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Standort UK? German DFI and employment

Ulrich Hoppe, Frank McDonald, Heinz-Josef Tüselmann and David Williams

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**Anglo-German Foundation
for the Study of Industrial Society**

STANDORT UK? GERMAN DFI AND EMPLOYMENT

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Executive summary

This paper reports the findings of a study on the impact of German direct foreign investment (DFI) into the UK on the number and type of jobs in both home and host countries.¹ The main proposition investigated is that employment growth and increase in skilled jobs in host countries is positively associated with embeddedness factors (as sets and inputs that can only be obtained if a firm is rooted [embedded] into its local area). Embeddedness factors include use of local suppliers, local networks and the strategic development of subsidiaries based on locally available assets. The study also investigates the effects of more traditional factors (for example entry mode, age, size and sector) that are considered to influence DFI. In addition, the study provides data on the number of jobs in the UK associated with German DFI and their distribution according to skill level.

The main findings with regard to embeddedness factors are that they are not strongly linked to employment growth and only marginally connected to the growth of skilled jobs. A strong link between embeddedness and the growth of skilled jobs was identified only for subsidiaries that were increasing their level of embeddedness. However, the number of subsidiaries that were developing such embeddedness was small. No strong effect of embeddedness-related DFI in the UK on parent companies was found. This indicates that the embeddedness-related employment effects of German DFI for both home and host countries are small.

The findings for traditional factors indicated that there was no consistent pattern between them and employment growth and type of jobs, except for size. The dominant motivation for German DFI into the UK was to supply and develop the British market. This indicates that jobs have probably been created, or at least defended, in Germany. Overall, the findings highlight that German DFI has probably created jobs in both home and host countries, but that the impact of increased penetration of the UK market by German firms is likely to have led to the loss of some jobs in UK firms.

The evidence on distribution of jobs showed that the new industries, the services sector and service activities were experiencing the highest employment growth rates. In most cases employment in the manufacturing sector and manufacturing activities were declining. The number of semi-skilled/unskilled jobs was growing faster than that of skilled jobs. However, in new industries and the services sector there was a significantly greater proportion of skilled jobs than of semi-skilled/unskilled.

The main motive for DFI into the UK was to exploit the market. Regulatory frameworks, labour costs and taxation were not found to be important incentives for German DFI.

¹ A full copy of this report with references and all the data gathered from the survey can be obtained by contacting H.J. Tüselmann, email h.tuselman@mmu.ac.uk

1 Introduction

Germany is a significant investor in the UK, providing the second largest source of direct foreign investment (DFI) into the UK in terms of both stock and flow of such investments. The UK is the destination of a significant proportion of outward DFI from Germany: about 14 per cent of outflows and 10 per cent of stocks. The size of these stocks and flows suggests that it is likely that there are significant employment effects in home and host countries in terms of the number and type of jobs associated with this DFI. However, many studies have found that DFI has not led to significant job gains and losses in Germany or in host locations. These studies have been based on macroeconomic evidence and they have not been focused on the type of jobs associated with DFI. Moreover, the growing importance for employment of embeddedness factors (assets and inputs that can only be obtained if a firm is rooted [embedded] into its local area) has not been extensively studied.

This study investigates the quantitative and qualitative employment effects of German DFI into the UK in both home and host countries. This is done using a microeconomic approach that is focused on traditional and embeddedness factors associated with DFI. Traditional factors are firm age, firm activity, entry mode, firm size and technology transfer. Embeddedness factors are local sourcing, access to local networks and technology, level of mandates and autonomy granted to subsidiaries, and the markets supplied by subsidiaries. This study sets out to answer four questions:

1. How important are traditional and embeddedness factors as drivers of DFI into the UK?
2. Does German DFI create jobs in the UK?
3. What types of jobs are associated with German DFI into the UK?
4. Does German DFI lead to a loss of jobs and/or a loss of skilled jobs in Germany?

The study reviews the existing macroeconomic and microeconomic studies of the impact of DFI on employment in both host and home countries. Based on an analysis of microeconomic factors, it investigates the major traditional and embeddedness drivers of DFI and the consequent employment effects. From this analysis a set of propositions on the employment characteristics of DFI are developed and tested using the results of a survey of German subsidiaries and their parent companies. The results of the survey are also used to assess the importance of the traditional and embeddedness factors as drivers of DFI. Finally, some implications for policy are provided.

2 Review of studies on direct foreign investment (DFI) and employment

There have been two main approaches for investigating the employment effects of DFI – macroeconomic and microeconomic studies.

2.1 Macroeconomic studies

Macroeconomic studies of the impact of DFI inflows on employment established that they have led to positive employment effects. These beneficial employment effects are further boosted by spillover benefits to domestic firms arising from the increased supply from local firms to subsidiaries, demonstration effects of better ways to produce, and the transfer of knowledge to suppliers and other firms that are connected to foreign subsidiaries.

The employment effects of DFI on home countries have also been investigated. Substitutional DFI from developed to developing countries is likely to reduce the labour intensity of production when labour-intensive production systems are transferred to developing countries as parent companies engage in vertical DFI by exporting all or part of their production systems. On the other hand, complementary DFI flows between developed countries to take advantage of markets and desirable assets will boost demand for more skilled labour as firms become more specialised as a result of horizontal DFI.

Macroeconomic studies suggest that DFI between developed economies will have a positive impact on employment in both home and host economies, and that the main impact will be on the skills composition of employment with a tendency for DFI to boost the skill content of jobs in both home and host economies. This result stems from the move towards greater intra-firm specialisation generated by horizontal DFI that requires more highly skilled (specialised) workers. However, complementary DFI flows connected to trade flows – especially DFI in sales and distribution and low-level manufacturing and services provision connected to exporting – may lead to job losses in host economies as less efficient domestic producers are displaced. Home countries may see consequent job gains as they experience an increase in exports, often with high value, to the host countries.

2.2 Microeconomic studies

The microeconomic factors traditionally associated with the development of host economies have been entry mode (greenfield, brownfield and joint ventures), type of activity (manufacturing, services, sales and distribution), age and size of subsidiaries, and

technology transfer. More contemporary literature has focused on the development of local sourcing (local supply chains), the use of local networks (formal and/or informal connections between firms and supporting organisations) and the development of the strategic autonomy of subsidiaries. The contemporary literature is focused on the concept of embeddedness, that is, the level to which subsidiaries are rooted into their local base in terms of aspects of their strategic decisions and operations. Markets supplied can also be treated as an embeddedness factor because firms that are significant suppliers of foreign markets as well as their domestic market are likely to be firmly rooted into the host economy.

