Exploring the regional distribution of inbound FDI in the United Kingdom in theory and practice ☐ Evidence from a five region study

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ABSTRACT

This paper examines the main factors that attract inbound foreign direct investment (FDI) at the UK regional level, using econometric data from five sample UK regions (the South East, West Midlands, North West, Wales and Scotland) broadly representing the country's regional economic divide. The findings indicate that regional and national (but not EU-level) factors, linked to several underlying strategic determinants help determine the regional distribution of inbound FDI, and its inter-regional variation. The paper concludes that governmental policymakers at the national and regional levels can have an important role to play in drawing targeted FDI inflows to the UK regions.

Inbound FDI location

U.K. regions

Strategic determinants

Specific motives

Government policy implications

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INTRODUCTION

Existing research (for example, Stopford and Strange, 1991; Hill and Munday, 1992 and 1995**;** Phelps *et al*, 1998; Loewendahl, 2001a; Dunning, 2002) suggests that regional, national and international factors all work together in attracting inbound FDI to particular regions in small, advanced industrial countries such as the UK. TNC's investment location decision making can be seen as being governed by a hierarchical structure, in which decisions to invest are taken firstly at a continental level, before attention moves successively to particular host countries, regions and localities (Devereux, Griffiths and Simpson, 2001; Loewendahl, 2001a; Crozet, Mayer and Mucchielli, 2004).

This paper seeks to add to the literature on the locational determinants of FDI, by identifying the main specific motives that influence the location of inbound FDI at the UK regional level, together with the underlying strategic determinants of such FDI and the role of government influence. The paper also seeks to explore how far regional, national and EU-level factors help to explain the UK's regional distribution of inbound FDI; and to suggest the resultant implications for government policy towards inbound FDI at UK regional level.

The first part of the paper explores the changes in the distribution of FDI within five sample UK regions (the South East, a core region; the West Midlands, an inner periphery region; and the North West, Scotland and Wales, outer periphery regions) highlighting these regions' contrasting FDI records (ONS, 1999-2006; Mackay, 2003). The literature covering the major influences on FDI location is next discussed, linking three strategic determinants of FDI (market-seeking, efficiency-seeking and strategic asset-seeking) and government influence to a range of specific motives (regional, national and EU-level) for the location of FDI in particular U.K. regions. The discussion is related to the hierarchical structure of FDI location decision-making (Crozet *et al,* 2004; Devereux, *et al,* 2001) and to 'competence-exploiting' and 'competence-creating' FDI (Cantwell and Mudambi, 2005).

A multiple regression model based on the literature is next developed, and used to explore the locational determinants of inbound FDI in the five regions, focusing on the strategic determinants of FDI and specific motives for its location. Use is made of the findings to examine the specific motives influencing the location of FDI at the UK regional level, and the main underlying strategic determinants of such FDI, together with the variation of both sets of factors from region to region. The paper reviews how far regional as opposed to national and EU-level factors explain the distribution of inbound FDI in the UK regional context, together with the implications of the findings for government policy towards inbound FDI.

SAMPLE UK REGIONS: ECONOMIC CHARACTERISTICS AND FDI INFLOWS

The sample regions included in this paper reflect the persistent economic divide between the UK's (more advanced) core and its (relatively backward) peripheral regions. The (core) South Eastern region is currently larger in population and gross domestic product per capita terms (estimated by UK government statistics as gross value added or GVA - the contribution of each individual industry and sector to the regional economy) than the other four regions (ONS, 2006). The contribution of services to the South East's GVA is far higher than elsewhere, reflecting the relatively heavy bias of its economy against the manufacturing sector. Median full time earnings are relatively high for the South East, boosting consumers' incomes and purchasing power, but also raising labour costs. The South East also enjoys an advantage over the four peripheral regions by virtue of its relatively large labour force, high employment and low unemployment rates. Its position is strong in educational and workforce skills terms, with a high proportion of 16 year-olds in post-compulsory education and government training schemes (although a greater proportion of Scottish pupils achieve qualifications equivalent to GCSE grades A*-C). The South East also benefits from far higher levels of R&D expenditure than the peripheral regions, although government expenditure on regional preferential assistance to industry is lower for the South East than elsewhere (see Table 1a)

Table 1a here

The South East's economic advantages are reflected in its relatively greater attractiveness to inbound FDI (ONS, 2006). Some commentators (Tewdr-Jones and Phelps, 2000; Dicken *et al*, 1997) argue that the South East's inward investor appeal may now be declining, as FDI commitments switch from the UK's core to its peripheral regions. Others (Stone and Peck, 1996; Mackay, 2003) however maintain that relatively prosperous core regions such as the South East are likely to retain their competitive advantage over the periphery in the attraction of FDI. Official FDI statistics (ONS, 1999-2006) support the latter view. Table 1b shows that inbound FDI (measured by new project successes) rose by 60.5% in the UK as a whole between 1998 and 2005. The South East's share rose substantially (from 11.1 per cent to 16.7 per cent) over the same period, whilst in contrast, all four sample peripheral regions experienced a reduced share of national new FDI projects.

Table 1b here

The overall increase in new FDI projects for the UK as a whole appears to have been largely attributable to non-manufacturing activities (see Table 1). National manufacturing new FDI projects fell from 311 (46.8 per cent of total FDI) in 1998-9 to 256 (24.0 per cent) in 2004-5, while non-manufacturing projects rose from 353 (53.2 per cent) to 810 (76.0 per cent). This national trend was reflected in all four peripheral regions included in this study, although interestingly not in the South East. Manufacturing FDI projects attracted by the West Midlands, North West, Wales and Scotland declined in numerical terms between 1998 and 2005, while only the South East showed an increase. The shares of UK manufacturing FDI entering all of the peripheral regions declined substantially over the same period, whereas the South East increased its share of national manufacturing FDI projects. All sample regions attracted higher levels of non-manufacturing FDI (in new project terms) between 1998 and 2005, with the South East recording by far the largest increase. The share of UK non-manufacturing FDI rose in the South East, North West

and (marginally) in the case of Wales, but fell in the West Midlands and Scotland over this period (ONS, 1999-2006).

CONCEPTUAL FRAMEWORK

The volume and value of FDI by TNCs have grown substantially since the mid 1980s, leading to a commensurate increase in theories seeking to explain its strategic determinants, including Dunning's (2001 and 2002) 'eclectic paradigm'. For FDI to occur, Dunning argues that TNCs must possess distinctive ownership-specific advantages, best exploited by internalising their market transactions. TNCs must choose whether to do so at home or abroad, and their choice of location will be heavily influenced by the costs and benefits of locating value-added activities in different geographical locations. They also collaborate globally with suppliers, customers and competitors, leading to cross-border alliances, mergers and acquisitions and providing a motive for FDI in particular locations (UNCTAD, 2000).

Scholarly interest is now growing in the locational aspects of FDI, and in how location influences TNCs' competitive advantages. A number of studies (Culem, 1988; Hill and Munday, 1995; Guimaraes *et al,* 2000; Yang *et al,* 2000) have sought to identify the main influences on their choice of FDI location in developed countries, especially at the national (Wheeler and Mody, 1992; Devereux and Griffith, 1998) and regional (Carlton, 1983; Head *et al*., 1999) level. Many of these studies have focused on the US, although some (such as Guimaraes *et al*, 2000 and Ferrer, 1998) have been based in Europe.

FDI location decisions involve hierarchical decision making, linking together international, national and regional elements (Devereux *et al,* 2001; Loewendahl, 2001a). TNCs first choose between locating subsidiaries at the continental level (in, for example, Europe or the USA), before determining whether to locate in particular countries (such as the UK or Germany) and subsequently regions (the South East or Lower Saxony).Crozet *et al* (2004) view TNCs' location choices as being guided by a 'learning process',

enabling TNCs to invest in locations increasingly remote from their countries of origin as their knowledge of local business conditions grows.

A number of taxonomies of FDI location have now been developed. Cantwell and Mudambi (2005) put forward a meta-analysis, distinguishing between 'competence-exploiting' and 'competence-creating' TNC subsidiaries. The former follow demand-driven strategies, exploiting competences developed by their parent companies by market-servicing investment and assembly type production, whilst the latter pursue, supply driven strategies, involving the generation of new competences in host country locations (by means such as technology transfer and the upgrading of labour skills.) Dunning (1998 and 2002) suggests an alternative taxonomy, based around four main strategic determinants of FDI location: the search for markets (on the demand side), and the search for efficiency, strategic assets and natural resources (on the supply side). Host governments are also thought to influence FDI location, by facilitating the commitment of FDI and creating a virtuous cycle of investment in particular locations (Cantwell and Mudambi, 2000 and 2005; Manea and Pearce, 2004).The determinants of FDI location can in turn be linked to specific motives for direct investment, such as the size of the host economy, its per capita income, population and growth potential, and access to substantial, proximate markets (in the case of market-seeking FDI) (Thomsen, 2000).

This paper examines the importance of three strategic determinants of FDI location (the search for markets, efficiency and strategic assets), together with that of government influence. Resource-seeking FDI is excluded, since the UK (excepting the continental shelf) is relatively poor in natural resource terms. The specific motives underlying each of the strategic determinants and government influence (at the regional, national and EU levels) are discussed in the following sections of this paper, and the explanatory variables used in the paper and the underlying research are summarised in Tables 2a-2d.

Market-Seeking FDI

Market-seeking FDI is currently the main global determinant of FDI location, being motivated by TNCs' continual search for better access to markets, linked to proximity issues, agglomeration and to the desire to minimise distance costs (Driffield and Munday, 2000; Loewendahl, 2001a). It may be driven by the desire to sustain or safeguard existing regional, national or export markets or by the wish to develop new markets for successful existing products (Culem, 1988; Dunning, 2002).

Market-seeking FDI can be drawn to particular locations by the population density, per capita incomes, market size and growth prospects of regional, national or adjacent markets (Wheeler and Mody, 1992; Billington, 1999). Market-related agglomeration economies operating at the national and continental scale (Martin and Sunley, 1996) can influence FDI location, although their power may be limited where the markets served by TNCs overlap inter-regional boundaries (Guimaraes *et al,* 2000). FDI may also be attracted by a self-reinforcing effect, consistent with the impact of agglomeration economies on market-seeking direct investment (Cheng and Kwan, 2000).

FDI will be attracted to countries or regions with good market access, highly-developed transport and communications infrastructures and low transport costs (Yeung and Strange, 2002). Such investment may be increased by the presence of leading suppliers and well-developed service support facilities (Dunning, 1998) and by the absence of significant local competition from imports and rival firms (Milner and Pentecost, 1994). FDI may also be driven by the need to maximise familiarity with target market conditions (Barkema *et al,* 1997) and to preserve existing export markets where competitors are already beginning to invest direct (Srinivasan and Mody, 1998).

Efficiency-Seeking FDI

Efficiency-seeking FDI is driven by the differences in unit costs between geographical locations and by TNCs' desire to rationalise their activities in order to take advantage of specialisation, economies of scale

and scope, and potential synergies (Loewendahl, 2001a), for example by concentrating production in one, cost-efficient location from which multiple geographical markets can be supplied (Di Mauro, 1999). Labour market factors, including the supply, cost, skills and productivity levels of workers and the quality of industrial relations, are all potentially significant influences on the location of efficiency-seeking FDI (Yeung and Strange, 2002). Relatively high labour costs and negative wage differentials can deter FDI (Billington, 1999; Cheng and Kwan, 2000) although high and growing levels of labour productivity may offset this effect (Ford and Strange, 1999). There is also a correlation between labour costs and workforce qualifications and skills, leading to a decline in the significance of the former when education variables are also included in regional FDI equations (Hill and Munday, 1992).

High levels of unemployment may draw in efficiency-seeking FDI, by increasing the availability of labour and the willingness of employees to work harder and for lower wages. Unemployment can also reduce FDI however by restricting incomes and spending power in host country markets (Friedman *et al*, 1992). High levels of unionisation can attract FDI by raising worker morale and productivity levels (Billington, 1999); it can also deter FDI, though, if it has the effect of raising worker militancy and increasing wage levels (Ford and Strange, 1999).

