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Labour Market Regimes and Worker Recruitment and Retention in the European Union: Plant Comparisons

Jane Morton and W. S. Siebert

Abstract

We analyse worker recruitment and retention outcomes, contrasting production worker skill profiles in the UK subsidiaries of five multinationals with, in each case, a matched plant in another EU state. From personnel records we build up plant distributions of worker pay, age, schooling, prior experience and tenure. We find evidence of local management discretion, with differences in unit labour costs and in recruitment/retention outcomes between the matched subsidiaries. UK plants have a 'hire and fire' environment and a less skilled worker mix. Such outcomes can be linked to the UK's lower labour costs and less regulated labour market.

1. Introduction

The paper explores diversity in multinational recruitment/retention practices, contrasting outcomes in the UK subsidiaries of five multinationals with, in each case, a matched plant in another EU state. We consider both the recruitment and the retention of workers, since together these build up a plant's work-force and determine its skill profile. We restrict the analysis to production workers. Our data are gathered primarily from personnel records, from which we build up plant distributions of pay, age, schooling, prior experience and tenure. We then contrast the matched plants along these dimensions.

We pose two questions about production worker recruitment/retention outcomes. First, we ask whether outcomes are similar across company subsidiaries producing the same product in different countries. In general, contrasting matched plants will illustrate the extent to which a plant's managers can 'do things their way', unconstrained by head office policy. Managers even in sister plants might be quite free regarding recruitment

Jane Morton is at the University of Leicester. W. S. Siebert is at Birmingham University.

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practices, for example taking 'a policy of high wages and high skills or one of short-termism and hire and fire' (Edwards 1994: 37). Our data can thus establish to what extent different labour management equilibriums exist.

Second, if there are different outcomes, we ask whether these can be explained by a conventional neoclassical economic model linking the UK's less strict employment protection laws, lower labour taxes and generally lower unskilled pay with a less skilled worker mix. In particular, employment protection laws might help the retention of permanently employed incumbent workers (insiders) and yet harm the recruitment of unemployed 'outsiders' (Lindbeck and Snower 1988: 246). Because of the extra costs of dismissing workers, managers might need to adjust hiring standards so that those hired for permanent jobs are of demonstrably high quality, for example more experienced. Most other EU states have more constraining dismissals legislation than the UK. For example, the OECD's measure of strictness of employment protection (1999: table 2.5) gives the UK a value of only 0.5 compared with around 3 for the other EU states involved in our study (Belgium, the Netherlands, France and Germany). If plants in these states follow a high-wage and high-skills policy compared with their UK counterparts, dismissals legislation could in part explain why. Our data will therefore also contribute to discussion of the link between labour legislation and insider power.[1]

There is a substantial literature analysing international employment practices. Foremost are the studies linked with the Industrial Relations Research Unit at Warwick University (for example Belanger *et al.* 1994; Ferner and Edwards 1995; Coller 1996; P. K. Edwards *et al.* 1996; Ferner and Quintanilla 1998; Coller and Marginson 1998; T. Edwards *et al.* 1999). Also important have been the international labour productivity and training comparisons of the National Institute of Economic and Social Research (for example O'Mahoney 1992; Mason *et al.* 1994). These analysts have generally used a similar case study approach to ours, contrasting employment and training practices within plants of a given multinational across countries. However, a difference is that their material has been based primarily on interviews, whereas ours is more quantitative, using personnel records. We also lay more stress on matching the products (as detailed below), so as to hold constant technological and product quality factors.

The interview method is well suited for analysing management practices. In particular, in the debate over convergence of employment practices (and outcomes) where a multinational's subsidiaries are competing for production, the methods used by central management to influence the subsidiaries have been addressed. Here, for example, it has been shown that the concept of 'best proven practice' is important in diffusing practices across competing plants, as are managerial networks of training courses and international meetings of managers (see Coller and Marginson 1998: 13). Circumstances in which management is successful in bringing about diffusion — sometimes via 'coercive comparisons' — have also been analysed. Important factors promoting diffusion (T. Edwards *et al.* 1999: 288 ff.) include whether com-

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petition is international rather than local, and whether the company has grown by building on greenfield sites rather than by acquiring going concerns. A further factor, particularly relevant for the present study, is that if identical production facilities exist in different countries, diffusion is more likely because cross-plant comparisons are easier (Ferner and Edwards 1995: 247). Finally, the way in which labour laws can impede diffusion of labour practices is sometimes discussed, as for example in the case of job enlargement in Spain (Coller 1996: 163), where regulations, the *ordonenza laborale*, have impeded changes in job classification unless workers are paid according to the new grade. A general conclusion from the literature on management procedures is that diffusing employment practices across subsidiaries is difficult but not impossible for a company headquarters[2] — and that legislative barriers are not of prime importance.

Our approach in utilizing internal company personnel record data is better suited for establishing quantitative differences in the outcomes of management labour practices across subsidiaries than for inquiring into management practices as such. Focusing on recruitment and retention, our personnel records supply estimates of differences in work-force pay and skill characteristics. In the standard economics tradition, we treat management as a 'black box', and leave open the detail of management practices for dealing with the differences found among subsidiaries. Nevertheless, our estimates can be used in turn to make general inferences about management recruitment/retention practices. Wide differences in outcomes would suggest that company HQs have either not aimed at or not succeeded in diffusing practices.[3] Moreover, our data come in most cases from comparisons of more or less identical manufacturing plants producing goods for export, so the conditions for a successful diffusion of practices should be supportive. As will be seen, we find quite large differences in outcomes between UK plants and their continental European counterparts, which raises the question of how to explain them. Some possible explanations are developed below.

Our use of personnel records bears similarities to Baker *et al.* (1994), who analyse such data for managerial grades in one large firm. Their study does not have the matched plant comparative element but instead uses a time-series of data from the firm. In using the comparative element, we follow Frenkel (1994) with data on plants of one company in four countries; Coller and Marginson (1998), who compare four workplaces of a food multinational in the UK, Spain and Greece; and T. Edwards *et al.* (1999), who have data on subsidiaries of four multinationals in several countries. Our study is unique in combining both international comparisons and the quantitative personnel record element.

