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# Contemporary challenges to the German vocational training system

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## Abstract

The German vocational training system has played a central role in sustaining the competitive strength of German manufacturing. This article provides an analysis of contemporary developments in this system to assess its likely future trajectory. I begin by underscoring the differences and similarities of the German system to alternative arrangements that have emerged in other countries. I then turn to recent trends in Germany that have caused concern among policy-makers about the continued strength and viability of the vocational training system. I discuss reforms undertaken in the past few years that point to incremental, though possibly transformative, changes in the system designed to reduce costs and increase flexibility through renegotiations on two fronts: between general training standards and firm needs and training practices, and between the in-plant and school-based components of training.

**Keywords:** Germany, institutional change, varieties of capitalism, vocational training.

## Introduction

The German vocational training system has long been considered a crown jewel in the German political economy and a key element of the country's still rather successful model of "diversified quality production" (Streeck 1991). Whatever else ails the German political economy (and, granted, the ailments are many and chronic), Germany continues to succeed brilliantly in export markets, currently running a US\$203bn trade surplus (*The Economist* 2007). Most observers readily agree that Germany's apprenticeship training system is a crucial contributor to the continuing competitive strength of German manufacturing in international markets. Despite its obvious and continuing strengths, however, the past 20 or so years have been associated with a set of challenges that have led many long-time observers of the German system to worry about its future (Stratmann 1994; Baethge 1999; Troltsch 2005; Ulrich 2005). The key problems confronting the system are not so much related to the quality of apprentice training in Germany (which, indeed, is still widely admired). Rather, the prime concerns revolve around the question of whether employers are able to produce sufficient opportunities for in-plant training to sustain the model in its traditional form.

This paper provides an analytic framework for understanding contemporary developments in German vocational training and for assessing its likely future trajectory.

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The origins of the German system of training can be traced back to the 19th century, and one of its key defining features is a surprising durability of many of its core elements through the many and massive political and economic ruptures that rocked Germany over the course of the 20th century (Thelen 2004). This is a system, however, that has survived not because of an inherent “stickiness,” but instead through its ongoing, active adaptation to new problems thrown up by shifts in the political and economic context. As Marcussen and Kaspersen remind us in the introduction to this issue of *Regulation & Governance*, institutions do not survive through inertia, but instead require active maintenance (Marcussen & Kaspersen 2007; see also Thelen 2004, especially p. 293; Streeck & Thelen 2005, pp. 24–26). Recent reform efforts continue to reflect a strong will to adapt the system to new challenges. Indeed, it is hard to think of another political-economic institution in Germany that all the relevant parties – business and labor, social democrats, and Christian democrats – are as committed to shoring up as the vocational education and training system.

Despite good intentions, however, the past decade and a half have witnessed a decline in plant-based apprenticeships and the emergence of shortfalls in training opportunities for youth that traditional solutions (involving voluntary efforts on the part of employers’ associations) have proved unable to erase. The problem goes back in part to the changing skill needs of German employers (including new skills associated, often, with broader and more theoretical training) that increase the costs to firms of training and, in part, to longer-term structural trends associated above all with the decline of manufacturing and the transition to services. Recent reforms point to incremental, though possibly transformative, changes in the system through the injection of new forms of flexibility in the structuring of apprenticeship and through a rebalancing between the school-based and the in-plant components of training. Both types of change are meant to accommodate the changing skill needs of German employers, and both also appear designed to attempt to relieve cost pressures on firms by shifting some of the financial burdens of onto training onto the state and onto trainees themselves.

### Germany in comparative perspective

In previous work, I have tracked the genesis and evolution of the German training system, including the politics and the processes through which a collectivist system prevailed historically over two ideal-typical alternatives. One of these alternatives is identified in the varieties of capitalism literature as a “general skills” system of the sort that emerged in the so-called liberal market economies such as the US (see especially Hall & Soskice 2001). In such a system, firms are not heavily involved in skill formation and workers therefore have an incentive to acquire *general* skills that are broadly portable across the various industries and firms in which they might seek employment. The other alternative is what I (following Peter Swenson) have termed a “segmentalist” system of skill formation that is characteristic, for example, of Japan. In such a system firms do invest heavily in worker training, but of a variety that is organized around the needs of the company. In contrast to both of these, Germany developed a collectivist system of training premised on the provision of portable occupational skills.<sup>1</sup>

The contours of Germany’s so-called dual system of training are familiar in the political economy literature. This system combines school-based learning with practical firm-based training (with primacy traditionally given to the latter). The plant-based

component is strongly “collectivist” insofar as employers train *not narrowly* and for their own needs, but *broadly* and to *standards* that are set nationally by committees composed of representatives of business and labor. Although premised on firms voluntarily taking apprentices, the system encourages companies to invest in skill formation (among other things, by providing various kinds of protection against poaching), even as it also provides guarantees that apprentices will receive high-quality training (above all through strong mechanisms for monitoring and enforcement).

