

**Pathways of change in CMEs**  
**Training regimes in Germany and the Netherlands**

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**Abstract**

This paper provides a comparative analysis of training regimes in Germany and the Netherlands. Both countries are CMEs with similar institutions, but their training regimes differ in important ways. The paper first maps the similarities and differences in the training regimes in both countries and then turns to three questions that frame the analysis of these similarities and differences. First, how have skills regimes adjusted to changes in economic and employment structure, such as de-industrialization and the rise of the service economy? Second, how much does the structure and adaptability of the training regime help to explain the relative success of the Dutch employment miracle? Does the Dutch training regime represent successful institutional adaptation to changed economic circumstances? Conversely, does the inflexibility of the training regime contribute to the German employment malaise? Finally, what do these findings suggest for the analysis of the political economy of skills regimes in other CMEs?

## **Pathways of change in CMEs:**

### **Training regimes in Germany and the Netherlands**

#### **1. Introduction**

Since the publication of Hall and Soskice's (2001a) edited volume, *Varieties of Capitalism*, comparative political economy (CPE) research has begun to take account of the complementarities between social protection, skill formation and production. Whereas scholars like Swenson (2002), Mares (2003) and Martin (1999) have addressed the links between production and social protection, skills regimes remain largely uncharted territory.<sup>1</sup> As Iversen and Stephens (2008) note, education has never fit easily into the research programs of most comparative politics scholars. Comparative welfare state research has almost completely ignored the field of education and training even though education has much in common with social policy and is a core element of the welfare state. As a result, there is a large literature on the welfare state and on other core institutions of the economy and public sector but relatively little CPE research concerning education and training. This is changing, not least because the VoC framework has opened up new research questions, suggested new places to look for answers, and started to resolve some of the puzzles that have remained "unsolved" in CPE for decades.

Despite the many criticisms of VoC (too little attention to politics, too functionalist; see, for example, Howell 2003) the VoC framework is the starting point for much of the comparative political economy literature today. We welcome this development and want to focus on two issues that we think merit more attention: the importance of human capital formation for varieties of capitalism (VoC) research and the need for a deeper understanding

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<sup>1</sup> The exceptions are Thelen (2004) and Culpepper (1999a and b).

of differences among coordinated market economies. Thus we join scholars like Culpepper and Thelen (2008) in focusing on cross-national variation among CMEs.

This paper investigates the ways in which the structure of skills regimes in CMEs shapes national responses to structural economic change. Despite high levels of employer coordination, the relative size of the service and manufacturing sectors differ substantially across CMEs. Thus the balance between manufacturing and services has only partly to do with factor endowments and also to do with the structure of skills regimes in CMEs. The argument we develop in this paper is that the key institutional difference across CME training regimes is the role of the state, particularly the role of vocational schools. All else equal, the public provision of skills in firm-based skills regimes is more limited than in skills regimes where the state plays a larger role. In firm-based regimes, training firms have to earn a return on skills via long job tenure. As a consequence, firm-based skills regimes tend to be slower to adjust to structural changes, particularly shifts in employment between sectors, than school-based regimes or regimes that combine firm-based and school-based training.

We present a typology of training regimes that classifies countries based on this key dimension and develop an argument that links institutional differences across training regimes to variations in the rate de-industrialization. The next two sections situate our analysis within the VoC literature and lay out our typology of training regimes. We then briefly discuss the key features of the German and Dutch training regimes in order to illustrate our arguments about the link between training regime structure and economic transformation. Finally, we discuss the implications of our analysis for the CPE and VoC literatures.

## **2. Literature Review (theoretical issues)**

A great virtue of the VoC approach is that it does two things that much existing research neglects or does poorly: it emphasizes the centrality of employer and employee interests for explaining the origins and effects of relevant institutional structures, highlighting

highlights the institutional complementarities between systems of social protection, skills regimes, labour market regulation and production regimes. Estevez-Abe, et al. (2001) introduce the concept “welfare production regime” (WPR) to capture the ways in which social protection regimes, skills regimes, and production regimes are interconnected. As Estevez-Abe, et al. put it, “welfare production regimes are the set of product market strategies, employee skill trajectories, and social, economic, and political institutions that support them.” (146). In coordinated market economies (CMEs), firms’ product market strategies are based on the availability of specific skills. In order to protect their investment in specific skills, workers demand social insurance policies that protect these skill investments, such as employment protection, generous unemployment insurance and earnings-related pensions. Firms then pursue product market strategies based on incremental innovation or “diversified quality production” (Streeck 1991) because of the abundance of specific skills. According to this logic, skilled workers will join with manufacturing employers in supporting social protection and training policies that support this high skill equilibrium.

We know from the large literature on welfare regimes that social protection in the CMEs takes on two forms: the “social democratic” or the “conservative/corporatist” (Esping-Andersen 1990). Thus there are two broad ‘recipes’ for organizing social protection so that workers’ investments in specific skills are protected, even if the corporatist regime matches the prototype of the CME, exemplified by Germany. Similarly, training regimes vary across CMEs, as the next section shows. The key point is that the VoC framework tells us that social policy in the CMEs should protect workers’ investments in specific skills and that training regimes should support the development of the kinds of specific skills on which firm strategies in CMEs rely. But the framework tells us little about the considerable variation in how social protection and skills regimes are structured and whether this variation in institutional design is important.

It is precisely this point that we pursue in this paper, because we think that differences in institutional design matter for adjustment to structural economic change. To put it another way, different institutional designs may provide similar effects (protection of skill investments, product market strategies based on incremental innovation, etc.) but if the economic context changes (the shift of manufacturing to developing countries, jobless growth in the manufacturing sector are two examples) the specific institutional constellation in a given country may cease to produce the economic outcomes that the institutional mix produced in the past, even if employer coordination continues to function.

The VoC approach implicitly assumes a more or less stable economic equilibrium in which the manufacturing/industrial sector is the motor of the economy. Arguments about skill investments are premised on insights about how the industrial sector functions and not the service sector. As Iversen and Wren (1998) argue, however, the most important recent economic change among the advanced capitalist countries is the rise of the service economy. The service sector is the main source of job growth among advanced capitalist countries, even if the size of the manufacturing sector stays relatively constant. The implications of this have not been adequately addressed in the VoC literature.