The plan of the paper is as follows. In the next section we discuss measuring and explaining recruitment/retention outcomes in the context of competition between subsidiaries subject to different countries' labour and tax laws. Section 3 describes our dataset, and the nature of the plants involved. In Section 4 we present our main results on differences in worker characteristics between the plants, and the implications for differences in

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recruitment/retention outcomes. The final section summarizes our analysis and findings.

2. Measuring and explaining recruitment/retention outcomes

We are interested in measuring recruitment/retention outcomes, and explaining variations among plants. The recruitment and retention of workers involves many of the traditional personnel administration fields, including selection, training, reward systems, supervision/discipline, worker involvement and union recognition. Under the heading of reward systems we should also include 'working conditions' headings for items such as hours, holidays, pensions, risk of accident and even job security, including the employment of temporary workers and subcontracting. These factors compose the recruitment/retention environment, which we aim to assess, and to contrast among the plant pairs. In turn, they determine who is hired and who remains, and thus the 'type' of worker who does the jobs in the plant. In practical terms, we quantify worker 'type' by using such skill characteristics as education, experience and tenure, identified in personnel records. For each of these characteristics we calculate averages and also distributional statistics such as the proportion of inexperienced workers in the plant's work-force. We thus measure recruitment/retention outcomes by looking at worker skill characteristics in each plant.

An established starting point for explaining a plant's worker skill characteristics — and its recruitment/retention outcomes — is a 'conventional' neoclassical economic model. Such a model is based on competition, which is appropriate in the present context where we are analysing situations where each multinational's subsidiaries have to compete for investment and orders. In the economic model, worker skill characteristics are explained in terms of the plant's product, the wage and non-wage (including tax) costs of the different skill grades, the extent of competition between subsidiaries, employment protection legislation, and idiosyncratic factors such as a plant's history. Let us now take up these threads.

The Product

Starting with the product, product engineering considerations will determine the productivity of high-skilled relative to low-skilled workers, and the complementarity between workers of different skills. Higher-quality products might also require a more skilled worker mix. We aim to eliminate both engineering and product quality considerations with our strategy of comparing plants making the same product within the same multinational.

Wages

The wage element then comes in. Economic theory predicts that a particular mix of high- and low-skill workers will be chosen so as to bring the prod-

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uctivity of high relative to low-skill workers into line with their relative wages. However, the relative wage of unskilled workers might be lower in UK plants than in their continental European counterparts. UK wage differentials are somewhat wider,[4] perhaps because of weakened unions, and lower unemployment benefit and minimum wage 'floors' for unskilled earnings. Lower relative wages for unskilled workers would be a factor predisposing UK plants towards a less skilled worker mix — that is, less educated, less experienced workers, and perhaps more diversity (more dispersed distributions) generally.

Taxes

A further factor predisposing UK plants towards a less skilled worker mix could be lower UK employer social security payroll taxes, which mean lower labour costs in the UK. Admittedly, in a perfect labour market payroll taxes should not have much effect on labour costs in the long run. Reduced employer payroll taxes, for example, might initially cause a decrease in labour costs, but the ensuing decrease in unemployment should drive wages up to compensate for the lower non-wage costs. (For a discussion, see OECD 1994: 240.) In such a market, lower taxes would be offset by increased take-home pay, leaving total labour costs unaffected. However, real-world labour markets are often imperfectly competitive. Workers might be able successfully to resist cuts in their wages when payroll taxes are increased. Among our set of plants, in fact, those with the highest payroll taxes tend to offer the highest wages, as we shall see. Hence, in practice lower UK payroll taxes mean lower UK total labour costs. Lower total labour costs in turn should be accompanied by lower labour productivity, and again a less skilled worker mix.

Competition between Plants

Underlying our predictions about the relation between labour costs, labour productivity and the plant's mix of worker skills is the assumption that competing subsidiaries within a multinational need to have similar unit labour costs. Similar unit costs are what we would expect in long-run equilibrium, because high unit labour cost plants will lag in the competitive race within the multinational. The threat of closure, if this is real, will cause a reform of practices. On this argument, high labour cost subsidiaries need to have high labour productivity in order to bring their unit labour costs into line. One way to increase labour productivity is to recruit and retain more skilled workers. Other ways, for which we do not have good data, include increased worker supervision, or increased amounts of capital per worker. Given that we attempt to hold product quality and technology constant in the comparisons, we would expect to see some link between labour costs and labour productivity in competing plants, and we bring forward evidence on these variables below.

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Employment Protection Legislation

This legislation can affect a plant's skill mix by directly constraining the retention decision. As noted in the introduction, the UK has less strict employment protection legislation than most EU states. In general, we would expect stricter legislation to tilt the skill mix against unskilled labour. This effect can result from employers becoming more cautious and selective in their recruitment owing to the greater difficulty of dismissal (see Scarpetta 1996: 52). In addition, in a competitive market an increase in a non-wage cost such as employment protection needs to be counterbalanced by a fall in the wage if employment is to be preserved. Unskilled workers are at a disadvantage here, since their wages are closer to unemployment benefit and minimum wage floors, and hence are less downwardly flexible than skilled wages.

Trade unions and works councils come into the picture here since they promote the enforcement of legislation (see Cooke and Noble 1998: 591–2). As will be seen, union density tends to be lower in our continental European plants. On the other hand, these plants all have effective statutory works councils, backed up by extended collective agreements. These mechanisms ensure the enforcement of laws, particularly regarding working hours and dismissals (see below). In sum, therefore, the UK's less strict employment protection laws, lower labour taxes and generally lower pay for unskilled workers could all work in the same direction: to recruitment/retention procedures and outcomes that favour less skilled workers.

