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Working Paper

Labour market regulation and foreign direct investment: US multinationals in Germany and the UK

IAAEG Discussion Paper Series, No. 2002/04

Provided in Cooperation with:

Institute for Labor Law and Relations in the European Union (IAAEU), University of Trier

Suggested Citation: Pull, Kerstin (2002) : Labour market regulation and foreign direct investment: US multinationals in Germany and the UK, IAAEG Discussion Paper Series, No. 2002/04, University of Trier, Institute for Labour Law and Industrial Relations in the European Union (IAAEU), Trier

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Institute of Labour Law and
Industrial Relations in the European
Community
(IAAEG)

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US multinationals in Germany and the
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No. 2002/04

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Abstract

At a time of intensifying uncertainty, managerial flexibility to adapt to changes in the economic environment is increasingly important. Different business locations, it is frequently argued, offer this flexibility to differing degrees, and labour market regulations are held to be one essential factor in determining the resulting attractiveness of a country as a business location. This paper takes an options perspective in order to grasp the potential effect of labour market regulations on location decisions. The option value of an investment, it is argued, is influenced, among other factors, by labour market regulations. Depending on their preference for certain options, different investors will prefer different labour market settings. The ability of the options perspective to assess the role of labour market regulations for the attractiveness of international business locations is exemplified by a British-German comparison and then confronted with secondary data as well as with a unique data set derived from a survey of US multinationals in the UK and Germany.

Keywords: labour market regulation, location decision, option value of flexibility

JEL-Classification: F23, J53

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Labour Market Regulation and Foreign Direct Investment: US-Multinationals in Germany and the UK¹

Kerstin Pull²

At a time of intensifying uncertainty, managerial flexibility to adapt to changes in the economic environment is increasingly important. Different business locations, it is frequently argued, offer this flexibility to differing degrees, and labour market regulations are held to be one essential factor in determining the resulting attractiveness of a country as a business location. This paper takes an options perspective in order to grasp the potential effect of labour market regulations on location decisions. The option value of an investment, it is argued, is influenced, among other factors, by labour market regulations. Depending on their preference for certain options, different investors will prefer different labour market settings. The ability of the options perspective to assess the role of labour market regulations for the attractiveness of international business locations is exemplified by a British-German comparison and then confronted with secondary data as well as with a unique data set derived from a survey of US multinationals in the UK and Germany.

1. Introduction

At a time of increasing uncertainty, managerial flexibility to adapt to changes in the economic environment is held to become more and more important. Different business locations, it is frequently argued, offer this flexibility to differing degrees, labour market regulations being one essential factor in determining the resulting attractiveness of a country as a business location.

Theoretically, labour market regulations are often viewed as cost factors reducing the profitability of investments and leading to relocations to less regulated countries. Haucap, Wey and Barmbold (1997), however, argue that producing in a comparatively restrictive labour market environment may also represent a signal for high productivity. Consequently, investments aiming at the production of high quality products will rather take place in countries with restrictive, “expensive” labour market regulations. Referring to Vernon’s theory of the product life cycle, Saint-Paul (1997, p. 500) conjectures that countries with restrictive employment protection laws will attract the production of “goods with a relatively stable demand, at a late stage of their product life cycle”. Following these considerations, different labour market regulations will attract different types of investors.

¹ I am grateful to Martin Schneider for his helpful comments on this paper. Financial support by the German National Science Foundation DFG is also gratefully acknowledged.

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Empirical studies, however, focus on the potential impact of labour market regulations on foreign direct investment inflows as a whole and do not distinguish between different types of investors. Not surprisingly, the evidence then is mixed: Cooke (1997) measures a significant negative effect of restrictive employment protection laws, high union penetration, and centralised collective bargaining procedures on US-foreign direct investment in 19 OECD-countries in 1989. According to the same study, the legal requirement to install a works council *ceteris paribus* increases US-foreign direct investment. In search for strategies of “regime shopping”, Traxler and Woitech (2000: 149) analyse the influence of labour market regimes on (again) US-foreign direct investment in 14 western European countries between 1981 and 1992 and conclude, “the observed effects of labour market regimes lack any form of coherence”. Holmes (1998) studies firm location decisions within the USA and measures a significant positive effect of state-level right-to-work laws banning union shops on firm location decisions. Hence, there is empirical evidence on the potential impact of labour market regulation on location decisions, but it is not clear exactly which regulations have an impact, in what direction they influence foreign direct investment, and if they affect different types of investors in different ways.

This paper takes an option perspective in order to grasp the potential effect of labour market regulations on location decisions and to derive hypotheses on the attractiveness of different legal environments for different types of investors. Whereas traditional investment theory focuses on the net present value of an investment project, the theory of real options emphasises the importance of options that are created or destroyed whenever an investment is made. Although of increasing influence in investment theory, the concept of real options has not yet entered the debate on the competitiveness of countries as business locations. This is despite the fact that some papers in the options literature have explicitly applied the real options concept on international investment decisions: Kogut and Kulatilaka (1994), e.g., argue that the option to be able to switch production between several countries according to changing market conditions may be one central motive for the formation of multinational enterprises. Moretto and Valbonesi (1999) –much in line with this paper – assume that the option value of a foreign direct investment may be influenced, among other things, by legal regulations; but they focus on capital market regulations, rather than on labour market regulations.

