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## **Protection of Mutual Interests? Employment Protection and Skill Formation in Different Labour Market Regimes**

**ABSTRACT** ■ The ‘varieties of capitalism’ school argues that firm-specific skills are more common in coordinated than in liberal economies and that appropriate training is facilitated by employment protection legislation. We compare the level of firm-specific skills across 21 countries with different capacities for labour market coordination. The data provide very limited support for the thesis, showing large variation among the coordinated countries. The results indicate ‘varieties of coordination’, which have different implications for the incidence and consequences of firm-specific skill. Improved operationalization of the skill concept seems urgent.

**KEYWORDS:** coordination ■ employment protection ■ firm-specific skill ■ labour market flexibility ■ on-the-job training ■ trade unions

### **Introduction**

According to standard neoclassical economics, employment protection regulation is a source of labour market rigidity, since it reduces the ability of firms to hire and fire at will. This is considered especially problematic at a time when firms must adapt quickly and flexibly to unpredictable, global markets. This view has been challenged by the ‘varieties of capitalism’ (VoC) school, which denies that a liberal, unregulated labour market is a prerequisite for economic success. In coordinated economies, employment protection may benefit both employers and the national economy, as production strategies require a workforce with firm-specific skills.

This article analyses one foundation of VoC theory: the assumed cross-national variation in skill profiles and the association between firm-specific skills and levels of employment protection. The overarching aim is to broaden the discussion of the relationship between regulation and labour market dynamics.

Although numerous empirical studies have been devoted to this subject, the link between employment protection legislation and rigidity has not been firmly established, as results seem to be dependent on the measures of rigidity used. However, many (though far from all) researchers agree that strict employment protection reduces unemployment inflows and outflows (protecting regular employees, but creating entry problems for groups with a weak labour market affiliation) (OECD, 2004).

The inconsistent empirical findings seem less surprising than the consistency in theoretical approach. As the OECD (2004: 89) points out, 'most analyses of employment protection have been conducted within a framework that does not justify its existence'. By regarding employment protection solely as a cost for employers, researchers may have been blind to its beneficial effects (Blank and Freeman, 1994). In fact, it can be argued that employment security enhances productivity by encouraging employees to invest in human capital, especially firm-specific human capital. Since firm-specific skill is valuable at only one firm, employees can be expected to under-invest in such skill if there is no employment protection legislation that guarantees long-term employment relationships (Belot et al., 2002).

VoC scholars insist that globalization does not call for the elimination of social protection, as is often claimed; cross-national differences in legislation are predicted to persist. However, the novelty of the approach is not this prediction, which is in line with corporatist theory, but the discussion of the motives for maintaining social protection. While corporatist theory points to the importance of the power resources of various social actors, notably trade unions, VoC scholars emphasize that such regulation exists because it provides a comparative advantage to certain employers (Hall, 1999; Hall and Soskice, 2001; Soskice, 1999).

The basic thesis is that the institutional framework of a country – defined by its capacity for non-market 'coordination', or long-term strategic interaction between companies and the state, financial institutions and trade unions – determines their production strategies and, consequently, their demand for various skills. In coordinated market economies (CMEs), firms tend to undertake high-quality niche market production or diversified mass production; and the focus on quality and frequent product changes requires a workforce with a profound knowledge of the specific firm or industry, who can work autonomously, perform a wide range of tasks and continuously detect and solve production problems. In liberal market economies (LMEs), the lack of coordination forces firms to react promptly to market supply and demand signals and, deriving advantage from their capacity for fast and radical change, they opt for either standardized, low-wage production or radical product innovation in new industries such as software production and biotechnology – strategies that require mainly general skills, readily available on the market

(Estévez-Abe et al., 2001; Hall and Soskice, 2001; Soskice, 1999; Thelen, 2001).

In sum, VoC scholars claim that the need for specific skills makes long-term contracts important to companies in CMEs. Without some promise of stable employment, employees are reluctant to invest in cultivating such skill, since it is of little value on the open market and since the accumulation of firm-specific skill tends to reduce their general, marketable skills. In contrast, the ability to hire and fire in LMEs is more important to firms and less of a problem for employees, who do possess general, marketable skills.

## Previous Research and Our Contribution

Previously, the idea that production strategies are formed by a country's capacity for coordination has been explored mainly in case studies (Hollingsworth and Boyer, 1997; Soskice, 1999). Recently, however, Soskice and colleagues set out to test 'the key to the argument' above, namely the link between skill and social protection, using quantitative data from several countries (Estévez-Abe et al., 2001). While this is a welcome development, the empirical analysis has several shortcomings. First, their main measure of firm-specific skill, average tenure rates, is problematic, as we show below. Second, the descriptive and highly aggregated level of analysis makes it difficult to identify the relevant patterns in the mosaic of data. Third, since none of the individual factors likely to affect tenure, such as age, gender, and class are considered in the analysis, the comparison can be misleading. Taken together, these problems make it difficult to judge the empirical validity of the conclusions.