Advanced levels of economic and industrial development, the availability of supporting industries and the resultant potential for cluster development can all attract efficiency-seeking FDI (Porter, 2003; Dunning, 2002). High geographical concentrations of manufacturing or services activity (for example in the German Ruhr or South East England) can also do so (Wheeler and Mody, 1992**;** Billington, 1999), as can specialised clusters of related industries (such as Silicon Valley, California), good potential links with local suppliers and buyers, related support services and industrial park facilities (Srinavasan and Mody, 1998; Enright, 1998; Martin and Sunley, 2001). These conditions can help to raise regional productivity, innovation and new business formation, leading to lower costs and greater new product development

opportunities for TNCs and therefore to greater levels of inbound FDI (Krugman and Venables, 1995; Ivarsson, 1999; Gorg and Ruane, 2001).

Strategic Asset -Seeking FDI

Strategic asset-seeking FDI is typically motivated by the desire to sustain or advance TNCs' international competitiveness by exploiting knowhow-related assets such as scientific and technological expertise in foreign countries and regions (Dunning, 2002; Cantwell and Janne, 1999; Enright and Roberts, 2001). The availability of highly developed skills capital can also be a key influence on the attraction of strategic asset seeking FDI to particular countries and regions.

Direct investment in regions with internationally competitive, know-how-intensive clusters can enable TNCs to tap into regionally-based, often cluster-specific, scientific and technological expertise, leading to faster innovation and potentially to global competitive advantage (Markusen, 1996; Crone, 2001; Gorg and Ruane, 2001). This can bring benefits for host regions as well as for TNCs, resulting from the deepening of local value chains, as well as from increased levels of locally-based innovation and technology transfer (Neven and Siotis, 1996; De la Potterie and Lichtenberg, 2001). Advanced countries and regions are generally best placed to offer these kinds of advantages to investors and thus generally enjoy an advantage over less favoured locations in attracting strategic asset-seeking FDI and investment in R&D (Loewendahl, 2001a).

Government influence on FDI

Government policy initiatives can significantly affect the attractiveness of particular locations to inbound FDI (Hill and Munday, 1992 and 1995; Phelps, 1997). National and regional governments in many countries now seek actively to draw in FDI by the use of investment allowances, tax breaks, promotional campaigns sometimes taking the form of ‘location tournaments’ and a range of complementary policies

(Head *et al,* 1999; Oman, 2000). Investment incentives may prove less effective in drawing in FDI to weaker regions where poor infrastructure, limited labour skills and high unemployment levels limit TNCs' interest. Even here, however, investment incentives can lead potentially to a 'pump-priming' effect, by helping to draw in some level of FDI inflows, and helping to create a virtuous circle of further investment (associated with local agglomeration effects) (Cantwell and Mudambi, 2000 and 2005).

Many governments now pursue sophisticated inward investment promotion policies, involving the competitive positioning of individual regions in the market for FDI, sector targeting and cluster development strategies, and investment lead-generation, project handling and after-care mechanisms, in order to attract and retain FDI (Loewendahl, 2001b). Governments can also seek to attract FDI by increasing economic openness, pursuing preferential policies towards foreign investment and trade, and by tariff reductions (Culem, 1988; Veugelers, 1991; Phelps, 1997). Exchange rate appreciations may reduce the competitiveness of countries and regions as FDI locations, while depreciations can have the opposite effect (Grosse and Trevino, 1996; Xing and Wan, 2004). Governments can also help to increase the attraction of efficiency-seeking FDI by promoting industrial restructuring, the maintenance and growth of regional clusters and supply chains, and small business development (Young and Hood, 1994; Tavares and Young, 2002). They can also invest in know-how, skills and new technology development and promote R&D as a means of luring in high-technology, competence-creating FDI (Adams *et al*, 2003).

At the supranational level, leading continental industrial blocs such as the E.U. also have the ability to influence FDI location, by means of their substantial market size, together with their external trade, competition, industrial and labour market policies. The co-existence of the single market and 'Fortress Europe' have for example helped to draw in a range of foreign-based TNCs as inward investors into the E.U.'s member states (El-Agraa, 2004).

RESEARCH METHODS

Research Questions

The aim of the paper is to explore the differential effects of regional, national and EU-level influences on FDI inflows into each of the sample regions *once the decision to invest in the UK has already been made.* The empirical research underlying this study has thus been designed to answer the following questions:-

1. What are the specific motives influencing the location of FDI at the UK regional level, and the main underlying strategic determinants of such FDI?
2. To what extent do these motives and determinants vary from region to region within the UK?
3. To what extent do regional as opposed to national and EU-level factors explain the distribution of inbound FDI in the UK regional context?
4. What are the implications of the overall study for government policy towards inbound FDI in the UK regions?

The regression model

The basic model underlying the regression was developed from the literature, making use of a framework developed by Stopford and Strange (1991); Hill and Munday (1992 and 1995); Stone and Peck (1996) Phelps *et al* (1998); Loewendahl (2001a); and Dunning (2002); and following the hierarchical approach discussed above. The model reflects three strategic determinants of inbound FDI (the search for markets, efficiency and strategic assets) together with government influence. The specific motives examined in building the 'best fit' model of the project determinants of inbound FDI for each of the sample regions are listed in the Tables 2a to 2d (below) together with their expected signs.

Tables 2a to 2d here

Single equation, multivariate, OLS regression models were developed for each sample region and for the five-region pool, where flows of inbound FDI (proxied by the number of new projects per year) were used as the dependent variable. The methodology employed was to regress a range of explanatory variables (reflecting the specific motives for inbound FDI location at the regional, national and supranational levels) on this dependent variable until 'best fit' models were obtained for each sample region.

Following the principles discussed above, inbound FDI was modelled at the UK regional level as:

FDI in a region = B_o + B1 Markets (regional, national and EU level) + B2 Efficiency (regional, national and EU level) + B3 Strategic Assets (regional, national and EU level) + B4 Government influence (regional and national levels)

Choice of independent variables

The choice of explanatory variables used in the multiple regression models (MRAs) was governed by theoretical issues and data availability. A range of variables reflecting each strategic determinant of FDI location was considered for each region. For example, in the case of market –seeking FDI, a variety of alternative variables, including measures of market size, infrastructure quality and existing stocks of FDI at the regional, national and EU levels was considered.

The starting point for each regional MRA was to take one variable from each of these categories before running a series of regression equations. For each region, the same set of four explanatory variables (one from each category of strategic determinants) was employed as the starting point for this procedure. Explanatory variables that were not significant, as measured by their t-ratios were removed and replaced by another variable from the same category list. The procedure continued until best fit equations were arrived at for each region, including the four most significant market-related variables. The same dependent variable was used throughout.

A forward stepwise approach to determine the predictors in each regional model was not considered to be appropriate (see Judd and McClelland, 1989 and Wilkinson and Dallal, 1981). Backward stepwise regression using the whole set of predictors was also rejected, given the limited degrees of freedom in the model. The procedure adopted instead involved the planned introduction of variables examining the determinants of regional FDI, using a hierarchical perspective, starting with supranational and national explanatory variables first, before moving onto regional variables. Where a national or supranational variable was not significant, measured by the t-statistic, it was replaced by a variable linked to the same strategic determinant. For example, if national GDP was found to be insignificant in an equation, it was replaced in the first instance by regional GDP. This procedure fits closely previous theoretical models but may still lead to some underlying biases with the results obtained (Judd and McClelland, 1989).

High levels of correlation were anticipated between the various motives for market-, efficiency-, and strategic asset-seeking and for government influence, associated with a high degree of collinearity between some of these explanatory variables at the regional, national and EU levels. Thus only one variable was included in each regional equation from each of these categories. It was also thought possible that correlations could also exist between the motives for FDI on a cross-category basis. A range of additional correlation tests was therefore carried out and where collinearity was shown to exist, the worst performing variables were excluded from the equations.

Limiting the range of independent variables to one in each broad category may lead to an omitted variable problem, particularly when the "true" functional form of an equation is unknown (Swamy *et al*., 2003) and where a significant explanatory variable is correlated with other explanatory variables in an equation. In such cases, an OLS regression generally produces biased and inconsistent estimates. In order to reduce omitted variable bias in the present case, the regression equations were developed to mirror the theoretical underpinnings of the determinants of FDI location; moreover, because of the level of correlation between

a number of the explanatory variables, individual variables might be proxying for others, thereby trading off reduced multicollinearity bias for some omitted variable bias.

Choice of dependent variable

FDI 'new project successes' were used to proxy inflows of FDI to the UK regions making use of data from ONS, 1981-2006 (and following the example of Hill and Munday, 1992 and Billington, 1999). The difficulties involved in using new project successes data in this type of study are well documented. Information is provided voluntarily by companies at the time of the decision to invest, leading to a greater likelihood that new projects will come to the attention of Invest UK, where this body (or its regional development agency partners) is involved in securing an FDI project (Billington, 1999). Published new project data may under-represent the numbers of projects undertaken in core regions such as the South-East where there may be little government or regional assistance available (Hill and Munday, 1992); they may also represent new or expansionary investment, therefore the resultant addition to the host region's FDI stock is difficult to determine (Stone and Peck, 1996). Finally, FDI projects are known to vary dramatically by investment size, due to the concentration of inward investment in a small number of projects while project-job intensity may be lower for larger than for smaller investment projects (Jones and Wren, 2004).

One way of overcoming such problems could have been to measure inbound FDI in terms of new jobs created, rather than by new projects (Hill and Munday, 1992). New projects were, however chosen ahead of the employment-based dependent variable (also used in Hill and Munday's study), due to the greater explanatory power that the former measure provided in their estimated equations for inbound FDI. Moreover, Stone and Peck (1996) argue that the use of employment data in this type of study can lead to a range of problems, including potential difficulties in isolating data relating to expected jobs created and determined by TNCs undertaking FDI; differentiating between jobs created and jobs safeguarded can also be problematic, as can estimating any jobs lost or displaced as a result of any given foreign investment

(Stone and Peck, 1996). Weak correlation between jobs created and investment levels (Jones and Wren, 2004) can be another problem associated with employment data.

The choice of new projects as the dependent variable in the present study was also influenced by practical considerations, in that a far more extended time series of data for this variable was found to be available from official UK government statistical sources, for all of the sample regions, than for alternative, employment-related measures of inbound FDI. Data on new jobs created, for example proved very difficult to obtain over a twenty two year time span due to the limited availability of regional data prior to the establishment of the English RDAs under the current Labour government.

Data analysis

The analysis of data in this study is based on the estimation of the empirical relationship between inbound FDI and the selected explanatory variables for the sample UK regions and the five-region pool between 1980 and 2002.

FINDINGS

Multiple Regression results for the five regions

Table 3 (below) shows the *Multiple Regression results* for each of the five sample regions studied and for the five-regional pool. Use is made of the acronyms listed and explained in Tables 2a to 2d. The goodness of fit statistics indicate that all six models are fairly robust. The adjusted R^2 coefficients are estimated as being 0.841, 0.825, 0.710, 0.548 and 0.578 for the South East, West Midlands, Scotland, North West and Wales respectively, and 0.431 for the pooled data.

Table 3 here

Looking first at the strategic determinants of FDI location, it can be seen that market- and efficiency-seeking appear dominant in all cases apart from Wales (where efficiency-seeking is significant but market-seeking is not). Strategic-asset seeking would seem to be far less significant overall, although this may play a part in drawing FDI into the South East. Government influence is however a statistically significant determinant of FDI inflows in all regions except for the South East. Finally, at the five-region pool level, market-, efficiency- and strategic asset-seeking and government influence would all appear to be significant influences on the attraction of FDI. National and regional factors appear to be significant drivers of FDI into all but two of the five regions, and at pool level, although the findings indicate an overall predominance of regional variables. There is no evidence however to support the view that international variables offer statistically significant explanations of FDI in any of the regions studied or at the pool level.