Idiosyncratic Factors

An important factor is a plant's history. So far in our discussion of the logic of managing recruitment/retention, we have assumed that managers are required by competition to minimize costs. Going further, we have also assumed that recruitment/retention of the right workers is just as important for the cost minimization objective as, for example, the better monitoring and training of the workers that management has 'inherited' through past decisions. Past decisions are significant because work-force tenure is long in the large firms we are analysing. The average uncompleted tenure in our plants is around 15 years. Hence recruitment/retention decisions can have only a slow effect on the composition of the stock of workers. A corollary is that the effects of differences in legislation or taxation between countries will take a long time to manifest themselves in the stock — though they could affect flows.

We can begin to examine a plant's history of recruitment/retention by comparing long-tenure with short-tenure workers, since the short-tenure workers are recent recruits who reflect current practices. For example, if the proportion of workers with little previous experience is lower in the long-tenure than in the short-tenure group, the implication is that there has been a shift towards inexperienced workers in recruitment/retention strategy. (Such a shift is likely, given the general increase in education levels, and given that education and experience appear to be good substitutes — see

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Siebert 1999.) We would expect subsidiaries within the same company to exhibit the same shifts if the company HQ is successfully influencing recruitment/retention outcomes. Alternatively, we might find that UK-based subsidiaries have shifted more towards educated recruits, perhaps converging with their continental European counterparts. We will examine both these possibilities below.

3. The dataset

Our method of selecting the study companies was based on *The Times* listing of the top 500 UK-based companies. Initially 20 companies were investigated that satisfied the criteria of producing the same product in locations in both the UK and the EU, being in manufacturing, and having plants big enough to provide satisfactory samples of production workers. Eventual selection of a company depended upon both central and local management co-operation being obtained for use of the confidential[5] personnel record data. In the end, we secured co-operation from five companies, with plants in Belgium, the Netherlands, France and Germany, as well as the UK. While the sample obtained is not the result of a formal random sampling process, it is random with respect to recruitment/retention outcomes. It must be remembered, however, that all the plants are subsidiaries of multinational private manufacturing companies — so our data might not be representative of outcomes in small firms, in services, or in the public sector.

It is important for our methodology that each pair of plants is matched in the sense that it produces the same product (or narrowly defined product range) by the same technology. We do not have formal measures of technology, for example capital per worker, but we walked the factory floor and observed production. We believe we attained the matching goal well for the Food Processing case, where the product is simply a food spread; Pharmaceuticals I (syrups and tablets); Pharmaceuticals II (plasters and bandages); and Vehicle Manufacture II (three sizes of car engine — the same engines in each plant). However, the goal was less well attained in the case of Vehicle Manufacture I, because the product involved is a whole motor car — the same in each country, though with different badges and drive. We need to bear this possibility in mind when interpreting the results. Nevertheless, in all cases the managers stated to us that the pair of subsidiaries was competing for investment and orders within the multinational.

A factor helping the matching goal is that for four of the multinationals our sample pairs had always been within the company — growth had been organic, on greenfield sites. Only in the case of Pharmaceuticals II had the French member of the pair been acquired as a going concern: 50 per cent had been bought in 1962, and the remainder in 1980. The problem (T. Edwards *et al*. 1999: 289) of management's recruitment/retention choices being constrained by pre-existing practices in an acquired firm can thus be ruled out for four of our pairs.

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The dataset contains both personnel records and overall plant data. In 1994–5 we collected personnel record data from individual folders — not abbreviated computer records — for 2754 production (i.e. hourly paid) workers, plus a further 141 temporary workers. (Workers supplied by agencies are excluded, since the agency keeps their records.) The records include the employee's gender, date of birth, date of recruitment, marital status, job category, grade, employment status (permanent, part-time or temporary), working hours, qualifications and dates of schools attended. We also collected data on individual worker pay, including basic pay, shift premiums, overtime pay, profit-related pay and any other bonuses.

Overall plant data for the period 1992–4 were obtained from the plant's senior human resources director, together with the finance manager where necessary (for the labour productivity and total labour costs calculations). Data included labour turnover — a breakdown of quits, dismissals, redundancies and early retirement — absenteeism, training hours and costs, labour productivity and total labour costs including employer labour taxes and pension contributions. Finally, we obtained more general information for each plant on methods of recruitment and selection, levels of supervision, periods of notice, redundancy compensation and worker participation (for details see Morton 1999).[6]

While our worker dataset is large, the plant sample is not: we are in effect doing case studies, which have advantages and disadvantages. The main advantage is that our knowledge of the plants is more detailed. The main disadvantage is that our conclusions might lack power: because we have only ten plants, we might not find the black swan that proves that not all swans are white — the 'critical case' (P. K. Edwards *et al.* 1994: 9). However, the use of matched international pairs increases the power of the case studies, since it allows us to contrast countries while holding constant the company and the product. In other words, this design increases our chance of seeing whether a given company's UK subsidiary has different recruitment/retention outcomes.

4. Results

We first set the scene with comparisons of the general recruitment/retention environment (Table 1). Next, we assess the extent of competition between plant pairs using our estimates of total labour costs, labour productivity and unit labour costs (Table 2). We then move onto analysis of the personnel record data proper, taking first a cross-section (Table 3), and then changes over time (Table 4).