2.2.1 Traditional factors and employment

2.2.1.1 Entry mode

It is unlikely that non-DFI activities such as exporting will make a substantial impact, since they do not depend on major developments of indigenous production capabilities. By contrast, direct ownership entry modes have the potential to create a significant impact by bringing new capital and management techniques into the host location. Greenfield entrants are likely to create more favourable employment effects than entry by merger or acquisition because greenfield entry is likely to add more new capital and management techniques into the host region.

2.2.1.2 Type of activity

The type of activity – manufacturing, services, and sales and distribution – is likely to impact on employment because, for example, high value-added manufacturing is likely to lead to a higher demand for skilled labour compared to assembly of main components supplied by parent companies (so-called ‘screw driver plants’). Moreover, manufacturing is likely, on average, to create more employment than sales and distribution.

High-value operations in the provision of services (e.g. corporate banking and research and development (R&D) contracts) are also likely to generate more jobs compared to more mundane service provision. DFI in expanding industries such as high-tech products is likely to create more jobs with a higher skill level than subsidiaries that are in mature or declining industries.

2.2.1.3 Firm age

The argument that parent companies develop their subsidiaries slowly as they learn about the conditions of operating in host economies suggests that it takes time for subsidiaries to develop high-value operations. Thus it might be expected that the development highly skilled jobs in subsidiaries will evolve, with older firms having more skilled workers than younger firms. However, in terms of the creation of jobs, younger, especially greenfield, subsidiaries are likely to create more jobs than established firms.

2.2.1.4 Firm size

The size of firms also affects employment, as larger subsidiaries are more likely to have higher employment growth and to employ a wider range of skills relative to smaller subsidiaries. These employment characteristics of larger firms follow from their ability to be more specialised and to have access to more resources to develop and sustain a larger and more varied workforce.

2.2.1.5 Technology transfer

Subsidiaries that receive significant technology transfer from parent companies tend to improve productivity. Technology transfer boosts their stock of physical and human capital, thereby enhancing their ability to create employment, especially skilled jobs.

2.2.2 Embeddedness factors and employment

2.2.2.1 Local sourcing

Studies on local sourcing suggest that the development of deep and extensive local supply chains by foreign-owned subsidiaries boosts employment in terms of the quantity and quality of jobs. This is due to increased activities within the subsidiary to create, develop and manage local supply chains.

2.2.2.2 Local networks

Membership of locally based networks should boost productivity and thereby enhance employment in terms of the number and skill level of jobs. The reason for this is that collective learning and innovation, which are enabled by such networks, allows for expansion of both the size and complexity of operations. The deeper these local networks are, the more likely it is that subsidiaries will expand the quantity and quality of jobs.

2.2.2.3 Strategic development of the autonomy of subsidiaries

Subsidiaries that develop high-level strategic autonomy are likely to experience increased demand for labour for those activities that confer advantages to the parent company. This is most likely to involve an increase in demand for more highly skilled labour. However, the demand for labour used in more mundane activities will probably decline as these operations are transferred elsewhere within the multinational company (MNC). Subsidiaries that are not granted high-level strategic autonomy might focus their operations on mundane operations such as sales, distribution and low value-added manufacturing. These types of developments are unlikely to generate many skilled jobs.

2.2.2.4 Market supply mandates

The higher market supply mandates are, the more subsidiaries will need to employ skilled labour within the subsidiary in order to carry out specialised and high value-added operations. Thus, mandates that restrict subsidiaries to supplying the UK market are likely to create fewer and less skilled jobs than subsidiaries that have mandates to supply a wide range of markets.

3 Propositions on employment effects in subsidiaries

Using the identified traditional and embeddedness drivers of DFI, the authors developed a set of propositions on the employment effects of DFI to answer the questions on the creation of employment and the type of jobs associated with DFI.

3.1 Does German DFI create jobs in the UK?

3.1.1 Proposition 1

Growth of employment is positively related to manufacturing and services, greenfield entry mode, size (larger establishments) and technology transfer. It is negatively related to brownfield entry mode, sales and distribution, and age (older establishments).

3.1.2 Proposition 2

Growth of employment is positively related to embeddedness and to increases in embeddedness.

3.2 What types of jobs are associated with German DFI into the UK?

3.2.1 Proposition 3

The number of and change in skilled jobs are positively related to manufacturing and services, greenfield entry mode, size (larger establishments), age (older establishments) and technology transfer. They are negatively related to brownfield entry mode, and sales and distribution.

3.2.2 Proposition 4

The number of and change in semi-skilled/unskilled jobs are positively related to brownfield entry mode, sales and distribution, size (larger establishments) and age (older establishments). They are negatively related to greenfield entry mode, manufacturing and services, and technology transfer.

3.2.3 Proposition 5

The number of and change in skilled jobs are positively related to embeddedness and to increases in embeddedness.

3.2.4 Proposition 6

The number of and change in semi-skilled/unskilled jobs are negatively related to embeddedness and increases in embeddedness.

4 Employment impact on parent companies

The development of employment in subsidiaries has implications for employment in the home country. Clearly, DFI that is geared to trade flows (to develop the markets for exports in the host country) and to gain access to low-cost or better-quality inputs for home production is likely to boost employment, or at least protect jobs, in the home country – although there may be some loss of domestic jobs as low value-added manufacturing or provision of low-level services are transferred to host locations in order to take advantage of low labour costs. However, this type of DFI is likely to be rare between developed economies such as the UK and Germany.

The implications for employment in home countries of DFI related to embeddedness factors may, however, be significant. Parent companies that engage in DFI that is firmly embedded in host locations will develop employment in the host economy to reap the benefits available in these locations rather than develop jobs in these areas of operations in their home base. Moreover, if subsidiaries are given significant levels of autonomy, their ability to independently develop employment in the subsidiary and thereby to affect employment in the home location may be strong. DFI that is firmly embedded in host locations will affect both the quantity and quality of jobs in the home location. However, the main effects will be to alter the skill mix of employment by the MNC as specialisation increases in different locations, leading to different demands for the various skills that labour provides, according to the concentration in the location of particular types of operations.