The results of the t-tests suggest that the specific motives that influence FDI location vary markedly between the five regions. In the South East, the main drivers of FDI are UKGDPPCREAL, REGAWCREAL, REGCLUSTERS and UKMANREAL. In the case of the West Midlands, REGRPAREAL, REGINERTIA and REGEDU are the most significant explanatory variables. For Scotland, UKGDPREAL, REGCLUNEMP, REGPOPN and REGRPAREA are most important. In the North West, the most important FDI-inducing factors appear to be UKTAX, REGINERTIA and REGPRODUCTI. In the case of Wales, REGAGGLOM, REGRPAREAL and REGCLUNEMP are all significant. Taken together, these findings suggest that it is difficult to explain the regional distribution of inbound FDI in these five UK regions using a common set of specific motives.

The signs generated by the regression equations agree, in the main part with the *a priori* assumptions made. In the case of the South East, three of the explanatory variables, UKGDPPCREAL, REGCLUSTERS and REGAWCREAL, have the expected signs associated with them. UKMANREAL, in contrast, has an apparently perverse (negative) coefficient, suggesting that FDI inflows into the South

East increase when the UK manufacturing declines. This finding can be tentatively explained, however, in terms of the switch between manufacturing and non-manufacturing FDI inflows which the UK as a whole is now experiencing (see Table 1b). The negative coefficient estimated for UKMANREAL may therefore simply reflect this national trend (which interestingly the South East now appears to be bucking, since it has recently been attracting more manufacturing – as well as considerably more non-manufacturing – FDI projects).

For the West Midlands REGRPAREAL, REGINERTIA and REGEDU all appear to have the expected positive effects on inbound FDI inflows. In Scotland, the expected signs are also obtained for UKGDPREAL, REGCLUNEMP and REGPOPN, indicating that increases in all three variables are linked with increases in FDI inflows; however, an unexpectedly negative sign is estimated for REGRPAREAL, suggesting that government investment incentives may have been inversely related to FDI inflows into the region. This result may be explained, at least in part, by the by the declining relative attractiveness of Scotland to inward investors into the UK during recent years (see Table 1b), at a time when RPA support for inward investment into the region has been broadly maintained. It may also be attributable to the heterogeneity of the Scottish economy, which cannot be fully reflected by its treatment as one unified region in the official statistics.

In the case of the North West, REGPRODUCTI has the expected positive impact on FDI inflows, while the anticipated negative sign is also estimated for UKTAX, implying that as corporation tax rates fall, FDI increases. REGINERTIA has an unexpectedly negative sign, however, suggesting that existing FDI stocks are inversely related to FDI inflows into the region. One explanation could be that this region has been experiencing a fall in its competitiveness as a location for inbound FDI, relative to other UK regions. The changes in Assisted Area status introduced in 1993 and the growth in RPA available to inward investors in traditionally 'advantaged' regions of the UK may also have had the effect of deflecting some FDI away from the North West. Tentative support for these conclusions is provided by the recent fall in

the relative attractiveness of the North West for manufacturing (although not non-manufacturing) FDI reported in official government statistics (see Table 1b).

For Wales, REGCLUNEMP and REGAGGLOM both have positive signs as predicted, but REGRPAREAL has an unexpectedly negative sign, implying that FDI inflows into the region have risen despite falling levels of RPA. One explanation for this anomalous result could be that efficiency-related factors now play a more important part than investment incentives in TNC decision-makers' thinking regarding location in Wales. The diminution of investment incentives may therefore not be sufficient to reduce the attractions of the region to new FDI projects, so long at the innate advantages resulting from the availability of a large, regional pool of available (unemployed) skilled labour, and from spatial externalities linked to the presence of other inward investors and related firms are sufficiently powerful to draw new investors into the region.

The MRA results for the pooled data sets indicate that REGGDPPCREAL and REGAWCREAL are the two most significant variables. Both have the expected signs (positive and negative respectively), suggesting that FDI inflows are attracted to the UK and at least some of its regions by a mixture of market size and competitive wage levels. The coefficients estimated for UKTAX has the expected negative sign, confirming the *a priori* view that low levels of corporation tax are attractive for inward investors. The negative sign estimated for REGRANDREAL is, however, unexpected, suggesting that falling levels of R&D at the regional level are associated with increasing FDI. One possible explanation could be that falling R&D on the part of their UK rivals may be giving R&D-intensive TNCs a competitive advantage, which they are exploiting by committing more inbound FDI to the UK regions.

F-Tests

The results of the adjusted R^2 tests are supported by the F-test for all five regions (see Table 4). The F-test results, used as a measure of significance of all the explanatory variables together within the equation,

are highly significant for all four regions and for the pooled data. The models appear therefore to reflect the determination of FDI well in all cases.

Table 4 here

The Durbin -Watson Test

Table 5 shows the D-W statistics estimated for the regression equations for each of the five regions and for the pooled data; the findings show that there is no autocorrelation present in any of these regression equations.

Table 5 here

CONCLUSIONS

The findings reported here are broadly consistent with those of previous studies. Once the decision to invest in the UK has already been made, FDI location at the regional level would appear to be driven by a range of strategic determinants, including the search for markets, efficiency and (to a far lesser extent) strategic assets, together with government influence. Most FDI inflows into the UK regions are still driven by 'competence-exploiting' rather than 'competence-creating' factors, although the relative importance of these drivers may be changing over time, as strategic asset-seeking becomes an increasingly important determinant of FDI location (Dunning, 1998 and 2002; Cantwell and Mudambi, 2005).

There would seem to be substantial inter-regional variation in the strategic determinants of FDI location, reflecting the economic diversity of the UK's regions. Market-seeking factors appear to attract FDI inflows into four of the five sample regions (excluding Wales) and at the five-region pool level; efficiency-seeking is significant for all regions and for the pool; while strategic asset-seeking is only significant for the South East and at pool level. Interestingly, government influence appears to be a significant magnet for FDI in all regions (except for the South East) and for the pool. The specific

motives linked to these drivers of FDI also differ markedly from region to region, pointing again to the diversity of the factors governing the regional distribution of inbound FDI in the UK.

It would, however be misleading to treat FDI location as a regional issue alone, for a small, advanced industrial nation such as the United Kingdom. The findings indicate that national (although not EU level) as well as regional variables exercise a statistically significant influences on inbound FDI in three out of the five regions studied (the exceptions being the West Midlands and Wales) and in the case of the pool. FDI location decisions would appear to be influenced by a range of factors which cross regional boundaries, including national market size, concentrations of related industrial activity at cross-border level and government taxation policies.

Policy Implications

These findings suggest that FDI location in the UK regions can be influenced by appropriately targeted national and regional government actions and policy initiatives. Securing strategic asset-seeking investment may become an increasingly important goal of government policy over time, at least for those UK regions with the potential to develop globally competitive clusters including a critical mass of 'competence-creating' as opposed to 'competence-exploiting' MNE subsidiaries. There should however be differing degrees of emphasis on measures facilitating market access, labour productivity, education and training initiatives, R&D and technology development, and the promotion of cluster development and supply chain linkages, as well as on traditional, incentive-based approaches to inward investment strategy, reflecting variations in regional economic circumstances and FDI potential (Stone and Peck, 1996; Phelps, 1997; Loewendahl, 2001a and 2001b).

Official statistics suggest that the South East is becoming increasingly attractive to inbound FDI, relative to the other sample regions and to the UK as a whole. Only the South East has proved capable in recent years of securing a greater number of new manufacturing FDI projects, contrasting with falling levels of

manufacturing FDI (offset by rising non-manufacturing FDI) in all of the other sample regions. Inward investment policies that seek to replace 'ailing manufacturing industry' in the UK's peripheral regions with 'more manufacturing jobs' are therefore likely to fail. Policy-makers in such regions should instead seek to use inward investment policies as a means of promoting the diversification of regional economies, focusing on the creation of sustainable employment in expanding services and sunrise sectors, rather than additional (but probably short-term) jobs in historically important but contracting manufacturing clusters. RPA may be ineffective in drawing in 'high-tech', R&D intensive FDI inflows to the UK's periphery (Cantwell and Mudambi, 2000) but investment incentives may nonetheless have a useful role to play in generating positive 'pump-priming' effects, contributing to the creation of R&D intensive local subsidiaries, and to a 'virtuous cycle' of continuing regional investment. It may also be opportune for investment agencies in the UK's peripheral regions to draw in a range of smaller (rather than fewer, larger) FDI projects, if (as Jones and Wren, 2004 suggest) project-job intensity is higher in the former case.

Future Research Agenda

The use of new projects as the dependent variable in the MRAs has enabled the current study to provide useful insights into the key determinants of inbound FDI location in the UK regions. The research could now be taken further by introducing employment creation as an alternative dependent variable (following Hill and Munday, 1992) for comparative purposes, for those years for which such data have been made available at the UK regional level by the RDAs. This refinement would help to reinforce the government policy emphasis of the research findings, helping to focus for example on potential trade-offs between securing additional jobs and promoting knowhow creation (following Mudambi and Mudambi, 2005).

Further research could also focus on explaining the shift taking place from manufacturing to non-manufacturing FDI in many UK regions (ONS, 1999-2006), together with the resultant implications for regional development and inward investment policies by national and regional government. Efforts could

be made to identify changes in the relative importance of the different strategic determinants, government influence and the specific motives driving FDI location in the UK regions, in promoting this shift, together with the impact of significant events, such as changes in assisted status and the availability of government support for inward investors. Consideration could also be given to the introduction of a weighted index variable for each strategic determinant, taking into account a range of motives underlying market-, efficiency- or strategic asset seeking or the effects of government influence on FDI, in order to help reduce the problem of omitted variable bias.

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Table 1a Economic characteristics of sample UK regions

Country and Region	Population 2004 (thousands)	GVA per capita index, 2004 (£ billion)	% GVA from Manufacturing	Median gross weekly earnings (ft male employment, April 2005, £)	Labour force, 2005 (thousands)	Employment rate, spring 2005 (%)
UK						
Total	59,835	100	15.2	471.5	27,106	74.4
Core						
South East	8,110	116.1	11.64	521.2	3,892	78.6
Inner periphery						
West Midlands	5,334	91.2	19.4	444.1	2,383	74.6
Outer periphery						
North West	6,827	88.9	19.0	450.0	2,987	72.9
Wales	2,953	79.1	19.1	433.2	1,239	70.8
Scotland	5,078	96.2	15.0	447.8	2,331	74.6

Country and Region	Unemployment rate, spring 2005 (%)	% Pupils achieving 5 or more GCSE grades A*-C, 2003-4	Proportion of 16 year olds in post-compulsory education and government training schemes, 2003-4	R&D expenditure all sectors, 2003 (£m)	Regional Preferential Assistance, 2003-4 (£m)
UK					
Total	4.7	54.2	72.0	20,154	338.9‡
Core					
South East	3.7	57.7	81.0	4,661	1.5
Inner periphery					
West Midlands	4.4	52.0	78.0	853	7.8
Outer periphery					
North West	4.3	52.0	79.0	1,976	15.8
Wales	4.5	51.4	81.0	482	85.5
Scotland	5.9	58.4	75.0	1,367	96.9‡

‡ Scotland:- figures for 2002-3.