Our aim in this article is to provide a more sophisticated test of the theoretical arguments presented above by using a large set of individual data from several countries and applying a multi-level modelling technique, which allows us to control for both macro- and micro-level factors simultaneously. Also, we believe that the theoretical concepts of skill and coordination deserve further attention.

## Skill Specificity: Concept and Measurement

The concept of skill specificity was originally developed in Becker's human capital theory. Becker distinguished between general skills, which are of equal value in many different companies and specific skills, which are useful at only one firm. Because of the risk of poaching, firms have no incentive to provide their employees with general skills. They will, however, invest in specific skills and in order to protect these investments will

attempt to retain employees with such skills. Because workers with specific skills also have less incentive to quit, on-the-job learning and training cause workers and their employers to 'get bonded together' (Becker, 1993: 20). Therefore, skill investments may explain why employment in advanced industrial countries tends to be long-term (Osterman, 1984).

In more recent research, some of Becker's ideas have been contested with findings showing that many skills are in fact transferable, that is, valuable at various, though not at all, firms, and that employers invest in these skills also (OECD, 2004).<sup>1</sup> Still, the distinction between general and specific skill remains central to the economic literature on training (Leuven, 2005).

In the VoC perspective, this division is seen as a constitutive feature of production regimes. Hall and Soskice (2001) argue that in LMEs, firms and other actors invest mainly in *switchable* assets (that is, assets whose value can be realized if diverted to other purposes), while in CMEs, actors are more willing to invest in *specific* assets, that cannot readily be turned into another purpose, and *co-specific* assets, whose return depends on the cooperation of others. The prime example is the assumed difference in skill formation and its implications for social protection (Estévez-Abe et al., 2001): firm-specific skills should be associated with stronger employment protection. Interestingly, however, these authors also discuss industry-specific skills – a 'co-specific asset' characteristic of CMEs – and suggest that such skills should have somewhat different policy implications. Since workers possessing such skills can move between firms within a specific trade or industry without loss of income, employment protection per se should matter less. Investment in industry-specific skills instead depends on the availability of unemployment benefits that enable workers to turn down job offers outside the trade for which they were trained, and on coordinated wage bargaining systems that reduce the risk that income might drop radically. Empirically, they do not make much of this distinction. However, we will return to the argument later, when discussing the association between institutions and the 'portability' of skills.

Since skills are not readily observable, they are difficult to measure, and consequently theoretical discussions of skill specificity have not been underpinned by thorough empirical analysis. Soskice and colleagues use average tenure to measure firm-specific skill. However, since tenure rates are likely to reflect the costs of dismissing workers as a result of employment protection, this indicator is problematic. When they argue that since most job switching is voluntary, 'at least part of the effect of employment protection on tenure must go through the effect of the former on the stock of firm-specific skills' (Estévez-Abe et al., 2001: 171), they also blur the distinction between these factors. We believe that it is important to uphold a firm distinction between the concept and indicators of skill specificity

since it is not established how different indicators of skill specificity are associated with each other.<sup>2</sup>

In this article, our main measure of skill specificity is on-the-job training. This measure captures the amount of training that is required to perform a job. On-the-job training has been associated with skill specificity and long-term employment in both human capital and internal labour market theories (Becker, 1993; Osterman, 1984) and represents a more direct measure of skill specificity than tenure. Another measure of skill specificity has been developed by Iversen and Soskice (2001). This compares the major ISCO-88 occupational groups regarding the number of occupational categories (unit groups) included, as well as their share of the labour force. While this measure identifies small and specialized occupational groups, it seems less relevant to the theoretical discussions of firm-specific skill and its implications. In fact, employees with this kind of specialized knowledge are likely to be moveable between employers within a trade or industry.

The on-the-job training measure is supplemented and compared with two other, more indirect, indicators of specific skill investment. One is a measure of mutual employer–employee dependence. This is included because the VoC argument linking specific skill to employment protection rests firmly on the idea that ‘firms and individuals investing heavily in [firm-specific] skills become increasingly dependent on one another’ (Estévez-Abe et al., 2001: 169). In fact, this is a basic assumption both in human capital and internal labour markets theories (Becker, 1993; Osterman, 1984).

The other measure is average tenure. This is included partly for the sake of comparison with previous research and partly because tenure, like mutual employer–employee dependence, is an assumed *consequence* of investment in firm-specific skills. While our measure of on-the-job training cannot discriminate between firm- and industry-specific skill, tenure and employer–employee dependence could indicate to what extent employees perceive that their skills can be used in different firms.

Thus, while on-the-job training, tenure and employer–employee dependence represent three different attempts at measuring specific skill, they may also, taken together, deepen our understanding of how labour market institutions affect the ‘portability’ of skills. Here, we use them to scrutinize the association between coordination and skill suggested in the VoC literature, but also to discuss a more differentiated concept of coordination.