The postulated employment effects of trade-induced DFI and investment to gain access to low-cost inputs is supported by macroeconomic studies (see above). The employment effects of embeddedness-driven DFI cannot be directly assessed because it is difficult to obtain data on the change in the quantity and quality of jobs in parent companies that results from DFI motivated by embeddedness factors.

To obtain insights on the impact of such DFI, data were sought on the relationship between embeddedness and the development of high-value operations and the creation of mainly skilled jobs in subsidiaries. If embeddedness factors are high (as measured by the importance of access to networks, access to technology and granting autonomy to subsidiaries), it might be expected that parent companies would develop high-value operations and create mainly skilled jobs in their subsidiaries, some of which are transferred from the parent company. This would imply that the demand for different types of labour in parent companies would alter as the MNC becomes more specialised due to the development of specialised operations in their subsidiaries.

5 Propositions on employment effects in parent companies

Using the arguments outlined above, three propositions on the impact of embeddedness driven DFI were constructed. These propositions are mainly concerned with the type of jobs created in subsidiaries that enable inferences to be made about employment implications in Germany.

5.1 Does German DFI lead to a loss of jobs and/or a loss of skilled jobs in Germany?

5.1.1 Proposition 7

Parent companies that attach importance to embeddedness factors for DFI create high-value operations in their subsidiaries.

5.1.2 Proposition 8

Parent companies that attach importance to embeddedness factors will transfer jobs to their embedded subsidiaries.

5.1.3 Proposition 9

Parent companies that attach importance to embeddedness factors for DFI create mainly skilled jobs.

6 The study

To test the propositions described in Chapters 3 and 5, and to provide information on the development of German subsidiaries, a survey of all known German subsidiaries in the UK was carried out in 2002. A survey of French-owned subsidiaries was also carried out to provide comparative results. The parent companies of the German subsidiaries were also surveyed.

The data to assess the propositions were analysed using OLS and Logit regressions.² Data on the distribution of the traditional and embeddedness factors are presented to provide information on the importance of these factors as drivers of DFI.

² Full details on the data, the methodology used and the results of the regression analysis can be obtained by contacting H.J. Tüselmann, email h.tuselman@mmu.ac.uk

7 Results

7.1 How important are traditional and embeddedness factors as drivers of DFI into the UK?

7.1.1 Traditional factors

German subsidiaries are more evident in manufacturing than French and are more centred in sales and distribution activities. The high proportion of German subsidiaries that are primarily engaged in sales and distribution (nearly two thirds) indicates the importance attached to developing the UK market (Table 1). German subsidiaries have more greenfield sites and fewer joint ventures and mergers and acquisitions than French subsidiaries. They are larger than French and are growing faster. About half of both German and French subsidiaries had received technology transfer from their parent companies.

Table 1
Profile and traditional factors (%)

| | Subsidiaries | | | Subsidiaries | |
|------------------------|--------------|--------|-------------------------|--------------|----------|
| | German | French | | German | French |
| Sector | | | Type of industry | | |
| Manufacturing | 59.6 | 43.3 | Traditional | 77.8 | 71.1 |
| Service | 32.0 | 39.3 | New | 15.3 | 18.5 |
| Others | 8.4 | 17.4 | Others | 6.9 | 12.4 |
| Activity | | | Age | | |
| Manufacturing | 18.2 | 26.4 | <1 year | 0.7 | 0 |
| Services | 16.7 | 27.0 | 1–4 years | 6.7 | 13.0 |
| Sales and distribution | 64.0 | 44.9 | 5–10 years | 14.4 | 33.3 |
| Others | 1.1 | 1.7 | 11–20 years | 32.2 | 29.4 |
| | | | >20 years | 45.9 | 24.3 |
| Entry mode | | | Turnover | | |
| Greenfield | 59.6 | 36.4 | 1997 (£m) | 9,767.64 | 4,364.10 |
| Merger and acquisition | 32.5 | 49.7 | 2002 (£m) | 15,347.09 | 6,393.13 |
| Joint venture | 7.8 | 13.9 | % change | 57.1 | 46.5 |
| | | | Technology transfer (%) | 48.0 | 50.6 |

7.1.2 Embeddedness factors

German and French subsidiaries make similar use of expatriate managers, indicating that the level of parent control is not substantially different (Table 2). In most categories French subsidiaries attach more importance to supplying foreign markets. However, German subsidiaries in new industries attach more importance to foreign markets than French. Two thirds of German manufacturing establishments, compared to 57 per cent of French subsidiaries, attach importance to supplying foreign markets. French subsidiaries use substantially more local and other UK suppliers and less supply from their home base. Both have increased their use of local and UK suppliers in the last five years. German subsidiaries have higher home country sourcing. About 40 per cent of subsidiaries state that local networks are important. German subsidiaries have increased the use of

Table 2
Embeddedness factors (%)