Source: ONS (2006) http://www.statistics.gov.uk/downloada/Regional_Trends_39/12.05xls (Accessed 31st May 2007)

Table 1b Regional distribution of new UK FDI projects (1998/9 and 2004/5)

Country and Region	Manu-facturing FDI (1998/9)	Manu-facturing FDI (2004/5)	Non Manu-facturing FDI (1998/9)	Non Manu-facturing FDI (2004/5)	Total new FDI projects (1998/9)	Total new FDI projects (2004/5)
UK						
Total	**311 (100%)**	**256 (100%)**	**353 (100%)**	**810 (100%)**	**664 (100%)**	**1066 (100%)**
Core						
South East	23 (7.4%)	35 (13.7%)	51 (14.5%)	143 (17.7%)	74 (11.1%)	178 (16.7%
Inner periphery						
West Midlands	41 (13.2%)	29 (11.3%)	30 (8.5%)	40 (4.9%)	71 (10.7%)	69 (6.5%)
Outer periphery						
North West	42 (13.5%)	30 (11.7%)	24 (6.8%)	62 (7.7%)	66 (9.9%)	92 (8.6%)
Wales	35 (11.3%)	25 (9.8%)	13 (3.7%)	31 (3.8%)	48 (7.2%)	56 (5.3%)
Scotland	26 (8.4%)	20 (7.8%)	28 (7.9%)	48 (5.9%)	54 (8.1%)	68 (6.4%)

Source: ONS (2006) http://www.statistics.gov.uk/downloada/Regional_Trends_39/12.05xls (Accessed 31st May 2007)

Table 2a Market-seeking FDI - explanatory variables

Influences on FDI	Variable	Expected sign
Resident regional population	REGPOPN	Positive
Gross regional GDP	REGGDPGRS	Positive
Gross regional GDP (real terms)	REGGDPREAL	Positive
Regional GDP per capita	REGGDPPC	Positive
Real regional GDP per capita	REGGDPPCREAL	Positive
Regional expenditure on roads (annual basis)	REGROAD	Positive
Ratio length highways to land area	REGINFRASTRUCTURE	Positive
Regional expenditure on roads (annual basis, real terms)	REGROAD REAL	Positive
One year lag of direct inward investment (new projects, regional level)	REGINERTIA	Positive
Resident UK population	UKPOPN	Positive
Gross UK GDP	UKGDP	Positive
Gross UK GDP (real terms)	UKGDPREAL	Positive
UK GDP per capita	UKGDPPC	Positive
Real UK GDP per capita	UKGDPPCREAL	Positive
GDP, EU 15	EUGDP	Positive
UK expenditure on roads (annual basis, England proxy)	UKROAD	Positive
Ratio length highways to land area	UKINFRASTRUCTURE	Positive
Real UK expenditure on roads (annual basis, England proxy)	UKROADREAL	Positive
One year lag of direct inward investment (new projects, national level)	UKINERTIA	Positive

Sources: Regional Trends, DTI Transport Statistics, UK National Statistics

Table 2b Efficiency-seeking FDI - explanatory variables

Influences on FDI	Variable	Expected sign
Total regional labour force (thousands)	REGEMPLOY	Positive
Regional claimant unemployment	REGCLUNEMP	Positive/ Negative
School leavers' examination achievements by gender – pupils achieving 5 or more grades at GCSE A*-C	REGBASICED	Positive
Percentage of 16 year olds in education and government supported training schemes	REGEDU	Positive
Average wage costs per manual employee	REGAWC	Negative/ positive
Average real wage costs per manual employee	REGAWCREAL	Negative
Average weekly earnings (regional male manufacturing wages / national average)	REGGWAGEINEQ	Negative
Regional output per employee	REGPRODUCTI	Positive
Year-on-year change in regional output per employee	REGCHANGEPROD	Positive
Working days lost per 1,000 employees through labour disputes	REGDISPUTES	Positive/ Negative
Ratio of numbers in employment to land area	REGAGGLOM	Positive
Industrialisation proxy – gross value added by manufacturing industry	REGMAN	Positive
Industrialisation proxy – real gross value added by manufacturing industry	REGMANREAL	Positive
Share of top 4 clusters in regional GDP	REGCLUSTERS‡	Positive
Net annual change in small business registrations	REGBUSREG	Positive

Table 2b (continued)

Total national labour force (thousands)	UKEMPLOY	Positive
UK claimant unemployment	UKCLUNEM	Positive/ Negative
School leavers' examination achievements–pupils achieving 5 or more grades at GCSE A*-C	UKBASICED	Positive
Percentage of 16 year olds in education and government supported training schemes	UKEDU	Positive
Average wage costs per manual employee	UKAWC	Negative/ Positive
Average real wage costs per manual employee	UKAWCREAL	Negative
National output per employee	UKPRODUCTI	Positive
Year-on-year change in national output per employee	UKCHPROD	Positive
Working days lost per 1,000 employees through labour disputes	UKDISPUTES	Negative
Ratio of numbers in employment to land area	UKAGGLOM	Positive
Industrialisation proxy – gross value added by manufacturing industry	UKMAN	Positive
Industrialisation proxy – real gross value added by manufacturing industry	UKMANREAL	Positive
Share of top 4 clusters in UK GDP	UKCLUSTERS‡	Positive
Net annual change in small business registrations	UKBUSREG	Positive

‡ Also potential influences on strategic asset-seeking FDI inflows

Sources: Regional Trends, DTI Transport Statistics, UK National Statistics

Table 2c Strategic asset-seeking FDI - explanatory variables

Influences on FDI	Variable	Expected sign
Total regional expenditure on R&D (business, government plus universities)	REGRAND	Positive
Total real regional expenditure on R&D	REGRANDREAL	Positive
Share of top 4 clusters in regional GDP	REGCLUSTERS‡	Positive
Percentage of 16 year olds in education and government training schemes	REGEDU	Positive
Total UK expenditure on R&D	UKRAND	Positive
Total real UK expenditure on R&D	UKRANDREAL	Positive
Share of top 4 clusters in UK GDP	UKCLUSTERS‡	Positive
Percentage of 16 year olds in education and government training schemes	UKEDU	Positive

‡ Also potential influences on efficiency-seeking FDI inflows

Sources: Regional Trends, DTI Transport Statistics, UK National Statistics

Table 2d Government influence on FDI - explanatory variables

Influences on FDI	Variable	Expected sign
Government spending on preferential assistance to industry	REGRPA	Positive
Government spending on preferential assistance to industry (real terms)	REGRPAREAL	Positive
UK corporation tax rates	UKTAX	Negative
Exchange rate levels	EXCHRATE	Negative

Sources: Regional Trends, DTI Transport Statistics, UK National Statistics

Table 3 Multiple regression results

Variable	Coefficient	T-ratio
South East		
Constant	-224.750	-2.113**
UKGDPPCREAL	6.255	5.224***
UKMANREAL	-0.297	-2.765***
REGCLUSTERS	8.099	3.185***
REGAWCREAL	-165.744	-5.040***
R^2	0.871	
$\underline{R^2}$	0.841	
West Midlands		
Constant	-59.378	-2.072**
REGRPAREAL	146.312	2.943***
REGEDU	1.063	2.132**
REGINERTIA	0.07716	2.719**
R^2	0.850	
$\underline{R^2}$	0.825	
Scotland		
Constant	-3001.783	-4.413***
REGRPAREAL	-7.931	-1.915*
REGCLUNEMP	9.899	4.602***
REGPOPN	0.538	4.207***
UKGDPREAL	0.05737	5.274***
R^2	0.765	
$\underline{R^2}$	0.710	
North West		
Constant	147.405	3.557**
REGPRODUCTI	1.958	1.757*
UKTAX	-2.569	-3.309***
REGINERTIA	-0.109	-2.517**
R^2	0.612	
$\underline{R^2}$	0.548	
Wales		
Constant	-284.002	-2.706**
REGRPAREAL	-11.740	-2.302**
REGCLUNEMP	1.842	2.081**
REGAGGLOM	5377.689	3.297***
R^2	0.638	
$\underline{R^2}$	0.578	
Pooled data		
Constant	34.513	0.727
UKTAX	-1.160	-2.078**
REGAWCREAL	-42.831	-2.373**
REGGDPPCREAL	2.437	4.307***
REGRANDREAL	-1.619	-2.335**
R^2	0.452	
$\underline{R^2}$	0.431	

* Statistically significantly at the 0.1 level, ** for the 0.05 level and *** for the 0.01 level.

Table 4 F-Test results

Region	F-Ratio	Significance of F-values
South East	28.705	0.000
West Midlands	34.014	0.000
Scotland	13.839	0.000
North West	9.470	0.001
Wales	10.595	0.000
Pooled data	21.679	0.000

Table 5 Durbin -Watson test results

Region	Durbin -Watson statistic	Significance
South East	2.091	No autocorrelation
West Midlands	2.152	No autocorrelation
Scotland	1.940	No autocorrelation
North West	1.836	No autocorrelation
Wales	1.884	No autocorrelation
Pooled data	0.990	Zone of indecision

Exploring the regional distribution of inbound FDI in the United Kingdom in theory and practice – Evidence from a five region study

ABSTRACT

This paper examines the main factors that attract inbound foreign direct investment (FDI) at the UK regional level, using econometric data from five sample UK regions (the South East, West Midlands, North West, Wales and Scotland) broadly representing the country's regional economic divide. The findings indicate that regional and national (but not EU-level) factors, linked to several underlying strategic determinants help determine the regional distribution of inbound FDI, and its inter-regional variation. The paper concludes that governmental policymakers at the national and regional levels can have an important role to play in drawing targeted FDI inflows to the UK regions.

Inbound FDI location

U.K. regions

Strategic determinants

Specific motives

Government policy implications

JEL Classifications: C22, F23, O18, R58

Word count: 9,365

INTRODUCTION

There is a general recognition by government policymakers that foreign direct investment (FDI) inflows by transnational corporations (TNCs) can be important sources of both high-value employment, and can lead to crucial inflows of knowhow and capabilities (Mudambi and Mudambi, 2005). This positive view has been challenged however (Phelps, 1993; Phelps *et al*, 2003) on the grounds that the economic benefits of FDI inflows for host regions may be far more limited in many instances, due to the 'branch plant' syndrome. FDI may lead only to limited linkages and degrees of integration with host regional economies where TNCs are headquartered in distant locations, leaving local plants as subordinate sites with a routine production role, little decision making autonomy, and restricted local supply chain links.

TNCs' plants may be becoming increasingly embedded in regional economies, due to the growing willingness of many TNCs to devolve higher level functions and expand levels of sourcing to suppliers in host regions, leading to closer and deeper relationships with local firms and organisations and enhanced opportunities for economic development (Hudson, 1995; Morgan, 1997). Recent empirical studies however (such as Phelps *et al* , 2003) have found only limited evidence of increasing embededness, particularly in the case of peripheral regions, where the positive impacts of FDI are still largely confined to economic enclaves (Crone, 2002).

The current study focuses on the determinants of FDI location at the regional level, due to the fact that FDI inflows have a potentially crucial role to play in regional economic development (Markusen and Venables, 1999; Borensztein *et al,* 1998), with the result that competition for FDI constitutes an important challenge from the government policy making perspective (Phelps and Raines, 2003). Existing research (for example, Stopford and Strange, 1991; Hill and Munday, 1992 and 1995**;** Phelps *et al*, 1998; Loewendahl, 2001a; Dunning, 2002) suggests that regional, national and international factors all work together in attracting inbound FDI to particular regions in small, advanced industrial countries such as the UK. TNC's investment location decision making can be seen as being governed by a hierarchical structure, in which decisions to invest are taken firstly at a continental level, before attention moves

successively to particular host countries, regions and localities (Devereux *et al,* 2001; Loewendahl, 2001a; Crozet *et al,* 2004).

This paper seeks to add to the literature on the locational determinants of FDI, by identifying the main specific motives that influence the location of inbound FDI at the UK regional level, together with the underlying strategic determinants of such FDI and the role of government influence. The paper also seeks to explore how far regional, national and EU-level factors help to explain the UK's regional distribution of inbound FDI; and to suggest the resultant implications for government policy towards inbound FDI at UK regional level.

The first part of the paper explores the changes in the distribution of FDI within five sample UK regions (the South East, a core region; the West Midlands, an inner periphery region; and the North West, Scotland and Wales, outer periphery regions) highlighting these regions' contrasting FDI records (ONS, 1981-2006; Mackay, 2003). The literature covering the major influences on FDI location is next discussed, linking three strategic determinants of FDI (market-seeking, efficiency-seeking and strategic asset-seeking) and government influence to a range of specific motives (regional, national and EU-level) for the location of FDI in particular U.K. regions. The discussion is related to the hierarchical structure of FDI location decision-making (Crozet *et al,* 2004; Devereux, *et al,* 2001) and to 'competence-exploiting' and 'competence-creating' FDI (Cantwell and Mudambi, 2005).

