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Chapter Thirty-two

Skill Formation

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Skill has always been a central element of industrial relations. In Britain many of the early trade unions and friendly societies formed around skilled trades, to negotiate on pay levels, the differentials available for skill or experience and the forms of skill development available (see, for example Thelen 2004; Penn 1984; Cockburn 1983). Skill affects the way work is designed and organised and influences, or stems from, the levels of power, discretion and autonomy that workers have over work processes (Turner 1962). It is also a key aspect in the way that firms, industrial sectors and nations compete. Indeed, high skills have the potential to both raise wages and improve firm and national competitiveness (Culpepper 2001). Unsurprisingly then, what skills are formed, how they are developed and the way they are exercised in the workplace is a matter of key interest to all parties in the employment relationship.

It is also an area of enduring variation between nations with systems of skill formation and employment relations often differing dramatically from country to country (Whitley 1999; Crouch, Finegold and Sako 1999). Nations vary greatly in the extent that they rely on the general education system, provide specialist publicly-funded or subsidised vocational education and training (VET), or rely on individual firms to offer programmes and continuing development. Such differences seem to be stable; despite the rhetoric on

globalisation there seems to be little sign of convergence between states. Korea remains different to the USA and France's system is not the same as that in Hungary. Nor do these differences in vocational training occur in isolation. Rather, each is embedded in systems of institutional structures and relationships, managerial strategies, market relations and national systems. Indeed, it is likely that these structures make the differences between the various systems of skill formation meaningful. After all, once a skill has been learned it must be put into practice in the workplace so the markets in which a firm competes, the way managerial authority is exercised and the discretion that is allowed to workers are all likely to be highly influential. According to Whitley (2003) there are five key elements in these differences (p. 680):

- the extent and nature of the state's co-ordinating role in economic development,
- the organisational basis, and particularly the cohesion of business associations,
- the strength of the market for corporate control
- the organisation and effectiveness of the public training system
- the extent and form of labour market regulation

Ashton (2004) describes this far more concisely as the relationship between capital, labour and the state. Both of these authors are careful to emphasise that the skills that are developed and exercised depend on many more factors than the relative vocational education and training practices. Job design, employment security and inter-firm relations (among others) will influence and be influenced by the way firms compete, their ownership structures and the trust and authority that is delegated or withheld.

Accordingly, this chapter seeks to present various different skill formation systems in their national and institutional settings. It starts by describing practices in three very different systems: the USA, Japan and Germany; noting particularly the nature and role of state involvement, the extent to which decisions are left to individual firms and the legacy of VET that exists; before exploring the reasons for the differences observed and considering the relative advantages and disadvantages of each system. It then focuses on the firms themselves and the choices they make (since firms within the same sector can and do make very different choices about the skills they require from, and are prepared to develop in, their workers). Finally it considers the impact that trade unions have on skill formation in both regulated economies (where unions are often pivotal and institutionalised elements of the system) and market ones (where individual firms choose whether or not to recognise a union presence).

The USA

In the USA there is little state involvement in learning and the system of vocational education is market-led and decentralised (Rubery and Grimshaw 2003). Almost all decisions on skills development are taken by individual firms or workers with little involvement from public institutions. Some states regulate particular industry sectors but this intervention is being abandoned rather than extended, as in the construction industry. Such a withdrawal of influence does little to encourage investment, indeed, training levels have slumped in the states which have deregulated, as has investment in physical

capital and productivity (Bosch 2003; Crouch et al. 1999). One brief attempt to devise national skill standards never got off the ground (Ashton 2004). In the absence of nationally recognised qualifications most learning is by doing, quality is uneven and provision polarised. Workers who are not already qualified to degree level are unlikely to receive firm-sponsored training and, when they do, the opportunities they are presented with are often narrowly based, while firms complain that much of their training spend is remedial. Many organisations rely on outside training providers or immigration to supply them with skills (Rubery and Grimshaw 2003). By contrast, employees who are already extremely highly educated may benefit from extensive (and expensive) provision (Crouch et al. 1999).

At firm level high turnover and low wages (the USA is the only developed economy where wages have actually fallen over the last twenty years (Green 2006), make investing in skills unattractive. But as Crouch, Finegold and Sako (1999) point out, this seems to be a deliberate strategy rather than a pre-determined feature of the labour market. Organisations that seek to reduce turnover (by offering greater job security, linking pay to performance and involving employees in decision making) are generally successful. Yet these are, and remain, a minority. It seems that most US firms would rather treat labour as a variable cost, preserving numerical flexibility when demand slackens. Despite this, the USA enjoys both high capital productivity and reasonably high labour productivity in most sectors and is particularly effective at producing highly skilled elites in financial services, aero engineering, entertainment, biotechnology and software. But the exceptional performance of those with most skills effectively conceals a far less

impressive average performance and a wide distribution of skills, which is growing yet wider. More recently too, US job growth has been achieved by trading off skills against employment.

