–2007

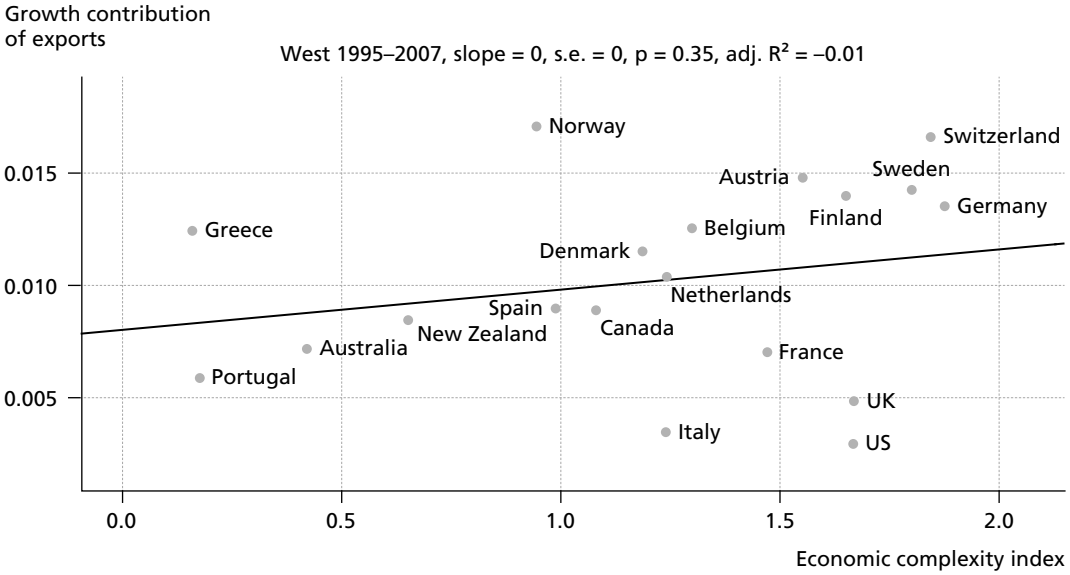


Figure C8 Relationship between economic complexity index and growth contributions of exports, CEE countries, 1995–2007

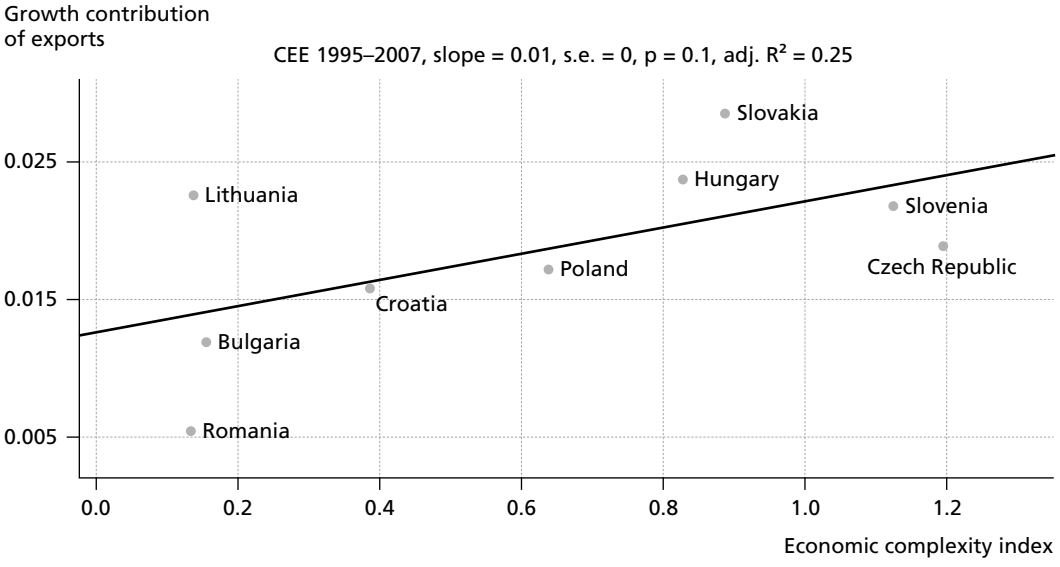


Figure C9 Relationship between economic complexity index and growth contributions of exports, Western countries, 2009–2018