Three key features distinguish the German model from both the liberal (general skills) and the segmentalist (specific skills) alternatives, and these can provide a baseline for assessing the direction and significance of contemporary changes.

1. *A wide range of firms (above and beyond the country’s largest enterprises) participate in a national system of skill formation.* Not only does the private sector in Germany invest significant resources in worker training, but equally important (and very different from Japan, more similar to Denmark), a wide variety of firms – including significant numbers of small-sized and medium-sized enterprises – are part of this system. In Germany, nearly 50% of all trainees continue to acquire their skills in firms with fewer than 50 workers, and Germany’s largest firms (500 or more employees) train about the same percentage of apprentices as the country’s smallest firms (one to nine employees), each accounting for 15–20% of the apprentice “classes” of the last several years (BMBF 2006, p. 144).<sup>2</sup> The defeat of an alternative “segmentalist” system preferred by some large employers in Germany at the turn of the century was crucial to the development of the system (Thelen 2004, ch. 2), and the stability of that system continues to rely on the management of the diversity across German firms.

2. *In-plant training is subject to monitoring and oversight, to maintain and enforce nationally defined standards regarding the content and quality of skills.* This feature sets the German system apart from skill regimes based on general skills (where firms do not do much training to begin with) and specific skills (where there are no oversight mechanisms). This is not to say that training is organized in the same way across all firms or types of firms – quite the contrary. In fact, one reason that the German system continues to “fit” firms of different sizes and with different production structures is a high degree of flexibility in how the in-plant component of training can be organized. Large firms, which are looking to retain most of their apprentices after training, are much more likely to have separate training facilities and to keep apprentices out of the production process for a significant proportion of their training terms. Small firms, by contrast, are more likely to arrange for training to be accomplished on the job and during production lulls, spending far less on training and in fact benefiting from the availability of an extra hand in production when orders pick up (Soskice 1994; Wagner 1999). Despite these differences, however, firms have to fulfill nationally defined requirements, and apprentices have to stand for exams organized to test their skills – both of these requirements supporting a system for the high-quality production of *portable occupational* (as opposed to firm-specific) skills. Ongoing high failure rates result in a revocation of a firm’s right to train, so firms cannot ignore the nationally defined curricular requirements governing the occupations in which their apprentices are receiving training.

3. *The state offers support but relies on private sector sponsorship of training.* In Germany, the state has traditionally insisted that training is the responsibility of the private sector,

with governments mostly attempting to stay at arm's length. Apprentice training traditionally commences when a firm hires an apprentice.<sup>3</sup> Despite the higher reliance on employers to sponsor training, the German state supports a system based on the provision of occupational (rather than firm-specific) skills in two ways. First, it delegates to employer chambers strong para-public and quasi-legal rights and responsibilities to monitor firm-based training and facilitates employer coordination by making membership in these chambers compulsory. Second, the state plays a direct role in the promotion of portable "foundational" skills through its sponsorship of a compulsory school-based component to accompany in-plant training. These are features that are wholly absent in company-based segmentalist alternatives, such as in Japan.

Taken together, these three general characteristics of the German system have important functional and political implications. *Functionally* speaking, the attributes cited point to the very high demands placed on organized interests in maintaining Germany's collectivist system for occupationally oriented training. The demands on organized capital in particular are much greater than in either the liberal or the segmentalist alternatives (which require less coordination among employers). *Politically*, and empirically (and partly as a consequence), this system involves ongoing balancing on two fronts – between the enforcement of general standards and the reality of firm-specific needs and conditions of training, and between the school-based and the in-plant components of training. These are precisely the two interfaces that are being renegotiated in the current period.

### Trends and strains in the German training system

The past several decades witnessed trends that have caused many observers of the German training system to worry about its future. Some of these developments are long term and structural, for example, the shift away from manufacturing – the traditional core of the vocational training system – toward the growing importance of the service sector (Culpepper 1999; Culpepper & Thelen 2007). Others are related to one-off events with longer-term ramifications (notably, the effects of unification and the now-chronic undersupply of training places for youth in Eastern Germany (Brown *et al.* 2001, pp. 80–85; also especially Culpepper 2003). In addition, technological changes that involve ongoing rapid innovation in both products and production methods have meant that workers require ever-broader (more theoretical, more flexible) skills. Such changes raise the costs of training to firms, which poses problems in a context of overall more intense competitive pressures and, especially in manufacturing, of overall reductions in employment. In light of all of this, there has been a great deal of hand-wringing in Germany in the past several years, especially concerning shortfalls of apprenticeship slots to cover demand for training on the part of youth.