In what follows, the potential impact of labour market regulations on international location decisions will be assessed from an options perspective. The implications of options theory for the research question will then be exemplified in the context of a German-British comparison. This comparison is chosen, *first*, because of the apparent different success of the two countries in attracting international investors. While in 1998 foreign direct investment inflows in Germany were about 21 billion US-\$, foreign direct investment inflows in the UK were about three times as high and amounted to more than 64 billion US-\$ (OECD, 2000, p. 24). *Second*, labour market regulations differ markedly between the two

countries and may account for their divergent performance in attracting foreign direct investment. While the “unattractiveness” of Germany as a business location is regularly attributed to the alleged over-regulation and rigidity of the German labour market, the UK’s comparative success in attracting international investors is regularly seen as evidence for the superiority of a largely deregulated labour market.

2. The Options Perspective

Whereas traditional investment theory focuses on the net present value of an investment project, the theory of real options emphasises the importance of options that are created or destroyed whenever an investment is undertaken (for a more thorough comparative assessment see Teisberg, 1995). These options, it is argued, should be taken into account when deciding on an investment project. They are the result of managerial flexibility to adapt to future changes in the economic environment: As uncertainty over future cash flows is gradually resolved, management may decide to defer, expand, contract, abandon, or alter an investment project. This flexibility to adapt and revise future decisions introduces an asymmetry in the probability distribution of the net present value of a project: It improves its upside potential while limiting downside losses. The asymmetry results in an expanded net present value rule that reflects both the traditional net present value of a project and “the option premium capturing the value of operating and strategic options under active management” (Trigeorgis, 1999, p.124):

$$NPV_{expanded} = NPV_{traditional} + option\ premium \geq 0$$

In spite of its essentially normative character, real options theory also represents a powerful tool for positive analysis: Judged by their investment behaviour, “many managers seem to understand already that there is something wrong with the simple NPV rule” (Dixit and Pindyck, 1995, p. 107) and apparently at least behave *as if* they took into account the option value of an investment project. In what follows, different types of options that are influenced by labour market regulations will be discussed: the option to alter operating scale and the option to switch use or to abandon for salvage value.

2.1 The Option to Alter Operating Scale: Working Time Flexibility and Employment Protection

Having invested in a project in $t=0$, management may decide to alter the operating scale of its investment in $t=1$ by expanding or contracting. However, management only has the *option* to do so: if conditions turn out to be unfavourable for an expansion or contraction, it can simply stick to the original operating scale – whichever turns out to be more profitable.

In case of *expansion*, management has the choice between the project value V and an increased project value αV ($\alpha > 1$) available at an additional cost I_E . If $\alpha V - I_E > V$, management will expand, otherwise it will not. In case of *contraction*, management has the choice between the project value V and a reduced project value βV ($\beta < 1$) saving costs I_C . If $\beta V + I_C > V$, the firm will contract, otherwise not. Both options, to expand or to contract, are valuable because they increase the upside potential of the original project without increasing potential losses.

Expansion costs I_E and contraction savings I_C are both influenced by labour market regulations: In order to be able to *expand* production, management does not only have to invest in additional physical capital; additional (and appropriately skilled) employees and/or longer working hours are needed as well. Both the ability to hire additional workers and the costs of expanding working hours are a function of labour market conditions and regulations. Labour market regulations that raise the costs of expansion I_E increase the attractiveness of sticking to the original scale of the project; low expansion costs I_E render the expansion opportunity more favourable. Firms that find themselves in a regulatory environment providing for rather low expansion costs I_E will comparatively more often opt for an expansion than firms in a regulatory environment providing for high expansion costs I_E .

Similarly, in order to be able to *contract* operating scale, management does not only have to leave physical capital idle, a reduction of working time and/or personnel is also needed. The ability to make workers redundant is a function of employment protection laws; the costs of reducing working hours are influenced by working time legislation and collective agreements. Labour market provisions that provide for low contraction savings by burdening the investor with high costs from employment protection laws increase the attractiveness of sticking to the original volume of the project. Regulations providing for high contraction savings render the contraction opportunity more attractive. Firms that find themselves in a regulatory environment with high contraction savings I_C will comparatively more often opt for contraction than firms in a regulatory environment providing for low contraction savings I_C .

Hence, labour market regulations may favour changes in the operating scale through reduced expansion costs I_E and increased contraction savings I_C . As a result, country-specific patterns of adjustment will arise where the operating scale of an investment project will be altered more often in a regulatory environment providing for low expansion costs I_E and high contraction savings I_C .

But more than affecting the decision to alter operating scale *versus* sticking to the original size in $t=1$, labour market regulations, following options theory, will also influence the decision to invest in $t=0$: Low expansion costs I_E and high contraction savings I_C both increase the value of an investment project by enhancing the option value to alter operating scale later. Having the choice among different regulatory environments with either high or low expansion costs and contraction

savings, investors will *ceteris paribus* decide for an environment with low expansion costs I_E and/or high contraction savings I_C .