The Environment

Statistics concerning the working environment of the plants are presented in Table 1. We give information related to working conditions (overtime, absence, quits), dismissals, temporary/agency contracts, and union recognition,

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TABLE 1
The Working Environment in the Study Plants
(Averages generally over 1992–4)

	Food Processing		*Vehicle Manufacture I*		*Vehicle Manufacture II*		*Pharmaceuticals I*		*Pharmaceuticals II*		*Correlation with UK plant (with total labour costs)*[a]
	UK	*Netherlands*	*UK*	*West Germany*	*UK*	*France*	*UK*	*Belgium*	*UK*	*France*	
Study plant employment	400	200	3200	17000	1560	3200	860	300	800	340	
Union density (%)	100	40	99	90	97	20	88	90	75	0	
Overtime (hours p.a.)	282	63	85	22	235	7	189	38	169	0	0.870*** (−0.501*)
Quit rate (% p.a.)	0.5	0	1.1	0.4	1.1	1.0	1.5	0.3	1.8	1.7	0.524* (−0.769***)
Dismissal rate (% p.a.)	0.3	0	0.3	0.4	0.8	0.3	0.6	0.2	0.6	0.3	0.613** (−0.437*)
Absence rate (%)	4.3	5.9	4.6	10.2	7.1	7.2	3.5	12.2	4.0	8.1	−0.803*** (0.763***)
Percentage temporary/agency	13	0	0	0	0	15	0	9	6	35	−0.184 (0.127)

Notes

[a] The top figure gives the rank correlation between the variable and a dummy variable = 1 for UK plant, 0 otherwise. ***, **, and * denote significance at the 1, 5 and 10 per cent levels. The significance of this correlation is the same as that for a test of the difference in the average ranks of UK and non-UK plants. The bracketed figures give the correlation between the variable and total labour costs (listed in Table 2). Thus, the first correlation, 0.870, shows that overtime hours worked on average rank higher in the UK plants, and this is significant at the 1 per cent level. The bracketed figure below, −0.501, shows there is a negative correlation between a plant's total labour costs and its overtime worked, significant at the 10 per cent level.

in line with our earlier argument that factors such as these help determine recruitment/retention. All the plants are shown separately so as not to force the plants into any prejudged groupings. However, we provide a basic framework for analysis in the form of two correlations, shown in the last column. These correlations are taken only across the ten plants, so they cannot be conclusive; we offer them as starting points for debate.

The first correlation we present is the rank correlation between the variables and a dummy variable = 1 for UK plant, 0 otherwise.[7] Thus, in the *overtime* row, since UK plants systematically work more overtime than their continental European counterparts, the correlation is high: 0.870. A simple explanation for this high correlation is that it reflects the impact of legislation restricting hours. Such legislation restricts the plants in France and Belgium particularly, which at this time had annual maxima of 130 and 260 overtime hours (Grubb and Wells 1993: annex 3). In addition, overtime working is within the remit of the works council in the German plant, which opposes the practice of overtime. (The extension of the Working Time Directive to the UK will not equalize the situation much, since continental European working time laws are generally stricter than the Directive.)

The second correlation (in brackets) is with total labour costs. High total labour costs go with good working conditions and high labour productivity, which might help explain certain aspects of the recruitment/retention environment. Since UK plants tend also to be low-labour-cost plants (Table 2), the labour costs correlation tends to be opposite in sign to the correlation with the UK plant dummy. However, the two correlations need not be the same magnitude. In the case of overtime, the correlation with labour costs is −0.501, lower than its correlation with the UK plant dummy. This difference would be consistent with the overtime pattern across plants being more legislatively than economically determined.

A different case is shown for the *quit rate* variable. Quit rates are closely negatively linked to total labour costs, −0.769. This link can be simply attributed to the fact that high-labour-cost plants have good pay and benefits, and so can more easily retain their workers. Legislation appears to be less important here, as is shown by the lower correlation with the UK plant dummy, 0.524. The weaker link here is also plausible, since no labour legislation directly restricts quit rates.

Turning next to the *dismissal rate*, this is quite well associated with the UK plant dummy, 0.613. Such an association is to be expected, since employment protection legislation is stricter for continental European than for UK plants. In all of our continental European plants the works councils have the statutory power to contest dismissals, and do so. Moreover, in France and the Netherlands during this period, government authorization for dismissal was required. Admittedly, a negative correlation between the dismissal rate and total labour costs might also be expected on the grounds that workers shirk less in high-labour-cost plants so as to avoid risking dismissal. Such a correlation exists, −0.437, but it is weak, indicating the greater force of legislative factors.

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As for the *absence rate*, this too is well correlated with the UK plant dummy, −0.803, again indicating the importance of legislative factors. In our UK plants, sick pay arrangements typically take the Statutory Sick Pay level as their basis, in contrast to their continental European counterparts, which provide for higher payments (Morton 1999: 329 ff.).[8] Admittedly, absenteeism is sometimes interpreted as an indicator of dissatisfaction (e.g. Frenkel 1994: 254). The difficulty with this argument is the good correlation between absenteeism and total labour costs, 0.763, suggesting that workers are less satisfied in the high-labour-cost plants, which is hard to explain. It is easier to accept that it is differences in the law — the less generous UK sick pay arrangements coupled with less strict UK employment protection laws — that drive the absence pattern.

Finally, there is the *percentage temporary/agency* variable giving the proportion of the plant's work-force recruited on fixed-term contracts or via a temporary work agency. The proportion is particularly high in the French Pharmaceuticals II plant, at 35 per cent (most of these via an employment agency). The correlation between this variable and the UK plant dummy is low, −0.184, which speaks against the argument that, outside the UK, temporary/agency workers are recruited as an 'escape route' to avoid employment protection legislation covering permanent workers.[9]

In general, Table 1 shows wide differences in working conditions between plant pairs, holding company constant. UK plants are different from their continental European counterparts, as indicated by the generally high correlations between the variables and the UK plant dummy. The evidence here is that the sister plants have different recruitment/retention environments. Life is harder in the UK plants, and the weaker UK labour legislation probably has a role to play in maintaining this difference.

Pay, Labour Productivity and Unit Labour Costs

Our estimates for these variables are given in Table 2. A caveat is necessary to begin with. The calculations involve the use of market exchange rates to convert monetary values to comparable amounts in sterling. They also require that all major non-wage, deferred wage (e.g. pensions and medical insurance) and tax items be added to pay, so as to derive a correct estimate of total labour costs. Furthermore, for labour productivity to be comparable across plants, it is necessary that the same product — or narrow range of products — be made. As noted already, we are reasonably sure of comparability except in the case of Vehicles I. Nevertheless, the problems of comparison need to be kept in mind.