Politicians and social partners have been motivated to address these problems and challenges. Much activity in the past several years has centered on adapting the content of skills to new technological and market conditions and to increasing the number of apprenticeship slots in the private sector. In terms of the *content* of skills, the tripartite National Vocational Training Institute has undertaken important initiatives, starting in the late 1990s, to update training ordinances on a relatively broad scale (see, for example, BMBF 2000, pp. 8–9, 2001, pp. 145–148). Since 2000, 76 revamped and 26 new occupations

**Table 1** Evolution of supply and demand for apprenticeship places, 1992–2005

Year	Supply of apprenticeship places	Demand for apprenticeships (no. youths seeking)	Percentage of apprentices slots/apprentice seekers
1992	721,825	608,190	118.7
1993	655,857	587,879	111.6
1994	622,234	587,052	106.0
1995	616,988	597,736	103.2
1996	609,274	612,785	99.4
1997	613,381	634,938	96.6
1998	635,933	648,204	98.1
1999	654,454	660,380	99.1
2000	647,383	645,335	100.3
2001	638,773	634,700	100.6
2002	590,328	595,706	99.1
2003	572,474	592,649	96.6
2004	586,374	617,556	95.0
2005	562,816	591,080	95.2

Source: BMBF (2006, p. 15).

have been implemented. In 2004 alone it was more than 30 and in 2005, 21 were anticipated, making this the “biggest modernization push since 1969 when the Vocational Training Law was passed” (BMBF 2005, p. 2). More than half of all new training contracts are now in occupations that have been modernized in recent years (BMBF 2005, p. 2). Moreover, the trend in Germany over the past two decades has been to meet (not avoid) the need for broader and more theoretical skill profiles, which has resulted in an overall increase in the length of training from less than 34 months on average in the mid-1980s to close to 37 months on average since 1990 (BIBB 2005, figure 7.1).

The *quality* of German apprenticeship is not what is at issue so much as the *quantity* of in-firm training slots. The past decade and a half have seen a steady fall in the number of apprenticeship places on offer in Germany, from a high point in 1992 of 721,825 apprenticeship slots to 562,816 by 2005, as indicated in the first column of Table 1.

Other statistics present an overall rosier picture. For example, figures reported by the Federal Training Institute on the “supply” of and “demand” for apprenticeships show a system that is more or less in balance. These figures are reported in the third column of Table 1, and they suggest that although the system has (mostly) slipped into deficit since 1996, the shortfall never amounts to more than an apparently modest 5%.

However, and especially as Ulrich has pointed out (Ulrich & Troltsch 2003; Ulrich 2005), this apparent balance rests substantially on somewhat shaky accounting techniques that take out of the statistics those youth who registered as seeking an apprenticeship in a given year, but who subsequently wound up in some “alternative arrangement.” Although the statistics do not discriminate between those who freely chose an alternative and those who were steered or pushed into such alternatives (because they could not secure an in-firm training place), the numbers are significant. The Federal Ministry for Education and Research, for example, reports that in 2005 fewer than half of those who registered for a regular dual-system apprenticeship actually started one (48.7%) (BMBF 2006, section 1.3). Only approximately 5% landed in the “unplaced” category, but a very high percentage – 46% – opted for some alternative.

Part of this phenomenon, as usual in a recession, is due to a rise in the number of youth entering university degree courses (up by 10% since 1998 according to Steedman and Wagner and reaching almost 40% by 2004 [Steedman & Wagner 2005b, fn. 7]). In addition to this, there is higher uptake of a range of full-time vocational courses such as the “vocational preparatory year” (Berufsvorbereitungsjahr, up by 119% between 1992 and 2003), preparatory training measures sponsored by the Federal Employment Agency (Bundesagentur für Arbeit, up 131% in the same period), and the “vocational foundation year” (Berufsgrundbildungsjahr, up 50%) (BIBB *et al.* 2004, pp. 3–4). Taken together, the use of these kinds of alternative nearly doubled between 1992 and 2003, such that currently the number of youth entering the dual system only slightly exceeds the number of youth in these alternatives (2003: 557,600 in the dual system against 525,100 in the alternatives) (BIBB *et al.* 2004, p. 4; see also Ulrich 2005, p. 34).

It is actually not clear (and in fact impossible to determine from existing statistics) how much use is made of various alternatives as a matter of choice, perhaps even as a function of demand for different kinds of skill, for example, in higher-end services. However, especially in the context of the decline in private sector training slots noted here, these increases have been sufficient to give rise to concerns in Germany about the extent to which youth who do not land in-plant apprenticeships are stuck in a “holding pattern” while waiting for a traditional apprenticeship (the so-called “*Warteschleifen*” problem).<sup>4</sup> The important point for present purposes is that whereas the availability and increasing uptake of these alternatives has helped the system to maintain an “outward appearance of health” and stability (namely the relative balance between supply and demand in Table 1), most observers (including policy-makers) are justifiably concerned about the overall downward trend in the number of firm-based apprenticeships (Ulrich & Troltsch 2003; Steedman & Wagner 2005b, p. 18).