2.2 The Option to Abandon for Salvage Value or to Switch Use: Flexible Skills versus Churning

As an alternative to contracting the operating scale in $t=1$, management may also want to abandon the project for salvage value: It then has the choice between the original project value V and the salvage value A . If $A > V$, management will opt for abandonment, otherwise it will stick to the project in its current use.

The salvage value A of an investment project is a function of its best alternative use in $t=1$. If the project is highly specific and cannot be turned into a (profitable) alternative use, the salvage value is equal to zero ($A=0$). If there is a profitable alternative use, the salvage value A is positive ($A > 0$). If the salvage value A exceeds the project value in its current use, management will abandon the project *or* switch to the alternative use *itself*. The value of the project in an alternative use is not only a function of the specificity of the equipment in place, but also of a function of the flexibility of the workers employed and the broadness of their skills. If the recumbent employees do not possess the flexibility needed in order for them to perform the new tasks, permissive employment protection laws enabling the investor to layoff employees with unneeded skills may compensate for this lack of flexibility and polyvalence. Hence, both, a regulatory environment providing for broadly skilled employees as well as one enabling investors to churn employees increase the salvage value of an investment project. As long as firm-specific knowledge acquired by employees over time will still be valuable after having switched to an alternative use, retaining recumbent employees will be less costly as compared to replacing them.

Labour market regulations may not only affect the salvage value of a project and thereby influence the decision between sticking to the original project on the one hand or abandoning/switching to an alternative use on the other (by providing for broadly skilled employees or permissive employment protection). They may also affect the decision between abandoning the project *or* switching to an alternative use *itself*: If the recumbent employees do not possess the needed qualifications and employment protection is less restrictive for a potential acquirer than it is for the current investor, then abandoning the project for salvage value may be more profitable for the current investor than switching to an alternative use *itself*. Here, the regulation of workforce reductions following business transfers becomes relevant.

Deciding on whether and where to invest in $t=0$, management will choose a legal environment that either facilitates a switch in use through a flexible workforce *or* an environment that compensates a lack of workforce flexibility through permissive employment protection laws and easing workforce reductions following business transfers. From an options perspective then, Cooke's (1997, p. 13) findings that restrictive employment protection laws have a negative effect on foreign

direct investment inflows, but that the legal provision to install a works council does have a positive impact, are not surprising: While restrictive employment protection laws raise the exit costs of an investment, it has repeatedly been argued that works councils are rather supportive when it comes to the implementation of new technologies and they may indeed ease the switch to an alternative use.

3. The Comparative Attractiveness of the UK and Germany as Business Locations: Self-Selection and Adjustment Strategies

In what follows the concept of real options in foreign direct investment decisions is applied to a hypothetical investor having the choice between undertaking an otherwise comparative investment in the UK or Germany. This comparison is chosen not only because the two countries differ so vastly in their apparent attractiveness for foreign investors, they also differ distinctly in their labour market regulations, especially concerning those regulations that are relevant from an options perspective – rendering the British-German comparison an almost ideal test case.

As far as the *option to alter operating scale* in a British-German comparison is concerned, it belongs to the stylised facts that the legal provisions to adjust the number of employees are comparatively supportive in the UK. The difference is largest for temporary employment, but also for regular employment, regulations in Germany are judged to be much more protective than in the UK; for mass redundancies only minor differences between Germany and the UK are stated (OECD, 1999, p. 66). Concerning working time flexibility, restrictions on weekly hours as well as on overtime, flexible weekend, and night work are again held to be stricter in Germany than in the UK (Grubb and Wells, 1993, p. 24). Even though working time flexibility in Germany is on the increase, it still may not have reached the extent offered to firms in the UK. Consequently, firms in the UK can be expected to alter operating scale comparatively more often than their German counterparts for whom sticking to the original scale of the project may be the better alternative. Moreover, deciding to invest in either country, firms will, *ceteris paribus*, prefer the British legal environment because of the higher value of the option to alter operating scale (and the higher expanded NPV) of the investment project.

As far as the *option to abandon or to switch use* is concerned, the legal provisions for the “functional flexibility” needed for a switch in use is held to be particularly high in Germany where workers are regularly characterised as being “broadly trained and flexible” (especially as compared to their British counterparts; see e.g. Carr, 1992 or Jarvis and Prais, 1997). Churning, i.e. substituting new hires for employees with obsolete skills, on the other hand, would seem to be supported by the permissive British employment protection laws. As long as firm-specific knowledge acquired by recumbent employees does not become

worthless in an alternative use, a switch in use in Germany may be more profitable than a switch in use in the UK. In case of a business transfer, however, work-force reductions are undertaken much easier in the British as compared to the German context. Firms in the UK will consequently opt for abandonment more often; firms in Germany will more often go for a switch in use. Which regulatory environment will be preferred in by an international investor, however, cannot be answered theoretically, as it is not clear if the value of a project in an alternative use in Germany is higher or lower than the salvage value of a comparable investment project in the UK, all else being equal.