| | All subsidiaries | Sector | | Activity | | | Type of industry | |
|--------------------------------------|------------------|---------------|---------|---------------|---------|------------------------|------------------|------|
| | | Manufacturing | Service | Manufacturing | Service | Sales and distribution | Traditional | New |
| German subsidiaries | | | | | | | | |
| Presence of expatriate managers | 32.1 | 27.0 | 36.8 | 30.0 | 62.2 | 25.1 | 26.9 | 52.4 |
| Importance of foreign markets | 27.6 | 30.5 | 19.3 | 66.0 | 39.1 | 13.6 | 24.3 | 40.5 |
| Importance of host country sourcing | 25.5 | 29.3 | 17.0 | 40.0 | 39.1 | 18.2 | 23.4 | 33.3 |
| Increase in host country sourcing | 22.2 | 21.8 | 22.5 | 15.0 | 38.9 | 22.1 | 20.5 | 40.0 |
| Importance of networks | 42.2 | 43.9 | 40.9 | 52.0 | 34.8 | 42.0 | 43.9 | 38.1 |
| Increase in use of networks | 46.4 | 47.7 | 48.3 | 42.9 | 48.3 | 47.1 | 43.8 | 63.0 |
| Decision-making autonomy | 78.4 | 83.5 | 72.1 | 94.0 | 73.3 | 75.6 | 82.2 | 65.9 |
| Increase in decision-making autonomy | 37.0 | 33.3 | 41.9 | 27.1 | 51.2 | 36.0 | 35.1 | 45.0 |
| Increase in scope of activity | 50.4 | 45.9 | 57.3 | 22.9 | 61.5 | 55.2 | 48.3 | 55.3 |
| French subsidiaries | | | | | | | | |
| Presence of expatriate managers | 36.0 | 29.7 | 47.1 | 28.3 | 48.9 | 34.2 | 33.9 | 46.9 |
| Importance of foreign markets | 35.4 | 37.7 | 32.9 | 57.4 | 45.8 | 13.8 | 35.0 | 30.3 |
| Importance of host country sourcing | 44.4 | 39.0 | 44.3 | 53.2 | 66.7 | 25.0 | 37.4 | 54.5 |
| Increase in host country sourcing | 23.9 | 20.8 | 27.5 | 21.2 | 13.8 | 32.7 | 25.6 | 21.4 |
| Importance of networks | 41.6 | 40.3 | 40.0 | 48.9 | 50.0 | 33.8 | 41.5 | 36.4 |
| Increase in use of networks | 36.0 | 34.0 | 37.3 | 45.2 | 38.5 | 30.2 | 35.6 | 36.4 |
| Decision-making autonomy | 79.7 | 79.2 | 76.8 | 89.4 | 79.2 | 75.0 | 78.7 | 72.7 |
| Increase in decision-making autonomy | 29.7 | 19.7 | 42.6 | 21.7 | 27.1 | 36.3 | 31.4 | 21.9 |
| Increase in scope of activity | 54.7 | 47.3 | 71.2 | 42.2 | 56.5 | 61.5 | 58.1 | 54.8 |

networks by more than the French. German subsidiaries tend to have slightly more decision-making autonomy in manufacturing, and they have increased autonomy by more than the French in most categories. French subsidiaries have increased the scope of activity slightly more than German, especially where manufacturing is the main activity and in traditional industries.

7.2 Does German DFI create jobs in the UK?

On the basis of the data on employment gathered in the survey, the extrapolated total number of jobs in German subsidiaries was 227,000 in 1997, rising to 236,000 in 2002. In the period 1997 to 2002 employment by German subsidiaries increased by nearly 4 per cent while French subsidiaries experienced only a very small increase (Table 3). The majority of jobs is in the manufacturing sector, but employment in this sector is falling for both German and French subsidiaries. Employment in the services sector and service activities is rising rapidly in both German and French subsidiaries, but German establishments show the largest increase. The largest number of jobs by main activity is sales and distribution for German subsidiaries, but employment by German subsidiaries in this activity is falling. Manufacturing activities provide the largest share of jobs for French subsidiaries, but the proportion of employment in this activity is falling. German subsidiaries have a larger proportion of labour employed in new industries, but French

Table 3
Distribution of employment

| | German subsidiaries | | | French subsidiaries | | |
|------------------------|---------------------|--------|--------|---------------------|--------|--------|
| | 1997 | 2002 | Change | 1997 | 2002 | Change |
| All subsidiaries | 27,984 | 29,092 | 3.8 | 22,816 | 22,875 | 0.3 |
| Sector (%) | | | | | | |
| Manufacturing | 75.5 | 68.6 | -5.6 | 53.1 | 48.8 | -7.9 |
| Service | 24.2 | 31.0 | 33.2 | 34.2 | 39.2 | 15.0 |
| Others | 0.3 | 0.4 | 41.5 | 12.7 | 12.0 | -5.4 |
| Activity (%) | | | | | | |
| Manufacturing | 32.3 | 29.8 | -3.8 | 46.8 | 40.1 | -14.1 |
| Services | 19.7 | 24.9 | 31.5 | 19.8 | 22.4 | 13.5 |
| Sales and distribution | 46.6 | 42.8 | -3.3 | 31.4 | 35.1 | 11.8 |
| Others | 1.4 | 1.8 | 38.0 | 2.0 | 2.4 | 23.0 |
| Type of industry (%) | | | | | | |
| Traditional | 61.5 | 60.6 | 2.4 | 83.6 | 81.1 | -2.8 |
| New | 31.1 | 30.7 | 2.5 | 8.9 | 11.3 | 27.6 |
| Others | 7.4 | 8.7 | 22.5 | 7.5 | 7.6 | 1.5 |

Notes:

1. Projected number of jobs estimated for all German subsidiaries in the UK in 1997: 227,000; for 2002: 236,000; for 2005: 256,000.
2. Percentage change is the change in the total number of jobs in the various categories above (such as manufacturing).
3. 1997 figures relate to employment in 1997 or the commencement of German/French ownership if this was later than 1997.

subsidiaries have a considerably higher rate of growth (from a very low base) in new industries.

7.2.1 Assessment of the propositions relating to quantitative employment effects

The findings of the study provide only weak support for Proposition 1,³ as growth of employment is only positively related to size (except for new industries) and technology transfer (but for all German subsidiaries the relationship is negative). Greenfield entry is also significant but only for French subsidiaries. Sector and age are not significantly related to growth of employment, except age (at 10 per cent level) for younger German subsidiaries not primarily involved in sales and distribution. However, manufacturing is negatively related (at 10 per cent level) to growth of employment in this category for both German and French subsidiaries. Apart from change in size, traditional factors do not greatly influence employment growth, other than a weak relationship for age for establishments not primarily involved in sales and distribution.

Embeddedness factors have only a very limited impact on employment growth indicating that Proposition 2⁴ is only very weakly supported. Increase in host country sourcing is positively related to employment growth for German subsidiaries in traditional industries and increase in the scope of activities is positively related for all French subsidiaries. The other embeddedness factors are not significantly related to employment growth.

The findings relating to Propositions 1 and 2 support the view that DFI between countries with similar levels of development does not have strong implications for the growth of employment, in terms of both traditional (other than size) and embeddedness factors.