VoC's emphasis on the manufacturing sector means that we have little insight into how core VoC claims play out when the service sector enters the analysis. We do not claim to provide a comprehensive answer to this problem, but we do want to call attention to the growing importance of the service sector for national economic performance and the role of the skills regime in facilitating the transition to a more service-based, post-industrial economy. This means that employer coordination may function differently in CMEs with large service sectors. Given the importance of general and specific skills for private services, employers' product market strategies will be based on institutions that can supply and protect these skills. Training institutions suited for the provision of firm and industry-specific skills

may not sufficiently supply the mix of general and specific skills that the service sector requires.

Hall and Soskice (2001b) argue that firms are the “key agents of adjustment in the face of technological change or international competition whose activities aggregate into overall levels of economic performance” (6). The key similarity among CME firms is that they use non-market institutions to coordinate their activities. We think this argument is compatible with our emphasis on the links between economic structure (manufacturing/services) and training regimes. As the next section elaborates, training systems in the CMEs vary along several important dimensions, most notably the role of the state in the delivery and financing of training, and these differences are associated with the extent to which training systems provide general skills along with industry-specific skills. In regimes where employers dominate training, as in the German dual system, the balance of specific and general skills is tipped towards specific skills. Moreover, German training institutions appropriate for manufacturing employers have been transferred to the service sector, contributing to the accumulation of “service-specific” skill formation rather than the kinds of general skills required in service sector jobs. In CME regimes where the state plays an important role in financing and delivery, the provision of specific and general skills is more likely. It is this difference in skill production that helps explain the growth of the service sector in some CMEs and not in others.

### **3. Training and training regimes**

The debate about the provision of human capital has traditionally focussed on a collective action problem among firms. While national economies and firms benefit from higher skill levels, many firms are unwilling to invest in employee training, since other firms might poach highly skilled employees. The threat of poaching or skilled workers leaving voluntarily in search for higher wages in competitive labour markets lead to lower firm

investments in skills and therefore to a lower skill-level in the economy as a whole (Finegold and Soskice 1988). As a consequence, employees need to stay with the firm which trains them long enough for firms to recoup their investment. The assumption is that once trained, highly skilled labour will perform with higher levels of productivity at comparatively lower wages. At the same time, employees who acquire firm-specific skills need to protect their investments via secure employment relationships. If workers acquire highly specific skills, which they cannot use elsewhere, they need assurance that the company will use these skills at comparatively higher wages for a reasonable length of time (Estevez-Abe, et al. 2001, Iversen 2005).

Achieving a high-skill equilibrium therefore requires firms and employees to jointly invest in skills and to share the returns on this investment with each other. This balancing act can function only if there are institutions that reduce the turnover of highly skilled labour. These institutions include training institutions in firm or sectoral skill regimes which give workers' representatives and firms influence on the content and certification of skills. Workers can then make sure that training courses guarantee a minimum period of job tenure and create the basis for a long-term employment relationship. In addition, there are supplementary institutions that help keep wages for skilled employees comparatively low and protect skills over the business cycle. These institutions include generous unemployment benefit schemes (Estevez-Abe et al. 2001, Mares 2003), employment protection legislation (Iversen and Stephens 2008, Harcourt and Wood 2007) and a centralized collective bargaining regime that produces a relatively compressed wage structure (Streeck 1996).

The collective action problem arises primarily in systems where firms provide training, especially when firm training investments are high. Whereas firm-based training appears to have a positive effect on skill levels by making training a general responsibility of firms (Iversen 2005, Soskice and Finegold 1988), the downside of firm-based training regimes

is that the training institutions must continuously facilitate the balance between the firms' and employees' needs for returns on their respective investment in specific training.

In a dynamic economic environment, the problem is further complicated by the fact that the interests of the actors, their costs and benefits, and the balance between them vary along several dimensions. For firms, the important factors for investing in training are the business cycle, their production strategies and structural changes in the economy. Small firms have different pay-offs than large firms (Culpepper 2008), high productivity firms have different payoffs than artisan firms (Thelen 2004) and service sector firms have potentially different payoffs than manufacturing firms. For employees, returns on training investments depend on employment protection institutions and the type of unemployment insurance schemes which allow them to protect their occupation-specific skills even during spells of unemployment. Generous unemployment benefits help highly skilled workers to protect their skills during economic downswings (Mares 2003) and employment protection can secure longer periods of job tenure (Harcourt and Wood 2007). Women workers have a different interest in long job tenure than men (Estevez-Abe 2005, Iversen 2005), and service sector employees use a higher level of general skills compared to manufacturing sector employees.

Kathleen Thelen's work has shown in detail how two firm-based training regimes- the Japanese and German – have dealt with the question of finding this balance (Thelen 2004; Thelen and Kume 2001). In Germany, the certification of skills by artisan chambers was the solution: this approach reassured both sides that their investment was worthwhile: state policy granting monopoly rights to certify skills put pressure on artisanal masters to train their apprentices well in order not to lose the training privilege, while apprentices had to stay with their masters long enough to receive their certificates (Thelen and Kume 2001, 225). This was supplemented by two things: relatively strict employment laws that gave firms incentives to keep investing in existing staff rather than looking for better skills on the external labour market and wage agreements, which tended to keep wages for skilled workers compressed

(Streeck 1996). In Japan, in contrast, the problem was successfully addressed by the attempt to control labour mobility. One way of achieving this was to develop internal labour markets and lifelong employment relationships (Thelen and Kume 2001, 225).

The German solution was to lift the assessment of how long an apprentice needs to stay with the firm beyond the boundaries of the firm onto the level of artisanal and industry chambers. The Japanese approach remained within the boundaries of the firm and tied the employee to the firm long-term. Both training regimes imply longer job-tenure rates compared to training regimes in liberal market economies.

While the skills acquired in the Japanese training regime are consequently predominantly firm-specific (and less portable), the German training regime provides firm and industry specific but generally portable (occupational) skills. The formation of these skills takes place in a tightly regulated system run by the state and social partners. Employers, trade unions and public authorities jointly decide upon and administer training schemes that are partly implemented by the employer and partly by schools.