How do international investors in practice value the different options? At first sight, the apparent attractiveness of the UK as an investment location seems to indicate that foreign investors value the options to alter operating scale or to abandon a project more highly than the option to switch use supported in the German legal environment. The UK's attractiveness could, however, also be the result of distinct comparative advantages, e.g., the English language, the high degree of market capitalisation facilitating acquisitions, and – last not least – its mineral oil resources: While foreign direct investment stocks in the primary sector represent about 25% of foreign direct investment in the UK, the respective share in Germany is only 0.1% (OECD, 1996, p. 35). In light of these distinct comparative advantages of the UK as compared to Germany, it seems more appropriate to ask which kind of investor may be attracted by which legal environment rather than trying to isolate the impact of labour market regulations on the volume of foreign direct investment in the two countries as a whole. In what follows, we will look at the self-selection of different types of investors in the two countries under consideration. Recognising the importance of resource-based investments in the UK, we will further concentrate on foreign direct investment in manufacturing and its composition in the UK vs. Germany.

The *option to alter operating scale* will be especially appreciated by firms that face a volatile product demand. Consequently, we expect to observe these firms to invest considerably more often in the UK as compared to Germany. The *option to switch use or abandon for salvage value* will be especially valuable for firms whose physical capital is characterised by flexible technologies that can be used to produce different outputs. The *option to abandon*, however, also relies on the precondition that the flexible usage of the machinery in place is common knowledge and markets for capital goods are transparent. Conversely, if markets for capital goods are “opaque” (Zeckhauser and Pound, 1990), the option to abandon is not valuable. We consequently expect to observe the following pattern of self-selection:

Firms that face a volatile product demand and/or transparent capital goods markets prefer to locate their subsidiaries in the UK. Firms that face a stable product demand and/or opaque capital goods markets prefer to locate in German legal environment.

As a result, the adjustment processes in both countries will be different from each other:

Subsidiaries in the UK will more often change operating scale (through working-time and employment variations) and use the abandonment option. This will result in comparatively shorter engagements of international investors in the UK as opposed to Germany. Subsidiaries in Germany will switch uses more often.

These distinct adjustment processes in the two countries are not only a consequence of legal environments facilitating the one or the other adjustment strategy but also a consequence of self-selection: A firm that prefers a certain adjustment process because of the volatility of product demand or because of the opaqueness of its capital goods markets will choose the corresponding investment location.

4. Empirical Evidence

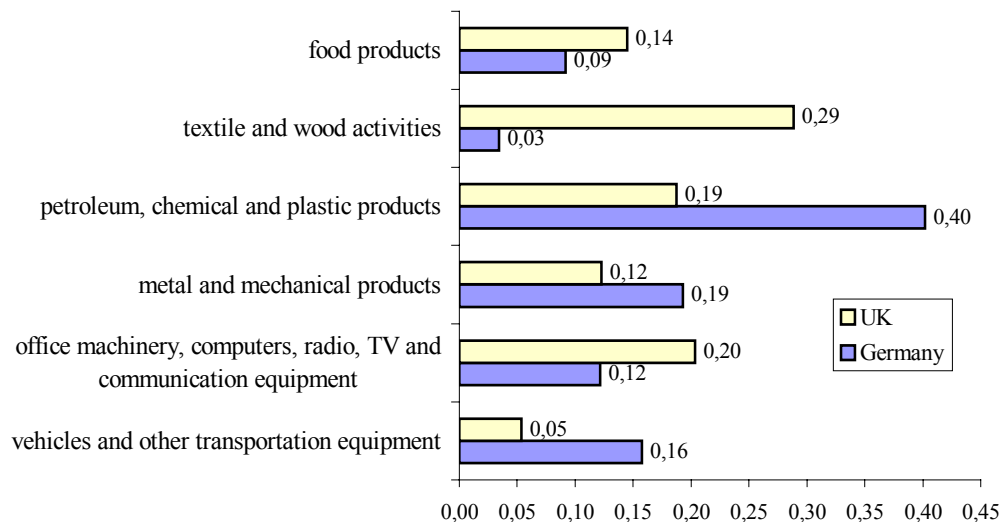
4.1 The Pattern of Self-Selection at Industry Level

The available foreign direct investment data at industry level reveals considerable differences in the composition of foreign direct investment in manufacturing in the UK and Germany (figure 1). The most pronounced differences between foreign direct investment in manufacturing in the UK and Germany are in “textile and wood activities”, where foreign direct investment is comparatively more significant in the UK, and in “petroleum, chemical, rubber, and plastics production” as well as in “vehicles and other transportation equipment”, where foreign direct investment takes place significantly more often in Germany.