As can be seen (third row), *total labour costs* tend to be lower in the UK plants; the correlation with the UK plant dummy is −0.662. The UK plants' labour costs are lower partly because of low UK wages (there is no evidence of higher costs being offset by lower wages), and partly because of low UK labour taxes. An extreme example of the tax point is the case of the Belgian plant where labour taxes equal 40 per cent of the average wage. As we

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TABLE 2
Pay, Labour Productivity and Unit Labour Costs by Plant
(Averages generally over the period 1991–5)

	Food Processing		*Vehicle Manufacture I*		*Vehicle Manufacture II*		*Pharmaceuticals I*		*Pharmaceuticals II*		*Correlation with UK plant (with total labour costs)*[a]
	UK	*Netherlands*	*UK*	*West Germany*	*UK*	*France*	*UK*	*Belgium*	*UK*	*France*	
Productivity per production worker[b]	807 tons	734	35 vehicles	27	316 engines	393	£116 ('000 sales)	£220	£92 ('000 sales)	£125	–[a]
Annual pay, sterling (£000)[c]	22.9	23.6	21.2	28.1	23.1	20.2	17.6	30.6	15.7	16.3	−0.383 (0.929***)
Total labour costs[d] (£000)	26.3	31.4	25.6	43.8	26.8	29.9	19.5	44.8	17.1	24.1	−0.662** (1.00)
Unit labour costs	£33/ ton	43	£732/ vehicle	£1620	£85/ engine	£76	£169/ £000 sales	£206	£185/ £000 sales	£192	–[a]
Difference in unit labour costs (% of company average)	25		75		−11		19		−4		

Notes
[a] See Table 1. Figures are not given for the productivity and labour cost variables, since the units here are not comparable across plants.
[b] Labour productivity is measured as annual production, as given from the company accounts, divided by the annual average number of production workers (excluding managerial and administrative workers).
[c] Pay figures are converted to sterling using average market exchange rates prevailing in each year.
[d] Total labour costs include wages plus non-wage costs, including holidays and pensions, plus employer expenditures for social security, insurance, unemployment and disability programmes.

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argued above, the tendency for higher continental European total labour costs should shift recruitment/retention outcomes in the direction of more skilled, more productive workers in these plants. However, this argument assumes that there is competition between subsidiaries. We now test this proposition by comparing unit labour costs between subsidiaries.

We measure *unit labour costs* (fourth row) as total labour costs divided by labour productivity.[10] As can be seen, unit labour costs tend to differ across pairs. While the difference is small in Pharmaceuticals II, at 4 per cent of the average of the pairs' unit labour costs, it is large in Vehicles I, at 75 per cent, and ranges between 11 and 25 per cent in the other three cases.

Some difference in unit labour costs within a pair is to be expected, owing to the difficulties of measurement. What is needed is a benchmark for an 'acceptable' difference, given measurement error. We are most certain about comparability of product in the case of the Food Processing pair, both of which have the same machines producing the same brand of food spread. Taking the Food Processing pair's difference, 25 per cent, as a benchmark would rule in four pairs as having an acceptable difference within the bounds of acceptable measurement error. Vehicle Manufacturer I would remain as an outlier, but we have already noted the difficulty of making a labour productivity comparison for this pair. Readers might legitimately ask whether a 25 per cent margin of error is not too large. Given the measurement difficulties, particularly regarding the choice of exchange rate, we are inclined to think not. Nevertheless, our results cannot be said to provide evidence of strong competitive pressures between subsidiaries.

Production Worker Characteristics

We now go on to analyse the personnel records. The questions are whether recruitment/retention outcomes are similar across pairs, or, alternatively, whether the UK's less strict employment protection laws, lower taxes and generally lower pay for unskilled workers shift outcomes towards a less skilled worker mix.

Table 3 presents the plants' distributions of four worker skill characteristics: schooling, age, tenure and previous experience. For simplicity of presentation, since most of the plants do not have many temporary workers, we exclude such workers in the tables. (Their inclusion in this case makes little difference.) Given the small numbers of women in the production work-force, we also do not make a gender distinction. The last column presents cross-plant correlations, both for a UK plant dummy and for total labour costs, as before.

Considering the years of *schooling* distributions first, we give the average and the size of the lower tail — the percentage with less than ten years' schooling. The lower tail is relevant for testing propositions about the recruitment/retention of the less skilled. A striking feature of the distributions is the low average level of schooling in the German plant, 9.3 years, and the large lower tail — 96.4 per cent of workers with less than ten years of schooling. This feature is due to the German dual-education system, in

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TABLE 3
Production Worker Characteristics: All Workers
(Samples taken 1994–5)

Characteristic	*Food Processing*		*Vehicle Manufacture I*		*Vehicle Manufacture II*		*Pharmaceuticals I*		*Pharmaceuticals II*		*Correlation with UK plant (with total labour costs)*[a]
	UK	*Netherlands*	*UK*	*West Germany*	*UK*	*France*	*UK*	*Belgium*	*UK*	*France*	
Schooling											
Average no. of years	10.7	10.7	10.5	9.3	10.3	12.0	10.6	10.0	10.3	11.4	−0.140 (−0.443*)
% < 10 yrs	30.4	26.4	10.8	96.4	40.0	0	12.9	54.5	39.3	0	0.035 (0.656**)
Age											
Average age (years)	40.5	40.0	40.6	40.1	43.8	39.1	43.0	43.0	41.2	40.9	0.489* (−0.079)
% < 25	12.5	0	7.3	12.3	8.9	4.4	11.4	0.4	7.3	2.9	0.594** (−0.235)
% > 55	12.0	2.4	13.4	11.4	18.4	3.9	21.9	6.7	13.1	5.3	0.870*** (−0.416)
Tenure											
Average no. of yrs	13.6	15.6	13.5	14.6	17.0	14.7	12.5	15.0	15.0	16.7	−0.313 (−0.007)
% ⩽ 10 yrs	42.3	21.7	41.4	39.6	36.1	35.9	55.1	32.0	30.7	19.3	0.592** (−0.137)
Previous experience											
Average no. of yrs	11.3	8.6	11.6	11.3	11.5	7.4	14.9	14.6	10.9	7.8	0.489* (0.135)
% ⩽ 2 yrs	16.3	14.2	16.2	10.9	19.2	7.8	9.3	2.0	25.7	24.1	0.453* (−0.675**)