## The Concept of Coordination

The theoretical concept of coordination refers to a set of institutional devices that enable firms to engage in long-term strategic interaction with

each other and with other important actors, instead of basing their decisions solely on market supply and demand signals. These institutions underpin credible commitments by providing for the exchange of information, the monitoring of actors' behaviour and the sanctioning of non-cooperation. However, Hall and Soskice (2001: 11) also emphasize the importance of deliberative institutions, which encourage actors to engage in collective discussion and reach agreements. Deliberative proceedings 'thicken the common knowledge' and 'improve the confidence' in the strategies applied by other actors. This is especially important when actors are faced with new, unfamiliar challenges.

Thus it can be argued that deliberative institutions are intrinsically different from monitoring and sanctioning institutions, and we believe that the presence and efficiency of deliberative institutions can affect the 'portability' of skills acquired through practical training. In the labour market, the most conspicuous deliberative institution is collective bargaining and we believe there is a difference between countries where employment protection has been unilaterally imposed by the state through legislation and those where regulation is established through collective bargaining. Where employment protection is negotiable, unions may strive for 'long-term' employment security by strengthening the employability of their members. As a general strategy, they may push for life-long learning policies and in the case of lay-offs, call for replacement jobs and re-training opportunities. Thus, skill investments become an issue of negotiation. Presumably therefore, skills should be more portable when unions are strong and collective bargaining important.

Following this reasoning, we will divide the CMEs into a Nordic and a Continental regime. The division is based on the assumption that deliberative institutions play a larger role in the former and that this may affect skill formation.<sup>3</sup> Average union density in the Nordic countries is over 70 percent of the workforce; more than double that in Continental countries, where density is no higher than in LMEs (OECD, 2004). In the Nordic countries, the collective agreement is the prime form of regulation and when there is legislation, it focuses on union rights and procedures while the rules are largely elastic and can be changed in collective agreements (Bruun et al., 1990). Thus, trade unions play an important role at the national level, but also in individual companies, where they are involved in co-determining production issues. In recent years, these local unions have increased their influence over both wage and non-wage issues. Presumably, this Nordic type of coordination – based on the frequent re-negotiation of terms, at several, interconnected levels – allows for both long-term strategic action and for the rapid change characteristic of LMEs.

By contrast, coordination in Continental countries seems less flexible. Although collective agreements are part of labour market regulation,

they appear for several reasons to be less ‘negotiable’ than in the Nordic countries. First, there is a tradition of legislated individual rights, which limits the scope for negotiations (Bruun et al., 1990; Rönömar, 2004). Second, sectoral agreements provide little room for adjustment to the needs of different enterprises. Also, local adaptations are complicated by the fact that co-determination and negotiations in the companies are handled by the work council and not by local unions (Rönömar, 2004; Wallerstein et al., 1997). Third, there is a huge discrepancy between the low trade union density and the extensive coverage of collective agreements. To some extent, this is the result of employers extending collective bargaining provisions to cover non-unionized workers. However, there are also administrative ‘extension’ mechanisms, which can make collective agreements binding on employers who are not among the signatory parties (OECD, 2004).

In the analysis, we also include a group of Mediterranean countries. These have not been thoroughly analysed in the VoC literature, according to which they cannot be readily classified as either coordinated or liberal; yet they share some features that make it possible to regard them as a group (Hall and Soskice, 2001). A distinguishing feature relevant to this analysis is the very active role played by the state and the weak and rather militant unions (Molina Romo, 2006; Schmidt, 2003). Because of these characteristics, coordination in the Mediterranean countries is achieved through national legislation, rather than through agreements between labour and management. This absence of deliberative institutions clearly sets them apart from the Nordic countries, while they are similar to the Continental countries in terms of the low level of union membership and the use of extension mechanisms (OECD, 2004).

Our analysis of skill differences also includes some ‘transition economies’. Most of these appear to be liberal, with low tax levels and small public sectors. Similarly, union density is relatively low and most bargaining is carried out at company level. However, the low GDP per capita, as well as the relatively rigid business regulation, clearly set them apart from Western LMEs (Knell and Srholec, 2006). Consequently, to classify them into a specific regime type within the VoC framework is difficult (Buchen, 2006). Therefore, the purpose of including them is mainly exploratory.

## **Aim and Hypotheses**

The objective of this article is to test the VoC thesis that firm-specific skills are more common in CMEs than in LMEs and that the need for such skills is reflected in the level of employment protection. However, we will also test the idea that there are differences among CMEs.

*Hypothesis 1.* Firm-specific skills are more common in Continental than in Liberal economies. The Nordic countries are expected to occupy an intermediate position, since their coordination is more flexible, allowing a larger spectrum of production strategies. The Mediterranean countries, where coordination is achieved through state activity rather than through deliberative institutions, are expected to be similar to the Continental countries.

*Hypothesis 2a.* Countries with stricter employment protection legislation have more firm-specific skills.

*Hypothesis 2b.* Because powerful unions can reduce employees' dependence on a single employer, both tenure and mutual employer–employee dependence should be lower in countries with higher trade union density.

## Data and Variables

The individual-level data used in the article come from the 2004 European Social Survey, which covers representative samples of the adult populations in 21 countries.<sup>4</sup> In this article, a weighted sub-sample comprising employees only is used ( $n = 17,056$ ). Three different measures of firm-specific skill are used as dependent variables.