There are three main factors that seem to have contributed to the decline in firm-based apprenticeships over the last 10–15 years: the rising costs to firms of training apprentices, the continuing employment crisis in Eastern Germany, and the decline of manufacturing (the core of the traditional dual vocational training system).<sup>5</sup> I will address each of these issues, briefly, before turning to the responses these trends have evoked – on the part of youth, firms, and state – as well as their likely influence on the system as a whole.

First, the cost to firms of training has risen. The adaptations in the content of training discussed have been crucial in keeping pace with new technology and market trends, and they go far toward refuting the image of the German system as rigid or inflexible (cf. Herrigel 1996). However, implementing these changes has increased the costs to firms of training, and this occurs in a context of ongoing slow growth and relentless employment reductions in manufacturing where the lion’s share of training takes place in Germany. Cost considerations (and especially the costs associated with higher standards and broader skill profiles) fall especially hard on smaller firms. Handicraft firms, for example – historically speaking, the core of the German apprentice system (Thelen 2004) and still significant contributors to it – saw their net training costs rise by 27% over the 1990s, which probably explains the 6.5% reduction in apprenticeship slots offered in the craft sector since 1993 (Steedman & Wagner 2005b, pp. 21–22).<sup>6</sup>

Overall higher training costs – especially in the context of stagnant employment or even workforce reductions – have resulted in an overall drop in training across firms of all sizes, especially in the early 1990s, although the trend was more pronounced in smaller firms, as shown in Table 2.

**Table 2** Evolution of training behavior, by firm size, 1990–2003

Size of firm (no. employees)	Proportion of companies training (western states only)					Apprentice ratio (western states only)				
	1990	1996	1999	2003	Change (%)	1990	1996	1999	2003	Change (%)
	1990–2003					1990–2003				
1–9	21.4	16.9	17.5	17.9	–16.4	11.1	8.0	8.4	8.6	–22.5
10–49	51.7	46.9	47.8	47.0	–9.1	8.5	6.6	7.1	7.0	–17.6
50–499	73.6	67.1	70.2	69.3	–5.8	6.0	4.5	5.3	5.4	–10.0
500+	94.3	93.2	92.6	91.6	–2.9	5.2	4.1	4.8	5.0	–3.8
Total	28.3	23.7	24.5	24.6	–13.1	7.1	5.5	6.1	6.2	–12.7

Source: BMBF (2005).

Second, the continuing employment crisis in Eastern Germany has contributed to the training problem. The imbalance between the demand on the part of youth for training slots and the supply of in-firm training opportunities is particularly acute in the East. This is understandable in light of the collapse of manufacturing there in the 1990s and continuing high unemployment ever since. Official shortfalls in apprenticeship slots run well above the average in the West, closer to 10% for the past several years (BMBF 2006, p. 15, Übersicht 1), and this despite a much more prominent and proactive government role, both in subsidizing apprenticeships and in directly creating out-of-firm apprenticeship alternatives. In 2005, more than a quarter (25.3%) of total apprentice slots in the East were out-of-firm (against only 3.6% in the West), and of the in-firm training slots, 12% were subsidized by the state (against a mere 1.5% in the West) (Culpepper & Thelen forthcoming, tables 4 and 6). Had it not been for heavy state subsidies and investment in creating out-of-firm training opportunities, the situation in the East would be much more dire.

Finally, there is the issue of the decline of manufacturing, which is the traditional core of the German training system. A very significant part of the problem of declining in-firm training seems to go back to the failure of the service sector (the only real source of employment growth in Germany) to embrace the traditional “dual system” of training on anywhere near the same scale as in manufacturing.<sup>7</sup> Klaus Troltsch in fact cites figures that suggest a 24.7% *decline* in service sector apprenticeship between 1987 and 1996, even as employment in the sector rose by nearly 30% (29.6%) (Troltsch 2005, p. 75). His figures indicate that after 1996, the number of apprenticeships in services stabilized and even grew modestly after 1999, but overall training levels remain low compared with manufacturing industries.

Table 3 documents how apprentice ratios (the number of trainees relative to total employment) in services continue to lag behind those in manufacturing. It shows that apprentice ratios in metal and electronics stayed relatively high over the late 1990s and early 2000s (despite an overall decline in skilled employment in the industry). Meanwhile, the number of trainees in primary services grew strongly, but from a much lower base (and against stronger employment *growth* in the sector) so that the apprentice ratio in 2002 was still less than half that in metalworking. Apprenticeship ratios in secondary services actually declined between 1995 and 2002 (from 4.0 to 3.6%), despite considerable growth in the number of skilled employees in that sector (+10.5% according to

**Table 3** Sectoral differences in use of apprentices, 1995–2002 (Western Germany)

	Change in no. apprentices (%), 1995–2002	Apprenticeship ratio, 1995	Apprenticeship ratio, 2002
Metal, electric	–2.8	11.3	12.3
Other industrial	–9.6	6.8	7.7
Tech, scientific	–22.4	1.9	1.5
Primary services	18.5	4.4	5.1
Secondary services	–1.1	4.0	3.6

Source: Werner (2004, p. 59).