Are these patterns in line with the above implications? Table 1 presents data on the volatility and opaqueness of selected industries. *Volatility* is measured by the coefficient of variation of the index of monthly incoming orders (1995-2000, Germany, 1995=100). In accordance with the industrial economics literature, the *opaqueness* of an industry is measured by its R&D-intensity (1994, OECD-14). The more is spent on R&D, it is argued, the higher are sunk costs and the lower will be the value of the project in an alternative use. The textiles industry indeed seems to face a rather volatile product demand – especially as compared to “petroleum, chemical and plastic products”, not so much compared to “vehicles and other transportation equipment”. The option to alter operating scale may then be particularly valuable for the textiles industry. Furthermore, the textiles industry is a rather transparent industry and will consequently value the option to abandon. Both are favoured in the British legal context. R&D-intensity in the “vehicles and other transportation equipment industry” ranges from 34.1% in the aircraft industry to 2.8% in shipbuilding. “Motor vehicles”, presumably representing the quantitatively most important sub-sector in the industry, however, is rather “opaque” as compared to textiles, wood or food products. The same is true for the chemical industry. Judged by its R&D-intensity, „office machinery and computers“ as well

as „radio, TV and communication equipment“ constitute opaque industries as well. Still, foreign direct investment in these industries plays a more important role in the UK than in Germany. Here the comparatively volatile product demand possibly outweighs the effect of R&D-intensity such that firms investing in office machinery, computers, radio, TV and communication equipment still prefer the British legal environment.

Figure 1: Stocks of foreign direct investment in manufacturing in the UK and Germany 1996 (percentage shares of different industries)



Reference: OECD (1998a)

Table 1: Volatility and opaqueness of selected industries

Industry	Volatility	Opaqueness
Food products	n.a.	0.011
Textile and wood activities	n.a.	0.005; 0.007
-> Textile (textiles, apparel and leather)	0.23	0.007
-> Wood products	n.a.	0.005
Petroleum, chemical and plastics products	0.07	0.088
Metal and mechanical products	0.08-0.10	0.013-0.055
Office machinery, computers, radio, TV and communication	0.24; 0.31	0.296; 0.171-
-> Office machinery, computers	0.24	0.296
-> Radio, TV and communication equipment	0.31	0.171
Vehicles and other transportation equipment	0.17	0.028-0.341
-> Motor vehicles	0.17	0.122

Volatility: Coefficient of variation of monthly incoming orders (1995-2000, Germany)

Opaqueness: R&D expenses as a percentage of value added (1994, OECD-14)

n.a. not available

Reference: German Federal Statistical Agency (2001), OECD (1998b: 282)

4.2 Stylised Facts on Adjustment Processes in the Two Countries

Firms in the UK considerably more often make use of “*numerical and temporal flexibility*”, i.e. adjust employment levels and working time: Bell et al. (2000) compare the use of overtime in Germany and in the UK in 1993 on the basis of the UK Labour Force Survey and the German Socio-Economic Panel and conclude that “the quantitative significance of both paid and unpaid overtime is greater in the UK”. Grubb and Wells (1993, p. 22), too, come to the conclusion that the variability of hours worked among full-time employees is higher in the UK than in Germany: the percentage of full-time workers whose weekly hours of work fell outside the 5-hour-band containing the largest proportion of workers was 23% for Germany and 65% for the UK. As to numerical flexibility, labour and job-turnover in the UK and Germany both “indicate a high measure of labour market dynamics” – with Germany catching up recently. The “distinct cyclical fluctuations” in the turnover figure for the UK, however, hint at a comparatively large employment volatility (Heise, 1997, p. 45). But what about international investors in the two countries? There is no comparative data on that question. However, from what is known about the empirical relevance of host-country effects, it can be assumed that also for foreign investors significant differences in adjustment processes are present. The few empirical case-studies (see e.g. Morton, 1997) indeed seem to hint at a larger numerical flexibility in foreign subsidiaries in the UK as compared to foreign subsidiaries in Germany.

Concerning switches in use, firms in Germany are known for their “*functional flexibility*”, i.e. their ability to cope with changing conditions through a switch to alternative uses (for a critical assessment see Raines et al., 1999). Mason and Wagner (1994: 66), who compare innovations in British and German plants, observe improvements in UK engineering plants to be “either belated as compared to German counterparts or ... more limited in scope” and attribute this difference to the comparatively “wide range of skills” of German workers, i.e. the polyvalence of their qualifications. In line with this, the “tendency towards flexible specialization” representing what may be called “continuous switches in use” is regularly found to be “more pronounced and more consistent in Germany than in Britain” (Lane, 1988: 141). Concerning the particular role of foreign investors, there is no comparative data.

Nor is there comparative data on the *life duration* of foreign affiliates. McCloughan and Stone (1998) analyse the survival of 252 foreign owned plants in UK Northern manufacturing and observe a total of 66 deaths between 1970 and 1993. Numerous recent examples, however, support the impression that investors in the UK comparatively often draw back from projects they have just invested in: E.g., in 1998 Siemens announced the shutting-down of the chip factory it had only opened in 1997; Fujitsu, too, closed its chip factory in 1998, in 2000 Ford announced its withdrawal from Dagenham, and BMW sold Rover. A whole wave of similar divestments led Callaghan, chief economist of the British Union Federation TUC, to conclude that the British system of deregulation may

be attractive for international investors, but that it has the downside of allowing firms to divest again in case of a crisis (DIE ZEIT, 10/29/1998).