7.3 What types of jobs are associated with German DFI into the UK?

German subsidiaries employ a higher proportion of skilled labour than French subsidiaries: 52.8 per cent compared to 43.5 per cent. However, the rate of growth of skilled labour in French establishments is higher. German subsidiaries are expanding the number of semi-skilled/unskilled jobs faster than skilled jobs, leading to a shift in skills composition in favour of semi-skilled/unskilled. French subsidiaries experienced a slight fall in employment of semi-skilled/unskilled labour, indicating a shift towards skilled employment (Table 4).

French subsidiaries have a larger proportion of skilled jobs in manufacturing; their employment of skilled labour is increasing, while the number of semi-skilled/unskilled jobs has fallen. In German manufacturing establishments the numbers of jobs in both skill

³ Proposition 1: Growth of employment is positively related to manufacturing and services, greenfield entry mode, size (larger establishments) and technology transfer. It is negatively related to brownfield entry mode, sales and distribution, and age (older establishments).

⁴ Proposition 2: Growth of employment is positively related to embeddedness and to increases in embeddedness.

Table 4
Skills composition (%)

| | 1997 | | 2002 | | Change | |
|----------------------------|--------------|-----------------------------|--------------|-----------------------------|--------------|-----------------------------|
| | Skilled jobs | Semi-skilled/unskilled jobs | Skilled jobs | Semi-skilled/unskilled jobs | Skilled jobs | Semi-skilled/unskilled jobs |
| German subsidiaries | | | | | | |
| All subsidiaries | 52.8 | 47.2 | 51.8 | 48.2 | 2.1 | 6.4 |
| Sector | | | | | | |
| Manufacturing | 49.5 | 50.5 | 49.2 | 50.8 | -6.3 | -5.2 |
| Services | 63.6 | 36.4 | 57.7 | 42.3 | 23.5 | 57.8 |
| Activity | | | | | | |
| Manufacturing | 33.3 | 66.7 | 34.8 | 65.2 | -3.5 | -10.0 |
| Services | 65.2 | 34.8 | 61.2 | 38.8 | 23.7 | 46.9 |
| Sales and distribution | 59.3 | 40.7 | 55.0 | 45.0 | -8.0 | 9.4 |
| Type of industry | | | | | | |
| Traditional | 45.0 | 55.0 | 43.1 | 56.9 | -0.2 | 7.8 |
| New | 84.7 | 15.3 | 72.2 | 27.8 | 0.1 | 0.9 |
| French subsidiaries | | | | | | |
| All subsidiaries | 43.5 | 56.5 | 46.1 | 53.9 | 10.4 | -0.5 |
| Sector | | | | | | |
| Manufacturing | 53.6 | 46.4 | 55.1 | 44.9 | 7.5 | -9.5 |
| Services | 26.8 | 73.2 | 31.6 | 68.4 | 26.2 | 9.8 |
| Activity | | | | | | |
| Manufacturing | 42.7 | 57.3 | 46.2 | 53.8 | -5.6 | -18.2 |
| Services | 76.6 | 23.4 | 74.4 | 25.6 | 10.1 | 23.7 |
| Sales and distribution | 22.3 | 77.7 | 27.8 | 72.2 | 47.4 | 9.9 |
| Type of industry | | | | | | |
| Traditional | 39.6 | 60.4 | 41.5 | 58.5 | 7.8 | -0.6 |
| New | 64.8 | 35.2 | 69.0 | 31.0 | 28.7 | 6.3 |

Notes:

1. Percentage change is the change in the total number of jobs within the two skills categories.
2. The 1997 figures relate to employment in 1997 or the commencement of German/French ownership if this was later than 1997.

categories have fallen. Both German and French subsidiaries are expanding employment of skilled and semi-skilled/unskilled labour in services. However, French subsidiaries have a considerably larger increase in skilled jobs than German establishments. Moreover, German subsidiaries have a very large increase in employment of semi-skilled/unskilled labour in the services sector, but they have a considerably larger proportion of skilled jobs compared to French (Table 4).

In terms of main activity, German and French subsidiaries are reducing the rate of growth of skilled and semi-skilled/unskilled jobs in manufacturing. Where services are the main activity, German subsidiaries are expanding in both categories of jobs (especially semi-

skilled/unskilled) by more than French establishments. German subsidiaries are reducing their rate of growth of skilled jobs in sales and distribution, while French subsidiaries are increasing their employment of this skill category (Table 4).

German subsidiaries have a higher proportion of skilled labour in new industries, but French establishments have a higher growth rate of jobs in this category (Table 4).

The results may be taken to indicate that the services sector and service activities are generating most employment and many of these jobs are skilled. However, the regression results did not find significant relationships between these factors and the change in employment or increase in skilled jobs.

7.3.1 Assessment of the propositions relating to qualitative employment effects

7.3.1.1 Traditional factors and type of jobs

The number of skilled jobs is only significantly related to size. The other traditional factors are not significant. In terms of increase in skilled jobs, change in size is supported in most cases. Greenfield entry and technology transfer is significant, but only for French subsidiaries in some categories. Apart from size, no traditional factors have a significant impact on the number and increase in skilled jobs for German subsidiaries. Thus Proposition 3⁵ is only very weakly supported.

In contrast to skilled jobs there is a slightly stronger relationship between traditional factors and semi-skilled/unskilled jobs. Size, services, and sales and distribution are related to the number of semi-skilled/unskilled jobs in some cases. However, entry mode, technology transfer and age are not significantly related. Increase in semi-skilled/ unskilled jobs is only related to change in size. French subsidiaries have significant relationships with entry mode, age and technology transfer. There is therefore weak support for Proposition 4.⁶

These findings indicate that traditional factors (except for size) have only a very limited impact on the type of jobs. However, in the case of French subsidiaries the relationship between traditional factors and type of jobs is stronger.

7.3.1.2 Embeddedness factors and type of jobs

The importance of foreign markets is positively related (at the 10 per cent level) to the number of skilled jobs for German subsidiaries in traditional industries. Use of networks, and increase in the use of networks, parent control and decision-making autonomy are significant in some cases but have the wrong sign. Thus, support for Proposition 5⁷ is very weak for the number of skilled jobs. Increase in skilled jobs is positively related to increase

⁵ Proposition 3: The number of and change in skilled jobs are positively related to manufacturing and services, greenfield entry mode, size (larger establishments), age (older establishments) and technology transfer. They are negatively related to brownfield entry mode, and sales and distribution.