Werner, presumably recruited from applied universities or similar institutions of higher education) (Werner 2004, p. 59).

### Policy responses

In Germany's heavily voluntarist system, governments have tended to respond to a decline in training with exhortations and pleas to private firms and, occasionally, with a threat to impose a training levy.<sup>8</sup> This strategy has not been wholly unsuccessful, either, as German employers have a strong interest in the training system and also possess significant capacities for coordination in this area. Thus, in the past, shortages of apprentice slots were in fact answered through voluntary adjustments on the part of business, as, for example, in the late 1970s when employers' associations orchestrated a quite significant increase in the number of training slots to address a serious deficit (Baethge 1999), or more recently (2004), when industry again managed to come up with voluntary increases in the number of apprentice slots against the threat of a state-imposed training levy (Funk 2005). There appear to be real limits, however, to what these sorts of exhortations can achieve, and in 2005 the government passed a major reform to the system.<sup>9</sup> There are several components to the new Vocational Training Act, but for present purposes the most significant elements are those that enhance the flexibility of the system in various ways and those that recalibrate the lines between the school-based and plant-based components of training.

Several features of the new legislation are designed to enhance the flexibility of the system. For example, the law streamlines the procedures for updating training profiles and curricula, among other things by eliminating a layer of bureaucracy (the Länder Committee of the Federal Institute for Vocational Training) (BMBF 2005). This change is aimed at facilitating ongoing "modernization" of training, including the timely creation of new occupational profiles as needed in emerging and rapidly changing sectors. It follows the rather successful developments in 1997 in information and communication technologies (ICT) where employers, unions, and government cooperated closely with one another to create four new apprenticeship occupations that have subsequently taken off in rather impressive fashion (see especially Steedman & Wagner 2005a).

Other features encourage greater flexibility in how in-plant training is actually carried out, including the possibility for it to be organized "on a more modular level" (Hassel 2006, p. 24). Firms are still required to train to nationally defined standards, but to allow for changes in technology or in regional or industry needs, the new Act also

“makes provision for the inclusion [in modules] of additional competencies...into the curriculum” (Steedman & Wagner 2005b, p. 22). These new flexibilities accommodate and encourage changing practices in fields like ICT where training is composed of “core competencies” and “optional elements” that allow for specialized training “relevant to the apprentice’s training firm” (Steedman & Wagner 2005a, p. 15). In that field, and in the meantime in other industries as well (e.g. metal and electronics), firms “offer customized training within broad qualification profiles,” and this is sometimes associated with increasingly popular “process-oriented” approaches to training – in which, for example, apprentices participate in some kind of in-plant project as part of the examination (interviews at DaimlerChrysler Düsseldorf and Metal Employers Association for Berlin/Brandenburg; see also Steedman & Wagner 2005a, p. 25, fn. 16). Another aspect of the new law, apparently designed to accommodate weaker performing apprentices, provides flexibility in the examination procedures by allowing apprentices to sit for interim exams that then count as credits toward final examination results.

Other aspects of the new law appear to embrace a certain rebalancing of the school-based and firm-based components of training. One such element is a provision that gives state governments greater discretion to allow apprentices to receive credit for a variety of school-based training programs. Noting that “over 190,000 apprentices are currently participating in full-time schooling outside the remit of the BBiG [Federal Training Law],” the new law provides “easier access to examinations by the chambers of industry and commerce” – the chambers, however, being and remaining the key gatekeepers for skill certification. The easing of regulations for participation in examinations administered by the chambers should thus redound especially to the benefit of those who have attended one (or more) of the various full-time vocational schooling alternatives discussed here, but whose practical plant-based experience is more limited. As Steedman and Wagner note, this measure is meant to “ease the stress on apprenticeship places and is restricted until the year 2013” (Steedman & Wagner 2005a, p. 26). Beyond this, the new law generally invites new forms of collaboration between state vocational schools and companies, to accomplish several objectives at once: to address shortfalls in firm-based apprentice slots; to allow companies that might otherwise not be able to participate in training to do so; to provide training in new occupations (e.g. in the service sector) where plant-based options are insufficient; and to address the need for a stronger theoretical component to training (BMBF 2005).

### **Revisiting the defining characteristics of the German vocational training system and assessing prospects for the future**

It is too early to see how the effects of the 2005 reform will play out in the behavior of firms and trainees (and youth generally). But even if definitive conclusions are premature, we at least have a framework and benchmarks for assessing the long-term significance of these changes as they unfold. By way of conclusion, therefore, I revisit the three defining features of the German system that were identified at the outset and I discuss how they may be influenced by these recent developments.