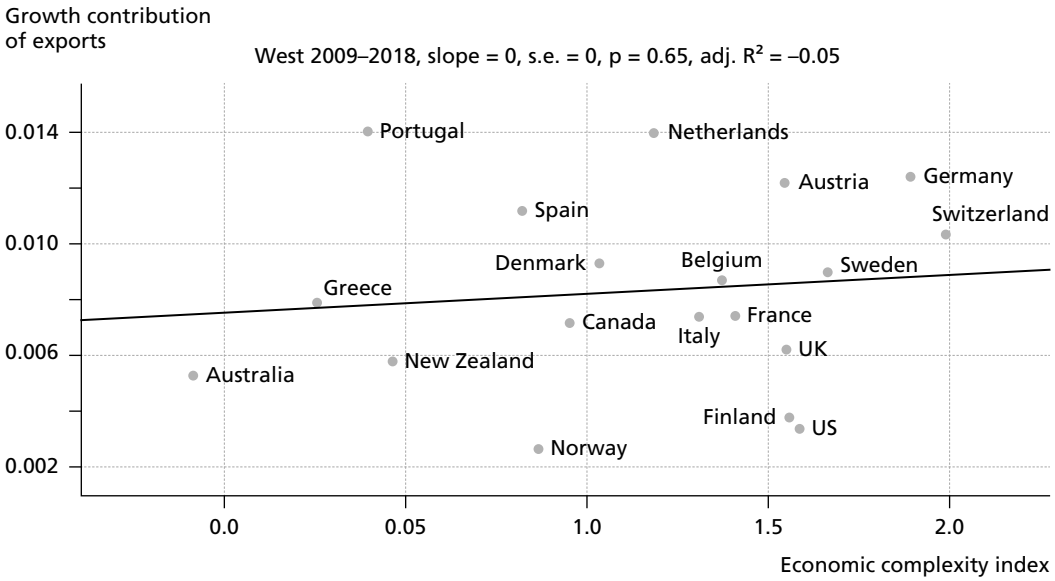


Figure C10 Relationship between economic complexity index and growth contributions of exports, CEE countries, 2009–2018

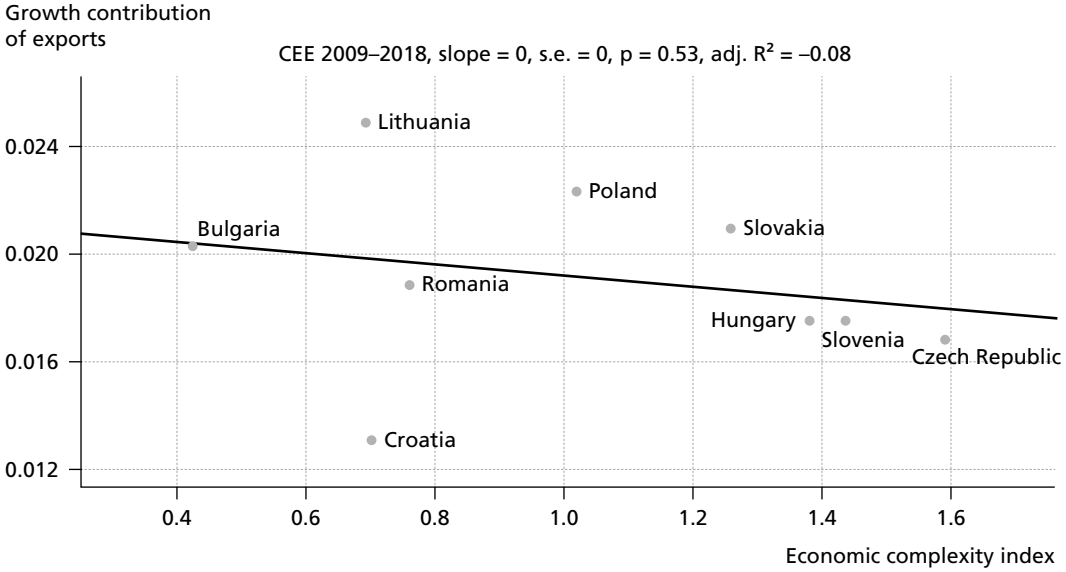


Table C1 Regression analysis on the drivers of export-led growth, Western countries 2009–2018

	(1)	(2)	(3)
Variables	Export-led growth	Export-led growth	Net export-led growth
Growth of REER	–0.0652	–0.0496	–0.0972
	(0.105)	(0.113)	(0.144)
Economic complexity	0.000369	0.0105	–0.00236
	(0.00149)	(0.0214)	(0.00204)
Growth of foreign demand	–0.240	–0.165	0.00282
	(0.306)	(0.351)	(0.419)
Complexity x Foreign demand		–0.229	
		(0.480)	
Constant	0.0182	0.0145	0.00402
	(0.0138)	(0.0161)	(0.0189)
Observations	19	19	19
Adjusted R-squared	–0.054	–0.111	–0.058

Standard errors in parentheses; ***$p<0.01$, **$p<0.05$, *$p<0.1$.

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