[Y<sub>1</sub>] *Required on-the-job training* is the respondents' estimate of how long it would take for somebody with the right education and training to learn to do their job reasonably well (responses coded into three categories: 0–4 weeks = 0; one month to one year = 50; more than one year = 100).

[Y<sub>2</sub>] *Average tenure* is the number of years the respondent has been with his or her employer (0–70 years).

[Y<sub>3</sub>] *Mutual employer–employee dependence* is measured by responses, on scales ranging from zero to ten, to the questions how difficult it would be a) 'for you to get a similar or better job with another employer if you wanted to', and b) 'for your employer to replace you if you left'. The relationship between these two indicators was analysed using latent class analysis. Different models of varying complexity were tested against the data. The model best representing the data consist of five clusters, each capturing a distinct employer–employee relationship. Two clusters reflect situations of high and medium *mutual employer–employee dependence*, where employees are both difficult to replace *and* would have difficulties finding an equal or better job. These clusters were combined into a single measure applying a weight reflecting the different indicator probabilities for cluster membership in the medium- and high-dependence category. Variable values range between 0 and 100 to indicate cluster membership probabilities in percentages.

As mentioned above, mutual dependence can be seen as an indirect measure of skill specificity. However, to get an accurate picture of

dependence relations in the different regimes, the other clusters will also be examined. These capture a *worker–power* situation (the employee is difficult to replace but has no problem finding an equal or better job elsewhere), an *employer–power* situation (the opposite situation), and an *independence* situation (the employee is easy to replace but can easily find a new job with another employer).

It is legitimate to raise concern whether these subjective perceptions capture the real nature of employment relations. Using Swedish data, validity tests of the relationships between these measures and data on wages and job mobility suggest that they are valid indicators of power relations between employees and their employers.<sup>5</sup> We will refer to these other forms of dependence in the empirical section, but for reasons of space will not provide tables. However, these are available from the authors on request.

Three different contextual variables are used in the analysis. The key variable for testing  $h_1$  is *labour market regime* [X]. This variable distinguishes five country groupings, each assumed to capture a more or less distinct labour market regime. The *Liberal* economies are represented by Ireland and the UK, while the coordinated countries have been divided into a *Nordic* group (Sweden, Denmark, Finland and Norway) and a *Continental* group (Austria, Germany, Switzerland, Belgium and the Netherlands). Also included are a *Mediterranean* group (France, Spain, Portugal, and Greece) and a *Transitional* group (Hungary, the Czech Republic, Slovakia, Poland, Slovenia and Estonia).

To test  $h_{2a}$  we use the OECD index of the overall strictness of *employment protection legislation* [Z], which is composed of 18 items covering three main areas: employment protection of regular workers against individual dismissal; specific requirements for collective dismissal; regulation of temporary forms of employment. The index originally varied between 0–6 but has been standardized to vary between 0–100. For  $h_{2b}$  we use *trade union density* [W], which is the percentage of employees in each country that are members of a trade union (OECD, 2004).

The analysis also includes some individual-level control variables: [A] *gender*, [B] *class*,<sup>6</sup> [C] *workplace size* and [D] *age*. Workplace size has proved important for both long-term employment and on-the-job training (OECD, 2003; Osterman, 1984), and earlier studies of tenure and training indicate that service class employees may have more firm-specific skills than manual workers (OECD, 1993, 2003). Regarding gender, it has been argued that women may be less inclined to invest in developing firm-specific skills, because of the likelihood of career interruption (Estévez-Abe et al., 2001). Age has an obvious association with tenure. Apart from controlling for potential compositional effects, we are also interested in whether gender, class and age differences in skill acquisition vary systematically between labour market regimes.

## Results

### Different Regimes, Different Skills?

Because the variables of interest are measured at different levels, multi-level analysis (MLA) is used. Since it can be argued that country characteristics are contextual variables (individuals in one country have more similarity with each other than with individuals in other countries) this method is more appropriate than OLS regression, which assumes observations to be independent (Hox, 2002).

The first part of the analysis examines the influence of labour market regime on each of the indicators of firm-specific skill, including interactions between labour market regime and gender, class, workplace size, and age. Written in the language of hierarchical logit notation,<sup>7</sup> the baseline model can be notated as:  $\{Y^*X^*A, Y^*X^*B, Y^*X^*C, Y^*X^*D\}$ .

