DOES OFFSHORE OUTSOURCING IMPACT HOME EMPLOYMENT? EVIDENCE FROM SERVICE MULTINATIONALS

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Abstract

This paper investigates the impact of offshore outsourcing across 5,746 European service multinational enterprises (MNEs) on employment at home. We estimate labour demand equations and specifically isolate the global financial crisis (GFC) by undertaking analysis through our longitudinal 19-year panel data, separately for the pre- (1997-2007) and crisis period (2008-2016). We distinguish between offshoring to high and low income countries, as well as between service industry groups. We show that there is some evidence that offshoring by location intensive service firms is associated with employment growth at home during the crisis period, while offshoring in information intensive industries in high income countries is associated with a reduction in employment at home, as firms offshore to be nearer to the client. Overall, our findings suggest that the crisis period has lessened the impact of offshoring service FDI on employment at home.

Keywords: FDI, employment growth, offshoring, relocation, OLI paradigm, service sector.

Introduction

There has been a vigorous debate, in studies on manufacturing industries, concerning the extent to which the process of internationalisation of firms has led to reduced employment at home. However, despite a large number of studies based on manufacturing firms, concerning whether outward FDI substitutes or complements domestic employment (see e.g. Desai et al., 2009; Mankiw 2004; Mankiw and Swagel 2006), very little is known about the service sector in this regard. In fact, recent empirical evidence for the US is not conclusive, which in turn makes it difficult for policy-makers to devise any type of response to the growing phenomenon of internationalisation (Harrison and McMillan 2007). As the established literature on service sector multinationals points out, a key challenge for service sector internationalisation is that services may be simultaneously produced and consumed, which perhaps increases the coordination costs, and increases the importance of distance, cultural, institutional and geographic (Buckley et al., 2016; Pereira and Malik, 2015). The question then arises over, where knowledge in services is often tacit, but important for both the production, as well as consumption of the service, whether service sector firms can engage in offshoring as effectively as manufacturing firms. Clearly there are numerous examples of this, such as the outsourcing of US paralegal activity to the Philippines and Panama, (Beerepoot et al., 2013). This phenomenon is discussed in more detail by Gleich et al. (2017). They find that market pressure is a significant driver of international outsourcing in the service sector, with German firms responding to competitive pressures through outsourcing and efficiency seeking FDI in certain activities. Indeed, in an analysis of consumer responses, Koku (2015) determines little hostility from service sector consumers to this activity in

the US. Important for our analysis are the findings of Blinder and Krueger (2015), who consider the potential propensity of "offshorability" of US jobs. They find that sectors such as finance and insurance, information services, and professional and technical services are as likely to be subject to offshoring / outsourcing as manufacturing.

The extent therefore to which internationalisation, through offshoring, of such firms may lead to a hollowing out of employment at home, is an important one, which has seldom been examined on a large longitudinal scale. We argue in this paper that it is important, not merely to focus on "the service sector", or even to rely on categorisation based on knowledge or technological intensity, but to crucially link the theory of international business (IB) to analysis of service sector paradigms. We build on Ball, Lindsay and Rose (2008) who highlight the distinction between *information intensive* services and *location intensive* services, which is particularly useful in the context of service sector offshoring and outsourcing, and the link to IB theory

As the outline of this special edition notes, while offshoring by service industries' firms has become popular in recent years (Buckley, 2016), there are several questions that are still unanswered. More specifically, of the five important decision making questions (Hätönen and Eriksson, 2009; Pereira and Malik, 2015) identified by the call i.e. why, what, where, how and when in the context of outsourcing and offshoring, we concentrate on the question- 'what'. Thus, we investigate whether and to what extent offshoring by service firms impacts on employment in the parent firm at home and in doing so, we help develop a 'more fine grained analysis to advance outsourcing and offshoring, at deeper, sophisticated and critical levels', as suggested by the call. Further, there is no dominant theoretical paradigm on which these studies are based as Buckley and Ghauri (2004), and

indeed Edvardsson et al. (1993) note, most authors adopt a framework developed for manufacturing firms, and impose this on service industry analysis. We argue that this approach is flawed, especially when studying the relationships between home and foreign employment in a large number of service sector firms.