Only a minority of coordinated market economies have a training regime that is similar to either the Japanese or the German. Only the German speaking countries Austria and Switzerland have comparable training systems to the German one (Culpepper 2008). There is no other country among the OECD 18 that comes close to the Japanese segmentalist system of training based on lifelong employment, internal labour markets and firm-based training. Rather, in most CMEs the dominant form of training is not firm-based but is either largely school-based or a mixture of apprenticeships and vocational schools. The training in vocational schools however presents another category of training, which is distinct from both the general skills systems, such as the liberal market training regimes and the specific skills system, such as the workplace-based training schemes of Germany and Japan. School-based training regimes have some common features with workplace-based training regimes. To the extent that employers and unions decide the content of occupational skills, skills tend to be

more industry-specific and therefore similarly occupational as in workplace-based regimes. As in workplace-based training regimes, vocational schools use their privileged access to employers for placing trainees in firms, thereby creating close correspondance to the needs of employers. However, school-based training systems differ substantially from workplace-based training regimes with regard to the distribution of training costs and therefore also regarding the conditions under which returns on training can be achieved. Since trainees are students rather than employees, firms' training investments are considerably lower than they are in workplace-based regimes.

The balancing act of sharing investments and returns to training investments therefore plays out differently in school-based training regimes compared to workplace training regimes. On the one hand, since schools, even vocational schools, provide more general skills than specific skills, students will acquire a broader skills set. Broader general skill sets can be employed in a number of jobs and employment protection becomes less a priority. On the other hand, because the skill set is supervised jointly by employers and trade unions, there is some guarantee that the content of teaching in vocational schools can meet firms' skill needs.

In school-based regimes, the state bears most of the costs of training. Private investment by firms in vocational training is generally and less specifically tied to the individual employee. Firms' training activities focus on their engagement in supervisory boards of vocational schools, the design of training courses and adaptation of curricula to new technologies. Firms tend not to invest in a specific apprentice but into a cohort of students that participates in a training programme for firms in their own sector. As long as vocational schools continue to produce these types of skills, firms do not have to make sure that they retain an individual employee. For the trainee, on the other hand, skills are more general, so employment protection is not as important as in workplace-training regime, as long as the skills that are provided by the vocational school match labour market demands.

We therefore suggest distinguishing two ideal types of occupational training systems that sit in between general education systems (the LMEs) and the segmentalist training system (Japan) and take into account the differences between school-based training and workplace-based training:

In a *school-based occupational training system* vocational training is typically organised by the state, which runs vocational schools. The content of training is set in cooperation with the social partners. Firms do not heavily invest in training besides providing internships. In *workplace-based occupational training systems*, apprentices are employees of the firm. The social partners participate in setting the content of training. Firms bear most of the costs of apprenticeship training, but can also tailor training content to the firm's needs. In reality, many Western European countries have a mixture of workplace and school-based training. Even in countries with workplace-based training, some vocational training occurs exclusively in vocational schools. The important distinction is which type of training is characteristic for each training regime.

This leaves us with four distinct types of training regimes, three of which belong to the group of coordinated market economies. At the extreme ends are liberal market economies with very little vocational training and the segmentalist firm-based training regime in Japan. The two other types of occupational training regimes are located between the two extremes. The group of school-based training regimes could even be divided into strictly school-based and mixed systems. Mixed systems can be found in Belgium, France and the Netherlands.

[table 1]

Our typology of training regimes resembles categories in the training literature that distinguish between market-based, state-based and corporatist training regimes (Wollschläger 2000; Crouch, Sako and Finegold 1999; Ashton et al. 2000). However, our analysis focuses

on the question of how actors deal with the issue of providing specific skills in a context where collective action problems arise. Vocational schools provide a solution to the balancing act of safeguarding the returns on investment in specific/occupational skills that is different from the Japanese and the German solutions.

As an initial test we can examine several indicators commonly considered indicative for training regimes. The first is job tenure. As argued above, when employers invest in worker skills, they also want to recoup their investment. Returns are likely to be higher when highly skilled employees can be hired for relatively long periods for wages that are comparatively lower. Employers therefore have an interest in long tenure. If governments primarily bear training costs, firms' interest in long tenure is lower than when firms pay training costs themselves. Table 2 shows that job tenure indeed varies with the type of vocational training regime. The more specific the skill set and the more firm-based the training, the longer the tenure rate of employees with one employer.

[table 2]

Another indicator for our assumption is public and private spending on secondary (non-tertiary) education. We should expect that public spending on non-tertiary education varies with the degree to which the vocational training regime is school-based or workplace-based. The data in table 2 confirm this. While education spending in liberal market economies approximately equals the OECD 18 average, vocational school occupational training countries spend a higher share on education than countries that rely on workplace training. And even when looking at the division of costs between public and private, we see that in countries with

workplace-based occupational training, firms spend almost as much as the government on secondary and post-secondary training.<sup>2</sup>

#### **4. Germany and the Netherlands compared**

We have chosen the German and the Dutch training regimes as cases in order to illustrate and analyze the differences between workplace-based and school-based training systems concerning their capacity to adapt to structural changes in the labour market. We assume that the different pay-offs to skill investments provided in each regime will shape the actors' preferences concerning the development of the training institutions in a changing economic context. This section will therefore highlight what we think are the key issues for understanding the different institutional arrangements underpinning the two systems.

##### **4.1 Vocational training in Germany**

The German vocational training system has received considerable attention in the political economy literature and does not require detailed analysis here (Streeck et al. 1987, Thelen 2004 and 2007, Thelen and Busemeyer 2007). However, two features of the German training regime are crucial for our understanding: First, for young adults the workplace-apprenticeship system is the most important stream of post-secondary education. More than half of those who complete secondary education start an apprenticeship, while slightly less than a quarter stay in full-time education or attend vocational schools (table 3). Only Switzerland has a higher share of school-leavers who seek an apprenticeship. Thus the pathway of workplace-based apprenticeship is of crucial importance not only for skill formation within firms, but also as an instrument used by regional authorities in secondary education to facilitate the transition from school to work. The budgeting of general, vocational

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<sup>2</sup> The high degree of variation within the workplace-based training regimes is due to Austrian data which indicates that Austrian firms spend next to nothing on training.

and supplementary schools<sup>3</sup> in the public realm, as well as active labour market instruments for school-leavers, are based on the assumption that a majority of school-leavers will seek an apprenticeship.