A multiple regression model based on the literature is next developed, and used to explore the locational determinants of inbound FDI in the five regions, focusing on the strategic determinants of FDI and specific motives for its location. Use is made of the findings to examine the specific motives influencing the location of FDI at the UK regional level, and the main underlying strategic determinants of such FDI, together with the variation of both sets of factors from region to region. The paper reviews how far

regional as opposed to national and EU-level factors explain the distribution of inbound FDI in the UK regional context, together with the implications of the findings for government policy towards inbound FDI.

SAMPLE UK REGIONS: ECONOMIC CHARACTERISTICS AND FDI INFLOWS

The sample regions included in this paper reflect the persistent economic divide between the UK's (more advanced) core and its (relatively backward) peripheral regions, as Table 1a shows. The (core) South Eastern region is currently larger in population and gross domestic product per capita terms (estimated by UK government statistics as gross value added or GVA - the contribution of each individual industry and sector to the regional economy) than the other four regions (ONS, 2006). The contribution of services to the South East's GVA is far higher than elsewhere, reflecting the relatively heavy bias of its economy against the manufacturing sector. Median full time earnings are relatively high for the South East, boosting consumers' incomes and purchasing power, but also raising labour costs. The South East also enjoys an advantage over the four peripheral regions by virtue of its relatively large labour force, high employment and low unemployment rates. Its position is strong in educational and workforce skills terms, with a high proportion of 16 year-olds in post-compulsory education and government training schemes (although a greater proportion of Scottish pupils achieve qualifications equivalent to GCSE grades A*-C). The South East also benefits from far higher levels of R&D expenditure than the peripheral regions, although government expenditure on regional preferential assistance to industry is lower for the South East than elsewhere.

Table 1a here

The South East's economic advantages are reflected in its relatively greater attractiveness to inbound FDI (ONS, 2006), shown by Table 1b. Some commentators (Tewdr-Jones and Phelps, 2000; Dicken *et al*, 1997) argue that the South East's inward investor appeal may now be declining, as FDI commitments switch from the UK's core to its peripheral regions. Others (Stone and Peck, 1996; Mackay, 2003)

however maintain that relatively prosperous core regions such as the South East are likely to retain their competitive advantage over the periphery in the attraction of FDI. Official FDI statistics (ONS, 1981-2006) support the latter view. Table 1b indicates that inbound FDI (measured by new project successes) rose by 60.5% in the UK as a whole between 1998 and 2005. The South East's share rose substantially (from 11.1 per cent to 16.7 per cent) over the same period, whilst in contrast, all four sample peripheral regions experienced a reduced share of national new FDI projects.

Table 1b here

The overall increase in new FDI projects for the UK as a whole appears to have been largely attributable to non-manufacturing activities. National manufacturing new FDI projects fell from 311 (46.8 per cent of total FDI) in 1998-9 to 256 (24.0 per cent) in 2004-5, while non-manufacturing projects rose from 353 (53.2 per cent) to 810 (76.0 per cent). This national trend was reflected in all four peripheral regions included in this study, although interestingly not in the South East. Manufacturing FDI projects attracted by the West Midlands, North West, Wales and Scotland declined in numerical terms between 1998 and 2005, while only the South East showed an increase. The shares of UK manufacturing FDI entering all of the peripheral regions declined substantially over the same period, whereas the South East increased its share of national manufacturing FDI projects. All sample regions attracted higher levels of non-manufacturing FDI (in new project terms) between 1998 and 2005, with the South East recording by far the largest increase. The share of UK non-manufacturing FDI rose in the South East, North West and (marginally) in the case of Wales, but fell in the West Midlands and Scotland over this period (ONS, 1999-2006).

CONCEPTUAL FRAMEWORK

The volume and value of FDI by TNCs have grown substantially since the mid 1980s, leading to a commensurate increase in theories seeking to explain its strategic determinants, including Dunning's (2001) 'eclectic paradigm'. For FDI to occur, Dunning argues that TNCs must possess distinctive

ownership-specific advantages, best exploited by internalising their market transactions. TNCs must choose whether to do so at home or abroad, and their choice of location will be heavily influenced by the costs and benefits of locating value-added activities in different geographical locations.

Scholarly interest is now growing in the locational aspects of FDI, and in how location influences TNCs' competitive advantages. A number of studies (Culem, 1988; Hill and Munday, 1995; Guimaraes *et al*, 2000; Yang *et al,* 2000) have sought to identify the main influences on their choice of FDI location in developed countries, especially at the national (Wheeler and Mody, 1992; Devereux and Griffith, 1998) and regional (Carlton, 1983; Head *et al*., 1999) level. Many of these studies have focused on the US, although some (such as Guimaraes *et al*, 2000 and Ferrer, 1998) have been based in Europe.

FDI location decisions involve hierarchical decision making, linking together international, national and regional elements (Devereux *et al,* 2001; Loewendahl, 2001a). TNCs first choose between locating subsidiaries at the continental level (in, for example, Europe or the USA), before determining whether to locate in particular countries (such as the UK or Germany) and subsequently regions (the South East or Lower Saxony).Crozet *et al* (2004) view TNCs' location choices as being guided by a 'learning process', enabling TNCs to invest in locations increasingly remote from their countries of origin as their knowledge of local business conditions grows.

A number of taxonomies of FDI location have now been developed. Cantwell and Mudambi (2005) put forward a meta-analysis, distinguishing between 'competence-exploiting' and 'competence-creating' TNC subsidiaries. The former follow demand-driven strategies, exploiting competences developed by their parent companies by market-servicing investment and assembly type production, whilst the latter pursue, supply driven strategies, involving the generation of new competences in host country locations (by means such as technology transfer and the upgrading of labour skills.) Dunning (1998 and 2002) suggests an alternative taxonomy, based around four main strategic determinants of FDI location: the

search for markets (on the demand side), and the search for efficiency, strategic assets and natural resources (on the supply side). Host governments are also thought to influence FDI location, by facilitating the commitment of FDI and creating a virtuous cycle of investment in particular locations (Cantwell and Mudambi, 2000 and 2005; Manea and Pearce, 2004).The determinants of FDI location can in turn be linked to specific motives for direct investment, such as the size of the host economy, its per capita income, population and growth potential, and access to substantial, proximate markets (in the case of market-seeking FDI) (Thomsen, 2000).

This paper examines the importance of three strategic determinants of FDI location (the search for markets, efficiency and strategic assets), together with that of government influence. Resource-seeking FDI is excluded, since the UK (excepting the continental shelf) is relatively poor in natural resource terms. The specific motives underlying each of the strategic determinants and government influence (at the regional, national and EU levels) are discussed in the following sections of this paper, and the explanatory variables used in the paper and the underlying research are summarised in Tables A1a-A1d (see Appendix).

Market-Seeking FDI

Market-seeking FDI is currently the main global determinant of FDI location, being motivated by TNCs' continual search for better access to markets, linked to proximity issues, agglomeration and to the desire to minimise distance costs (Driffield and Munday, 2000; Loewendahl, 2001a). It may be driven by the desire to sustain or safeguard existing regional, national or export markets or by the wish to develop new markets for successful existing products (Culem, 1988; Dunning, 2002).

Market-seeking FDI can be drawn to particular locations by the population density, per capita incomes, and market size and growth prospects of regional, national or adjacent markets (Wheeler and Mody, 1992; Billington, 1999). Market-related agglomeration economies operating at the national and

continental scale (Martin and Sunley, 1996) can influence FDI location, although their power may be limited where the markets served by TNCs overlap inter-regional boundaries (Guimaraes *et al,* 2000). FDI may also be attracted by a self-reinforcing effect, consistent with the impact of agglomeration economies on market-seeking direct investment (Cheng and Kwan, 2000).

FDI will be attracted to countries or regions with good market access, highly-developed transport and communications infrastructures and low transport costs (Yeung and Strange, 2002). Such investment may be increased by the presence of leading suppliers and well-developed service support facilities (Dunning, 1998) and by the absence of significant local competition from imports and rival firms (Milner and Pentecost, 1994). FDI may also be driven by the need to maximise familiarity with target market conditions (Barkema *et al,* 1997) and to preserve existing export markets where competitors are already beginning to invest direct (Srinivasan and Mody, 1998).

Efficiency-Seeking FDI

Efficiency-seeking FDI is driven by the differences in unit costs between geographical locations and by TNCs' desire to rationalise their activities in order to take advantage of specialisation, economies of scale and scope, and potential synergies (Loewendahl, 2001a), for example by concentrating production in one, cost-efficient location from which multiple geographical markets can be supplied (Di Mauro, 1999). Labour market factors, including the supply, cost, skills and productivity levels of workers and the quality of industrial relations, are all potentially significant influences on the location of efficiency-seeking FDI (Yeung and Strange, 2002). Relatively high labour costs and negative wage differentials can deter FDI (Billington, 1999; Cheng and Kwan, 2000) although high and growing levels of labour productivity may offset this effect (Ford and Strange, 1999). There is also a correlation between labour costs and workforce qualifications and skills, leading to a decline in the significance of the former when education variables are also included in regional FDI equations (Hill and Munday, 1992).

High levels of unemployment may draw in efficiency-seeking FDI, by increasing the availability of labour and the willingness of employees to work harder and for lower wages. Unemployment can also reduce FDI however by restricting incomes and spending power in host country markets (Friedman *et al*, 1992). High levels of unionisation can attract FDI by raising worker morale and productivity levels (Billington, 1999); it can also deter FDI, though, if it has the effect of raising worker militancy and increasing wage levels (Ford and Strange, 1999).

Advanced levels of economic and industrial development, the availability of supporting industries and the resultant potential for cluster development can all attract efficiency-seeking FDI (Porter, 2003; Dunning, 2002). High geographical concentrations of manufacturing or services activity (for example in the German Ruhr or South East England) can also do so (Wheeler and Mody, 1992**;** Billington, 1999), as can specialised clusters of related industries (such as Silicon Valley, California), good potential links with local suppliers and buyers, related support services and industrial park facilities (Srinavasan and Mody, 1998; Enright, 1998; Martin and Sunley, 2003). These conditions can help to raise regional productivity, innovation and new business formation, leading to lower costs and greater new product development opportunities for TNCs and therefore to greater levels of inbound FDI (Krugman and Venables, 1995; Ivarsson, 1999; Gorg and Ruane, 2001).

Strategic Asset -Seeking FDI

Strategic asset-seeking FDI is typically motivated by the desire to sustain or advance TNCs' international competitiveness by exploiting knowhow-related assets such as scientific and technological expertise in foreign countries and regions (Dunning, 2002; Cantwell and Janne, 1999; Enright and Roberts, 2001). The availability of highly developed skills capital can also be a key influence on the attraction of strategic asset seeking FDI to particular countries and regions.

Direct investment in regions with internationally competitive, know-how-intensive clusters can enable TNCs to tap into regionally-based, often cluster-specific, scientific and technological expertise, leading to faster innovation and potentially to global competitive advantage (Markusen, 1996; Crone and Roper, 2001; Gorg and Ruane, 2001). This can bring benefits for host regions as well as for TNCs, resulting from the deepening of local value chains, as well as from increased levels of locally-based innovation and technology transfer (Neven and Siotis, 1996; De la Potterie and Lichtenberg, 2001). Advanced countries and regions are generally best placed to offer these kinds of advantages to investors and thus generally enjoy an advantage over less favoured locations in attracting strategic asset-seeking FDI and investment in R&D (Loewendahl, 2001a).

Government influence on FDI

National and regional governments in many countries now seek actively to draw in FDI in order to meet a range of objectives, including job creation and retention, attracting knowhow inflows, increasing regional competition, compensating for a weak indigenous base, closing supply gaps, developing competitive clusters and providing partnership opportunities for local firms (Young *et al*, 1994; Loewendahl, 2001b).Many governments focus on the employment objective, as evidenced by the common practice of measuring supports provided in terms of 'expenditures per job created/saved' (McCann and Mudambi, 2004). There may however be a trade-off between the employment and knowhow inflow objectives (Mudambi and Mudambi, 2005), in that higher employment may be linked with lower technology FDI while higher knowhow-bearing FDI may result in lesser additions to headcount employment figures.