⁶ Proposition 4: The number of and change in semi-skilled/unskilled jobs are positively related to brownfield entry mode, sales and distribution, size (larger establishments) and age (older establishments). They are negatively related to greenfield entry mode, manufacturing and services, and technology transfer.

⁷ Proposition 5: The number of and change in skilled jobs are positively related to embeddedness and to increases in embeddedness.

in decision-making autonomy, increased use of networks and increased use of host country sourcing for German subsidiaries in most cases. Hence, support for Proposition 5 is strong in the case of increase in embeddedness factors and increase in skilled jobs for German subsidiaries. The link between change in embeddedness factors and the increase in skilled jobs highlights the importance of growing embeddedness for the growth of skilled jobs. Interestingly, this result was not found for French subsidiaries.

Limited support was found for Proposition 6,⁸ but only for French subsidiaries. For the number of semi-skilled/unskilled jobs support was very weak because the importance of host country sourcing (at 10 per cent level) and the use of networks is negatively related to the number of semi-skilled/unskilled jobs for German subsidiaries that are not centred on sales and distribution. Increase in decision-making autonomy is negatively related for French subsidiaries in traditional industries. However, parent control and importance of foreign markets are positively related in some cases. Increase in semi-skilled/unskilled jobs is negatively related to parent control, and the use of networks and increase in scope of activities are positively related for some French subsidiaries. Increase in embeddedness factors is not significantly related to increasing employment of semi-skilled/unskilled labour for German subsidiaries.

These findings provide weak support for the view that the main impact of DFI inflows is to boost employment of skilled rather than semi-skilled/unskilled jobs in those subsidiaries that become more embedded in their host location. In particular, German subsidiaries that develop embeddedness increase employment of skilled labour.

7.4 Does German DFI lead to a loss of jobs and/or a loss of skilled jobs in Germany?

Manufacturing in traditional industries comprises the bulk of German subsidiaries in the UK. Most German parent companies have one UK subsidiary and 36 per cent plan to increase activities in the UK (Table 5).

Granting of autonomy in decision-making is high in services and in new industries. Access to local networks and technology has low importance for all sectors and types of industry, and these factors are more important for services and for new industries (Table 6).

However, the data suggest that these embeddedness factors are not very important for parent companies. Less than 7 per cent of parent companies have transferred jobs from Germany to the UK. The majority of parents claim to have created mainly skilled jobs in their UK subsidiaries, with only a very small proportion having created more semi-skilled/unskilled than skilled jobs. Subsidiaries in new industries have created the most skilled jobs and those in traditional industry have the largest proportion of as many skilled as semi-skilled/unskilled. New industries have the highest proportion of high value-added operations, but in all cases about 40 per cent of parents claim to have created high value-added operations in their UK subsidiaries (Table 7).

⁸ Proposition 6: The number of and change in semi-skilled/unskilled jobs are negatively related to embeddedness and increases in embeddedness.

Table 5
Parent company data overview (%)

| Sector | | Number of subsidiaries | |
|------------------|------|--|------|
| Manufacturing | 57.9 | 1 | 71.7 |
| Service | 42.1 | 2–4 | 22.2 |
| Type of industry | | 5–10 | 3.6 |
| Traditional | 80.6 | 11–58 | 2.5 |
| New | 19.4 | Plans to increase activities in the UK | 36.3 |

Note: Sector refers to that sector in which the majority of parent company subsidiaries are located

Table 6
Embeddedness variables

| | Granting of decision-making autonomy* | Importance of access to networks | Importance of access to technology |
|----------------------|--|---|---|
| All parent companies | 56.3 | 15.8 | 15.3 |
| Sector | | | |
| Manufacturing | 32.6 | 13.5 | 14.3 |
| Services | 89.0 | 19.1 | 16.7 |
| Type of industry | | | |
| Traditional | 46.8 | 12.7 | 12.7 |
| New | 59.0 | 16.4 | 14.8 |

Notes:

1. * denotes high decision-making autonomy.
2. Sector refers to that sector in which the majority of parent company subsidiaries are located.

Table 7
High value-added operations, transfer of jobs and types of jobs (%)

| | All parent companies | Sector | | Type of industry | |
|---|----------------------|--------------------|---------|------------------|------|
| | | Manu- facturing | Service | Traditional | New |
| Creation of high value- added operations | 42.8 | 44.6 | 40.3 | 41.8 | 45.0 |
| Transfer of jobs | 6.3 | 7.7 | 4.3 | 6.8 | 6.6 |
| Types of jobs created in subsidiaries | | | | | |
| Mainly skilled | 75.7 | 76.3 | 75.3 | 72.4 | 88.5 |
| Mainly semi-skilled/unskilled | 3.7 | 6.9 | 1.4 | 2.8 | 3.3 |
| As many skilled as semi-skilled/unskilled | 20.6 | 16.9 | 23.3 | 24.8 | 8.2 |

Note: Sector refers to that sector in which the majority of parent company subsidiaries are located.

The results from the parent companies provide some indication that the most likely impact on jobs in the UK has been to marginally alter the pattern of jobs with a tendency to boost skilled jobs. However, the large number of UK subsidiaries that are centred on sales and distribution suggests that UK jobs could have been lost due to displacement by German exports. The data support the view that a low-cost rationale for investing in the UK is not present, whereas trade-induced DFI is clearly important. The low importance attached to embeddedness factors suggests that this rationale for DFI is not very important. This implies that German DFI into the UK would boost, or at least defend, employment in Germany. The small number of jobs that have been transferred from Germany also implies that few jobs will have been lost in the home base as a result of DFI into the UK. However, the creation of some high value-added operations and of skilled jobs in UK subsidiaries is likely to have implications for the pattern of jobs in Germany as supply chains are altered by integrating the operations of subsidiaries with the activities of the parent companies in Germany.

7.4.1 Assessment of the propositions relating to employment effects from parent companies

There is a significant positive relationship between parent companies granting autonomy to their subsidiaries and high value-added operations. However, access to local networks and technology is not significant. Thus, support for Proposition 7⁹ is limited. Transfer of jobs is linked to high value-added operations, but the only embeddedness factor that is significant is access to networks (in traditional industries), indicating that support for Proposition 8¹⁰ is very weak. In terms of the creation of mainly skilled jobs, access to local networks is significant in most cases, but granting autonomy is negatively related in most cases. Moreover, access to technology is negatively related for all parent companies. Therefore support for Proposition 9¹¹ is very weak.