[table 3]

Second, firms' motives for providing vocational training basically fall into two categories (Soskice 1994; Marsden and Ryan 1991, Neubäumer 1999).<sup>4</sup> large and high productivity firms train in order to utilize highly skilled employees who are trained to meet the firm's production needs. They invest heavily in training and usually train more apprentices than they can keep in order to cream off the highest potential of hard-working and smart apprentices. However, firms have also used training as a political tool for dealing with local, regional and also national political issues. For large firms, it is nearly impossible-- for political reasons--not to engage in vocational training because training is seen as a crucial element of good corporate citizenship. Small, artisan firms, on the other hand, train in order to utilize the cheap labour that apprentices provide after having acquired a minimum of skills. They invest little in training, but also tend to train more apprentices than they can keep.

The variable motivations for firms to train have over time led to a complementary system, in which training firms supply skilled labour to firms which do not train. Artisan apprentices, who have lower skill levels and do not find work in the handicrafts they are trained in often move to large firms as semi-skilled employees. The distribution of training reflects this division. More than 90% of firms with more than 500 employees train, but to a lesser extent compared to smaller firms (Berufsbildungsbericht 2005). Also, compared to

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<sup>3</sup> Supplementary schools are general schools providing general education to apprentices. They are attended 1-2 days per week during the apprenticeship.

<sup>4</sup> Vocational training is voluntary for firms. About half of the German firms have a training licence, but less than a quarter of all firms do train. Once firms take on apprentices, they have to follow the rules required by law and by the tripartite VET committees.

smaller firms, larger firms tend to keep their apprenticeships at a higher rate.<sup>5</sup> Both types of firms thus have economic reasons to train; research by the Vocational Training Research Institute (BIBB) has repeatedly shown that the net benefits of training outweighed the net costs for initial vocational training (Beicht and Walden, 2004).

For students who left school after compulsory secondary education, workplace-training has a higher status relative to training via vocational schools. Vocational schools have traditionally co-existed alongside workplace-based training, primarily for specific (usually female) occupations such as childcare workers and midwifery. In addition to these qualifying vocational schools, another type of vocational school developed, which was increasingly used to absorb students unable to find an apprenticeship.<sup>6</sup> These were general schools providing basic professional education (*Berufsgrundschuljahr*). In addition, vocational schools were also established which offer vocational courses in place of apprenticeships. Weak students unable to find an apprenticeship could thus begin a school-based programme through which they could acquire the same vocational certification as apprentices.

In contrast to school-based occupational training regimes, students' first choice was the workplace-based apprenticeship, and the best students would aim for workplace education. At the height of the German apprentice system in the 1980s, even students who would eventually return to tertiary education chose a workplace apprenticeship first as the foundation of a solid education.<sup>7</sup> To future employers, a workplace-based apprenticeship signalled a strong work ethic and a solid knowledge of a production process. Firms requiring highly skilled workers thus recruited good students into the apprenticeship system.

Over time, a hierarchy of certified skills developed, in which tertiary education was superior to workplace-based training, but workplace-based training was superior to vocational

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<sup>5</sup> The ratio of apprentices who stay with large firms (more than 500 employees) is 68% in Western Germany compared to 47% in firms with less than 10 employees (Berufsbildungsbericht 2007).

<sup>6</sup> Vocational schools also exist for public sector professions such as middle ranking police officers, or tax inspectors. Admission to a school was part of the job offer.

<sup>7</sup> This is particularly true in the financial sector.

schools. As a consequence, neither firms nor students nor the state have had an interest in investing in vocational schools beyond their role as a 'residual' category for students not strong enough to succeed on the apprenticeship market. Firms have no interest in high quality vocational schools which might draw good students away from them. Since vocational schools are associated with weak students, many school-leavers try to avoid transitional vocational schools. Trade unions feared schools' weak performance as undermining the skill level and insisted on high vocational standards in the certification of skills. For education policy-makers vocational schools are part of an active labour market policy for weak students but not an instrument for training policy. Given the clear superiority of the workplace-based apprenticeship system, it was the aim of education and training policy to restrict the scope for these transitional vocational schools.

With the expansion of education, the political aim to abolish unskilled labour and the increase of immigration since the early 1970s, the demand for further training at the lower end of the training market increased rapidly. Because firms could only respond to these political aims to a limited extent, not all school-leavers were absorbed by the workplace-based apprenticeship system. The size of vocational schools at the lower end of the vocational education market therefore grew disproportionately. Studies now report that the share of transitional training programmes today has reached almost 40% of all students leaving compulsory secondary education (Baethge et al 2007).

Because the workplace-training regime was seen as highly successful in terms of facilitating school to work transitions, political pressure has consistently been employed for maintaining the workplace-training regime even at the expense of the expansion of higher education. As table 3 shows, Germany is the country with the second lowest share of students in general post-secondary education, with 24% of students continuing general education. The massive increase in tertiary education in most OECD countries has barely had an effect in Germany. Between 1991 and 2002 the share of students in tertiary education in Germany

grew by only 2 percentage points compared to 5 percentage points in the Netherlands and up to 15 percentage points in Canada and 11 in the UK. The development of high level general skills was therefore hampered in two ways, first by reserving workplace-based training for better students, and second by not allowing a larger share of students to move into tertiary education.

### **3.2 The case of the Netherlands**

The Dutch system of vocational training is a pragmatic and opportunistic mix of elements borrowed from other countries.<sup>8</sup> The most important influences from Germany have been the apprenticeship system and the formulation of a national system of qualifications. French influence has shaped the strong role of the state in financing and steering vocational training. Finally, Anglo-Saxon influence can be seen in the important role of schools in the training system.<sup>9</sup>

The current VT system, especially senior secondary vocational education (MBO), originated in the training initiatives undertaken by employers in the industrial sector in the 19th and 20th centuries. As industrialization picked up speed, employers or other private actors established vocational schools to meet the needs of the growing industrial sector. However, the government did finance vocational education deemed to be "general" or "theoretical" rather than "practical." At the same time, an apprenticeship system run by employers and unions emerged (Bronneman-Helmers 2006). The social partners set up national sectoral organizations to administer the system.

After WW II, the state took on a more active role in the VT system, and the general education component of VT increased. These trends culminated in the 1963 Mammoth Law<sup>10</sup>

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<sup>8</sup> Expert interview, June 2007.