Governments compete against each other on an international and an inter-regional basis to attract FDI inflows by means of 'location tournaments' (Head *et al,* 1999; Moran, 1999). International competition for FDI can lead to positive and negative effects, including "bidding wars," resulting in an escalation of costly "investment incentives" and a "race to the bottom" in terms of environmental and worker protection, as well as encouraging governments to reinforce their economic "fundamentals" and thus their

economic development and growth prospects, by improvements to infrastructure, education and training and other related factors (Oman, 2000)**.** Inter-regional competition for the same inward investment projects is increasingly common, however, especially in countries lacking strong government regulation at national level (Oman, 2000; Phelps, 2000). Zero-sum games can result, where parallel efforts made by several local and regional governments to attract FDI projects to their territories can set governments against one another, leading to the wasteful duplication of efforts and resources (Phelps, 2000; Loewendahl, 2001a). Institutional capture can also occur where a power asymmetries exist, allowing TNCs to take advantage of inter-regional rivalries to demand generous incentives in return for committing investment or re-investment to particular locations (Phelps, 2000; Phelps and Fuller, 2001). Inter-regional cooperation can reduce the scale of this problem, as can the targeting of the most suitable TNCs for investment support by national and regional governments, based on local cluster development and potential. (Loewendahl, 2001b).

Intensifying competition for inward investment (Oman, 2000; Moran, 1999) makes it increasing crucial for governments and agencies to articulate clear and distinctive business arguments, drawing TNCs' attention to the opportunities for competitive advantage facing particular sectors in particular regions. Government policy initiatives can significantly affect the attractiveness of particular locations to inbound FDI (Hill and Munday, 1992 and 1995; Phelps, 1997) making use of a range of investment incentives, including investment allowances, tax breaks and promotional campaigns. Sophisticated, proposition-based marketing is increasingly used (Loewendahl, 2001b), involving a policy of 'targeting' TNCs with good 'fit' with the regional economy and with regionally-based clusters, building good working relationships with them, and then 'tailoring' a package of appropriate investment incentives to their needs (Mudambi, 1999). Investment lead-generation, project handling teams and after-care mechanisms are also used actively in order to attract and retain FDI (Loewendahl, 2001b; Phelps and Fuller, 2001).

Investment incentives may prove less effective in drawing in FDI to weaker regions where poor infrastructure, limited labour skills and high unemployment levels limit TNCs' interest. Even here, however, investment incentives can lead potentially to a 'pump-priming' effect, by helping to draw in some level of FDI inflows, and helping to create a virtuous circle of further investment, associated with regional agglomeration effects (Cantwell and Mudambi, 2000 and 2005).

Governments can also seek to attract FDI by increasing economic openness, pursuing preferential policies towards foreign investment and trade, and by tariff reductions (Culem, 1988; Veugelers, 1991; Phelps, 1997). Exchange rate appreciations may reduce the competitiveness of countries and regions as FDI locations, while depreciations can have the opposite effect (Grosse and Trevino, 1996; Xing and Wan, 2004). Governments can also help to increase the attraction of efficiency-seeking FDI by promoting industrial restructuring, the maintenance and growth of regional clusters and supply chains, and small business development (Young and Hood, 1994; Tavares and Young, 2002). They can also invest in know-how, skills and new technology development and promote R&D as a means of luring in high-technology, competence-creating FDI (Adams *et al*, 2003).

At the supranational level, leading continental industrial blocs such as the E.U. also have the ability to influence FDI location, by means of their substantial market size, together with their external trade, competition, and industrial and labour market policies. The co-existence of the single market and 'Fortress Europe' has for example helped to draw in a range of foreign-based TNCs as inward investors into the EU's member states (El-Agraa, 2004).

RESEARCH METHODS

Research Questions

The aim of the paper is to explore the differential effects of regional, national and EU-level influences on FDI inflows into each of the sample regions *once the decision to invest in the UK has already been made*. The empirical research underlying this study has thus been designed to answer the following questions:-

1. What are the specific motives influencing the location of FDI at the UK regional level, and the main underlying strategic determinants of such FDI?
2. To what extent do these motives and determinants vary from region to region within the UK?
3. To what extent do regional as opposed to national and EU-level factors explain the distribution of inbound FDI in the UK regional context?
4. What are the implications of the overall study for government policy towards inbound FDI in the UK regions?

The regression model

The basic model underlying the regression was developed from the literature, making use of a framework developed by Stopford and Strange (1991); Hill and Munday (1992 and 1995); Stone and Peck (1996) Phelps *et al* (1998); Loewendahl (2001a); and Dunning (2002); and following the hierarchical approach discussed above. The model reflects three strategic determinants of inbound FDI (the search for markets, efficiency and strategic assets) together with government influence. The specific motives examined in building the 'best fit' model of the project determinants of inbound FDI for each of the sample regions are listed in the Tables A1a to A1d (see Appendix) together with their expected signs.

Single equation, multivariate, OLS regression models were developed for each sample region and for the five-region pool, where flows of inbound FDI (proxied by the number of new projects per year) were used as the dependent variable. The methodology employed was to regress a range of explanatory variables

(reflecting the specific motives for inbound FDI location at the regional, national and supranational levels) on this dependent variable until 'best fit' models were obtained for each sample region.

Following the principles discussed above, inbound FDI was modelled at the UK regional level as:

FDI in a region = B_o + B1 Markets (regional, national and EU level) + B2 Efficiency (regional, national and EU level) + B3 Strategic Assets (regional, national and EU level) + B4 Government influence (regional and national levels)

Choice of independent variables

The choice of explanatory variables used in the multiple regression models (MRAs) was governed by theoretical issues and data availability. A range of variables reflecting each strategic determinant of FDI location was considered for each region. For example, in the case of market –seeking FDI, a variety of alternative variables, including measures of market size, infrastructure quality and existing stocks of FDI at the regional, national and EU levels was considered.

The starting point for each regional MRA was to take one variable from each of these categories before running a series of regression equations. For each region, the same set of four explanatory variables (one from each category of strategic determinants) was employed as the starting point for this procedure. Explanatory variables that were not significant, as measured by their t-ratios were removed and replaced by another variable from the same category list. The procedure continued until best fit equations were arrived at for each region, including the four most significant market-related variables. The same dependent variable was used throughout.

A forward stepwise approach to determine the predictors in each regional model was not considered to be appropriate (see Judd and McClelland, 1989 and Wilkinson and Dallal, 1981). Backward stepwise regression using the whole set of predictors was also rejected, given the limited degrees of freedom in the

model. The same, systematic and consistent procedure was followed with all of the MRAs, making use of the same, common body of independent variables (suggested by the literature concerning the strategic determinants of FDI) in every region, and for the pool. Each variable in turn was introduced and then discarded in exactly the same sequence in each case, making use firstly of supranational, followed by national and finally regional level variables, until the *most* statistically significant variable was found to reflect each strategic determinant (for all regions and at pool level)[1]. The outcome of this process was that the most statistically significant independent variables were added to the final equations for each region and for the pool, reflecting all of the strategic determinants of FDI wherever possible. Where no significant variables were found in connection with any strategic determinant/s, then the final equations reflect this. This procedure fits closely with existing theoretical models but could still lead to some underlying biases affecting the results obtained (Judd and McClelland, 1989).

High levels of correlation were anticipated between the various motives for market-, efficiency-, and strategic asset-seeking and for government influence, associated with a high degree of collinearity between some of these explanatory variables at the regional, national and EU levels. Thus only one variable was included in each regional equation from each of these categories. It was also thought possible that correlations could also exist between the motives for FDI on a cross-category basis. A range of additional correlation tests was therefore carried out and where collinearity was shown to exist, the worst performing variables were excluded from the equations.

Limiting the range of independent variables to one in each broad category may lead to an omitted variable problem, particularly when the "true" functional form of an equation is unknown (Swamy *et al*., 2003) and where a significant explanatory variable is correlated with other explanatory variables in an equation.

[1] If, for example, 'GDP(EU)' was found to be insignificant in a regional equation, it was replaced firstly by 'GDP(N)' in the MRA, and subsequently by 'GDP(R)', followed later by other market-related variables in order to achieve the most statistically significant final results.

In such cases, an OLS regression generally produces biased and inconsistent estimates. In order to reduce omitted variable bias in the present case, the regression equations were developed to mirror the theoretical underpinnings of the determinants of FDI location; moreover, because of the level of correlation between a number of the explanatory variables, individual variables might be proxying for others, thereby trading off reduced multicollinearity bias for some omitted variable bias.

Choice of dependent variable

FDI 'new project successes' were used to proxy inflows of FDI to the UK regions making use of data from ONS (1981-2006), and following the example of Hill and Munday (1992) and Billington (1999). The difficulties involved in using new project successes data in this type of study are well documented. Information is provided voluntarily by companies at the time of the decision to invest, leading to a greater likelihood that new projects will come to the attention of Invest UK, where this body (or its regional development agency partners) was involved in securing an FDI project (Billington, 1999). Published new project data may therefore under-represent the numbers of projects undertaken in core regions such as the South East where there may be little government or regional assistance available (Hill and Munday, 1992); they may also include expansionary as well as new investment, with the result that net additions to the host region's FDI stock can be difficult to determine (Stone and Peck, 1996). Finally, FDI projects vary dramatically by investment size, due to the concentration of inward investment in a small number of projects (Jones and Wren, 2004).

One way of overcoming such problems could have been to measure inbound FDI in terms of new jobs created, rather than by new projects (Mudambi and Mudambi, 2005; Hill and Munday, 1992). New projects were, however chosen ahead of the employment-based dependent variable (also used in Hill and Munday's (1992) study), due to the greater explanatory power that the former measure provided in their estimated equations for inbound FDI. It was also believed (following Stone and Peck, 1996) that using employment data in this type of study could lead to a range of problems, including difficulties in isolating

data relating to expected jobs created and determined by TNCs undertaking FDI; problems in differentiating between jobs created and jobs safeguarded; and difficulties in estimating any jobs lost or displaced as a result of any given foreign investment (Stone and Peck, 1996). Weak correlation between jobs created and foreign investment levels was also seen as another problem associated with the use of employment data, since project-job intensity might be lower for larger than for smaller investment projects, with the result that high investment projects may not necessarily be those with the highest employment generation potential (Jones and Wren, 2004).[2]

The choice of new projects as the dependent variable in the present study was also influenced by practical considerations, in that a far more extended time series of data for this variable was found to be available from official UK government statistical sources, for all of the sample regions, than for alternative, employment-related measures of inbound FDI. In fact, only 'new project successes' data were available for the whole of the time period, for all of the regions chosen for our longitudinal study.[3] Nonetheless, additional MRAs were also carried out for the South East and the West Midlands only, for the period from 1999 to 2002, using 'jobs created' as the dependent variable in order to compare the results obtained with those generated in the main study. The findings yielded statistically less significant results than before, supporting the decision to employ new projects as the dependent variable in the main study[4].

[2] Jones and Wren (2004) argue that there appears to be a substantial concentration of investment in a relatively small number of FDI projects, but that jobs are far less concentrated, leading them to the conclusion that the scale of project investment is only weakly correlated with the numbers of jobs created. Their study also suggests that larger plants are more likely to fall short of the job creation targets published by RDAs, lending further support to the argument for preferring new projects to employment for dependent variable purposes.

[3] Comparable data on new jobs created as a result of FDI proved impossible to obtain for all five sample regions throughout the whole of the chosen twenty-two year time span. Such data were available throughout the period for Scotland and Wales, but they were only found to be available for the English regions since the RDAs came into being in 1999. Thus if reliance had been put on this dependent variable, problems would have been encountered with degrees of freedom in estimating the parameters of all but the Scottish and Welsh regional models. This would also have limited the number of explanatory variables in the models (leading to omitted variable bias).

[4] The explanatory power of the additional MRAs is also weaker for the (more knowhow-intense) South East than for the (less knowhow-intense) West Midlands, suggesting that higher employment may well be associated with lower technology FDI, and vice versa.