After running a series of regressions in which we systematically analysed the variance of individual-level effects across countries, and, based on these findings, introduced and deleted specific interaction terms, we arrived at the following models as the best representations of the data:

On-the-job training  $\{Y_1^*X^*D, Y_1^*A, Y_1^*B, Y_1^*C\}$

Tenure  $\{Y_2^*X^*A, Y_2^*X^*B, Y_2^*X^*C, Y_2^*X^*D\}$

Mutual employer–employee dependence  $\{Y_3^*X, Y_3^*A, Y_3^*B, Y_3^*C, Y_3^*D\}$

The most complex patterns pertain to tenure, involving significant interaction effects between each of the individual-level variables and the regime variable. The other two models are comparatively less complex. In order to interpret the results from the MLA properly, both the main and the interaction effects must be considered simultaneously, a difficulty that increases with model complexity. Therefore, for tenure, the results from the regression model above are presented in the form of predicted values (Table 1).<sup>8</sup> The original regression outputs from the two simpler models are shown in Table 2. We report the unstandardized regression coefficient ( $b$ ) and the associated test of significance ( $t$ ). By convention, a  $t$ -value outside the  $\pm 1.96$  interval indicates that the  $b$  differs significantly from zero. To exemplify, in Table 2, it is shown that the probability for a mutual dependence relationship is 11.37 percent units higher in the Continental regime compared to the Liberal regime. A  $t$ -value of 3.66 indicates that the difference between the Continental and the Liberal regimes is significant. In contrast, the  $b$  for the Nordic regime (2.80) and the  $t$  (0.73) indicate that the observed difference between the Nordic and the Liberal regimes is rather small and not significant.

*Hypothesis 1* suggests that the amount of firm-specific skill is higher in the Continental labour market regime, than in the Liberal, with the Nordic regime occupying an intermediate position. As shown in Table 1, for tenure the main dividing line runs between the Liberal regime, having

**TABLE 1. Firm-specific Skill (Tenure [ $Y_2$ ]) by Labour Market Regime [X], Gender [A], Class [B], Workplace Size [C], and Age [D]<sup>a</sup>**

<i>Regime</i>	Nordic	Continental	Mediterranean	Transitional	Liberal
Mean	11.4	11.6	10.9	10.3	9.0
<i>Gender</i>					
Men	11.4	12.6	11.4	9.7	10.0
Women	11.5	10.4	10.3	10.9	8.1
<i>Class</i>					
Service class I	11.0	12.0	12.4	11.4	10.3
Service class II	12.1	13.1	12.4	11.8	10.5
Routine					
non-manuals	11.4	10.8	10.4	9.8	7.6
Skilled workers	10.9	11.7	12.3	10.1	7.9
Unskilled workers	11.2	10.0	9.0	9.3	8.6
<i>Workplace size</i>					
<25	10.2	10.3	9.3	8.6	8.2
>500	13.5	13.8	15.4	13.7	9.4
<i>Age</i>					
20–30	2.6	3.2	3.2	3.9	3.4
40–50	12.1	13.2	13.6	11.9	10.4
55–65	19.1	20.3	20.5	17.0	15.6
<i>Term</i>	<i>F</i>	<i>P</i>	<i>Term</i>	<i>F</i>	<i>p</i>
$Y_2^*X$	3.721	.021	$Y_2^*X^*A$	6.244	.002
$Y_2^*A$	11.242	.003	$Y_2^*X^*B$	2.704	.002
$Y_2^*B$	15.564	.000	$Y_2^*X^*C$	4.940	.006
$Y_2^*C$	189.801	.000	$Y_2^*X^*D$	3.822	.020
$Y_2^*D$	870.958	.000			

<sup>a</sup> Estimates are predicted values derived from a multi-level regression model specified as:  $\{Y_2^*X^*A, Y_2^*X^*B, Y_2^*X^*C, Y_2^*X^*D\}$   $n = 16,167$ .

the lowest tenure, and the coordinated regimes of Continental and Northern Europe, where average tenure is approximately 2.5 years longer. The low level of firm-specific skill in the Liberal regime is also reflected in the mutual dependence measure (Table 2). Here, the highest level is found in the Continental and Transitional regimes, while the level of dependence in the Nordic regime is close to that of the Liberal regime.

Regarding on-the-job training, the main and interaction effects of age and regime indicate that differences in training among the young are quite small across regimes. However, among older employees, on-the-job training is greater in the Nordic regime than in the Continental and Liberal regimes.<sup>9</sup> In the Mediterranean countries we can observe a low level of on-the-job training. As in the Continental countries, they have a high level of mutual dependence, while tenure is slightly lower compared to the Continental and Nordic countries.

**TABLE 2. Firm-specific Skill (On-the-job Training [ $Y_1$ ], Mutual Dependence [ $Y_3$ ]) by Labour Market Regime [ $X$ ], Gender [ $A$ ], Class [ $B$ ], Workplace Size [ $C$ ], and Age [ $D$ ]<sup>a</sup>**

	On-the-job training		Mutual dependence	
	<i>b</i>	<i>t</i>	<i>b</i>	<i>t</i>
Intercept	13.87	3.73	1.26	0.39
<i>Regime</i>				
Nordic	-10.18	-2.31	2.80	0.73
Continental	-5.86	-1.38	11.37	3.10
Mediterranean	-6.66	-1.45	8.75	2.28
Transitional	-2.00	-0.47	13.25	3.66
Liberal	0		0	
<i>Gender</i>				
Men	10.60	11.53	2.78	4.15
Women	0		0	
<i>Class</i>				
Service class I	30.76	18.10	7.04	6.78
Service class II	25.91	16.05	4.09	4.43
Routine non-manuals	15.10	9.35	2.40	2.58
Skilled workers	19.02	11.47	3.15	3.18
Unskilled workers	0		0	
<i>Workplace size</i>	1.87	7.39	-0.75	-3.21
<i>Age</i>	0.14	1.62	0.20	6.62
<i>Regime*Age</i>				
Nordic*Age	0.30	2.73		
Continental*Age	0.11	1.02		
Mediterranean*Age	0.04	0.36		
Transitional*Age	0.01	0.11		
Liberal*Age	0			
<i>n</i>	15,944		15,724	