Japan

Japan, like the USA, leaves VET decisions and activities to individual firms (state intervention took the form of encouraging large firms to develop, post war, then giving them free rein internally, Thelen 2004) but while companies are free to decide their own strategies and set their own training standards both skill formation and employment practices are very different to those in the USA. In Japan, large 'institutional companies' provide workers with employment security and put a great deal of effort into encouraging active social engagement and identity with the firm (Dore and Sako 1989; Sako 1999; Keizer 2005). A high proportion of young people stay on in general education and this is then reinforced by a remarkable and extensive system of continuing education and development once in employment. Skill formation is broad and extends to the majority of the workforce (Cole 1992). One study, cited in Crouch, Finegold and Sako (1999) calculated that the average Japanese firm provided newly recruited assembly workers with 310 hours of training, Japanese-owned subsidiaries in the USA offer 280 hours while US plants provide only 48 hours.

This in-company training is key since some of the initial skills of Japanese workers compare poorly with those in Britain and Germany (particularly among engineering

graduates). This formal learning is rarely accredited (since workers may expect to stay with one firm for most of their working lives) but is supplemented by extensive on-the-job training. Flexibility is ensured by moving workers between departments which has the added advantage of providing skills development beyond the traditional functional silos so materially assisting workplace problem solving. Since pay and promotions are heavily based on seniority, workers have further incentives to stay with the same employer and are not penalised for abandoning their specialism and learning new skills (McMillan 1996; Cole 1992).

Germany

In Germany the lynchpin of German VET is its rigorous system of three year apprenticeships, which are long established in the old West Germany and were extended to the East after unification, a process which, as noted below, was not without problems. These are designed by consensus with input from employers' associations, trade unions and educationalists and costs are shared between all parties to the employment relationship (including the apprentices who accept a wage set at about a third of the adult wage for the duration of their studies, Crouch et al. 1999; Streeck et al. 1987; Rubery and Grimshaw 2003). Time on the programme is split between formal taught courses in colleges and on-the-job learning, generally structured around a series of problem solving activities that become progressively more challenging. Apprentices are taught by *Meister* (master craftspeople) who are both qualified experts in their occupation and still actively

practising so workplace innovations are incorporated into the programme (Culpepper 1999; Lane 1987, 1989).

This intensive and highly regarded preparation for work is supported by low turnover; employee involvement both directly in work design and process and indirectly through the trade unions and works councils; and comparative employment security once employees are in work. The state is involved in supporting apprenticeship but also, more directly, by regulating employment far more closely than do national governments in either the USA or Japan. Because such regulation makes labour more expensive, it provides an incentive to employers to use it differently (Streeck 1992). Lane's (1987) study of the banking and insurance industries shows how automation was used to eliminate almost all the low skilled jobs. Other tasks were combined in a way that retained (and occasionally raised) skill levels, including a greater focus on customer service. In Britain, by contrast the introduction of technology in banks resulted in work being standardised with 91 per cent of clerks and 50 per cent of supervisors doing deskilled work (Crompton and Jones 1984:61).

These three systems develop skills in very different ways, supporting dramatically different levels and distributions of skills in the economy. The USA, as noted above, is highly successful at producing small numbers of expert elite workers, Reich's (1991) 'symbolic analysts' who compete against the best in the world, but in the process average and low-skilled workers are (often badly) neglected. In Japan, male workers in large firms receive continued and extensive skills development on- and off-the-job and the way

those skills are learned ensures a competence that is very broadly based. While in Germany about two-thirds of the workforce are qualified to intermediate level in vocationally relevant skills (Bosch 2003; Steedman 2001). In the workplace these skills are harnessed to workplace innovations.

These variations stem from a range of different choices made by states, employers and occasionally trade unions on a range of factors including the form and nature of state intervention, the relations that exist between firms, the way those firms compete and the product markets they compete in. These are worth exploring in more detail since they help to reveal both the depth of variation in the different systems and something about their relative prospects for the future.

Accounting for differences

Voluntarism and Regulation

A key aspect in all skill formation systems is the role played by the state. This can be *voluntarist* (also known as liberal or market-based) or *regulated* (educational). The central assumption in a voluntarist system, as is broadly the case in the USA and Britain, and is that businesses operate most effectively when unfettered by regulation and that they are best placed to assess their own skill needs and react to changes as the market dictates. Competitive pressures will ensure businesses remain responsive and offer suitable training. The government's role is to minimise intervention and ensure that

appropriate legal and other frameworks are in place to facilitate the free play of market forces.

Alternatively, in *regulated* systems, governments may take the view that skills development is a public good, that it is in everyone's interest to have a highly skilled population but that, left to themselves, individual businesses will be unable or unwilling to invest sufficiently in the long-term skills of their employees. Indeed, where a competitive market exists between firms, it may be rational for them to choose *not* to train since there is no obligation on their competitors to invest similar amounts of money and skilled workers may be poached by other firms. So activities that make sense at firm level effectively sabotage a sector or economy's chance of up-skilling. It then becomes the state's task to provide such skills or ensure that systems are in place which will guarantee that business provides them.