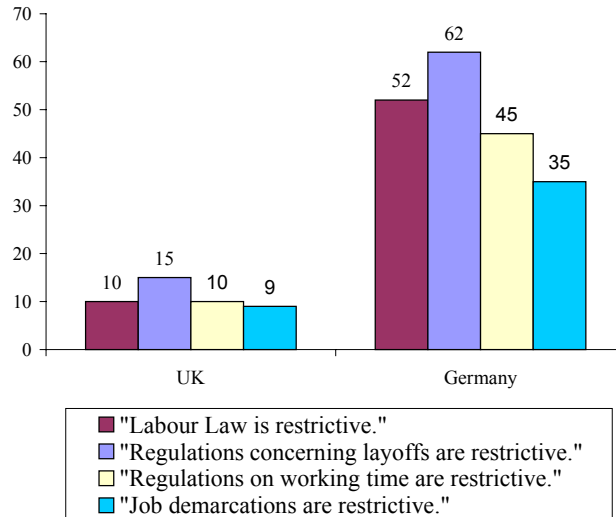
4.3 Empirical Findings from a Survey on US-Multinationals

In what follows, we report the findings from a survey of US multinationals with manufacturing subsidiaries in the UK and/or Germany. The data were obtained by a mail survey of 603 manufacturing US-firms listed as the US-parent of a UK subsidiary by BritishAmerican Business Inc. and/or listed as the US-parent of a German manufacturing subsidiary by the American Chamber of Commerce in Germany. 85 firms took part in the study. With roughly 19 percent (taking into account non-deliverable questionnaires) the response rate is in the range of the European Cranfield-Study.

The 85 US manufacturing firms participating in the survey have 1.326 foreign subsidiaries, 116 in the UK and 85 in Germany. 657 foreign subsidiaries are in manufacturing, 78 of these are located in the UK, 49 in Germany. On average, the participating firms employ about 6,600 employees. They come from different industries. With more than 42 percent of participating firms, however, the chemical industry is clearly dominating. Concerning their UK and German subsidiaries, participating firms with more than one manufacturing subsidiary in any one country were asked to convey information on that subsidiary where it holds the largest capital stock. Data are at hand for 77 manufacturing subsidiaries in the UK (46) or Germany (31). On average, the subsidiaries employ 475 employees. With on average 360 employees, manufacturing subsidiaries in the UK are considerably smaller than manufacturing subsidiaries in Germany with on average 660 employees.

Asked for their *perceptions* of the different regulatory environments, the participating firms express strong agreement with items concerning the rigidity of labour market regulation in Germany (figure 3). The percentage of firms expressing strong agreement with items concerning the rigidity of labour market regulation in the UK is much lower. Especially regulations concerning layoffs are judged to be restrictive in Germany, with 62 percent of participating firms expressing strong agreement with the corresponding item. Surprisingly, however, even job demarcations are held to be more restrictive in Germany than in the UK. Apparently, US-firms have such a clear-cut picture of a highly regulated labour market in Germany as opposed to a much less regulated labour market in the UK that this impression stretches over to those aspects of labour market regulation that may in fact be more restrictive in the UK.

Figure 2: Percentage of participating firms that express strong agreement with items concerning the rigidity of labour market regulations in the UK and Germany



Reference: Own calculations

This apparent misperception may well be the result of the ongoing German *standardort* debate on the allegedly over-regulated German labour market. Firms that are actually present in German manufacturing, view the German labour market regulations as much less restrictive than those that are not present in Germany (table 2).

Table 2: Perception of German labour market regulation: Percentage of firms expressing “strong agreement” with the following items for Germany

Item	Firms in the UK and not in Germany	Firms in Germany and in the UK	Firms in Germany and not in the UK
„Labour law is restrictive.“	71	52	33
„Regulations concerning layoffs are restrictive.“	86	68	50
„Regulations on working time are restrictive.“	71	36	33
„Job demarcations are restrictive.“	57	32	33

Reference: Own calculations

For instance, regulations concerning working time are judged to be restrictive (strong agreement) by 71 percent of firms that are present with a manufacturing subsidiary in the UK, but not in Germany. On the other hand, only 36 percent of

firms that are present in both countries express strong agreement to this item for the German case. With 32 percent, the corresponding share of US-firms that are present in Germany and not in the UK is even lower. Hence, being actually confronted with the German labour market regulations seems to alleviate the transmitted picture of an over-regulated labour market deterring foreign direct investment.

As far as the perception of British labour market regulation is concerned, here, too, those firms that actually have experience with the different regulations in general judge them to be less restrictive than those firms that only have an outside view; the differences between perception and experience, however, are not as large as those for the German case (table 3). The general difference between perception and experience may be taken as evidence for a process of self-selection where those firms that would be especially affected by a certain rigidity opt against the corresponding regulatory environment. The fact that the observed difference between the two is much larger in the German than in the British case, however, hints at the truly detrimental character of the German *standort* debate.