<sup>9</sup> Unless otherwise noted, the discussion of VT in the Netherlands is based on Hövels, et al. (2006); Bronneman-Helmers (2006) and Maes (2004).

<sup>10</sup> The law took effect in 1968.

(*Wet op het voortgezet onderwijs*, or *Mammoetwet*) that integrated industrial vocational training into the system of secondary education. The primary justification for the new approach was the perception that the existing system of industrial training schools was not adequately meeting labor market needs. By this time, the separation of general education and vocational training was already firmly established, and general education enjoyed higher status than VT. Integrating the VT system into the general school system was seen as a way to increase the status of VT, thereby improving the quality and attractiveness of VT.

The economic crisis that hit the Netherlands in the early 1980s prompted a return to a clearer focus on the needs of the labor market in the VT system. The rapid increase in youth unemployment and the decreasing number of apprenticeships signalled to policy-makers that something was wrong in the existing system, and they began to focus on the deficiencies of the system introduced by the Mammoth Law. The center-left government set up a commission to investigate reform (the Wagner Commission). Probably more important, the well-known 1982 Wassenaar Accord strengthened the new labor market orientation in thinking about the direction of VT. By the early 1980s, VT was seen as the mutual responsibility of the state, social partners and educational institutions.

A substantial reform of vocational education in 1994 (*Wet educatie en beroepsonderwijs*, WEB) reorganized and streamlined the system of vocational schools and vocational training. The WEB was based on several issues that had dominated discussions in the 1980s about how to reform VT: improving cooperation between industry and the VT system; improving the integration of work and learning (the German system was considered a model); meeting needs of employers as well as students, especially weak ones; amalgamation of existing educational institutions into regional schools, and the introduction of the third generation of final qualifications. Until the WEB, the private sector only had informal influence on the VT system (except for the apprenticeship system).

The adoption of the WEB was preceded in the second half of the 1980s by a process of consolidation and amalgamation in the vocational education sector. In the first half of the 1990s, the Regional Educational Centers (*Regionale Opleidingscentra*, ROC) were formed. As the consolidation process proceeded, the apprenticeship system formed the basis for comparison for the school-based programs. A consensus emerged that school-based programs should provide an initial qualification just as the apprenticeship did. One of the other key developments that resulted from the reorientation of VT since 1980 was the two-fold increase in the number of apprenticeships between 1980 and 1990. The introduction of branch-level training funds, the growing economy and more variation in the structure of apprenticeships all contributed to the increase. One of the other ideas that emerged from the Wagner discussions was the creation of the branch-level training funds to pay for apprenticeships. To sum up, the outstanding features of the Dutch system are the dominance and higher status of school-based training and strong state involvement in terms of regulation and financing.

The role of employers in the Dutch system is not as strong as it is in Germany. Only after the 1994 WEB reform were firms formally integrated into a national system of VT. Prior to this, a decentralized and fragmented system of vocational schools existed, and firms did not have consistent influence on the curriculum of vocational schools. Rather, employers and unions ran the apprenticeship system and fought to maintain the system when an early draft of the WEB proposed that the reformed VT system take over its functions.

Employers' key interest is in better matching of VT to their needs on the labor market. The mix of school-based and workplace-based training aims to do this, albeit in different ways. Employers generally like the apprenticeship system because it is a system they jointly run (with the unions), and it gives them access to skilled workers who can quickly enter the production process. Apprentices' wages are negotiated in collective agreements and are at least the minimum wage or youth minimum wage. Thus Dutch employers pay more than German employers do for apprentices, but given that 2/3 of trainees follow school-based

programs the overall financial burden on firms is probably smaller than in Germany. Moreover, firms receive financial assistance from the state (apprentice wages are tax deductible) and from the sectoral training funds.

The Dutch system has not always performed well in integrating firms' skill needs into the VET system. The WEB reform aims to correct this by giving employers (and unions) more influence on the content of VT and skill certification, and by increasing the role of workplace-based learning, even in the school-based pathway. Unions are flexible on the issue of matching VT content and skill certification to labor market needs and care more about issues such as apprentice pay, working conditions, and employability.<sup>11</sup> Given the dominant place of school-based training in the Dutch system and the status of the apprenticeship as a less attractive but by no means unacceptable option, both pathways are viable alternatives for students.

To sum up, as in Germany there is a hierarchy of educational pathways, with university education enjoying the highest status, followed by higher professional education, and senior secondary vocational education. There is little competition between the day-release and school-based pathway. The school-based pathway has higher status and attracts more students, but the day-release pathway is a respectable alternative. Employers do not seem to discriminate between the pathways in hiring graduates.

### **3.3 The cases compared**

The extent of institutional innovation in the Dutch vocational education system is breathtaking compared to the stability of the German system. Despite this, the German and Dutch systems of vocational training have much in common. The core similarities are: the separation of general and vocational education; the importance of workplace-based vocational education; and the central roles played by the social partners in the administration of the

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<sup>11</sup> Expert interview, June 2007.

apprenticeship system and skill certification. Both skills regimes thus function according to the logic predicted by the VoC framework: students receive training in the acquisition of firm-specific and industry-specific skills, and training institutions support this goal. However, there is considerable variation in how this basic logic is carried out in the two countries.

The key differences between the German and Dutch systems of vocational training are: the dominance and higher status of school-based secondary vocational education in the Netherlands; the role of the state in financing vocational education; and the role of the state in facilitating cooperation between the social partners and vocational educational institutions in skill certification and the coordination of school-based education with labor market needs.

The German system relies heavily on the willingness of firms to train. This is costly, and in an economic downturn, the consequences are severe when the apprenticeship system is the only viable ticket to a decent job. In the Netherlands, public financing of vocational schools means that the preferred vocational education pathway is less vulnerable to economic swings than in Germany. Whereas German firms might reduce their training budgets in a downturn, Dutch vocational schools generally do not. Indeed, the Dutch mix of school-based and workplace-based vocational training permits a flexible balance between the two pathways.