1. *The first defining feature of the German system is that a wide range of firms (above and beyond the country’s largest enterprises) participate in skill formation.* As we have seen, the German system is one in which the practical component of training traditionally has

relied almost completely on firms (and very different kinds of firm, from the smallest to the largest) voluntarily taking apprentices. What seems clear is that Germany's largest manufacturing firms remain firmly committed to training, and the question for the future is the extent to which smaller firms can continue to afford to participate in the dual system, as well as the extent to which service sector firms generally come to embrace it. Some of the developments noted may operate to shore up the system on both these fronts. The 2005 law, for example, encourages and further promotes previously existing practices for networking and collaboration across firms to cover a required curriculum. Modularization fits with practices whereby large firms sell "modules" of training to other firms – for example, to firms that do not have in-house technology or training capacity to cover certain elements of an occupational curriculum. Moreover, to the extent that some of these changes link up to (and appear to have been partly inspired by) the ICT apprentice model, they may facilitate inroads into other emerging areas where traditional apprenticeship has so far not taken hold.

2. *The second characteristic feature of the German system is that firm-based training is subject to nationally defined standards regarding the content and quality of skills.* New opportunities for greater flexibility are, of course, likely to encourage experimentation on the part of firms to try to reduce the overall costs of training. Such cost reductions are of course not themselves inconsistent with (and are very likely even essential to the survival of) the German system. However, some of the forms of modularization just mentioned could undermine the broad occupational skill model (as firms train more narrowly, focusing on the specific skills they need) or lead to an overall decline in training standards through subdivision into smaller components (Drexel 2005; Rauner 2005). It is perhaps significant that German employers have not responded to problems in the system by demanding a blanket relaxation in training standards (to relieve costs pressures and encourage firm participation).<sup>10</sup> However, this certainly does not rule out more subtle, creeping changes in the general direction of training that is organized more around the specific needs of firms, especially among large firms that anyway expect to employ their workers for a long time. For the future, therefore, it will be important to track whether new possibilities for flexibility lead simply to a modularization of the process of skill acquisition (which would be consistent with the survival of a model based on occupational skills) or to a deconstruction of the skill profile itself (which could lead to the de facto gradual emergence of a very different, more segmentalist, training regime) (Drexel 2005).

3. *The third characteristic of the German system concerns the public–private partnership and the balance between firm-based and school-based training.* Two possibilities about which Germans have historically worried when it comes to vocational education and training are "*Verschulung*" (overemphasis on "book" learning at the expense of practical training) and "*Verstaatlichung*" (overinvolvement of the state at the expense of the private sector). These were worries in the past (e.g. Kieslinger 1950; Abel 1968; Thelen 2004, ch. 5), and they are worries again today (e.g. BIBB *et al.* 2004). It seems clear that recent trends in Germany signal a shift in the public–private balance both in terms of financing and in terms of the school/workplace mix.<sup>11</sup> Partly, the "upgrading" of school-based training (e.g. the provisions in the new Vocational Training Act that make it easier for youth to receive credit for vocational courses) looks like a rearguard action to deal with the problem of insufficient in-firm apprenticeship. But, partly, the recalibration of the plant-based and school-based components may also reflect changes in the types of

skills that employers (e.g. higher-end services) need, which implies a more positive adaptation of the system. For example, one of the service sectors in which apprenticeship training is most widespread is banking, and there we find employers recruiting a high number of apprentices with *Abitur* and also organizing their own training in ways that emphasize the theoretical components (Quack & Hildebrandt 1996). Partly for these reasons, the line between vocational and higher-educational tracks (traditionally not very fluid in Germany, to say the least) has become increasingly blurred in this sector, as youth who complete bank apprenticeships often go on to university, returning later with these additional (highly valued) qualifications (Quack & Hildebrandt 1996, p. 486). In the field of ICT, as well, it appears that German employers (and for that matter youth) value precisely the mix of theoretical and practical skills that these new combinations and training trajectories embody.<sup>12</sup>

In previous work I have argued that institutional survival is not a matter of inertia or stickiness. Instead, institutions require active maintenance and institutional reproduction calls for ongoing mobilization of political support (Streeck & Thelen 2005). For these reasons, the coalitions and politics surrounding the Germany training system that take shape today will influence mightily its overall trajectory of development. The current challenges are formidable, even if they are not quite as unprecedented as some observers imply. Indeed, when viewed in a longer time frame, one cannot help but be struck by the way in which contemporary conflicts and tensions – involving the management of diversity across firms of different sizes, characterized by the tensions between general standards and segmentalist urges, and inspiring debates on the appropriate balance between public and private and between the theoretical and the practical components of training – are exactly the same themes that have run through the entire history of the German vocational training regime (Thelen 2004).