Given the recent widespread national and international media coverage and public debate, which is focussed largely on the negative effects of outsourcing and offshoring[i], the question of whether MNEs relocate or expand employment abroad at the detriment of employment at home is an important political issue and high on the policy agenda. Recent voting patterns, mainly influenced by such unsubstantiated and un-evidenced claims loss of employment in the offshoring country are likely to have contributed to events such as Brexit, and the coming to power of right wing protectionist governments. It thus becomes imperative that some evidence is provided whether and to what extent offshoring by service MNEs impacts on employment in the parent firm at home.

This paper therefore analyses the employment effects at home, of offhoring in the service sector. We use a rich firm-level data set covering a large scale panel of 5,746 MNEs based in European countries and their offshored subsidiaries in 87 countries around the world between 1997 and 2016 (pre-crisis 1997-2007 and crisis period 2008-2016). We deliberately choose a longitudinal period before and after the GFC of 2008, so that the effects of the GFC (pre and post) are reflected in our results. Most policy makers in rich countries have for some time focussed on knowledge intensive services as a key vehicle for growth.

More specifically, we investigate whether, over a period of time, offshoring from the service sector will effect employment in the parent firm at home. We further also

investigate if on the one hand, FDI by location intensive services is associated with increased employment at home and on the other hand if FDI in information intensive services leads to a reduction in employment at home. As an added layer, contextually our analysis digs deeper into the effects of the global financial crisis to then investigate the impact of offshoring on employment at home.

This paper thus makes a number of contributions. First, we investigate over a period of time whether offshoring from the service sector will not lead to a reduction in employment in the parent firm at home. Second, we differentiate not only by destination country (low versus high income country) but also between service sector types (location versus information intensive). We develop the information-location dichotomy by Ball et al. (2008). One the one hand, information intensive services possess high levels of identifiable technology in the form of R&D and tacit knowledge, which could lead to the threat of relocation of employment from high-technology industries. On the other hand, FDI by location-intensive firms is associated to the desire to exploit a technology or a brand in a new location as it is likely to be independent of employment change at home. Third, by utilising a lengthy longitudinal panel of nineteen years we include subsidiaries of all regions, unlike Konings and Murphy's (2006) study which is limited to FDI within Europe. This is possible because our dataset includes all regions and has grown their coverage of firms extensively in the last few years and thus one can analyse a broader set of issues with a larger panel. Fourth, to our knowledge, very little work has been done with this dataset using a panel of more than ten years, especially in the context of our research question which crucially isolates the pre- and post-global financial crisis period (GFC).

The rest of the paper is organised as follows. The following section presents our overarching theoretical framework, and some discussion of how service sector firms are treated differently in this literature from manufacturing firms. We then provide an overview of the arguments in previous empirical studies on the relationship between outward FDI and labour demand, with particular focus on Europe. In the next section we describe on how the data set is constructed and offer descriptive statistics. We then present the results before concluding.

Theoretical Framework, Literature and Hypothesis

The transaction cost theory, resource based theory and Dunning's (1993) eclectic OLI paradigm for FDI have all been used as theoretical frameworks within the offshoring literature to explain or capture the strategic thinking with regards to offshoring decisions (emphasised by Doh, 2005 and Contractor et al., 2010). Analysis of location decisions of firms is typically rooted within the dominant paradigm of IB. Internalisation theory for example views the boundaries of the firm, both in geographic terms and in terms of its vector of activities, sees the firm as a collection of firm specific assets, which it seeks in turn to combine with the vector of possible location specific assets in its set of possible locations.

Our essential theoretical framework is taken from the OLI paradigm of Dunning (1979, 1988, and 1993). As is well known, this asserts that the motivation for FDI comes from the desire to exploit firm specific advantages in foreign markets, with the location of that investment determined by the extent to which these firm specific advantages can best be exploited given the set of locational characteristics of the set of potential host locations. This decision is set within the context that the firm judges that FDI is

preferable to other forms of internationalisation modes, such as licensing. This has then led to a typology of FDI, characterised by a non-exclusive and non-exhaustive set of terms, including market seeking, asset seeking, resource seeking, and efficiency seeking. These terms have, then in turn become synonymous with the likely impacts of FDI on both the home and host country, see for example Driffield and Love (2007) and Driffield et al. (2010).