Regulation may take a variety of forms, in particular the state can supply the necessary skills directly or put systems in place to ensure that businesses invest in development. Taiwan and Denmark provide interesting examples of both of these approaches. Both economies are dominated by small and medium sized enterprises (which are far less likely to train and develop workers than their larger competitors) and in both nations the state has intervened to ensure that VET takes place and that activities are of high quality but these interventions take very different forms. In Taiwan extensive technical and vocational skills were introduced into the education system. Despite the fact that most of the demand was for (high status) academic courses, and that these would have been

cheaper to provide, the Taiwanese government invested extensively in the education of scientists and engineers. Access to academic courses was officially restricted, more than half of school-children were channelled into technical training and, at university level, more courses were made available for scientists and engineers and new Institutes of Technology launched. Student numbers, textbooks and curricula were state controlled and this meant that Taiwan succeeded in both increasing the numbers of low-cost industrial products for export and also managed the transition from this to higher value-added production across many if not all sectors without significant reported skills shortages (Green et al. 1999a). In Denmark, a long legacy of strong and collaborative trade unions meant that workplace learning programmes could be set centrally (by both employers and unions) to ensure high standards and consistency, while state subsidy provided for a high uptake by firms and apprentices (Ashton 2004). Elsewhere, state imposed levies and 'licences to practice' for particular occupations help to ensure high skills and high competence. In France, employers are required to support training or pay a levy of 1.5 per cent of turnover plus an apprenticeship tax of 0.5 per cent of turnover to the state. While in Austria, Germany, Switzerland and the Netherlands there are systems of extensive and rigorous apprenticeships which attract high proportions of young people entering the labour market (Steedman 2001).

Both voluntarist and regulated approaches can be successful. Regulation is particularly effective at ensuring that large sections of the working population acquire a broad range of vocationally relevant skills while Finegold's (1999) work in Silicon Valley demonstrates how this intensely competitive labour market can support a 'high skills

ecosystem'. Silicon Valley is famously the site of a cluster of extremely high-tech computing firms. These are supported by the proximity of universities (University of California campuses in Berkeley, San Francisco, San Diego and Los Angeles and private institutions such as Stanford, USC and CalTech) that supply expert labour, share research and stimulate start-up companies. Stanford (whose graduates include William Hewlett and David Packard) even set up the first university science park to provide fledgling firms with support services. The infrastructure is conducive to growth with good local transport, an international airport and a state-of-the-art telecommunications system while the availability of venture capital, low levels of regulation and limited penalties on bankruptcy encourage start-ups. These small and often highly focussed firms, prosper through inter-dependency forming partnerships with other organisations and participating in employer groups to pursue initiatives such as improving technical training in city colleges, that are to their mutual benefit. Individuals also collaborate through professional associations, continuing education courses and alumni associations. In firms there is little formal training but skills and expertise are developed through project work on cutting edge technical challenges. Even labour mobility, a point of concern elsewhere, assists knowledge diffusion here and increases personal and professional networks. However, these two ways of operating are successful at different activities and, with the very notable exception of Japan it is difficult to find an example of a market economy which provides high quality skills development for the majority of the workforce.

Such inactivity presents voluntarist economies with a dilemma. Most support high skills competition with other nations and believe this can best be achieved by market means,

leaving firms unregulated so that the fittest survive to compete internationally. Yet in practice this lack of intervention may result in low-skills competition (Finegold and Soskice 1988). Not only is such activity less desirable than knowledge-based, high skills competitiveness, since the margins earned are likely to be narrower; it may also, outside person-to-person services which are not readily sent off-shore, be a finite strategy for the developed world as India and China provide increasing access to cheap, highly skilled labour. When the hourly labour costs in inland China are 41 US cents an hour and those in Sri Lanka 40 US cents an hour (Freeman 2005) it is difficult to imagine how the developed world will compete on labour cost alone. In Britain and Australia this dilemma has resulted in extensive official intervention to encourage and exhort employers to provide more skill development (Buchanan, Watson and Briggs 2004; Hampson 2004; Keep and Mayhew 1999; Keep and Stasz 2004). However, these campaigns are often based on the assumption that the problem is one of information, that once firms know how positive VET can be and what programmes are available they will invest in workforce skills. Yet, there is no evidence to suggest that non-training firms do not appreciate the potential advantages that training can confer (quite the contrary, as shown in Matlay 1998). It may be, as noted above, that not training is a rational, economic decision. Moreover, interventions tend to be targeted only at the *supply* of skills, so this widespread activity does little to address the fact that firms may still compete on the basis of unskilled labour. More worryingly, by exempting employers from responsibility for VET, these interventions may mean that governments get stuck with both the role of skills provider and the need to subsidise the private sector, and all in the name of voluntarism (Keep and Ashton 2004; Felstead, Gaillie and Green 2002).