The higher status and larger role for vocational school in the Netherlands also means that general skills occupy an important part of the curriculum in senior secondary vocational education. In Germany, school-based instruction comprises about 20% of most apprenticeships, but the schools offering the courses have little impact on the system. Indeed, since the 1960s, the role of general skill acquisition in the Dutch system has increased. The shift to competence-based learning is also important in this regard because it strengthens the general component of VT education. As the next section argues, it is precisely the acquisition of general skills and competences in conjunction with specific vocational skills that are crucial for service sector employment.

#### **4. Adjustment to the service economy**

National systems of skill formation are both cause and consequence of a nation's economic performance (Finegold and Soskice 1988, 22). Training institutions have evolved when firms aimed to meet their skill needs in the process of industrialization and they influence the further development of these economies by providing or not providing adequate skills for meeting new economic conditions. In this section, we briefly illustrate how different institutional structures will play out in the face of economic change. The VoC approach assumes different institutional regimes are likely to give rise to different patterns of economic specialization. Hall and Soskice used data on patent applications to show that LMEs tend to specialize in radical innovation industries, while CMEs tend to follow the path of incremental innovation industries. Our analysis looks at different patterns of economic specialization within coordinated market economies when facing the process of deindustrialization.

We discuss the different pathways of workplace versus school-based occupational training regimes with regard to the trends of economic specialization and the rise of the service economy. Service sector jobs are generally assumed to demand a high level of flexibility in delivery that a vocational training system providing a specific set of skills may not necessarily offer. Higher degrees of skill specificity might therefore not be compatible with service sector employment. Moreover, the increased financial burden on firms could reduce their willingness to hire apprentices, and an ideological retreat from the idea that governments should intervene leaves firms as the only credible actors for initiating reform measures.

Some argue that apprenticeship systems are not well-equipped to provide students with the skills necessary for a service based knowledge economy, such as high levels of social skills and the capacity for self-learning. In a study of Australian and British experiences, Smith (2000) shows that apprenticeships are not directed towards the acquisition of skills such

as self-directed learning that support flexible delivery typical of the new economy. Others do not criticize the manner of skill acquisition itself, but rather firms' willingness to remain committed to hiring new apprentices (Parmentier, Schober, and Tessaring 1994; Tessaring 1996). Crouch et al. (2001) see this as a general problem endemic to the current period; collective action remains necessary to address training demands but actors are no longer willing to commit. Where the idea that deregulation leads to success dominates, Keynesian intervention is shunned and firms enjoy more credibility concerning policy-setting than civil servants.

In principle, there is no reason why the apprenticeship system cannot operate in the service economy employing a logic similar to that in the manufacturing sector. Non-tertiary high skill service sector employees, such as bank clerks, software programmers and doctors' assistants could be equally suitable for the service economy as students from professional schools. Small, low-cost service firms such as hairdressers and low-price retailers might use the same kind of cost-related training strategies as small artisanal firms. As long as the training courses are adapted to the changing character of the service economy, workplace-training can preserve the advantages of the apprenticeship system.

On the other hand, there are some indications that school-based training systems might fit more easily with the skill requirements of service sector firms and therefore enhance service sector employment. Levels of educational attainment in general have a significant effect on the expansion of the service sector. Recent research shows that rapidly rising educational attainment levels contribute significantly to overall employment in services. In particular, moving men from medium to higher education increased the specialization in business services (Nickell et al. 2002, 31).

Iversen (2005) sees as the main contrast the acquisition of social skills and states: "...the distinction between manufacturing and services represents one of the most important economic interfaces affecting the transferability of skills in the latter half of the 20<sup>th</sup> century.

Even low skilled blue-collar workers, almost all males, find it exceedingly hard to adjust to similarly low-skilled service sector jobs because they lack something, for want of a better word, may be thought of as a form of social skills” (Iversen 2005, p. 187). From a gender perspective, Estevez-Abe criticizes training regimes which focus on specific and occupational skills for hampering women’s career development. Women often have patchy employment records and therefore cannot pursue careers in internal labour markets as easily as men. Because firm-specific skills give higher returns to long job tenure, women are more likely to experience discrimination in CMEs compared to LMEs (Estevez-Abe 2005).

Our own data shows that the type of training regime is less related to service employment and more to manufacturing employment. Compared to general education regimes, occupational and specific skill regimes tend to have higher shares of manufacturing employment (see table 4). As a general tendency it appears that the more specific the skills provided by the VT regime, the higher the share of manufacturing employment tends to be. Moreover, in a cross-sectional regression analysis for 18 OECD countries, the type of training regime had a significant effect, even when controlling for education spending and the share of tertiary education (table 5).

[table 4 and 5]

Enrollment in workplace-based apprenticeship thereby correlates not to current shares of manufacturing employment but to those of the 1970s (Graph 2). This could mean that manufacturing firms that invest in specific skills are more competitive and retain employment in the manufacturing sector. Due to higher skill levels in manufacturing occupations, firms in occupational and specific skill regimes can fend off global competition more easily and therefore retain higher manufacturing shares.

[graph 2]

In contrast, in economies with general, school-based skills, firms move towards a decline in manufacturing employment and an increase in services. Shorter spells of job-tenure and higher degrees of fluctuation in the economy as a whole contribute to faster structural change towards deindustrialization. Employment in school-based occupational skill regimes tends to be lower in manufacturing than in workplace-based skill regimes, with the distinction between school-based and workplace-based being greater than the distinction between LMEs and CMEs in general. Assuming this observation captures some of the developments accompanying deindustrialization, it raises the issue of whether different types of CMEs are likely to follow distinct paths of institutional change, which we will address in the next section.

## **6. Institutional Change and training: where are Germany and the Netherlands heading?**

This section briefly discusses what we think are the most likely institutional trajectories for the German and Dutch vocational training regimes. Our key contention is that Germany is likely to remain on the CME path in terms of emphasis on specific skill provision. Even if Germany manages to expand tertiary education, its status as the prototype of the CME specific skills regime will remain stable or even increase. In contrast, the Netherlands is likely to continue on a "liberalization" path, moving farther away from the German regime. These two likely scenarios are the consequence of both countries' capacity to adjust to de-industrialization, and they have serious implications for their further development. Germany is likely to continue to experience slower and more high-skilled service sector growth, shaped by a comparative lack of general skills at the bottom end of the labour market and a higher degree of specific sector skills which cater to very special requirements. The Netherlands is

likely to move further towards school-based and general skill-based type of service sector growth.