However, we agree with the argument by Contractor et al. (2010, p.1418), in the context of offshoring, where they contend that there is a need for "...reconsideration of the nature of the firm that captures the more dynamic configurational aspects of the firm". We, therefore, further advance the re-conceptualisation of the firm based on these recent trends that are linked to the global financial crisis, location of offshoring activity and type services MNEs that undertakes the offshoring.

However, as Brouthers and Brouthers (2003), and Pla-Barber et al. (2010) discuss, imposing this terminology on service sector firms is problematic. The analysis of Buckley and Ghauri (2004) highlights some of the differences between services and manufacturing in the context of international business, arguing that while modern ICT has made communications easier, geography is still important. National boundaries for example still determine the regulations to which service providers must abide by.

Much of the literature that seeks to determine the effects at the firm level of outward FDI explores this within the setting of the manufacturing sector and offers mixed findings. With regards to employment effects, Konings and Murphy (2006) match MNEs with their offshore subsidiaries, both located in Europe, to test for employment substitution in response to wage differentials. Their findings are surprising in that they

suggest substitutability only for North European MNEs and their subsidiaries which are also located in North Europe. No significant effects are found for subsidiaries located in South or Central and Eastern Europe from which they conclude that competition from low-wage countries does not represent a threat to parent firm employment. This latter result confirms findings presented by Castellani et al. (2006).

Brainard and Riker (2001) use matched US parent-subsidiary data for 1983-1992 and find small substitution effects between parent and subsidiary employment. Subsidiary employment in both high and low income countries substitute for employment in the US[1]. Blomström et al. (1997) find that US MNEs relocate their labour-intensive activities to subsidiaries in developing countries which are not found in the activities of Swedish MNEs[1]. However, Braconier and Ekholm (2000) find some evidence that home country employment in Swedish MNEs is a substitute for employment in subsidiaries in other high-income host countries for the period 1970-1994. Feenstra and Hanson (1999) argue that while outsourcing / offshoring to low income countries may reduce demand for unskilled workers in the west, this activity increases the demand for skilled labour at home, enhanced by any increase in technological capability of the firm. This literature essentially considers that the overall impact of outward FDI on home country is merely an empirical question, governed by the average magnitudes of efficiency seeking and technology sourcing FDI.

Castellani et al. (2006) examine how outward FDI to cheap labour countries affect home activities for a sample of French and Italian firms that turn multinational between the years 1993 to 2000. They use propensity score matching and find no evidence of a negative effect for both countries of outward investments to cheap labour countries.

Italian MNEs enhance their efficiency and show a positive effect on output and employment. For France they find a positive effect on the size of domestic activity. The same methodology is used on employer-employee data by Becker and Muendler (2007) in the case of Germany. They show that German MNEs would shed more labour if it was prevented from internationalizing compared to national rival firms[1]. Temouri and Driffield (2009) show that expansion of offshoring activity by German manufacturing and services MNE does not occur at the detriment of employment at home. Marin (2004) uses Austrian and German firm-level data from 1997-2001, collected through surveys, and finds that Eastern Enlargement leads to small job losses in both cases. The argument put forward is that jobs in Eastern Europe do not compete with jobs in Austria and Germany in the case of vertical investments. Low cost jobs in subsidiaries in Eastern Europe reduce production costs and induce Austrian and German MNEs to produce more and demand more labour which in turn makes them stay competitive.

Bunyaratavej et al. (2011), Lewin et al. (2009) and Hutzschenreuter et al. (2011) focus on the value chain of the organisation, and of the importance of the service sector within that. This, however, building on the work of Buckley et al. (1992), and Spar (1997) highlights a perspective that is articulated by Kundu and Lahiri (2015) in analysing service sector FDI. This posits that a key distinction between manufacturing FDI and service sector FDI is that the intermediate outputs in the service sector are simultaneously produced and consumed, and therefore suggests that distance may be more important in offshoring / outsourcing in services than in manufacturing. This therefore raises an interesting theoretical debate within the literature which seeks to

develop internalisation theory, while maintaining the overall perspective that offshoring / outsourcing in services is still fundamentally driven by efficiency seeking motives.