Both voluntarism and regulation are simplifications. Few nations are prepared to completely abandon the idea of all economic intervention and even regulated states will not legislate for every activity. The dominance of the market in the USA does not preclude the extensive (if variable) mass education system (Whitley 1999) and many of the most highly skilled are selected on the basis of their achievements here or actively use their academic qualifications in the workplace (Estevez-Abe, Iversen and Soskice 2001). The British and Australian governments intervene extensively in attempts to improve the supply of skills (Keep and Ashton 2004; Buchanan et al. 2004). German apprenticeships provide high quality and widely recognised qualifications for young people but, after that, much continuing development is as *ad hoc* and variable as in market economies (Culpepper 1999). Moreover it is difficult to apply either label to Japan. Large firms are certainly given a great deal of freedom by the state to decide whether, when and what skills to invest in, but limited labour mobility ensures that their investments are far safer than those made by firms in other nations and it took extensive and active state regulations for earlier generations (including insisting on official approval for firms hiring experienced workers, approval which would only be granted with the consent of their previous employer) to limit this mobility (Thelen 2004). This extensive employer-provided training is also limited to the large firms and (generally) the male employees. Kondo's (1990) account of the experiences of women and marginalised workers presents a very different picture of working life in Japan. Nonetheless, despite these reservations, it is still useful to know the extent to which states are market led or regulated, particularly over issues of skill formation since it is here that many will intervene.

Competitive and Co-operative Relations

Another key area of difference is in the relations that exist between firms. In Japan there are strong collaborative inter-firm networks. Some of these are drawn together on a regional or craft basis but most are created and maintained by large corporations. Unlike large US firms, which may have thousands of suppliers, used for one-off contracts or switched when a price advantage is seen elsewhere even the largest Japanese firms will have only a few hundred suppliers, but their (tiered) relations with these are generally close and stable. Members of networks provide high quality, just-in-time supply closely tailored to the needs of the central organisation with products adapted to suit changes in demand where necessary. In return they receive security of contract and long-term partnership. Such close and sustained links mean that firms do not have to renegotiate contracts and prices every time an order is placed and processes, financial arrangements and management systems are often open to supply chain partners for collective discussion and improvement. Since the members of networks are also linked to one another they may combine to purchase expensive plant or equipment or help redistribute work when deadlines are tight while their central organisations are likely to invest in developing suppliers' skills or providing technology or expertise. Trust is strengthened and maintained by the fact that effort goes into keeping personal, as well as institutional, ties within the network with managers in the whole supplier community encouraged to socialise together and to develop and maintain friendships (Nonaka and Takeuchi 1995; Crouch et al. 1999; Whitley 1999; Dore and Sako 1989).

In Germany links tend to be sectoral, rather than supply-chain based. Wage bargaining is still conducted sectorally with employer associations negotiating for all their members. Because of this, there is less incentive for newly qualified apprentices to gain a premium on their salary by moving employers (Rubery and Grimshaw 2003). Such collective agreements also mean that firms do not compete by slashing wages and prices. Chambers of Commerce rigorously police apprenticeship programmes to ensure that companies are not exploiting trainees or exempting themselves from the obligation to provide training, and that all provision is of high quality. This intervention is tolerated since the chambers are controlled by the employers themselves and they also provide a basis for sharing information on good practice; firms may come together to fund joint projects, invest in R&D or develop specific workplace innovations. Sanctions against firms that fail to train range from formally removing apprentice training powers or depriving them of access to technology transfer networks as well as (widely used) more informal deterrents (Culpepper 1999).

In each of these networks the desire to be competitive drives firms to improve their products, enhance the performance of every member of their supply chain or invest in research and these positive reactions are fostered by the institutional structures, the expectation (and reality) of long-term collaboration and close personal friendships between key workers. They are key elements in the success of VET provision and collaborative inter-firm developments. As Culpepper (2001) points out in his account of changes to youth training in France and the introduction of the apprenticeship system to

East Germany after unification, many of the problems these interventions experienced could be directly attributable to weak employer associations. Such collaborations are not confined to nations that are "institutionally dense" (Ashton 2004). Networks do exist in Silicon Valley and the Los Angeles concentration of multi-media companies (Finegold 1999); they may be created around Japanese transplants abroad (Brown 2001a); supported by state and local authority initiatives (Edwards et al. 2002); or grow around strong employer associations (Grugulis, Vincent and Hebson 2003). But they are far more rare in market-based economies where contracts respond largely to price. Indeed, in the USA, legislation actively discourages collaborative inter-firm activities so shared interests generally result in mergers or competition (Whitley 1999). In market systems, when small supplier firms adjust their processes to suit their larger customers there is no promise of contractual security (Blyton and Turnbull 2004; Rainnie 1988) and no expectation that developments will be mutual or gains shared. Some may be, albeit unequally but competition may also be zero sum with firms competing to drive others out of the market and small firms vulnerable to exploitation and insolvency.