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## Notes

- 1 For an elaboration of these types, as well as a full historical account, see Thelen (2004).
- 2 Of course, a much higher percentage of large firms offer training compared with smaller firms. Whereas 90.7% of all firms with 500 or more employees offers apprentice places, only 16.9% of the smallest firms (one to nine employees) offer training places. But in absolute terms there are of course far more small firms than large firms involved in training – more than 275,000 very small firms (one to nine employees) offered training places, against 4,300 large (500+ employees) firms (BMBF 2006, p. 151).
- 3 This is changing, particularly in Eastern Germany where the shortage of in-plant training slots is acute.
- 4 What we do know is that the number of those who opt for an alternative has risen from 34.8% in 1992 to 45.9% in 2005 (at the same time that the number of those who registered for and then actually began a “dual system” apprenticeship sank from 62.8 to 48.7% (BMBF 2006, section 1.3). We also know that the number of youth who continued to actively seek a training

- slot even after opting for an alternative rose by nearly 500% between 1993 and 2004, from 9,923 to 48,712 (Ulrich 2005, p. 28).
- 5 See also the more extensive discussion of these trends in Culpepper and Thelen (2007).
  - 6 The cost of training rose across the board, but as Steedman and Wagner point out, other firms did not experience a similarly large *net* increase because they were able to realize higher returns to training by incorporating trainees more into production. In the handicraft sector similar productivity increases were not possible, since training was already largely accomplished within the work environment (Steedman & Wagner 2005b, p. 21).
  - 7 The dual system is quite well established in a few sectors (notably banking) but much less so in many other service sectors (see, for example, Quack *et al.* 1995; Quack & Hildebrandt 1996).
  - 8 The level of direct state involvement, though, has been growing in recent years. In addition to creating out-of-firm training opportunities, especially in Eastern Germany, the state also increasingly offers incentives and support (including subsidies) for various kinds of firm-based training or practical experience.
  - 9 This reform was preceded by another piece of legislation affecting training in the handicraft sector. A measure crafted by then-Minister of Labor and Economics, Wolfgang Clement, makes it possible for skilled journeymen in certain handicraft trades to open independent businesses; that is, without additional training and without having to stand for the “master” exam. Opponents (above all representatives of the artisanal chambers, but also the conservative Christian Democratic Party) argued that the change would reduce quality, but advocates argued that the measure would bolster training (as these independent producers would be able to take apprentices). The law ultimately passed, but in a compromise form, affecting fewer trades than originally envisioned.
  - 10 I am grateful to an anonymous reviewer for emphasizing this to me.
  - 11 In the East, as we saw, the state plays a huge role in subsidizing training, although the Danish case suggests that this particular form of state involvement does not necessarily compromise a skill regime based on portable occupational standards.
  - 12 There is some concern, however, that recent changes to the university system in Germany will create new and more zero-sum forms of competition between apprenticeship and university attendance (see especially Wagner 2006).

## References

- Abel H (1968) In: Stratmann K (ed.) *Berufserziehung und beruflicher Bildungsweg*, pp. 19–41. Georg Westermann Verlag, Braunschweig.
- Baethge M (1999) Glanz und Elend des deutschen Korporatismus in der Berufsbildung. *Die Mitbestimmung Online* 4, 15.
- BIBB (Bundesinstitut für Berufsbildung); Edith Bellaire *et al.* (2004) *Wege zwischen dem Verlassen der allgemein bildenden Schule und dem Beginn einer beruflichen Ausbildung*. BIBB, Bonn.
- BIBB (Bundesinstitut für Berufsbildung) (2005) *Schaubilder zur Berufsbildung: Strukturen und Entwicklungen*. BIBB, Bonn.
- BMBF (Bundesministerium für Bildung und Forschung) (2000) *Berufsbildungsbericht*. BMBF, Berlin.
- BMBF (Bundesministerium für Bildung und Forschung) (2001) *Berufsbildungsbericht*. BMBF, Berlin.
- BMBF (Bundesministerium für Bildung und Forschung) (2005) *Reform der Berufsbildung 2005*. BMBF, Berlin.
- BMBF (Bundesministerium für Bildung und Forschung) (2006) *Informationen und Daten zur beruflichen Bildung Teil II, Berufsbildungsbericht 2006*, BMBF. [Cited 27 Nov 2006.] Available from URL: <http://deutschland.dasvonmorgen.de/de/6433.php/>.
- Brown P, Green A, Lauder H (2001) *High Skills: Globalization, Competitiveness, and Skill Formation*. Oxford University Press, Oxford.
- Culpepper PD (1999) The Future of the High-Skill Equilibrium in Germany. *Oxford Review of Economic Policy* 15, 43–59.