Further, outward FDI involves expansion rather than relocation (i.e. market seeking FDI). Our theoretical starting point therefore is to consider offshoring in services within the setting of internalisation theory, and to consider the extent to which efficiency seeking is feasible within services, and in turn the extent to which this leads to a reduction in employment at home. Whether it be efficiency seeking or market seeking it is still unclear, especially within the service sector, if there is a negative of offshoring on employment in the home country, over a period of time. We, seek, therefore to explore these more nuanced arguments that may be applied to the service sector, such that the potential relationships are more complex than for manufacturing, over a period of time.

As Gleich et al. (2017) point out, the nature of the interaction between the parent firm, and the activities subject to offshoring, is potentially more important in explain the offshoring decision than the nature of the product. Indeed, building on this, Gleich et al. (2017) point out that in the emerging literature there is an assumption that the drivers of offshoring in services are similar to that in manufacturing. We, however, seek to extend this line of argument, focussing not on the propensity for offshoring, but of the impacts of this. As such we therefore seek to develop the analysis of Verbeke (2013) to this problem, by considering the extent to which offshoring can substitute for jobs at home. This is implicitly considered by the existing empirical literature, but theoretically underspecified. If one takes for example the analysis of Gleich et al. (2017), and applies that to the standard theory of the MNE, then one inference is that while offshoring is an internalisation solution to greater competition, one has to consider the strategy and

structure of the firm. Where a firm engages in offshoring, this conceivably may free up resources, for example leading to greater investment in firm specific assets, and potentially even greater employment at home. Thus, one needs to consider not simply whether offshoring is viable, but whether impact on employment at home.

Previous analysis of service MNEs has tended to focus on particular aspects of the process. Jain et al. (2008) for example focus on the offshoring of services, highlighting some of the differences between service offshoring and other types. They discuss in detail the interactions between firm and country level effects. This essentially views offshoring as merely another form of efficiency seeking FDI, which leads to a reduction in employment at home. This type of analysis is also implicit within the wider literature based on the OLI paradigm (Dunning 1993, as discussed above). As Doh (2005) points out, the growing use of offshoring by MNEs has reinforced the relevance of the OLI paradigm among IB scholars.

The traditional arguments made in favour of offshoring have been that cost savings remain the major inspiration for initiation of offshoring moves, but there are other advantages also that accrue to offshoring clients (Lahiri et al., 2012). These could include increased focus on core business activities, added flexibility of business operations, greater risk spreading, and reduced time to market (Kedia & Mukherjee, 2009). Thus, one stream of the academic literature shares the popular perspective that the primary objective of offshoring is cost minimisation through the relocation of business processes to low-wage locations (Bock, 2008; Farrell, 2005; Grote & Täube, 2007). Another views offshoring as a more general location strategy that incorporates cost minimization and knowledge seeking (Demirbag & Glaister, 2010; Kedia & Lahiri, 2007;

Lewin, Massini & Peeters, 2009; Maskell, Pedersen, Petersen & Dick-Nielsen, 2007; Pereira and Malik, 2015; Pereira and Budhwar, 2015).

Numerous studies portray the strategic benefits of global offshoring for firms as a means to reduce costs, improve asset efficiency, and increase profits (Quinn, 1997) whereas criticisms have been almost exclusively in the areas of changing employment patterns, globalisation of the labour force and its effects on individuals and organisations. On the face of it, examination of offshoring would suggest cost reduction as a main driver. However, especially in recent years, two other strategy motivators have gained significance. The first, knowledge accessing, comes about because with the growing complexity of products and services, even the largest companies no longer have all the diverse components of knowledge within their own organization or personnel, to be competitive in research, production, and marketing. The second, relocation of operations abroad, helps the MNE to better understand and exploit foreign markets. Contractor et al., (2010) contend that these drivers for offshoring can be linked to Dunning's (1993) three strategic needs for organisations, i.e., efficiency, exploration and exploitation. Hence, cost reduction, as a driver would lead to 'efficiency'; access to knowledge and talented people, as a driver would then lead to 'exploration'; and the development of foreign markets, as another driver to 'exploitation'.