These institutional links extend to the way firms are funded. Mutual shareholdings in Japan and long-term bank investment in Germany ensure that organisations are supported on a long-term basis (Rubery and Grimshaw 2003). In the USA and Britain, where many large firms are publicly quoted, shareholders are far more likely to demand short-term performance. To the extent that, as Cappelli (1995) notes, redundancy programmes result in share price gains. Given the links noted elsewhere between job security and investment in skills it is easy to see why such regular rounds of 'de-knowledging the

firm' have been criticised (Littler and Innes 2003). As Lloyd (1999) demonstrates in her comparative study of the British and French aerospace industries, making skilled workers redundant during economic downturns (the option taken by the British firms) meant that they were far less well equipped to take on orders when conditions improved. More broadly, co-operative and collaborative relations between firms may encourage trust-based relations within them. Such collaboration may take very different forms. In Germany and Denmark for example it is common for employees to be involved in issues of job design and work process (Ashton 2004), works councils and trade union representatives have a formal role in management and consultation has a statutory basis (French 2001). In Japan, where work processes tend to be designed in detail, little worker input is expected but a great deal of effort is put into securing participation in detailed problem solving activities (Whitley 1999). By contrast, in the market economies, even where formal consultation mechanisms exist there is far less evidence of constructive collaboration on workplace problems.

Products and product markets

The markets that firms choose to compete in are also significant since these have a key influence on the skills that are developed and the way they are used. Large numbers of standardised products mass produced require very different forms of labour to customised, small batch, high quality or innovative products. Thelen (2004) points out that, since US companies have access to a large and reasonably homogeneous domestic market many went into mass production early, deskilling workers and selling large

numbers of standardised goods. In Germany, by contrast, an emphasis on quality, customised service and products in all areas of the economy creates a very different demand for and supply of goods. It also involves a very different way of organising labour. Mason, Van Ark and Wagner's (1996) detailed study of biscuit manufacturing shows how German firms concentrated on producing small batches of high quality foodstuffs with 90 per cent of the workforce skilled bakers and most concentrated in areas of production which would add value, such as decoration or adding fillings to the biscuits (as compared to British mass produced simple biscuits where most labour was unskilled). German workers were able to take on more tasks, with one worker often monitoring several production lines and accepting responsibility for quality (indeed, such a concern is an integral element of pride in the occupation or *Beruf*). Similarly, the German and Dutch construction sites studied by Clarke and Wall (2000) had higher numbers of skilled workers, fewer managers and far fewer faults reported than their British counterparts. Indeed repeated comparative studies of a range of different industries and services show that German firms employ more skilled workers and pay higher wages but that those workers are far more productive, take more individual responsibility for quality and work very differently to their counterparts elsewhere. Moreover, when work is reorganised or new technologies introduced the priority for automation is to eliminate low skilled jobs and the remaining tasks are recombined in ways that often increase skills still further (Finegold, Wagner and Mason 2000; Jarvis, O'Mahoney and Wessels 2002; Lane 1987).

Firm level choices

National systems of skill formation, employment and business are important. They provide the institutional and regulatory structures against which firms operate and they are, as noted above, comparatively stable. Yet the existence of these structures does not mean that choices at firm level are irrelevant nor that every organisation is a mirror image of all its compatriots. The choices that firms make: to enter certain markets and withdraw from others; to compete on quality or compete on cost; to hire and fire workers as orders are lost and won or to multi-skill them so that they can contribute at all levels of the production process; are all important and all have implications for skill formation. The emphasis in all of these is on choice. As will be seen below, certain decisions make it more likely (or more rational) for organisations to invest in training but such choices are not pre-determined since employment practices do not arrive as pre-formed templates, to be 'read off' once decisions have been taken on products or strategies. Different firms can and do choose to enter the same market or adopt the same technology in very different ways (Boxall and Purcell 2003; Ashton and Sung 2006).

One choice that firms make is the market in which they compete and the products or services they compete on. Mason *et al.*'s (1996) study of biscuit manufacture, considered above, shows the links between such strategies and skills; high skill levels are generally associated with a high value added product strategy (Mason 2004). Arthur's (1999) study of US steel mini-mills reinforces this. When production focussed on small batches of different products workers' skills were an integral part of the process since the changeover between batches could be complicated. Firms engaged on large production

runs, by contrast, required far less input and far fewer skills of their workers (who simply monitored the machinery). This intuitive link does not invariably hold true. High value added production can be undertaken by predominantly low skilled employees and low cost production by highly skilled workers (Ashton and Sung 2006). Aldi, the discount supermarket chain, employs comparatively few members of staff for the number of customers it serves but provides high levels of training and above average wages. By contrast Hannon (2005), in his study of the Irish dairy industry observes how some firms dramatically upgraded production but still kept tight control over work processes, ensuring that skill levels remained low.