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Coefficient of variation of pay[b] (%)	7.6	8.5	9.4	17.1	4.0	15.8	23.0	27.5	21.7	13.5	−0.244 (0.205)
F-test for equal earnings coefficients across plants[c]	0.79		10.1***		13.5***		36.6***		2.4*		
Sample size[d]	184 (208)	125	232	220	260	206 (260)	861	253 (305)	206 (217)	207	

Notes

[a] See Table 1.

[b] This figure is calculated from the standard deviation of the pay distribution of the workers in the sample, divided by average pay. The figure given is for permanent workers only, and it rises slightly, from 1 to 5 percentage points, if temporary workers are included.

[c] The *F*-values test whether the hypothesis that a common earnings equation for the pair of plants is rejected. The equation regresses log pay on schooling, experience and its square, tenure, and dummies for gender, marital status, part-time, temporary and guest worker.

[d] Bracketed terms include temporary workers. The distributions given in the table exclude temporary and agency workers — see text.

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which the vocational stream followed by production workers entails an early move out of school and into an apprenticeship. Belgium has a similar dual system shortening the schooling period. By contrast, workers in the two French plants pursue their schooling for longer (few workers have less than 11 years' schooling). Such differences in national education systems dominate the plants' schooling distributions, so correlation between the size of the lower tail and the UK plant dummy is almost zero, 0.035. (The correlation with total labour costs is positive, 0.656, because of the omission of apprenticeship.) Differences in national education systems thus clearly put a limit on the extent to which subsidiaries in different countries can adopt similar recruitment/retention practices.

Turning next to *age*, we present both the lower (under-25) and upper (over-55) tails of the distribution. Both extremes represent a group more subject to exclusion compared with 'prime age' workers. For both these groups, there is a correlation with the UK plant dummy: 0.594 for the under-25s, and 0.870 for the over-55s. In other words, the UK plants are more likely than their continental European counterparts to recruit/retain non-prime-age workers, particularly older workers. In this respect, our plants reflect their wider societies. In the mid-1990s in France or Germany, for example, labour-force participation of men over 55 was only about 40 per cent compared with the UK's 60 per cent (OECD 1999: table C); for the under-25s, corresponding figures are 35 per cent for France, 55 per cent for Germany and 75 per cent for the UK.

Taking the over-55 category, in continental European plants several legal factors tend to pull older workers into retirement, and also — by raising their costs relative to their productivity — to push them out of work. On the pull side, there are the more generous continental European pension and disability schemes. On the push side, factors such as early retirement schemes part-paid by the state, and paid holidays linked to age, as in the Netherlands, (Morton 1999: 307, 364) tend to make management less willing to retain older workers. The fact that these push and pull factors are weaker in the UK is shown by the strong correlation with the UK plant dummy. In sum, differences among countries in the laws affecting older workers, such as pensions and disability, are likely to be an obstacle to common recruitment/retention outcomes across subsidiaries.

As for the under-25s, differences in recruitment/retention for this group across our plants might be thought to be dominated by differences in national schooling systems, as in the case of the education variable. However, few of the under-25s in these plants are close to the school-leaving age. (For example, only 3 per cent of the work-force in the UK food processing plant is under 21, and the percentage is even smaller in the other plants.) The greater proportions of young workers employed in the UK plants, therefore, should represent a real management choice. In this respect, the UK appears to have a less skilled worker mix, as predicted by the conventional economic model.

Next, *tenure*: the interesting point here is the more dispersed tenure distributions in the UK plants. There is no consistent pattern to average

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tenure, but there is a pattern for the lower tails as represented by the proportion with tenure of under ten years. This proportion is higher in the UK plants, and gives a significant correlation with the UK plant dummy, 0.592. The shorter tenures in the UK plants imply higher turnover, consistent with the higher UK quit and dismissals rates reported in Table 1. The same arguments relating to UK recruitment/retention practices apply here: less attractive wages and working conditions coupled with weaker employment protection legislation point to higher turnover.

Again, there is higher dispersion in the UK plants' *previous experience* distribution, as shown by a higher proportion of the work-force with two years or less of experience. Correlation of this proportion with the UK plant dummy is significant, 0.453, and quite strong, −0.675, with total labour costs. Average experience also tends to be higher in the UK plants (correlation 0.489); hence these plants must be recruiting both inexperienced and experienced workers. It is the inexperienced end that interests us at this point, however. The higher proportions of inexperienced workers in our UK plants imply that UK managers are less cautious and selective in recruitment, in line with our finding above of higher proportions of the under-25s.

The final variable analysed in Table 3 is *pay*. We present the coefficient of variation, which is a measure of the dispersion of a plant's pay distribution. Dispersion in the pay distribution depends both on the plant's underlying dispersion of worker skill characteristics, and on the way in which the plant rewards these characteristics, that is, its earnings function. We conducted an *F*-test to measure similarity in earnings functions between plant pairs.[11] We would expect the UK plants to have more dispersed pay distributions, given their more heterogeneous work-forces, but if anything it is the other way around. UK plants have rather 'flat' pay systems. The UK plant for Vehicle Manufacture II is a case in point. Despite the heterogeneity of the UK plant's work-force compared with its French counterpart, the UK plant ends up with a small coefficient of variation of 4.0 per cent, compared with the French plant's 15.8 per cent. In general, Table 3 shows that there is little similarity in plant pairs' coefficients of variation of pay, or in their earnings functions, apart from the Food Processing pair. These results suggest that local managers are not constrained by head office policy with regard to pay systems.