The evidence from parent companies provides very limited support for the view that where embeddedness is significant, the main effect of DFI inflows is to boost employment of skilled labour in the UK and by inference in Germany. However, this effect is likely to be very small. Moreover, as the primary reason for DFI into the UK is to supply and develop the British market, the main impact is likely to be to increase, or at least defend, jobs in Germany. Therefore, the main impact on jobs in Germany is likely to be a small change in the composition of jobs due to the trade-related nature of most of German DFI and the increase, or the protection, of those jobs connected to export activities.

The results indicate that parent companies are unlikely to have created many skilled jobs in the UK that are connected to embeddedness factors. Most of the jobs created in the UK seem to be connected to the dominant motive of supplying and developing the British market using competitive advantages that largely come from the home base. There seems to be little desire by German parent companies to gain access to UK-based assets and technology that could be useful for the overall competitiveness of the firm.

⁹ Proposition 7: Parent companies that attach importance to embeddedness factors for DFI create high-value operations in their subsidiaries.

¹⁰ Proposition 8: Parent companies that attach importance to embeddedness factors will transfer jobs to their embedded subsidiaries.

¹¹ Proposition 9: Parent companies that attach importance to embeddedness factors for DFI create mainly skilled jobs.

8 Summary of evidence

The evidence on the drivers of DFI suggests that the main influence is the desire to develop the UK market for German products. This is most obviously seen in the high number of subsidiaries that are primarily involved in sales and distribution. The low number of German subsidiaries in new industries and the relatively low level of technology transfer indicate that the UK is not regarded as a major area to exploit technological or new industry advantages. However, the large average size of German subsidiaries, relative to French subsidiaries, may indicate that in some sectors German firms are benefiting from UK competitive advantages, mainly by using large subsidiaries: for example, large German banks in the City of London.

Embeddedness factors do not seem to be very important, other than the high level of autonomy granted to German subsidiaries. This may, however, be more connected to the decentralised nature of German organisational systems rather than a measure of high embeddedness in the UK. In general, French subsidiaries are more embedded than their German counterparts. However, both German and French subsidiaries are not strongly embedded into their host locations in the UK.

The results indicate that most of the propositions are only weakly or very weakly supported. The evidence suggests that traditional factors (apart from size) have little impact on employment growth or the type of jobs. This further strengthens the argument that employment in the UK from German DFI is largely connected to the requirements of exploiting the UK market. This implies that some jobs will have been gained, but domestic jobs will have been lost due to increased German penetration of the UK market. A summary of the findings from the regression analysis with some inferences on the impact of employment is provided in Table 8.

Apart from increase in embeddedness and increase in skilled jobs there is very little evidence that German subsidiaries take advantage of locally available assets to boost employment and skilled jobs in the UK. As only a minority of German subsidiaries fulfil the criteria for being embedded, it seems that embeddedness-related employment is very marginal. However, the trade-related nature of much of German DFI into the UK suggests that jobs have been created, or at least protected, in the home base. There is little evidence that there has been substantial transfer of jobs from Germany to the UK. Although some high value-added jobs and mainly skilled jobs have probably been created by German subsidiaries in the UK, these jobs are mainly connected to exploiting the home-grown advantages of German parent companies.

Table 8
Summary of evidence on propositions

| Propositions | Support | Inference |
|---|--|--|
| <i>Does German DFI create jobs in the UK?</i> | | |
| Proposition 1 (employment growth) | Weak | Traditional (other than size) and embeddedness factors have little effect on the growth of employment |
| Proposition 2 (employment growth and embeddedness factors) | Very weak | |
| <i>What types of jobs are associated with German DFI into the UK?</i> | | |
| Proposition 3 (skilled jobs and traditional factors) | Very weak | Evidence that traditional factors (other than size) do not have a strong influence on the type of jobs |
| Proposition 4 (semi-skilled/unskilled jobs and traditional factors) | Weak | |
| Proposition 5 (skilled jobs and embeddedness factors) | Very weak for number of skilled jobs but support for increase in skilled jobs | Evidence that embeddedness is linked to increase in skilled jobs |
| Proposition 6 (semi-skilled/unskilled jobs and embeddedness factors) | Very weak support for number of semi-skilled/unskilled jobs but no support for increase in semi-skilled/unskilled jobs | Some support for the view that increased embeddedness is not associated with increased employment of semi-skilled/unskilled labour |
| <i>Does German DFI lead to a loss of jobs and/or a loss of skilled jobs in Germany?</i> | | |
| Proposition 7 (embeddedness) | Limited | Some limited evidence that where factors and high-value operations) embeddedness factors are important, DFI inflows will boost employment of skilled labour in the host location, with an implication that the main effect on German employment will be on the pattern of jobs |
| Proposition 8 (embeddedness factors and transfer of jobs) | Very weak | |
| Proposition 9 (embeddedness factors and creation of mainly skilled jobs) | Very weak | |

9 Implications for policy

9.1 Macro policies

Contrary to many of the views expressed in the *Standort Deutschland* debate, it is unlikely that German DFI outflows, at least to other developed economies such as the UK, lead to an export of jobs to the host country. This study has found little evidence that German jobs are lost or that jobs are transferred in large numbers to the UK as a result of German DFI into Britain. Indeed, given the likelihood that German employment has been increased or at least defended as a result of DFI flows to the UK, it is probable that encouraging DFI outflows to countries such as the UK will strengthen employment conditions in Germany. This indicates that public relations campaigns and information programmes to highlight these effects may help to reduce unease among sections of German society that have concerns about job losses from DFI from Germany to countries such as the UK.

For the UK the employment effects of German DFI are also likely to be beneficial because jobs are created and many of them are skilled. However, given the trade-related nature of much of German DFI into the UK, some loss of jobs is likely because of substitution of output from British companies to German exports and/or production by German subsidiaries. This requires structural adjustment in the UK economy to transfer resources from industries that suffer decline due to increased German competition to those industries where the UK has comparative advantage.