- Culpepper PD (2003) *Creating Cooperation: How States Develop Human Capital in Europe*. Cornell University Press, Ithaca, NY.
- Culpepper PD, Thelen K (2007) Institutions and Collective Actors in the Provision of Training: Historical and Cross-National Comparisons. In: Mayer K-U, Solga H (eds) *Skill Formation: Interdisciplinary and Cross-National Perspectives*. Cambridge University Press, New York.
- Drexel I (2005) *Das Duale System und Europa: Ein Gutachten im Auftrag von Ver.di und IG Metall*. Unpublished Report. München.
- The Economist* (2007) 3 Feb, p. 98 (Sect. Economic and Financial Indicators).
- Funk L (2006) *Gesammetall proposes reforms of educational system (EIROOnline) 2005*. [Cited 5 Dec 2006.] Available from URL: <http://www.eiro.eurofound.eu.int/2005/05/feature/de0505105f.html/>.
- Hall PA, Soskice D (eds) (2001) *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage*. Oxford University Press, New York.
- Hassel A (2006) What Does Business Want? Labor Market Reforms in CMEs and its Problems. Paper read at Council for European Studies, 30 Mar–1 Apr 2006, Chicago, IL.
- Herrigel G (1996) *Industrial Constructions: The Sources of German Industrial Power*. Cambridge University Press, New York.
- Kieslinger A (1950) Berufsausbildung am Scheideweg. In: Pätzold G (ed) *Quellen und Dokumente*, pp. 146–148. Böhlau Verlag, Cologne.
- Marcussen M, Kaspersen LB (2007) Globalization and Institutional Competitiveness. *Regulation & Governance* 1, 183–196.
- Quack S, Hildebrandt S (1996) Rekrutierung, Berufsausbildung und Personaleinsatz: Deutsche und französische Kreditinstitute im Anpassungsprozess an veränderte Marktbedingungen. *Zeitschrift für Berufs- und Wirtschaftspädagogik* 92, 467–489.
- Quack S, O'Reilly J, Hildebrandt S (1995) Structuring Change: Training and Recruitment in Retail Banking in Germany, Britain, and France. *The International Journal of Human Resource Management* 6, 759–794.
- Rauner F (2005) Rettet den Facharbeiter! *Die Zeit* 1 Dec, p. 86.
- Soskice D (1994) Reconciling Markets and Institutions: The German Apprenticeship System. In: Lynch LM (ed) *Training and the Private Sector: International Comparisons*. University of Chicago Press, Chicago, IL.
- Steedman H, Wagner K (2005a) British-German Perspectives on Skill Formation and Current Reforms. Paper read at Jacobs Foundation Conference, 14–16 Apr 2005, Marbach.
- Steedman H, Wagner K (2005b) Changing Skill Needs in Europe and Responsiveness of Apprenticeship/Work-based Learning. Paper read at Jacobs Foundation Conference on Interdisciplinary Perspectives on Skill Formation and the Reform of Vocational and Professional Training, 14–16 Apr 2005, Schloss Marbach.
- Stratmann K (1994) Das duale System der Berufsbildung: Eine historisch-systematische Analyse. In: Pätzold G, Walden G (eds) *Lernorte im dualen System der Berufsbilder*, pp. 25–44. Bundesinstitut für Berufsbildung, Berlin und Bonn.
- Streeck W (1991) On the Institutional Conditions of Diversified Quality Production. In: Matzner E, Streeck W (eds) *Beyond Keynesianism*, pp. 21–61. Edward Elgar, Aldershot, UK.
- Streeck W, Thelen K (2005) Introduction: Institutional Change in Advanced Political Economies. In: Streeck W, Thelen K (eds) *Beyond Continuity: Institutional Change in Advanced Political Economies*, pp. 1–39. Oxford University Press, Oxford.
- Thelen K (2004) *How Institutions Evolve: The Political Economy of Skills in Germany, Britain, the United States and Japan*. Cambridge University Press, New York.
- Troltsch K (2005) Berufsbildung und Strukturwandel: Zum Einfluss wirtschaftsstruktureller Veränderungen auf das betriebliche Ausbildungsstellenangebot seit 1980. In: BIBB (ed) *Der Ausbildungsmarkt und seine Einflussfaktoren*, pp. 71–91. BIBB, Bonn.

- Ulrich JG (2005) Probleme bei der Bestimmung von Ausbildungsplatznachfrage und Ausbildungsplatzangebot. In: BIBB (ed) *Der Ausbildungsmarkt und seine Einflussfaktoren*, pp. 5–36. BIBB, Bonn.
- Ulrich JG, Troltsch K (2003) Berufsbildungsstatistik. *BIBB Forschung* 4, 1–2.
- Wagner K (1999) The German Apprenticeship System under Strain. In: Culpepper PD, Finegold D (eds) *The German Skills Machine: Sustaining Comparative Advantage in a Global Economy*. Berghahn Books, New York.
- Wagner K (2006) Apprenticeship and Bachelor Degree: Peaceful Co-Existence or War of Attrition? Paper read at Fifteenth International Conference of Europeanists, 29 Mar–2 Apr 2006, Chicago, IL.
- Werner D (2004) Ausbildung zwischen Strukturwandel und Investitionskalkül. Paper read at Expert Workshop, 1–2 Jul 2004, Bonn.

### **Laws cited**

- Law on Vocational Training of March 23, 2005 ([published] in Bundesgesetzblatt (BGBl), Part I, page 931), as updated by Article 232 of Regulation of October 31, 2006 (BGBl, Part I, page 2407).