Time Trends

As we noted earlier, recruitment/retention outcomes may be changing over time, but our analysis of the stock of workers would not reflect such changes. A way of approaching this issue is to contrast recent recruits — with tenure under ten years — with not-so-recent recruits, since recent recruits reflect current recruitment/retention outcomes better than the full sample. (The ten-year cut-off point is the minimum necessary to give large enough numbers in cells for all plants when analysing the proportion of inexperienced workers variable.) Table 4 presents some results from the approach.

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TABLE 4
Time Trends: Short-Tenure Workers Contrasted with Long-Tenure Workers
(Samples taken 1994–5)

Characteristic	*Food Processing*		*Vehicle Manufacture I*		*Vehicle Manufacture II*		*Pharmaceuticals I*		*Pharmaceuticals II*		*Correlation with UK plant (with total labour costs)*[a]
	UK	*Netherlands*	*UK*	*West Germany*	*UK*	*France*	*UK*	*Belgium*	*UK*	*France*	
Schooling: % ⩽ 9 yrs											
Tenure < 10 years	5.1	3.7	0	94.2	7.5	0	2.7	35.8	12.7	0	−0.035 (0.731***)
Tenure > 10 years	49.1	32.6	18.4	97.7	58.4	0	25.8	63.4	51.1	0	−0.034 (0.553*)
Diff. (*D*)	−44.0	−29.0	−18.4	−3.5	−50.9	0	−23.1	−27.6	−38.4	0	−0.594** (0.264)
Diff. in diffs. (*DD*)	−15.0		−14.9***		−50.9***		4.5		−38.4***		
Age: % < 25 yrs *D*	6.9	0.0	15.6	19.5	17.0	8.1	10.2	0.0	1.4	−1.8	0.384 (0.143)
Age: % > 55 yrs *D*	1.5	−3.1	−15.7	−18.8	−25.6	−6.1	−33.5	−4.5	−5.2	−3.5	−0.313 (0.141)
Previous experience: % ⩽ 2 yrs *D*	9.5	−14.3	0.5	6.6	8.2	2.6	5.4	0.8	4.1	−20.6	0.522* (0.042)

Notes
[a] As in Table 1, these are rank correlations between the variables and dummy variable = 1 for UK plant, 0 otherwise. The bracketed figure is the correlation with total labour costs. ***, **, * denote significance at the 1, 5 and 10 per cent levels.

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Starting with the *schooling* variable, we calculate the difference in the proportion with under ten years' schooling for recent and not-so-recent recruits. The difference is labelled '*D*' in the table, and gives a picture of the trend for each plant. As can be seen, in all plants the trend has been to recruit/retain more educated workers. This trend is shown by the negative, or at least zero,[12] values of *D*. The trend towards more education parallels that found in industrialized economies in general, and is to be expected, given such factors as the rise in the school-leaving age, and skill-using technical progress.

It is also possible to test for differences between subsidiaries by calculating a 'difference in differences' (*DD*) value. The *DD* value can be interpreted as a test of whether subsidiaries face a common company recruitment/retention standard. For two of the companies, Food Processing and Pharmaceuticals I, the *DD* value is insignificant — perhaps reflecting a common company education standard — but for the other three it is significant. Interestingly, in four companies *DD* is negative, indicating more of a swing towards educated recruits in the UK plants than in their counterparts. (This swing is also shown by the significant correlation between *D* and the UK plant dummy, -0.594.)

As for previous experience, since recruits' education and previous experience appear to be substitutes (Siebert 1999: 40), we would expect the shift towards more educated recruits to be associated with a shift towards recruits with less previous experience. Such an association is indeed found. The *D* values for the previous experience variable, in the bottom row of Table 4, are positive for most plants. Moreover, the *D* values are larger for the UK plants, as shown by the significant correlation with the UK dummy, 0.522 (though formal tests of *DD* are generally insignificant[13]). This is appropriate, since it is the UK plants that have experienced more of a shift towards more educated workers.

Interesting patterns are also apparent in the two age variables. Taking the *D* row for the percentage-under-25 variable first, the recent recruit is more likely to be under 25 than the not-so-recent. Hence we would expect *D* to be positive for all plants — as we find. We might also expect *D* to be higher for the UK plants, consistent with their greater shift to more educated, inexperienced recruits, who tend to be younger. However, as can be seen, the correlation with the UK plant dummy is low, 0.384, so this possibility is not borne out.

As for the percentage-over-55 variable, the recent recruit is less likely to be over 55 than the not-so-recent recruit (the reverse of the under-25s variable). Hence *D* should be negative for all plants, as we find. The *D* row for over-55s also correlates quite well with the *D* row for under-25s, indicating that plants that have moved in favour of younger workers have substituted them for older workers.[14] Importantly, the *D* value is not more negative for the UK plants: the correlation with the UK plant dummy is insignificant, -0.313. Thus, the implication here is that the UK plants' relatively healthy position regarding the employment of older workers has not been eroded over time.

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5. Summary and conclusions

Let us summarize our findings. Starting with the working environment, we found that, relative to our continental European plants, the UK plants had more overtime, more quits, more dismissals, lower absence and lower wages (Tables 1 and 2). Many of these differences could be linked to the UK's weaker employment protection laws and lower total labour costs, as predicted by the conventional economic model.

Our findings using personnel records (Table 3) largely conformed to this picture. Recruitment/retention outcomes for production workers differed across company subsidiaries. This finding is consistent with Marginson *et al.* (1988: 95) who find that recruitment of manual workers is generally a local decision. It shows that diffusion of employment practices across borders will not necessarily occur even when, as in our case, the product is not differentiated (see T. Edwards *et al.* 1999: 295). In particular, we found the UK plant typically to have a lower representation of 'prime-age' workers, and also to have more inexperienced workers than its continental European counterpart. These are less skilled categories, and their relatively high representation in the UK plants implies a less skilled worker mix, in line with the conventional economic model.