Data analysis

The analysis of data in this study is based on the estimation of the empirical relationship between inbound FDI and the selected explanatory variables for the sample UK regions and the five-region pool between 1980 and 2002.

FINDINGS

Multiple Regression results for the five regions

The goodness of fit statistics derived from the multiple regression analyses indicate that all six models are fairly robust. Adjusted R^2 coefficients of 0.841, 0.825, 0.710, 0.548 and 0.578 are estimated for the South East, West Midlands, Scotland, North West and Wales respectively, while the coefficient for the pooled data is estimated as being 0.431.

Table 2 (below) summarises the *Multiple Regression results* for each of the five sample regions studied and for the five-regional pool. Use is made of the acronyms listed and explained in Tables A1a to A1d (see Appendix).

Table 2 here

Looking first at the strategic determinants of FDI location, it can be seen that market- and efficiency-seeking appear dominant in all cases apart from Wales (where efficiency-seeking is significant but market-seeking is not). Strategic-asset seeking would seem to be far less significant overall, although this may play a part in drawing FDI into the South East. Government influence is however a statistically significant determinant of FDI inflows in all regions except for the South East. Finally, at the five-region pool level, market-, efficiency- and strategic asset-seeking and government influence would all appear to be significant influences on the attraction of FDI. National and regional factors appear to be significant drivers of FDI into all but two of the five regions, and at pool level, although the findings indicate an overall predominance of regional variables. There is no evidence however to support the view that

international variables offer statistically significant explanations of FDI in any of the regions studied or at the pool level.

The results of the MRAs suggest that the specific motives that influence FDI location vary markedly between the five regions. In the South East, the main drivers of FDI are REALGDP/POP(N), REALWAGE(R), CLUSTERS(R) and REALMANUF(N). In the case of the West Midlands, REALGOVSPEND(R), INERTIA(R) and TRAINING(R) are the most significant explanatory variables. For Scotland, REALGDP(N), UNEMP(R), POP(R) and REALGOVSPEND(R) are most important. In the North West, the most important FDI-inducing factors appear to be CORPTAX(N), INERTIA(R) and PRODUCTIV(R). In the case of Wales, AGGLOM(R), REALGOVSPEND(R) and UNEMP(R) are all significant. Taken together, these findings suggest that it is difficult to explain the regional distribution of inbound FDI in these five UK regions using a common set of specific motives.

The signs generated by the regression equations agree, in the main part with the *a priori* assumptions made. In the case of the South East, three of the explanatory variables, REALGDP/POP(N), CLUSTERS(R) and REALWAGE(R), have the expected signs associated with them. REALMANUF(N), in contrast, has an apparently perverse (negative) coefficient, suggesting that FDI inflows into the South East increase when the UK manufacturing declines. This finding can be tentatively explained, however, in terms of the switch between manufacturing and non-manufacturing FDI inflows which the UK as a whole is now experiencing. The negative coefficient estimated for REALMANUF(N) may therefore simply reflect this national trend (which interestingly the South East now appears to be bucking, since it has recently been attracting more manufacturing – as well as considerably more non-manufacturing – FDI projects).

For the West Midlands, REALGOVSPEND(R), INERTIA(R) and TRAINING(R) all appear to have the expected positive effects on inbound FDI inflows. In Scotland, the expected signs are also obtained for

REALGDP(N), UNEMP(R) and POP(R), indicating that increases in all three variables are linked with increases in FDI inflows; however, an unexpectedly negative sign is estimated for REALGOVSPEND(R), suggesting that government investment incentives may have been inversely related to FDI inflows into the region. This result may be explained, at least in part, by the by the declining relative attractiveness of Scotland to inward investors into the UK during recent years, at a time when RPA support for inward investment into the region has been broadly maintained. It may also be attributable to the heterogeneity of the Scottish economy, which cannot be fully reflected by its treatment as one unified region in the official statistics.

In the case of the North West, PRODUCTIV(R) has the expected positive impact on FDI inflows, while the anticipated negative sign is also estimated for CORPTAX(N), implying that as corporation tax rates fall, FDI increases. INERTIA(R) has an unexpectedly negative sign, however, suggesting that existing FDI stocks are inversely related to FDI inflows into the region. One explanation could be that this region has been experiencing a fall in its competitiveness as a location for inbound FDI, relative to other UK regions. The changes in Assisted Area status introduced in 1993 and the growth in RPA available to inward investors in traditionally 'advantaged' regions of the UK may also have had the effect of deflecting some FDI away from the North West. Tentative support for these conclusions is provided by the recent fall in the relative attractiveness of the North West for manufacturing (although not non-manufacturing) FDI reported in official government statistics.

For Wales, UNEMP(R) and AGGLOM(R) both have positive signs as predicted, but REALGOVSPEND(R) has an unexpectedly negative sign, implying that FDI inflows into the region have risen despite falling levels of RPA. One explanation for this anomalous result could be that efficiency-related factors now play a more important part than investment incentives in TNC decision-makers' thinking regarding location in Wales. The diminution of investment incentives may therefore not be sufficient to reduce the attractions of the region to new FDI projects, so long at the innate advantages

resulting from the availability of a large, regional pool of available (unemployed) skilled labour, and from spatial externalities linked to the presence of other inward investors and related firms are sufficiently powerful to draw new investors into the region.

The MRA results for the pooled data sets indicate that REALGDP/POP(R) and REALWAGE(R) are the two most significant variables. Both have the expected signs (positive and negative respectively), suggesting that FDI inflows are attracted to the UK and at least some of its regions by a mixture of market size and competitive wage levels. The coefficients estimated for CORPTAX(N) has the expected negative sign, confirming the *a priori* view that low levels of corporation tax are attractive for inward investors. The negative sign estimated for REALR&D(R) is, however, unexpected, suggesting that falling levels of R&D at the regional level are associated with increasing FDI. One possible explanation could be that falling R&D on the part of their UK rivals may be giving R&D-intensive TNCs a competitive advantage, which they are exploiting by committing more inbound FDI to the UK regions[5].

F-Tests

The results of the adjusted R^2 tests are supported by the F-test for all five regions, as indicated in Table 3. The F-test results, used as a measure of significance of all the explanatory variables together within the equation, are highly significant for all four regions and for the pooled data. The models appear therefore to reflect the determination of FDI well in all cases.

Table 3 here

[5] Interestingly, the findings from the additional MRAs carried out for the South East and the West Midlands, using 'jobs created' as the dependent variable also show that the same independent variables were significant as in our main study (using 'new projects' as the dependent variable). Thus CLUSTERS(R) is the only variable reflecting strategic asset-seeking FDI that appears as significant in these MRAs, and this variable is only found to be significant in the case of the South-East, as in the main study.

The Durbin -Watson Test

Table 4 shows the D-W statistics estimated for the regression equations for each of the five regions and for the pooled data; the findings show that there is no autocorrelation present in any of these regression equations.

Table 4 here

CONCLUSIONS

The findings reported here are broadly consistent with those of previous studies. Once the decision to invest in the UK has already been made, FDI location at the regional level would appear to be driven by a range of strategic determinants, including the search for markets, efficiency and (to a far lesser extent) strategic assets, together with government influence. Most FDI inflows into the UK regions are still driven by 'competence-exploiting' rather than 'competence-creating' factors, although the relative importance of these drivers may be changing over time, as strategic asset-seeking becomes an increasingly important determinant of FDI location (Dunning, 1998 and 2002; Cantwell and Mudambi, 2005).

There would seem to be substantial inter-regional variation in the strategic determinants of FDI location, reflecting the economic diversity of the UK's regions. Market-seeking factors appear to attract FDI inflows into four of the five sample regions (excluding Wales) and at the five-region pool level; efficiency-seeking is significant for all regions and for the pool; while strategic asset-seeking is only significant for the South East and at pool level. Interestingly, government influence appears to be a significant magnet for FDI in all regions (except for the South East) and for the pool. The specific motives linked to these drivers of FDI also differ markedly from region to region, pointing again to the diversity of the factors governing the regional distribution of inbound FDI in the UK.

It would, however be misleading to treat FDI location as a regional issue alone, for a small, advanced industrial nation such as the United Kingdom. The findings indicate that national (although not EU level)

as well as regional variables exercise a statistically significant influences on inbound FDI in three out of the five regions studied (the exceptions being the West Midlands and Wales) and in the case of the pool. FDI location decisions would appear to be influenced by a range of factors which cross regional boundaries, including national market size, concentrations of related industrial activity at cross-border level and government taxation policies.

Policy Implications

The findings suggest that FDI location in the UK regions can be influenced by appropriately targeted national and regional government actions and policy initiatives, centring on the identification of TNCs with a good 'fit' with existing and potential regional cluster development, and then tailoring a package of appropriate investment incentives to their needs (Mudambi, 1999). Government policy makers also have a role to play in promoting increased linkages between FDI inflows and regional economic development. The mere brokering of services by Regional Development Agencies (RDAs) and other government agencies may prove to be less effective as a means of promoting embedding, than more carefully targeted initiatives such as supplier-development policies geared to the enhancement of regional supplier capacity and competitiveness (Crone, 2002), and to the promotion of education and training quality, linked to the needs of regional economic clusters and TNCs (Phelps *et al,* 2003).

Policy intervention should be carried out on a flexible basis, since the specific motives and indeed the strategic determinants of FDI vary from region to region, reflecting the UK regions' differing economic characteristics. Policy makers should therefore place differing degrees of emphasis on measures facilitating market access, labour productivity, education and training initiatives, R&D and technology development, and the promotion of cluster development and supply chain linkages, as well as on traditional, incentive-based approaches to inward investment strategy, reflecting variations in regional economic circumstances and FDI potential (Stone and Peck, 1996; Phelps, 1997; Loewendahl, 2001a and 2001b).

Different opportunities and challenges face government policy-makers in the various UK regions, associated with the trade offs that they face between seeking to encourage employment generation and knowhow creation by promoting inward investment flows. Securing knowhow-intensive investment may become an increasingly important policy goal for governments in a number of regions, or at least for those with the potential to develop globally competitive clusters including a critical mass of 'competence-creating' as opposed to 'competence-exploiting' MNE subsidiaries. However, the findings suggest that, at present, policies designed to attract such FDI would have a better chance of succeeding in the South-East of England than in the other regions included in the current study, reflecting Cantwell and Mudambi's (2000) argument that investment incentives are likely to be less effective in drawing in 'high-tech', R&D intensive FDI inflows to the UK's periphery.

Policy makers in the UK's more peripheral regions would thus appear to be better advised to target lower technology FDI, with the potential for higher job-creation potential (Mudambi and Mudambi, 2005). Official statistics show however that only the South East has proved capable of securing a greater number of new manufacturing FDI projects in recent years, whilst all other sample regions have suffered from falling levels of such FDI. Inward investment policies that seek to replace 'ailing manufacturing industry' in the UK's peripheral regions with 'more manufacturing jobs' are therefore likely to fail. Policy-makers in such regions should instead seek to use inward investment policies as a means of promoting the diversification of regional economies, focusing on the creation of sustainable employment in expanding services and sunrise sectors, rather than additional (but probably short-term) jobs in historically important but contracting manufacturing clusters. It may also be opportune for investment agencies in the UK's peripheral regions to draw in a range of smaller (rather than fewer, larger) FDI projects, if (as Jones and Wren, 2004 suggest) project-job intensity is higher in the former case.

Future Research Agenda

The use of new projects as the dependent variable in the MRAs has enabled the current study to provide useful insights into the key determinants of inbound FDI location in the UK regions. The research could now be taken further by introducing employment creation as an alternative dependent variable (following Hill and Munday, 1992) for comparative purposes, drawing in particular on the more extensive time series of job-creation data available for Wales and Scotland than for the English regions. This refinement would help to reinforce the government policy emphasis of the research findings, helping to focus for example on potential trade-offs between securing additional jobs and promoting knowhow creation (following Mudambi and Mudambi, 2005).