In turn, we derive a certain typology of FDI motivations in terms of why a firm would seek to internationalise. The literature therefore that seeks to apply this to the issue of the impact of outward FDI on home countries therefore essentially seeks to determine whether the desire to engage in FDI is one of expansion, which may even increase employment at home, or contraction as activities are relocated to potentially lower cost

locations. Theoretically, applying the standard typology of FDI, the FDI decision is then characterised by a non-exclusive and non-exhaustive set of terms, including market seeking, asset seeking, resource seeking, and efficiency seeking. These terms have, then in turn become synonymous with the likely impacts of FDI on both the home and host country, see for example Driffield and Love (2007) and Driffield et al. (2010). This leads to our first hypothesis:

H1: Over a period of time, offshoring from the service sector will not lead to a reduction in employment in the parent firm at home.

We now seek to nuance this argument, by considering not merely the motive for offshoring, but to distinguish between low income and high income countries. As indicated previously, an important contribution of the paper is the classification of offshoring, which we group in two distinct ways. The reason is to uncover whether certain decision making by services MNEs are driven by location or type of services MNE investments. The location decision is based on the literature on FDI which makes a distinction between developed country FDI destined to high income countries (i.e. North to North FDI) versus low income countries (North to South FDI).

According to the McKinsey Global Institute's report (McKinsey, 2003), U.S. businesses dominate the global share of offshoring, accounting for some 70 percent of the total market. Europe and Japan account for the remainder of the market, with the U.K. as a dominant player. The report argues that both the U.S. and the U.K. have liberal employment and labour laws that allow companies greater flexibility in reassigning tasks

and eliminating jobs, through offshoring. This flexibility they say is essential to capture offshoring opportunities effectively. In terms of 'who gains' through offshoring, this study further showed that offshoring creates wealth for the United States as well as for the host country (India, being the host recipient of offshored jobs). Research showed that for every dollar of corporate spending outsourced to India, the US economy captures more than three-quarters of the benefit and gains as much as $1.14 in return. In terms of implications of offshoring on employment, the study reiterates that some US workers will lose their jobs, but also states that this painful reality does not weaken the case for offshoring as a strategy for firms to be competitive. In summary this McKinsey report suggests that given the benefits of offshoring, the US labour force and economy needs to be more flexible and able to cope with change, and that far from being a zero-sum game, offshoring creates mutual economic benefit. Other researchers further debate that global outsourcing transfers work to countries where labour can be bought much more cheaply (Geewax, 2003), as prevailing wages are far below the US, UK and other developed countries as compared to economically developing countries in areas such as India, the Philippines, and China. Thus these emerging countries provide the financial rationale to reduce labour forces in highly developed economies. As an outcome, research suggests that this depresses wage rates for remaining workers, creates fewer job opportunities in many occupations, reduces job stability, and often results in a loss of benefits, such as health insurance, among workers at affected companies (Ansberry, 2003a and 2003b; Harrison, 1994).

The destination of offshoring is closely linked to the type of services MNE activity that is undertaken. Therefore, we make an important distinction between

information intensive services MNEs and *location intensive* services MNEs. As Ball et al. (2008) points out, a persistent theme in the international business literature has been the distinction between manufacturing and services. The essential argument is that services are potentially more intangible, and that there is more of a separation of production and delivery for manufacturing. Ball et al. (2008) highlights the distinction between *information intensive* services and *location intensive* services. This distinction is particularly useful in the context of service sector offshoring and outsourcing, and the links to IB theory. A key feature of information intensive services is that they possess high levels of identifiable technology in the form of R&D and tacit knowledge which is intangible in nature. Such industries are seen as engines for growth in any economy and thus the threat of relocation of employment from high-technology industries make it a highly sensitive issue, both in a political and economic sense. One can therefore argue that offshoring from information intensive services can lead to reductions in employment at home.