Our starting point for these considerations is again the preferences of employers for training systems, which are likely to depend on their level of skills investments. We argue that the extent to which costs are shared between firms and the state, and the way the cost sharing occurs determines firms' preferences in these training institutions. Moreover, we claim that this distinction is important for understanding firms' interests in training and therefore for conceptualizing the trajectories of change of training regimes in the process of deindustrialization.

Our analysis so far has highlighted the ways in which the distribution of VT financing as well as the distribution of control over VT content and skills certification shape employers' institutional preferences in VT. German employers' substantial financial investment in the VT system, and their key role in skill certification provide them with considerable resources: they have access to the best trainees and can tailor skill certification to firm/sectoral needs. Unions generally ally with employers in defending the structure of the current system because it provides valuable resources for them as organizations: influence on occupational classifications and corresponding wage rates, as well as guarantees in some sectors that trainees be hired after completing their apprenticeship. Therefore the coincidence of employers' and unions' preferences regarding the maintenance of the system is likely to continue even in the face of increasing strains in meeting the training needs of low-qualified school-leavers (Hassel 2007). In addition, the continuing weakness of the service sector is likely to help maintain the dominance of manufacturing firms in political decision-making.

In contrast, the Dutch VT system includes a healthy dose of general skill provision, largely because of the dominance of school-based vocational training. Even though the practical component of the Dutch VT system has increased as a result of recent policy changes, the location of most training in vocational schools guarantees that general skills

provision is higher in the Netherlands than in the German workplace-based regime. Thus the Dutch regimes can be seen as a bridge between LME and CME skill regimes, as the Danish system appears to be (see Culpepper and Thelen, 2008).

One of the central insights of much CPE research is that national economies do not converge on one model but develop along nationally-distinct trajectories, based on their own comparative advantages. For decades the German vocational training regime was considered to be a vital component of Germany's comparative advantage, and in many ways it still is. However, as we have argued, the German skills regime works well under economic conditions that are now less hospitable to job creation in the manufacturing sector. The industrial sector has been decreasing for three decades, even if it is still the motor of the economy. Thus a skills regime suited for an industrial economy slows or even hampers adjustment to de-industrialization because it continues to provide specific skills ill-suited to service sector employment, and it relies almost exclusively on firms to invest in skills. In contrast, the Dutch skills regime seems to be in perpetual motion, primarily because no single actor or set of actors dominates the system as in Germany. As a result it is institutionally more flexible and better suited to respond to structural economic change.

## **7. Conclusions**

One of the central issues on the VoC research agenda is mapping and explaining the differences across CMEs. Differences in how CMEs 'organize coordination' have important implications for how CMEs respond to structural economic change. We have argued in this paper that differences in the extent of state involvement in the financing, delivery and regulation of VT shapes the ways in which CMEs respond to deindustrialization. Firm-based VT systems are vulnerable to economic swings and structural economic change whereas school-based systems with significant financial support from the state are better able to weather conjunctural storms and to adjust to new economic conditions. Moreover, school-

based systems have a distinct advantage over firm-based systems in the provision of general skills that are so central to the service economy.

Our comparison of Dutch and German vocational training systems also emphasizes institutional stability in Germany and institutional innovation in the Netherlands. Whereas Germany is reputed to have established a vocational training system that was the envy of other advanced industrial countries, the Netherlands has continuously tinkered with its hybrid system. But in the current post-industrial world, the German system may very well be running into increasingly higher costs by holding on to a system that specializes in (high-level) specific skills, while the Dutch mixed-breed system may prove to be much more suited to different kinds of economic specialization and therefore to a post-industrial economy, because it is more flexible. The historical success of the German system and the intense preferences of both unions and employers to maintain it make radical innovation along Dutch lines unlikely.

As we outlined in the beginning, conceptualizing the role of education in general and integrating education systems into the analysis is a necessary further step in the advancement of theorizing along the lines of the VoC approach. Moreover, understanding key differences between CMEs in a crucial field such as human capital formation will help to sharpen the arguments on how employers' and employees' preferences interact in the context of existing economic institutions in particular in the process of economic change. The picture of national economic systems and institutional complementarities between institutions is likely to become more complex as our understanding of these interactions improves. Ultimately it will however contribute to a more nuanced level of theorizing of economic institutions and institutional change.

**Table 1: Varieties of training regimes**

	<b>Primary place of vocational training</b>	<b>Primary bearer of costs</b>	<b>Skills specificity</b>	<b>Countries</b>
<b>Liberal Market Economies</b>	Little training in schools	State	General	LMEs
<b>Coordinated market economies</b>	Vocational schools	State	Occupational / academic	Sweden, Norway, Finland
	Mixed	Mixed	Occupational / practical	Netherlands, France, Belgium, Denmark
	Apprenticeships in firms and schools	Firms	Occupational / practical	Germany, Switzerland, Austria
	Firms	Firms	Specific	Japan

**Table 2: Vocational training systems, public spending on non-tertiary education, and job tenure**

<b>System of vocational training</b>		<b>Public-private ratio of spending on upper secondary and post-secondary non-tertiary education</b>	<b>Public spending on non-tertiary education (share of GDP)</b>	<b>Job tenure (average number of years)</b>
<b>General skill system</b>	Mean	26.3	3.80	4.76
	N	1	6	5
	SD	.	.58	.98
<b>School-based occupational</b>	Mean	11.85	4.27	6.87
	N	4	7	7
	SD	12.30	.54	1.46
<b>Workplace-based occupational</b>	Mean	58.73	3.67	7.87
	N	3	3	3
	SD	49.89	.51	2.49
<b>Firm-based</b>	Mean		2.70	8.30
	N		1	1
	SD		.	.
<b>Total</b>	Mean	27.9	3.89	6.6
	N	8	17	16
	SD	35.3	.62	1.9

**Table 3: Estimated distribution of upper secondary students by the main education and training pathways after compulsory education (1996 or closest year in %)**

Countries	General education	Apprenticeships	Vocational schools
Australia	94.00	3.00	2.00
Austria	22.00	41.00	37.00
Belgium	32.00	3.00	65.00
Canada	94.00	1.00	5.00
Denmark	42.00	44.00	14.00
Finland	48.00	5.00	47.00
France	46.00	11.00	43.00
Germany	24.00	52.00	24.00
Ireland	80.00	5.00	15.00
Italy	28.00	0.00	72.00
Japan	74.00	0.00	26.00
Netherlands	30.00	23.00	47.00
New Zealand	62.00	8.00	30.00
Norway	48.00	25.00	27.00
Sweden	40.00	0.00	60.00
Switzerland	31.00	60.00	9.00
United Kingdom	43.00	24.00	33.00
United States	88.00	0.00	12.00

Source: OECD 1999, p. 193

**Table 4: Employment in manufacturing by training regime**

System of vocational training	Mean	N	Standard Deviation
Weak	22.2	6	3.3
vocational colleges	23.2	3	3.0
mixed (college and apprenticeships)	23.6	4	2.1
dual apprenticeships	28.3	3	4.1
company-based training	31.4	2	3.1
Total	24.7	18	4.3

Source: OECD, own calculations.