Further research could also focus on explaining the shift taking place from manufacturing to non-manufacturing FDI in many UK regions (ONS, 1986-2006), together with the resultant implications for regional development and inward investment policies by national and regional government. Efforts could be made to identify changes in the relative importance of the different strategic determinants, government influence and the specific motives driving FDI location in the UK regions, in promoting this shift, together with the impact of significant events, such as changes in assisted status and the availability of government support for inward investors. Consideration could also be given to the introduction of a weighted index variable for each strategic determinant, taking into account a range of motives underlying market-, efficiency- or strategic asset seeking or the effects of government influence on FDI, in order to help reduce the problem of omitted variable bias.

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Table 1a Economic characteristics of sample UK regions

Country and Region	Population 2004 (thousands)	GVA per capita index, 2004 (£ billion)	% GVA from Manufacturing	Median gross weekly earnings (ft male employment, April 2005, £)	Labour force, 2005 (thousands)	Employment rate, spring 2005 (%)
UK						
Total	59,835	100	15.2	471.5	27,106	74.4
Core						
South East	8,110	116.1	11.64	521.2	3,892	78.6
Inner periphery						
West Midlands	5,334	91.2	19.4	444.1	2,383	74.6
Outer periphery						
North West	6,827	88.9	19.0	450.0	2,987	72.9
Wales	2,953	79.1	19.1	433.2	1,239	70.8
Scotland	5,078	96.2	15.0	447.8	2,331	74.6

Country and Region	Unemployment rate, spring 2005 (%)	% Pupils achieving 5 or more GCSE grades A*-C, 2003-4	Proportion of 16 year olds in post-compulsory education and government training schemes, 2003-4	R&D expenditure all sectors, 2003 (£m)	Regional Preferential Assistance, 2003-4 (£m)
UK					
Total	4.7	54.2	72.0	20,154	338.9‡
Core					
South East	3.7	57.7	81.0	4,661	1.5
Inner periphery					
West Midlands	4.4	52.0	78.0	853	7.8
Outer periphery					
North West	4.3	52.0	79.0	1,976	15.8
Wales	4.5	51.4	81.0	482	85.5
Scotland	5.9	58.4	75.0	1,367	96.9‡

‡ Scotland:- figures for 2002-3.

Source: ONS (2006) http://www.statistics.gov.uk/downloada/Regional_Trends_39/12.05xls (Accessed 31st May 2007)

Table 1b Regional distribution of new UK FDI projects (1998/9 and 2004/5)

Country and Region	Manu-facturing FDI (1998/9)	Manu-facturing FDI (2004/5)	Non Manu-facturing FDI (1998/9)	Non Manu-facturing FDI (2004/5)	Total new FDI projects (1998/9)	Total new FDI projects (2004/5)
UK						
Total	**311 (100%)**	**256 (100%)**	**353 (100%)**	**810 (100%)**	**664 (100%)**	**1066 (100%)**
Core						
South East	23 (7.4%)	35 (13.7%)	51 (14.5%)	143 (17.7%)	74 (11.1%)	178 (16.7%
Inner periphery						
West Midlands	41 (13.2%)	29 (11.3%)	30 (8.5%)	40 (4.9%)	71 (10.7%)	69 (6.5%)
Outer periphery						
North West	42 (13.5%)	30 (11.7%)	24 (6.8%)	62 (7.7%)	66 (9.9%)	92 (8.6%)
Wales	35 (11.3%)	25 (9.8%)	13 (3.7%)	31 (3.8%)	48 (7.2%)	56 (5.3%)
Scotland	26 (8.4%)	20 (7.8%)	28 (7.9%)	48 (5.9%)	54 (8.1%)	68 (6.4%)

Source: ONS (2006) http://www.statistics.gov.uk/downloada/Regional_Trends_39/12.05xls (Accessed 31st May 2007)

Table 2 Multiple regression results (Significant independent variables only)

Market seeking FDI – related variables

	South East	West Midlands	North-West	Scotland	Wales	Pool
Resident regional population	-	-	-	POP(R) *** (+ve)	-	-
Real regional GDP per capita	-	-	-	-	-	REALGDP/ POP(R) *** (+ve)
Direct inward investment (new projects), lagged one year, regional level	-	INERTIA (R) ** (+ve)	INERTIA (R) ** (-ve)	-	-	-
Gross UK GDP (real terms)	-	-	-	REALGDP(N) *** (+ve)	-	-
Real UK GDP per capita	REALGDP/POP (N) *** (+ve)	-	-	-	-	-

Efficiency seeking FDI – related variables

	South East	West Midlands	North-West	Scotland	Wales	Pool
Regional claimant unemployment	-	-	-	UNEMP(R) *** (+ve)	UNEMP(R) ** (+ve)	-
Percentage of regional 16 year olds in education and government training	-	TRAINING (R) **(+ve)	-	-	-	-
Average real wage costs per manual employee, regional level	REALWAGE (R) *** (-ve)	-	-	-	-	REALWAGE (R) ** (-ve)
Regional output per employee	-	-	PRODUCTIV (R) * (+ve)	-	-	-
Ratio of numbers in employment to land area, regional level	-	-	-	-	AGGLOM (R) *** (+ve)	-
Share of top 4 clusters in regional GDP	CLUSTERS (R) *** (+ve)	-	-	-	-	-
Real gross value added, manufacturing industry, UK level	REALMANUF *** (-ve)	-	-	-	-	-

Table 2 (continued)

Strategic asset seeking FDI – related variables

	South East	West Midlands	North-West	Scotland	Wales	Pool
Total, real regional expenditure on R&D	-	-	-	-	-	REALR&D (R) ** (-ve)

Government influence – related variables

	South East	West Midlands	North-West	Scotland	Wales	Pool
Government spending on preferential assistance to industry (real terms), regional level	-	GOVSPEND (R) *** (+ve)	-	GOVSPEND (R) * (-ve)	GOVSPEND (R) ** (-ve)	-
UK corporation tax rates	-	-	CORPTAX (N) *** (-ve)	-	-	CORPTAX (N) ** (-ve)

* Statistically significantly at the 0.1 level, ** at the 0.05 level, *** at the 0.01 level.

Table 3 F-Test results

Region	F-Ratio	Significance of F-values
South East	28.705	0.000
West Midlands	34.014	0.000
Scotland	13.839	0.000
North West	9.470	0.001
Wales	10.595	0.000
Pooled data	21.679	0.000

Table 4 Durbin -Watson test results

Region	Durbin -Watson statistic	Significance
South East	2.091	No autocorrelation
West Midlands	2.152	No autocorrelation
Scotland	1.940	No autocorrelation
North West	1.836	No autocorrelation
Wales	1.884	No autocorrelation
Pooled data	0.990	Zone of indecision

APPENDIX

Table A1a **Market-seeking FDI - explanatory variables**

Influences on FDI	Variable	Expected sign
Resident regional population	POP(R)	Positive
Gross regional GDP	GDP (R)	Positive
Gross regional GDP (real terms)	REALGDP(R)	Positive
Regional GDP per capita	GDP/POP(R)	Positive
Real regional GDP per capita	REALGDP/POP(R)	Positive
Regional expenditure on roads (annual basis)	ROADS(R)	Positive
Ratio length highways to land area, regional level	ROAD/LAND(R)	Positive
Real regional expenditure on roads (annual basis)	REALROADS(R)	Positive
Direct inward investment (new projects), lagged one year, regional level	INERTIA(R)	Positive
Resident UK population	POP(N)	Positive
Gross UK GDP	GDP(N)	Positive
Gross UK GDP (real terms)	REALGDP(N)	Positive
UK GDP per capita	GDP/POP(N)	Positive
Real UK GDP per capita	REALGDP/POP(N)	Positive
Gross GDP, EU 15	GDP(EU)	Positive
UK expenditure on roads (annual basis, England proxy)	ROADS(N)	Positive
Ratio length highways to land area, UK level	ROAD/LAND(N)	Positive
Real UK expenditure on roads (annual basis, England proxy)	REALROADS(N)	Positive
Direct inward investment (new projects), lagged one year, UK level	INERTIA(N)	Positive

Sources: Regional Trends, DTI Transport Statistics, UK National Statistics

Table A1b Efficiency-seeking FDI - explanatory variables

Influences on FDI	Variable	Expected sign
Total regional labour force (thousands)	WORK(R)	Positive
Regional claimant unemployment, regional level	UNEMP(R)	Positive/ Negative
School leavers' examination achievements (pupils achieving 5 or more grades at GCSE A*-C), regional level	GCSE(R)	Positive
Percentage of regional 16 year olds in education and government training	TRAINING(R) ‡	Positive
Average wage costs per manual employee, regional level	WAGE(R)	Negative/ positive
Average real wage costs per manual employee, regional level	REALWAGE(R)	Negative
Regional male manufacturing wages / national average	RELWAGE(R)	Negative
Regional output per employee	PRODUCTIV (R)	Positive
Year-on-year change in regional output per employee	CHANGEPROD(R)	Positive
Working days lost per 1,000 employees through labour disputes	STRIKES(R)	Positive/ Negative
Ratio of numbers in employment to land area, regional level	AGGLOM (R)	Positive
Gross value added by manufacturing industry, regional level	MANUF(R)	Positive
Real gross value added by manufacturing industry, regional level	REALMANUF(R)	Positive
Share of top 4 clusters in regional GDP	CLUSTERS(R)‡	Positive
Net annual change in small business registrations, regional level	SMALLBIZ(R)	Positive

‡ Also potential influences on strategic asset-seeking FDI inflows

Sources: Regional Trends, DTI Transport Statistics, UK National Statistics

Table A1b (continued)

Total UK labour force (thousands)	WORK(N)	Positive
UK claimant unemployment	UNEMP(N)	Positive/ Negative
School leavers' examination achievements (pupils achieving 5 or more grades at GCSE A*-C), UK level	GCSE(N)	Positive
Percentage of UK 16 year olds in education and government training	TRAINING(N) ‡	Positive
Average wage costs per manual employee, UK level	WAGE(N)	Negative/ Positive
Average real wage costs per manual employee, UK level	REALWAGE(N)	Negative
UK output per employee	PRODUCTIV (N)	Positive
Year-on-year change in UK output per employee	CHANGEPROD(N)	Positive
Working days lost per 1,000 employees through labour disputes , UK level	STRIKES(N)	Negative
Ratio of numbers in employment to land area, UK level	AGGLOM(N)	Positive
Gross value added by manufacturing industry, UK level	MANUF(N)	Positive
Real gross value added by manufacturing industry, UK level	REALMANUF(N)	Positive
Share of top 4 clusters in UK GDP	CLUSTERS(N)‡	Positive
Net annual change in small business registrations, UK level	SMALLBIZ(N)	Positive

‡ Also potential influences on strategic asset-seeking FDI inflows

Sources: Regional Trends, DTI Transport Statistics, UK National Statistics

Table A1c Strategic asset-seeking FDI - explanatory variables

Influences on FDI	Variable	Expected sign
Total regional expenditure on R&D (business, government plus universities)	R&D(R)	Positive
Total, real regional expenditure on R&D	REALR&D(R)	Positive
Share of top 4 clusters in regional GDP	CLUSTERS(R)‡	Positive
Percentage of regional 16 year olds in education and government training schemes	TRAINING(R)‡	Positive
Total UK expenditure on R&D	R&D(N)	Positive
Total, real UK expenditure on R&D	REALR&D(N)	Positive
Share of top 4 clusters in UK GDP	CLUSTERS(N)‡	Positive
Percentage of UK 16 year olds in education and government training schemes	TRAINING(N)‡	Positive

‡ Also potential influences on efficiency-seeking FDI inflows

Sources: Regional Trends, DTI Transport Statistics, UK National Statistics

Table A1d Government influence on FDI - explanatory variables

Influences on FDI	Variable	Expected sign
Government spending on preferential assistance to industry, regional level	GOVSPEND(R)	Positive
Government spending on preferential assistance to industry (real terms), regional level	REALGOVSPEND(R)	Positive
UK corporation tax rates	CORPTAX(N)	Negative
Exchange rate levels	EXCHRATE (N)	Negative

Sources: Regional Trends, DTI Transport Statistics, UK National Statistics