Another much cited predictor of training levels is change at work and the introduction of new working practices since workers need to familiarise themselves with new procedures, technologies and ways of working (Ashton and Sung 2006; Leigh and Gifford 1999; Lynch and Black 1998; Frazis, Gittleman and Joyce 2000). With training particularly high in organisations that introduced bundles of human resource practices such as 'lean production' or 'high performance work systems' (Whitfield 2000). But again, while all these elements are positively linked with higher levels of training they are not deterministic. Firms can and do introduce new management practices without linking these to employee training,

It may be that these, and other, choices are inextricably intertwined with the way organisations choose to treat their employees, as dependable or disposable. Interchangeable unskilled labourers are likely to be engaged on very different types of

work and have very different expectations of skill formation to trusted expert workers. As numerous studies note, higher levels of training are associated with higher than average salaries, generous fringe benefits, internal labour markets and promotions based on seniority (Fairris 2004; Frazis et al. 2000; Arthur 1999). These are generally explained by the fact that well-treated employees are more likely to stay with their employer, reducing the risk that training investments will be lost to rival firms. But, as Keep and Mayhew (1996) note, the causality is rather more complex than this as investments in skills and training may also justify others in sophisticated human resource practices, as workers contribute more to production and perks are devised to reward status.

Trade unions and skill formation within firms

There is also, particularly given this book's focus, another area over which firms make choices and which can significantly impact on skill formation and that is the role of trade unions. In Japan, Germany and Denmark unions' roles are institutionalised. Indeed, it is their co-operation which makes skill formation effective in each of these three nations. There is extensive consultation with establishment level unions in Japan and high levels of consensus and security in large firms; in Germany unions underpin sectoral bargaining, collaborate on the design and implementation of apprenticeships and contribute to workplace decision making through local representation and works councils; while in Denmark unions bring together workplace interests from numerous

small and medium sized enterprises. Elsewhere, where unions are not automatically involved in the skill formation process, their role is more debateable.

In theory, unions can impact on skill formation and training in a number of ways. On the negative side they may reduce workplace flexibility, increase pay levels or distort the premia available for skills and so make it less viable, or less attractive, for employers to fund training. On the positive, they may increase workers' security, raising morale and commitment and so make training more attractive for employers (by reducing employee turnover and safeguarding investments in skill development), actively bargain with employers for skills, support skill formation practices such as apprenticeships and work with employers to justify higher wages via productivity improvements. According to Stevens (1996), higher wages may also bring advantages to firms because they stimulate productivity gains and productivity gains made through training (see, for example Zwick 2006) are likely to rise faster than wages.

So much then for the theory, what of the evidence? This is rather more mixed and there are distinct differences between the US and the British evidence. Several US studies have revealed positive links between trade unions and training. Parker's (1997) historical analysis of Milwaukee reveals how co-operation with trade unions made its successful adoption of the German apprenticeship possible between 1911 and 1933 (attempts to introduce apprenticeships into unorganised industries and areas met with repeated failure). More recently, Bilginsoy's (2003) research into apprenticeships in the construction industry show dramatically higher success rates in schemes funded by both

unions and employers than those run by employers alone (58 per cent as opposed to 30 per cent) and this despite the fact that the joint programmes had significantly higher numbers of women and minority candidates who are less likely to complete their apprenticeships (see also Berik and Bilginsoy 2000). Elsewhere however the evidence is rather more mixed. Shibata (1999) contrasts the reluctance of unions in the US to let front-line workers acquire skills in basic maintenance (for fear that specialist maintenance workers would be laid off) with the attitude of Japanese unions (in matched plants), who had no such fears. While surveys have variously reported positive (Lynch 1992), insignificant (Lynch and Black 1998; Knoke and Kalleberg 1994) and negative (Frazis et al. 2000) correlations between union presence and training levels.

In Britain the link between trade union recognition and training is both more consistent and more positive. Here, repeated studies reveal a strong, positive association with both the amount and the intensity of training (Boheim and Booth 2004; Green, Machin and Wilkinson 1999b; Booth, Francesconi and Zoega 2003). Not only are workers in unionised workplaces more likely to receive training (and to receive more training) than their non-unionised peers, they are also more likely to be rewarded for this in the form of greater returns to training and higher wages (Booth et al. 2003). The reasons for this seem to be less that unions bargain over training or implement training schemes themselves (they do, but on a comparatively small scale) and more, as Green *et al*. (1999b) note, to do with the general environment for employee relations in these firms.

Discussion and Conclusions

These various and varying systems each boast very different advantages and disadvantages. The flexibility of the market allows firms to respond quickly to changing needs and may provide a stimulus for them to support the development of a 'skills elite' but it is also far more likely to be the reason for a problem in skill formation than the means of its solution. Organisations that compete against one another may save training costs by free-riding on the investments of their competitors and poaching skilled workers. But one of the consequences of this for the economy as a whole is that the workforce is likely to be under-trained since few employers will wish to risk their funds in developing skills (Bosch 2004) and employers are likely to suffer from the problems of skills shortages and skills gaps (Hillage et al. 2002). This also creates problems for employees since poaching makes skill premia unpredictable so their investments of time or money may be at risk and, in the absence of training and development, unskilled work is rarely well paid, more likely to be casual or temporary and may not be linked to the sort of career ladders which could improve both work and life chances (Green 2006).