9.2 Micro policies

German DFI into the UK does marginally change the number of jobs in the home country because some, but not many, jobs are transferred and existing jobs can be expanded due to increased exports to the British subsidiary. Some jobs will also be lost due to production being switched from Germany to Britain. However, this and other studies indicate that such switching will be limited. Moreover, switching of production and other activities is likely to lead to new or changed jobs in the home country in order to develop new supply chains that embrace both home and host countries.

One area of micro policy in Germany is the education of workers and managers to highlight that DFI outflows to countries like the UK is likely to create jobs in the home country, albeit with some limited change in the composition of jobs. Policies to train and retrain workers to rapidly adjust to the new types of jobs that are likely to arise from outward DFI are also likely to be beneficial. Given the current motivations for German DFI in the UK, the need for such policies is likely to be small as the overall impact on employment in Germany is probably low. A change in the incentive to invest in countries like the UK towards greater emphasis on embeddedness to gain access to local technology

and networks and to supply major markets as well as the UK will require more emphasis on micro policies to train and retrain workers because such DFI will lead to a more pronounced impact on jobs in Germany, especially in terms of the type of jobs.

The failure by many German companies to become firmly embedded into their host locations in the UK may indicate a failure to develop strategies that can lead to long-term competitiveness. The relatively small presence of German companies in fast-growing areas such as business services and pharmaceuticals may highlight a failure to develop in these new industries. The rapid build-up of services and services activities indicates that German companies are moving into fast-growing areas in the UK. However, these operations may also be more connected to promoting trade with the home base than to developing new core competencies. A re-assessment of the strategy of the dominant use of trade-related DFI might be useful to assess the long-term implications of this strategy for competitiveness.

British policymakers, particularly those charged with attracting DFI inflows, need to assess their current policies to attract DFI from countries such as Germany. The emphasis on low taxation (or at least low non-wage costs), flexible labour markets and light regulatory regimes do not seem to be important for German investors. Given that the major driver of German DFI is to supply and develop UK markets, policies to improve logistical systems and to overcome bottlenecks (such as labour shortages) to supplying British markets are probably more important. Targeting obstacles to growth in areas where German subsidiaries have high growth of skilled jobs (business services, pharmaceuticals) may also be useful.

It also seems that assets such as local networks and locally available technology are not very attractive for many German companies. Hence, policies that highlight sources of valuable technology and knowledge are unlikely to attract German DFI. Nevertheless, policies that can increase host country sourcing by, for example, encouraging suppliers and quality clubs may help to promote more skilled jobs. Developing policies that reduce quality problems connected to domestic supply by linking subsidiaries and potential suppliers to networks of firms and agencies such as universities and chambers of commerce may help to overcome these problems.

Policies that seek to promote and retain skilled jobs from DFI inflows depend on locking foreign-owned subsidiaries into the host location. In terms of German DFI into the UK this points to policies that provide a good environment for subsidiaries to supply and develop British markets. However, this is unlikely to create and develop skilled jobs that are deeply rooted into host locations unless stronger links to local suppliers can be secured. To seek to develop DFI that encourages employment effects connected to valuable locally available assets that can boost the overall competitiveness of German multinational companies requires the expansion of the attractiveness of embeddedness factors.

However, this will only work if the strategic objectives of parent companies lead to a search for such factors. Currently there is little evidence that large numbers of German parent companies are looking for such assets in the UK. This suggests that attracting new German investments and seeking to induce existing German subsidiaries to develop embeddedness will be unlikely to succeed unless German parent companies change their strategic objectives towards policies that are more geared to access to locally available assets. The key to this area is increasing access to networks and increasing host country sourcing, as both of these factors are associated with rising employment of skilled labour.

Findings from the parent companies indicate that the access to networks was important, but this was likely to be connected to supplying the UK market. This indicates that enhancing the network connections of existing German subsidiaries to boost the capabilities to develop UK markets may enhance the growth of skilled jobs.

10 Conclusion

The findings from the study suggest that German DFI into the UK has not had large-scale implications for quantitative and qualitative employment conditions either in the host or the home countries. It is unlikely that German DFI has led to significant job losses in Germany. Indeed, it is possible that jobs have been created, or at least defended, because of increased German exports and improved efficiency of operations in the parent company. Employment in the UK is also unlikely to have been significantly affected by the German DFI inflows. Some jobs will have been lost due to substitution of output from British companies by German exports or UK production from German subsidiaries. Jobs will also have been gained and some of them will have been more highly skilled jobs.

German DFI inflows are likely to have led to some change in the composition of jobs in both home and host countries. Where embeddedness factors are important, this has probably led to an increase in skilled jobs. Employment in manufacturing is declining but is rising in the services sector. Employment in new industries is also expanding and many of the jobs are skilled. However, there are few German subsidiaries in the new industries sector, although this sector is becoming more important.

The view that assets and resources that are only available in host locations are important for German DFI into the UK seems to be unfounded. Thus, it would seem, embeddedness factors are not very important for the impact of German DFI on employment. Indeed, even some of the traditional factors such as age and entry mode are not particularly important for either the growth of employment or for the type of jobs that are connected to German subsidiaries. It seems that German DFI into the UK is largely driven by a desire to take advantage of core German competencies and to expand the UK market for German products.

The implications of such a strategy in the long run is questionable if increased competition from non-EU sources or from new members of the EU leads to a loss of market share in many of the traditional markets of German companies. In these circumstances embeddedness-driven DFI is likely to become more important to help German companies develop the network of resources to maintain and develop competitiveness.

In such a scenario the employment effects of German DFI into the UK are likely to become more centred on changing the skill level of jobs, as German companies seek to develop international networks of subsidiaries that exploit the embeddedness characteristics of the various locations of their subsidiaries. However, there is little evidence that such embeddedness-driven DFI is currently an important segment of German DFI into the UK. Given the size of the UK market and the focus by German companies on exploiting their home-based advantages, it is likely that DFI into the UK will continue to be dominated by the desire to exploit the UK market. Thus, German DFI is likely to be increasingly geared to fast-growing sectors of the UK economy such as services and new industries. Indeed, the data on the growth of employment and in the type of jobs indicate that this process is already underway. The implications for employment of such a strategy are likely to be to protect or even enhance employment in Germany and to provide a mixture of job gains and losses in the UK.