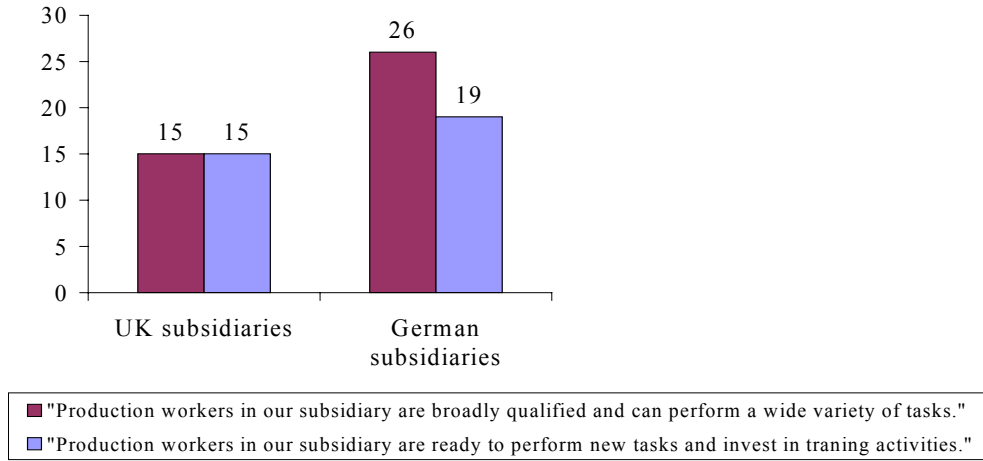
Table 3: Perception of British labour market regulation: Percentage of firms expressing “strong agreement” with the following items for the UK

Item	Firms in Germany and not in the UK	Firms in Germany and in the UK	Firms in the UK and not in Germany
„Labour law is restrictive“	0	12	5
„Regulations concerning layoffs are restrictive“	25	20	10
„Regulations on working time are restrictive“	25	12	5
„Job demarcations are restrictive“	25	12	0

Reference: Own calculations

Concerning the perceived flexibility of their overseas personnel, participating firms with a manufacturing subsidiary in the respective country expressed stronger agreement for their German than for their British subsidiaries (figure 3). The difference, however, is not as large as the one concerning the perceived rigidity of labour market regulations in the two countries.

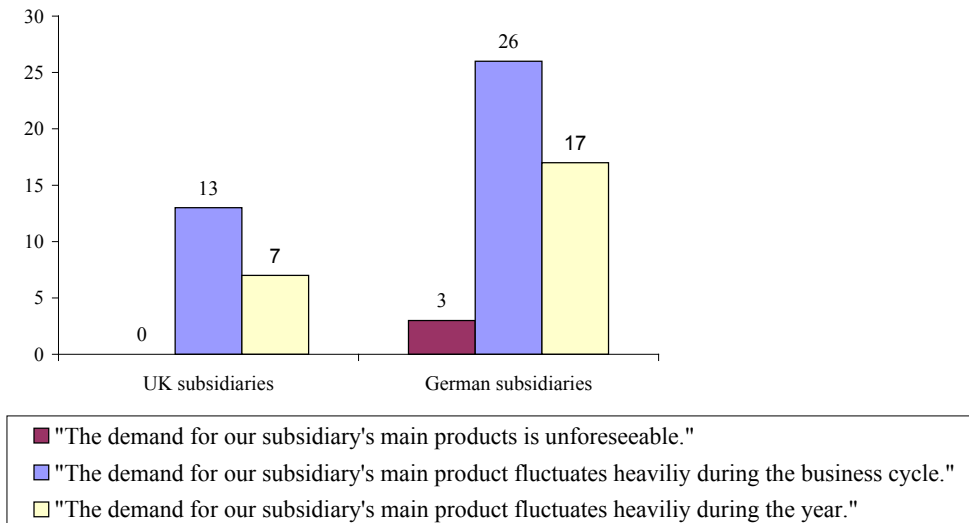
Figure 3: Percentage of participating firms that express strong agreement with items concerning the functional flexibility of production workers in their UK and German subsidiaries



Reference: Own calculations

Concerning next the hypothesized process of *self-selection*, according to which UK subsidiaries are expected to be exposed to a more volatile product demand than their German counterparts and to use rather transparent capital goods, the data lead to the following conclusions: While it is true, that UK subsidiaries indeed make stronger use of transparent capital goods, the volatility of demand for products made by UK subsidiaries is generally not perceived to be more volatile than the one for the products made by German subsidiaries. On the contrary, German manufacturing subsidiaries seem to be confronted with an even larger volatility of product demand than their British counterparts (figure 4).

Figure 4: Percentage of participating firms that express strong agreement with items concerning the volatility of product demand in their UK and German subsidiaries



Reference: Own calculations

Apparently, investors in Germany have found alternative (and dominant) means to cope with product demand uncertainty and do not so much rely on numerical and temporal flexibility as is generally assumed. Moreover, it may also be the case that numerical and/or temporal flexibility are not so much lower in Germany than in the UK.

However, consistent with the above hypothesis, German subsidiaries seem to be rather opaque as opposed to their British counterparts: While in British manufacturing subsidiaries 19 percent of the equipment is second-hand, rental, or leased, the corresponding share in German subsidiaries is only 13 percent. In 87.5 percent of German manufacturing subsidiaries that use second-hand, rental, or leased equipment, the share of all such equipment is 10 percent or less, whereas the majority (60 percent) of British manufacturing subsidiaries that make use of second-hand, rental or leased equipment, use it to more than 10 percent. In more than one third (33.4 percent) of British manufacturing subsidiaries that make use of second-hand, rental, or leased equipment, its share is larger than 20 percent (table 4).