<sup>a</sup> Estimates are unstandardized regression coefficients from multi-level regression models specified as:  $\{Y_1 * X * D, Y_1 * A, Y_1 * B, Y_1 * C\}$  and  $\{Y_3 * X, Y_3 * A, Y_3 * B, Y_3 * C, Y_3 * D\}$ .

Shifting the focus to the individual-level variables, we note that men tend to have more firm-specific skills than women. This fits well with previous research and is particularly evident for on-the-job training. The results also show, again in line with previous research, that the service classes display higher levels of firm-specific skill than do workers and routine non-manuals. Also the positive relationship between age and firm-specific skill is as expected. Regarding workplace size, we find that tenure is longer and on-the-job training more frequent in large organizations than in small ones; however, mutual dependence is most common in small workplaces.

Generally, the effects of the individual-level variables are similar across regimes. The main exception is tenure. Here, the Nordic regime is distinctive in having negligible gender and class differences in tenure. However, the effect of age on tenure – and especially on training – seems particularly strong in the Nordic regime. The effect of workplace size on tenure is less emphasized in the Liberal regime and most salient in the Mediterranean regime.

In sum, our hypothesis that firm-specific skill is more common in the Continental than the Liberal regime is confirmed when the measures of mutual employer–employee dependence and tenure are used. The predicted intermediate position of the Nordic regime is manifested mainly in the level of mutual dependence, which is close to that of the Liberal regime; in tenure rates, however, the Nordic regime does not differ from the Continental. When it comes to on-the-job training, the results do not support the hypothesis since the incidence of training in the Liberal regime is not particularly low compared to the other regimes, except the Nordic. The Mediterranean countries stand out with a low level of on-the-job training. This may indicate that standardized, Fordist production strategies are more important here than in both liberal and coordinated countries.

In VoC theory, firm-specific skill is associated with mutual employer–employee dependence while general skill is associated with independence, or pure market relationships. However, as pointed out above, the latent class analysis that generated our measure of mutual dependence also identified other, asymmetric (employer–power and worker–power) relationships. Using multi-level regressions testing the association between labour market regimes and these dependence measures, we find that in the Nordic and Liberal regimes, worker–power and independence relationships are the most common, while in the remaining regimes, employer–power and mutual dependence relationships are the most frequent. This reinforces our earlier observation regarding mutual dependence and our conclusion is that although employees in the Liberal and, especially, the Nordic countries accumulate considerable specific skill – as measured by tenure and training – they are less dependent on their employers than their counterparts are in the Continental and Mediterranean regimes.

Finally, we will report the results for the Transitional regime, for which no explicit hypotheses were formulated. The high level of mutual dependence makes these countries more similar to the Continental than to the Liberal regime, while in terms of tenure, they occupy an intermediate position. However, it should be noted that tenure rates in the Transitional countries are likely to be affected by the recent turbulence in the labour market. This may also explain the moderate impact of age on tenure and the fact that women have longer average tenure than men: many women may have left the labour market altogether.

## Skill Needs and Social Protection

The next step of our analysis is to examine the link between social protection and firm-specific skill. Our main expectation is that firm-specific skill is more common in countries with stricter employment protection legislation than in countries offering little employment protection. However, we also explore the role of union density. Here, we assume that in countries where density is high, unions have the power to influence skill investments in a way that ensures the long-term employability of their members. Consequently, employees in these countries should be less dependent on a single employer, as reflected in measures of tenure and dependence. Data on employment protection and union density are reported at the foot of Table 3. The transitional countries have been omitted because of missing data.

*Hypothesis 2a* states that employees in countries with stricter employment protection legislation have more firm-specific skills. As shown in Table 3, the results are not entirely straightforward. As expected, stricter employment protection is associated with more mutual employer–employee dependence. Contrary to our hypothesis, however, we find that employment protection is negatively associated with on-the-job training. This may be explained by the fact that the Mediterranean countries score comparatively low on training while having the strictest employment protection legislation. In the case of tenure, the effect of employment protection is negative but not significant.

In accordance with *hypothesis 2b*, it is shown that high union density tends to reduce mutual employer–employee dependence. Regressions using the other dependency measures further support the hypothesis. These show that union density is positively correlated with worker–power and independence relationships, and negatively associated with employer–power relationships. Interestingly, employment protection has the opposite (negative) effect on worker–power and independence relationships. Thus, when using direct measures of dependence, we find that strong unions can make employees less dependent on a single employer, while stricter employment protection is associated with a stronger dependence on the employer.