By contrast, the consensus required for regulated systems makes institutions less responsive to the needs of individual employers (firms in Sweden complained repeatedly but without success, at the start of the 1990s that the vocational training system needed to be adapted to the shifts in technology and the market, Crouch, 2005). But they are far more successful in providing high-quality, vocationally-relevant skills for the majority of the working population. This allows firms to compete on the basis of quality goods,

innovation or incremental customisation; earning more in both domestic and international markets. Individual workers are more productive and are paid more, which improves their standard of living and has positive implications for society (Lloyd and Payne 2003, 2004; Brown 2001b).

It seems that, following Finegold and Soskice (1988), systems of skill formation may help to create 'path dependencies' which either enable nations to compete on the basis of skills and knowledge or restrict them to low-wage, low-skill markets. Small wonder then that the consensus among commentators was that some form of intervention was needed in national VET systems and that it was the role of the state to intervene through regulation, by supporting tertiary bodies of employer and employee associations, by developing and insisting on occupational qualifications or by supporting skills directly, to ensure that workers acquired skills (Crouch et al. 1999). Yet recently this consensus has been challenged, not because of flaws in the various systems of skill formation but because increasingly integrated national economies may make individual divergence less viable and because the dramatic changes in technology and labour markets since the start of the 1990s may make formal systems of VET, which rely on stability and a consensus over which skills are needed and will be rewarded in the future, much less relevant.

Let us examine these two challenges. Surprisingly perhaps globalisation seems to be the lesser one. Economies are connecting and international trade is growing (although this is not a new phenomenon) but different institutional frameworks mean that national economies develop very distinctive capabilities, competing in different sectors and with

different technologies (Whitley 2003). As Whitley (1999) notes, they are effectively competing by differentiating their goods, rather than by harmonising practice against some universal template. Even multi-national companies, which might be expected to be the harbingers of shared practice generally remain rooted in their own national and cultural systems (Bradley et al. 2000), while employment practices are adapted to local circumstances (Edwards and Ferner 2002; Ferner and Varul 2000a, 2000b; Ramirez and Mabey 2005). Markets are social as well as economic institutions and firms may shape the markets they are in as much as they respond to them (Djelic, Nooteboom and Whitley 2005). As the descriptions of the various systems in this chapter has shown, differences are embedded in competition and are far more deeply rooted than simply divergent approaches to the same goal.

Set against this however, several of the regulated economies are struggling. The Japanese economy has been in a prolonged slump for more than a decade while Germany is beset by high levels of unemployment (Federal Statistical Office 2005). Commentators vary in their reactions to this, and particularly in their predictions for the future health of the German regulated system. None blame the country's ills on its skill formation practices but there are queries over whether, after the expenses and economic ills of unification, these are sustainable. According to Crouch (2005) "many" employers are trying to free themselves from the costly VET system and French's (2000) study of IG Metall reveals how the firm's activities in old East German are effectively creating a dual market, undermining the whole system of collective bargaining. Yet elsewhere in East Germany, Culpepper (1999) notes how few firms are attempting to introduce low-wage

or numerically flexible forms of labour (see also Bluhm 2001). It may be that the service sector presents a greater danger here than unification. In the retail sector the old model of apprentice-trained assistants is being abandoned in favour of small numbers of key, functionally flexible 'anchor' workers who support larger numbers of lower paid, numerically flexible employees (Kirsch et al. 2000), while in hotels the highly skilled and multi-lingual qualified German employees are set against poorly paid East European domestics (Finegold et al. 2000).

Despite some claims (Sloane and Ertl 2003) demand for apprenticeships by young people is still strong (and falls only slightly short of record-breaking levels) although the majority of East German trainees are on schemes subsidised by the state, which raises questions about employer commitment to co-funding (Culpepper 1999). Encouragingly too the system for designing apprenticeships is becoming more adept at responding to change and technological innovation. In the past Germany certainly struggled to provide qualifications for developing industries such as ICT since the tri-partite arrangements for agreeing standards were so time consuming that qualifications in fast developing fields were out of date before they were launched. However, this development process has been considerably shortened and the dominance and longevity of systems like Microsoft mean that computing skills that do not date rapidly can be supported (Bosch 2003). Four new technical apprenticeships were launched in 1997 and proved so popular that, even in work with no tradition of apprenticeships 60,000 young people were in training by the end of 2001, and this figure was in addition to the 10,000 apprentices enrolled on the 'old' ICT apprenticeship (Steedman, Wagner and Foreman 2003:13).

By contrast, in the Anglo-American labour markets, where efforts have been put into reducing regulation and the focus is on numerically flexible workers (often employed on temporary or part-time contracts) job growth is healthy and unemployment low. It seems that skills-based competition no longer secures economic advantage.