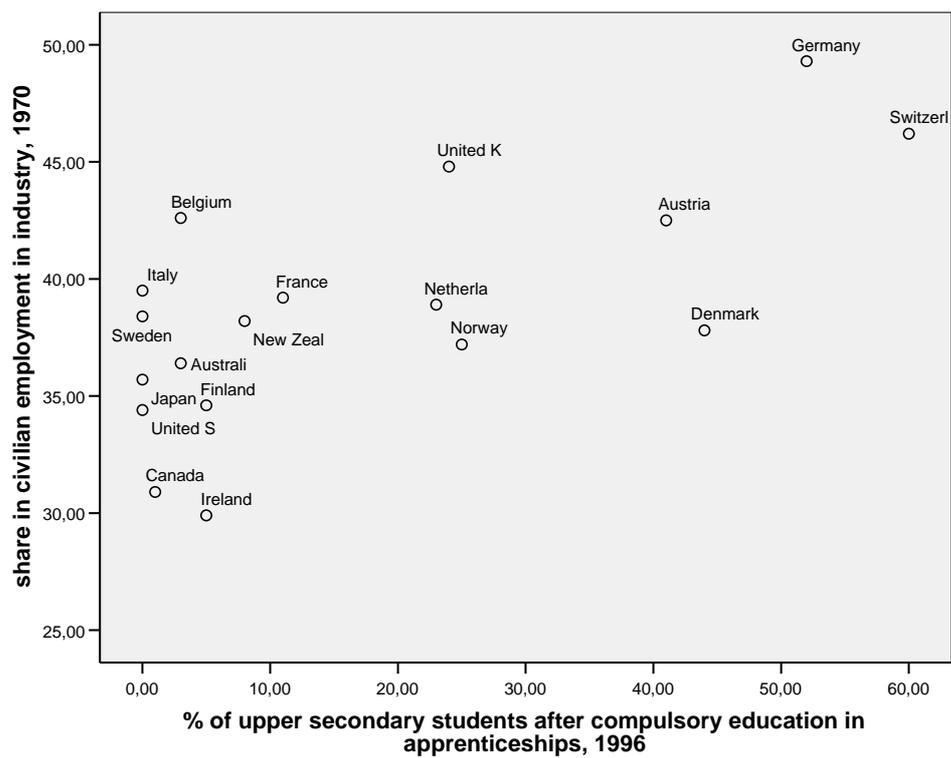
**Table 5: Regression Results for Share of Employment in Manufacturing, 2005**

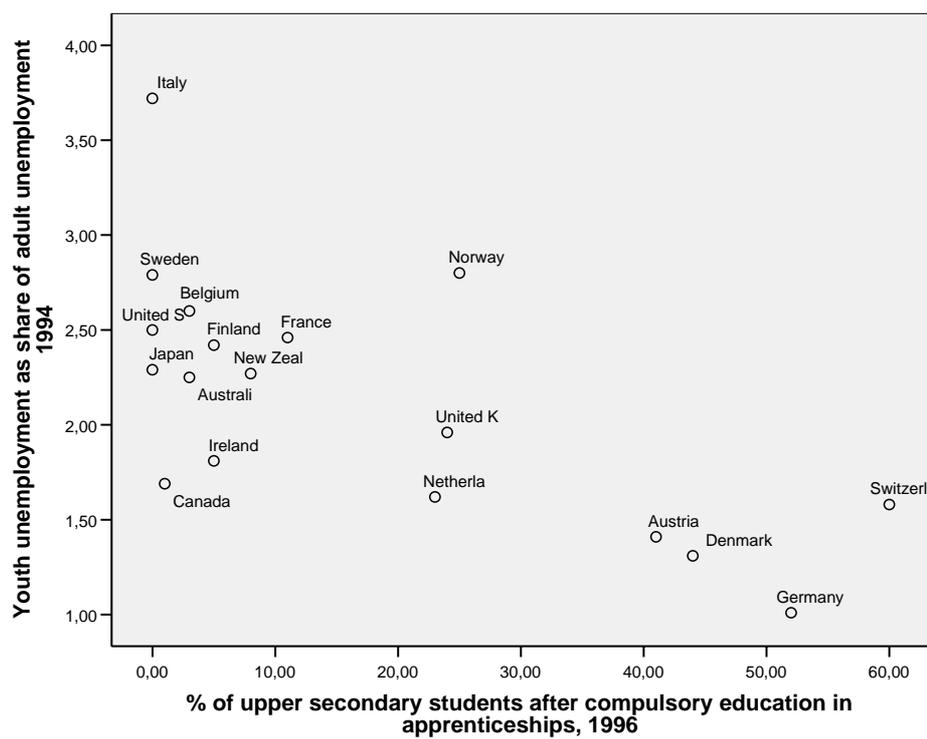
	Employment Share in Manufacturing
Contribution of school-based schooling to training regime	1.99** (2.45)
Public spending on tertiary education (as share of GDP)	-2.28** (-2.11)
Tertiary education (as share of population with tertiary education)	-.18** (-2.25)
Adjusted r-squared	0.69
Number of observations	18

T-scores are in parentheses

\*\* Significance level: <0.05

Source: OECD for employment share in industry, public spending on tertiary education and educational attainment. Contribution of school-based schooling to training regime is an ordinal variable ranging from 1 to 5 based on the classification in table 1.

**Graph 1: Training pathways and economic specialization**

**Graph 2: Training pathways and youth unemployment**

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