## Conclusions

This article analyses one foundation of VoC theory: the assumed cross-national variation in skill profiles. The findings identify both empirical and theoretical issues worth considering in future research about labour market regimes, skills and employment protection legislation.

First, the results suggest that there are not only varieties of capitalism, but also varieties of coordination, with different implications for skill formation, employment security and labour market dynamics. Second, our findings highlight the need to discuss the concept of skill specificity

**TABLE 3. Firm-specific Skill (On-the-job Training [ $Y_1$ ], Tenure [ $Y_2$ ], Mutual Dependence [ $Y_3$ ]) by Employment Protection [ $Z$ ], Union Density [ $W$ ], Gender [ $A$ ], Class [ $B$ ], Workplace Size [ $C$ ], and Age [ $D$ ]. Selected Output<sup>a</sup>**

	On-the-job training		Tenure		Mutual dependence	
	<i>b</i>	<i>t</i>	<i>b</i>	<i>t</i>	<i>b</i>	<i>t</i>
Intercept	17.02	3.20	-8.11	-3.29	3.77	0.88
<i>Employment protection</i>	-0.23	-2.06	-0.10	-1.90	0.20	2.25
<i>Trade union density</i>	-0.05	-1.00	-0.04	-1.55	-0.10	-2.34
(n)	12,143		12,335		12,044	

i) Employment protection (0–100): *Nordic regime 38* (Sweden 43, Norway 43, Finland 35, Denmark 30), *Continental regime 37* (Austria 37, Germany 42, Belgium 42, Netherlands 38, Switzerland 27), *Mediterranean regime 52* (France 48, Greece 48, Spain 52, Portugal 58), *Liberal regime 20* (Ireland 22, UK 18).

ii) Trade union density (0–100): *Nordic regime 71* (Sweden 79, Norway 54, Finland 76, Denmark 74), *Continental regime 32* (Austria 37, Germany 25, Belgium 56, Netherlands 23, Switzerland 18), *Mediterranean regime 19* (France 10, Greece 27, Spain 15, Portugal 24), *Liberal regime 35* (Ireland 38, UK 31).

Source: OECD (2004).

<sup>a</sup> Estimates are unstandardized regression coefficients from multi-level regression models specified as:  $\{Y^*Z, Y^*W, Y^*A, Y^*B, Y^*C, Y^*D\}$ .

and to improve the operationalization of skill. In this final section we discuss these points and formulate some tentative conclusions concerning skill, coordination and labour market flexibility.

The analysis provides only weak support for the VoC thesis. To some extent, the proposed association between firm-specific skill, coordination and employment protection is confirmed for the countries of continental Europe, which display high levels of on-the-job training, tenure and mutual employer–employee dependence and also have fairly strict employment protection legislation. Also, an important finding is the existence of substantial differences among CMEs, with the Nordic countries similar in many respects to the LMEs.

In the study from which our main hypotheses have been extracted, Soskice and colleagues argue – against the literature that regards employment and income protection as successful trade union attempts to reduce worker dependence on the market and employers – that employment protection is an effort to ‘increase workers’ dependence on particular employers’ that ‘stems from the strength rather than the weakness of employers’ (Estévez-Abe et al., 2001: 180). However, our findings challenge this argument, regarding both ‘strength’ and ‘dependence’. The results suggest that organized labour plays a crucial role in determining the nature of coordination, as we illustrate by comparing the polarized patterns observed in the Mediterranean and the Nordic regimes.

Regarding *strength*, we should distinguish between employer strength per se and the power balance between employers and workers. In countries where trade union density is low, employers are strong relative to workers, who are forced to compete for jobs by underbidding each other in their demands for wages and decent work conditions. In the absence of unions, workers can only be protected by legislation of a rather rigid kind, for example, regarding minimum wages and non-negotiable employment protection (Harcourt and Wood, 2007; Kamiat, 1996). Therefore, it is not surprising that the Mediterranean countries have the highest score on the OECD index of employment protection legislation while trade union density is the lowest in Europe. This suggests that employment protection legislation may reflect union weakness and (relative) employer strength, but not coordination in the sense understood by the VoC approach. According to the logic of this school, a more relevant definition of strength would be the capacity for collective action, that is, organization, and employer organization is very much a result of worker organization. Considering membership figures of employer associations, employers in the Nordic countries are very strong indeed – as are trade unions.

Also, union strength appears to be connected to union strategy. For a long time, the Nordic unions have pushed strategies of ‘co-determination’ (Korpi, 1983; Siaroff, 1999). At the micro-level, they have collaborated with management in designing the work process, encouraging job flexibility and skill enhancement (Dobbin and Boychuk, 1999). At the macro-level, they have embraced structural rationalization and new technologies, seeking employment security in the long-term viability of the economy. Also, these strong unions generally seek to avoid rigid legislation, fighting for their right to negotiate. In short, strong unions are instrumental to the creation of deliberative institutions.

This brings us to the issue of *dependence*. Here, Northern Europe stands out from the other coordinated countries: the average employee works more than 11 years for the same employer. Such long-term attachments create good opportunities for the development of firm-specific skills, which is reflected in the amount of on-the-job training. Still, Nordic employees are not dependent on their employer to the same extent as employees in Continental and Mediterranean countries. A reason may be the importance of deliberative institutions in the Nordic labour markets, where trade unions and central bargaining play an important role. The results regarding trade union density and dependence support such a conclusion.