Yet what such accounts neglect is the *quality* of the jobs that are available. Some years ago *The Economist*, a publication known for its support of deregulated labour (and other) markets greeted the news that 10,000 new jobs had been created in the USA by publishing a joke that noted "you need three of them to live". As Green (2006) points out, in the USA, alone among the developed world, real wages have declined over the last twenty years (elsewhere they have more than doubled). In Britain part-time work, undertaken predominantly by women working in the service sector, is significantly less well paid than its full time equivalent and part-time workers generally have little access to career ladders or job-related training. When an economy is dominated by such jobs it may be trapped in a 'low-skills equilibrium' where the existence of low-skilled, low paid labour creates a demand for low priced products which themselves create a demand for low-skilled labour (Finegold and Soskice 1988). Nor is there any evidence that future job generation will restrict the numbers of such undesirable jobs. As Brown, P. (2001b) notes, sweatshops have been observed again in the USA, moreover the existence of so many part-time workers provides a considerable economic advantage. Most of the new jobs being created are confined to front-line service work and characterised by low skill, low pay and low prospects (see, for example Nolan and Slater 2003). There is no

requirement for these jobs to be poorly paid. In Sweden many person-to-person care services are undertaken by the public sector and workers enjoy reasonable earnings and good terms and conditions (Esping-Andersen 1999). In opting for high numbers of badly paid jobs in the private sector employers and their governing states have noted the trade-off between skill and employment and embarked on the low road to prosperity (Crouch et al. 1999; Maurin and Postel-Vinay 2005; Ebbinghaus and Kittel 2005).

Any contrast between economies cannot be reduced to a simple headcount between the numbers employed or unemployed (although such headline figures are important). It is also significant that US firms pay low wages, provide few forms of social protection, invest little in skills and cope with high levels of employee turnover while their German counterparts treat workers very differently.

It may be more worrying to consider areas of job growth and skills change. As noted above, some of the most problematic developments for the German system can be observed in the service sector where long traditions of high skill, high quality and responsible autonomy are being abandoned in favour of low skill and direct control. This area has been the site of most dramatic job growth in recent years and in the USA more people are now employed by McDonald's than US Steel (Macdonald and Sirianni 1996). At the same time, manufacturing has been in decline, effectively, as Crouch (2005) observes, removing a major source of stable, middle skill occupations. Since many existing skill formation systems thrive on the stability of sectors, and many successful programmes are sited in manufacturing this may cause problems.

The model of skills development proposed by Crouch (2005) in response to this seems more of a problem than a solution. When no-one knows what skills are likely to be needed in the future because demand has become much more unpredictable, the absence of provision that effectively characterises both of these economies and the tendency of their governments to defer responsibility for skills acquisition to the young people entering the labour market (who need to be flexible and to 'learn to learn') means that many workers will be attempting to acquire skills and that some will succeed in acquiring the 'right' ones (whatever these turn out to be). He acknowledges that such a system is wasteful. While some workers will succeed in this blindfold game of the survival of the fittest many will not and since those who fail to guess correctly may have education but few vocationally relevant skills he suggests that their alternative source of employment is the unskilled part of the service sector, work that is likely to prove alienating and unfulfilling.

Worryingly though it is these free-market approaches that seem to be being taken up by many rapidly developing economies. Russia's new market economy relies almost entirely on old Soviet-era skills or the vocational training carried out in what remains of the public sector. In the private sector poaching is the most widely used substitute for training, although some firms do hire highly educated graduates in the hope that they may be able to learn what is necessary on the job. On the rare occasions that training is provided it is seen as a privilege of rank, rather than a activity required to do work well, so those with high status in the firm may be sent on courses, regardless of whether they

can benefit from them. One knitwear firm in Kemerovo got a new computerised knitting machine but sent the designer rather than the operator to be trained in how to use it, so were never able to deploy it to full capacity (Clarke and Metalina 2000). Even in Hungary, which has attempted to support a gentle transition from a managed economy to capitalism, most up-grading of production and up-skilling of the workforce is observable in the foreign owned firms. While Korea, although heavily influenced by the Japanese system in other ways, is heavily dependent on cheap, unskilled labour and firms provide little VET and very limited access to career ladders for these workers (Whitley 1999). It seems unlikely that this is the result of free choice or due consideration over which skill formation system is most effective. Rather, the absence of strong intermediary bodies (including trade unions, professional bodies or employers' associations) and limited resources drive both firms and nations towards a *laissez faire* free market approach.

To some extent, this is simply a new gloss on an old problem. The dilemma of providing skills remains and, for the majority, it is likely that market systems will fail (there have always been a minority who have succeeded under these conditions). The rapid changes in technology, in skills required and the eternal impossibility of predicting the future may make the skills dilemma less easy to resolve than in times when policymakers and employers could assert with confidence what industry's requirements would be in twenty years time, but they do not change the fact that the skills available in the labour force are a major influence on the way companies use labour nor that markets can be and are constantly actively shaped. It may well be that in nations and sectors where young people are equipped with skills they will have to re-learn them or acquire new ones in the

course of their careers but it is surely better to provide skills and decent jobs to go with these expectations of flexibility than to abandon the labour market entrants to their fate. As experience in Japan shows, skilled workers are not necessarily inflexible and gaining new skills may add to their abilities and capacity to problem solve. Whichever predictions on the future of the labour market prove correct it seems unlikely that skill formation systems will converge in the future.

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