On the other hand, when we subjected it to a direct test using our measures of labour productivity in each plant, the conventional economic model did not find much support. Admittedly, the test of whether unit labour costs are equalized across competing plants is difficult to implement because of measurement problems. In particular, it is difficult to choose appropriate exchange rates, and to assess like against like when constructing the labour productivity measure. Nevertheless, the model did not perform well on the test: we found large differences in unit labour costs for some plant pairs (Table 2). This finding is in line with the literature on the difficulty of 'managing across borders' (P. K. Edwards *et al.* 1996: 21).

As for changes in recruitment/retention outcomes over time, it seems that there is a movement towards more educated workers in all plants, but particularly UK plants. In this respect, UK subsidiaries' recruitment/retention outcomes are converging on their continental European counterparts. At the same time, a movement is occurring towards inexperienced recruits in all plants, which we take simply to reflect the fact that experience and education are substitutes. Appropriately, the movement in the UK subsidiaries appears to be greater. However, there is no pattern of changes in the worker age distribution among the plants. In particular, the UK subsidiaries retain age distributions that are healthily dispersed when compared with their continental European counterparts.

In conclusion, our personnel record data indicate that local managers possess quite wide freedom regarding recruitment/retention outcomes. There is also an important pattern to the differences that we find: UK subsidiaries tend to have work-forces with less experience, shorter tenure and fewer prime-age workers than their matched continental European counterparts.

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Furthermore, the working environment in the UK subsidiaries tends to be of the 'hire and fire' variety. It is tempting to explain this pattern in terms of the UK's generally lower total labour costs and less regulated labour market, in line with the conventional economic model. Admittedly, there are problems with this explanation, since the differences in unit labour costs that we find between matched subsidiaries do not suggest strong competition. Be that as it may, our results suggest that there are different ways of producing the same thing, and that unit labour costs are not all-important to a multinational's HQ. Labour market regulation is accordingly made easier, since regulators need not be so worried about the cost impact of their decisions.

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Notes

1. A time series approach would be preferable to establish any causal links between legislation and insider power, but brings its own problems since important data such as labour costs are not available consistently over time (for an example, see, Siebert 1999). However, one of our analyses (Table 4) incorporates a time dimension.
2. Even, indeed, when subsidiaries are all within one country, the HQ spends considerable effort on monitoring their employment practices: 'overall the extent of head office involvement in non-strategic [industrial relations] matters was considerably more than the literature had led us to expect' (Marginson *et al.* 1988: 260).
3. As one of our referees has stressed, outcomes are not the same as practices. Practices (e.g. interviewing techniques) might be diffused among subsidiaries even when recruitment/retention outcomes such as employee skill profiles differ. Our contribution is the evidence on outcomes, and it is necessary to be cautious when making inferences about practices based on such evidence.
4. The UK male earnings dispersion widened more in the 1980s than did that for Germany and France, for example. However, by 1990 the UK's dispersion was still less than the French — though higher than the German (Addison and Siebert 1997: table 10.5).
5. We are therefore unable to disclose precise information on industry or location.

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6. The managers who gave us this information generally spoke English well. Where there was doubt over terms, for example with respect to components of labour costs, we used worked examples to ensure understanding. The personnel files needed little translation, and were detailed, so we were able in particular to calculate years of schooling simply from the information on school attendance dates.
7. As a correlation, this figure is independent of units of measurement, which is useful. Its significance is the same as that for a test of the difference between the average of ranks for UK and non-UK plants. In practice, for our data there is generally little difference between the rank correlation and the usual product–moment correlation.
8. A comparison between the UK and Belgian subsidiaries of Pharmaceuticals I illustrates the comparatively low levels of UK sick pay (Morton, 1999: 333–4). In the UK plant, for the first 13 weeks of any sick leave, workers received full pay, but then they got only statutory sick pay (SSP) — about £50 a week at this time — for the remaining weeks, up to the statutory maximum of 28 weeks. The plant was able to claim back SSP from the state, but not to claim on supplements to SSP. (The system has since changed, and large companies are not eligible for any payments.) In the Belgian plant there was a mandatory sick pay insurance scheme funded by the firm. Workers with five years or more tenure were legally entitled to six months' sick leave payable at 85 per cent of usual pay, then unlimited sick leave (up to age 65), payable at 60 per cent.
9. The OECD (1999: table 2.7), in a cross-country study, also finds that employment protection legislation does not correlate with temporary employment, though it does correlate positively with youth temporary employment.
10. Unit labour costs (ULC) are total labour costs per unit of output; that is,
$$ULC = W \cdot L/Q = W/(Q/L),$$
where W = total labour costs, L = labour, Q = output, and Q/L is output per worker or labour productivity.
11. We use the standard earnings function, regressing log pay on years of schooling, experience and its square, tenure, and dummies for gender, marital status, part-time, temporary and guest-worker as appropriate. A further set of earnings functions comparisons is possible: we can test whether there is similarity between the continental European plants, taken together, and the UK plants, taken together. The F-tests always rejected such groupings.
12. $D = 0$ for the French plants because the less-than-ten years' schooling cut-off is low given the French education system. Taking 11 years' schooling as the cut-off, the proportion of workers with under 11 years of schooling is 15 per cent (46) for those with less (more) than ten years tenure in the French Vehicle Manufacture I plant, and 60 per cent (75) for the Pharmaceuticals plants. Thus there has also been a shift towards more educated workers in the French plants.
13. Full results are available from the authors.
14. For reference, correlations between the D rows for the variables are as follows:

	Schooling $\leqslant 9$ years	Age < 25 years	Age > 55 years
Age < 25 years	0.006		
Age < 55 years	0.048	-0.686**	
Experience $< = 2$ years	-0.427	0.632**	-0.394

For example, when recruits' education increases (a decrease in schooling $\leqslant 9$ years), their previous experience tends to decline (an increase in experience $\leqslant 2$ years), so $r = -0.427$.

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