Our findings also point to the need to discuss the concept and measurement of skill specificity. As indicated, the three measures of specific skill point, to some extent, in different directions. Required on-the-job

training is a direct measure of the need for skills acquired through practical training. In the VoC perspective, such training is more or less equated with firm-specific skill. However, skills acquired through on-the-job training may differ in their portability. Here, our measures of dependence and, to some extent, tenure can be used to assess this portability: we find that firm-specific skills are most common in the Continental countries, where both average tenure and the level of on-the-job training are high, and where a large proportion of employees report that they would have problems finding an equal or better job with another employer. In contrast, in the Liberal countries, skills appear to be much more portable, as employees combine a high level of on-the-job training with low average tenure and a low level of dependence. In the Mediterranean countries, employees receive little training and are highly dependent on their employers.

These patterns indicate that further research is needed to deepen our understanding of the association between training and employer–employee dependence. Assumptions about this relationship are of central importance in theories of on-the-job training and internal labour markets, as well as in the debate about labour market flexibility; in fact, assumptions about dependence constitute an important reason for discussing skill specificity at all. Yet these assumptions have not been tested empirically. Thus, direct measures of dependence can be used to further our understanding of the consequences of skill investments, and their absence. Also, different factors that may affect the relationship between skill investments and employer–employee dependence should be considered: not only labour market institutions, such as unions, but also educational systems and active labour market policies, which affect the possibilities for re-training as well as the specificity of the acquired skills.

The results presented in this article also raise questions regarding the idea of a trade-off between general and specific skills. Recent economic research indicates that many skills are in fact transferable (OECD, 2003). In our study, the positive correlation between class position and all three measures of firm-specific skill suggests that the two can go hand in hand, since class correlates positively with the level of general education.

In sum, we think it is important to include direct measures of training in research on skill formation, capturing both school- and work-based training and, if possible, both employers' and employees' perceptions. However, to assess skill specificity, such measures must be combined with indicators assessing the consequences of training. Important indicators include measures of employer–employee dependence, and indicators of actual mobility such as labour turnover. Tenure may also be used to examine the consequences of skill investment, but as a measure of skill it is far from ideal. Our study shows that it interacts in complicated ways

with both individual and regime-level characteristics. Moreover, it correlates weakly with the training and dependence measures.<sup>10</sup>

## NOTES

- 1 Becker himself noted (1993: 49) that some training is useful neither in most firms, nor in a single firm, but 'in a set of firms defined by product, type of work, or geographical location'. As with general training, however, Becker assumed that firms would have little interest in investing in such training since a single firm cannot readily collect the return.
- 2 A second measure used in the study is vocational training, but apart from noting that apprenticeships and vocational schools are less common in LMEs, the measure is not discussed.
- 3 In the VoC literature, the Continental countries have been described as sector-coordinated and the Nordic countries as nationally coordinated, that is, with peak-level bargaining and coordination between hierarchical organizations of business and labour (Crouch and Streeck, 1997; Kitschelt et al., 1999; Soskice, 1999).
- 4 For information regarding data collection and response rates, see [www.europeansocialsurvey.org].
- 5 The strong relationships between different forms of dependence and wages 'would appear to be especially convincing, given the hard qualities of the wage data' which contain very little error, when compared with information from employer-based tax file registers (Tåhlin, 2004: 7).
- 6 ISCO-88 was recoded into a five-category EGP class schema (Erikson and Goldthorpe, 1992).
- 7 Hierarchical logit notation is commonly used within the loglinear modelling framework and is a convenient way of presenting model specifications. Hierarchical notation in this context means that lower-order terms embedded within higher-order terms are not shown in the notation, but included in the model. For example, a simple model notated as  $\{Y^*X^*A\}$ , includes the following terms in the model  $\{Y, X, A, Y^*X, Y^*A, Y^*X^*A, X^*A\}$ . The 'logit' indicates that the terms associated with the independent variables only (in the above example, that is  $\{X, A, X^*A\}$ ) are calculated in the model but not shown in the notation.
- 8 Note that age and workplace size are treated as continuous variables in the MLA, as no additional valuable information was obtained by treating them as categorical variables. However, in Table 1 results are reported for three age groups (20–30; 40–50; 55–65) and workplace sizes 1 and 4 (1 = <25; 2 = 25–99; 3 = 100–500; 4 = >500).
- 9 Among those aged 65 (using the Liberal regime as reference category = 0), estimates from the MLA indicate a 9.3 unit increase in training in the Nordic regime ( $-10.18+0.30*65$ ) and 1.3 unit increase in the Continental regime ( $-5.86+0.11*65$ ). Among those aged 35, corresponding estimates are 0.3 and  $-2.0$ .
- 10 Pearson's  $r$ : tenure–training = 0.18, tenure–dependence = 0.08, training–dependence = 0.14.

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