Table 4: Share of second-hand, rental or leased equipment in British and German manufacturing subsidiaries in percent of total capital installed

Share of second-hand, rental or leased equipment in percent of total capital installed	British subsidiaries		German subsidiaries	
	absolute	percent	absolute	percent
≤ 10 percent	6	40,0	7	87,5

> 10 percent and ≤ 20 percent	4	26,7	0	0,0
> 20 percent and ≤ 30 percent	4	26,7	0	0,0
> 30 percent	1	6,7	1	12,5
Total	15	100,0	8	100,0

Pearson $\chi^2(3) = 6,5535$; Pr = 0,088

Reference: Own calculations

A further indicator of opaqueness versus transparency are R&D expenses: Large investments in R&D, it is argued, render the value of a subsidiary more and more opaque and impede the abandonment option. On average, the German and British manufacturing subsidiaries each spent 1.5 Mio. US-\$ on R&D in 2000. Whereas in German subsidiaries, on average 2.7 Mio. US-\$ were spent on R&D (n=18), R&D expenses in British subsidiaries amounted to an average of 0.9 Mio. US-\$ (n=37). Both, the share of R&D as a percentage of capital in place and as a share of sales volume were also higher in German manufacturing subsidiaries, but not significantly so. While it may be argued that higher R&D expenses in German manufacturing subsidiaries reflect Germany's (debatable) comparative technological advantage, it has recently been shown that R&D expenses of US multinationals in general do not follow the technological advantages of potential host countries (Legler and Beise 2000: 86). Therefore, smaller R&D expenses in the UK manufacturing subsidiaries are not necessarily the result of an alleged technological disadvantage as compared to Germany, but may in fact reflect the particular attractiveness of the UK as a business location for those firms that use transparent capital goods.

As to the hypothesized differences in *adjustment processes*, participating firms with manufacturing subsidiaries in the respective countries where asked for their main mode of adaptation if (1) capacity exceeds product demand or (2) product demand exceeds capacity (table 5). In both cases, the main mode of adaptation in British and German manufacturing subsidiaries is via working time adjustments. The relative importance of working time adjustments as compared to other adjustment strategies is even higher in German manufacturing subsidiaries than in British manufacturing subsidiaries. In the UK, on the other hand, employment variation plays a more important role as main mode of adaptation. While the relatively greater relevance of employment variations in the UK subsidiaries is compatible with the theoretical implications, the importance of working time adjustments in Germany again hints at temporal flexibility in Germany being not as low as is frequently assumed.

Table 5: Percentage of firms with a manufacturing subsidiary in the respective country that use working time adjustments or employment variations as main mode of adaptation

Main mode of adaptation if	British subsidiaries		German subsidiaries	
	working time adjustments	employment variations	working time adjustments	employment variations
.... demand exceeds capacity	69	16	53	8
.... capacity exceeds demand	42	21	59	14

Reference: Own calculations

Besides information on current manufacturing subsidiaries in Germany and/or the UK, participating firms were also asked for past engagements in the two countries. The majority of firms did not have any experience at all with divestments from the UK or Germany. 20 percent of firms report complete withdrawals from German or British manufacturing subsidiaries in the past: 8.2 percent have divested from British manufacturing subsidiaries only, 4.7 percent from German manufacturing subsidiaries, and 7.1 percent have divested from British *and* German manufacturing subsidiaries in the past. With 15.3 percent the share of firms reporting past withdrawals from the UK is, however, not significantly larger than the share of 11.8 percent for Germany. Reporting on their latest withdrawal, 67 percent of firms that divested from the respective country in the past, withdrew from the UK by closing down, 33 percent sold their assets/shares. Concerning withdrawals from German manufacturing subsidiaries, on the other hand, selling assets/shares and closing down were equally important exit strategies. At the time of withdrawal, German manufacturing subsidiaries existed as subsidiaries for 9 years, British manufacturing subsidiaries for 23 years. This does not necessarily indicate a comparatively longer life duration of British manufacturing subsidiaries but may well be explained by the great historical importance of the UK as a host country for US foreign direct investment. If one regards only those divestments that took part within a life duration of 15 years or less (“short-living subsidiaries”), the average life duration of a British manufacturing subsidiary at the point of withdrawal is 3 years, whereas the average life duration of a German manufacturing subsidiary is 8 years.

5. Conclusions

While existing papers on the effect of labour market regulation on firm location decisions focus on the volume of foreign direct investment, this paper tries to assess the potential impact of different regulations on different types on investors. Taking real options theory as a starting point, hypotheses on the self-selection of international investors and on host-country-specific adjustment proc-

esses are derived in the context of a British-German comparison. The empirical evidence from a unique data set derived from a survey of US multinationals in the UK and Germany (1) underlines the comparative attractiveness of the UK as a business location in the perception of investors *and* non-investors, (2) highlights the potential relevance of the theoretically predicted process of self-selection where investors using opaque capital goods may indeed prefer Germany as a business location and (3) provides evidence for the theoretically predicted differential adjustment strategies in British and German manufacturing subsidiaries.

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