In the context of the impact of outward FDI by service firms, FDI by location-intensive firms is typically associated with Dunning's ownership advantage, the desire to exploit a technology or a brand in a new location. As is well understood, FDI in location intensive services, such as retailing, is likely to be independent of employment change at home. There is no reason why for example Wal-Mart purchasing ASDA in the UK should represent employment substitution away from the home market, but rather an expansion. Indeed, linking this to the analysis of Pla-Barber et al. (2010) who emphasise the importance of control of internationalised service activity, may even lead to home employment to increase. This leads to our second hypothesis:

H2: FDI by location intensive services is associated with increased employment at home.

Gilley and Rasheed (2000) contend that firms ought to practice cost leadership and innovative differentiation if they are to benefit fully from outsourcing. The simple reason for this is that innovators, by outsourcing peripheral non-core activities are able to free-up resources, which can then be used for innovation enhancing activities. Innovation has been linked directly to outsourcing by several other authors (e.g., Quinn, 2000). His central argument is that the wide range and specialist knowledge required in order for firms to succeed competitively cannot be found in any one organisation and needs to be sourced from a wide array of external providers. Through specialisation, these providers will have developed "in depth knowledge, skill, investment infrastructures and innovative capabilities for their segment of the value chain" (Quinn, 2000:16). However, others find the innovative benefits of outsourcing debatable. Teece (1987), for instance, warned that reliance on external providers might in the long run result in reductions of investments in internal research and development especially where outsourcing appears to be a more cost-effective solution to new ideas and innovation. Further, increased usage of outsourcing as a strategic tool raises other concerns; not only about erosions of knowledge and skill bases in firms but also the depletion of organisational learning and new technology development capabilities. This results in what Bettis et al. (1992) term a 'hollow' corporation as, in the short run, an outsourcer may lose more of its knowledge and innovative capability than it gained.

There is also a small body of criticism concerning the ethical implications of the offshoring movement. These researchers suggest that firms often withhold material information from employees, misrepresent future payoffs of outsourcing agreements, base choices on inaccurate and unfair information, and impose hardships on displaced employees without justification (Reid and Pascalev, 2002). They suggest that a model, in which reducing cost as an end is used to justify corporate strategy, violates ethical norms and comes at a high human cost (Breslin, 1999). Offshoring has also contributed to the increasing numbers of part-time and contract workers typically earning less pay than permanent workers and without health, life, short- and long-term disability, and retirement benefits (Geiger, 1999).

However, information intensive services may behave differently. As is well understood, information intensive services are more independent of geography, and while services such as legal services or management consultancy are delivered at the customers' location, much of the work is not done on site, and indeed is done remotely. While FDI in these sectors may be indicative of expansion, it typically follows exporting activity. For example, financial services, legal services or consultancy are likely to engage in FDI into new markets only after serving these markets from a distance. As such FDI in information intensive services may accompany relocation of activity from the home office to the foreign office. This leads to our third hypothesis:

H3: FDI in information intensive services leads to a reduction in employment at home.

Our final hypothesis concerns the changes that have occurred since the onset of the financial crisis. As is well known, FDI flows are largely pro-cyclical, and so tend to fall as a result of a decline in the global economy. Moreover, firms were severely affected by the lack of finance during the crisis, again hitting FDI flows. While there are, as yet few attempts to consider the changes that took place in global FDI flows since the onset of the crisis, the empirical literature highlights a number of phenomena. The first is that the crisis on the one hand hit FDI flows due to a reduction in the available capital for international expansion, particularly for market seeking FDI, as the perceived risks to internationalisation increased. Secondly, while western firms faced a downturn in demand at home, upward pressure on wages eased, and many countries adopted greater efforts to increase labour market flexibility.

There is an emerging literature now that considers how the financial crisis has influenced firm location decisions. The theoretical basis for our approach remains unchanged, in that efficiency seeking is still derived from internalisation theory and the interaction between ownership and location advantage. However, the marketing and CSR literatures appear to be recognising that one needs to nuance the application of internalisation theory, with an understanding of for example the firms CSR agenda, Luo (2006), Rodriguez et al. (2006), Husted and Allen (2006) and Strike et al. (2006). This literature essentially argues that firms need to take a wider perspective to offshoring / outsourcing than was initially the case, and indeed western firms came under pressure to reduce offshoring, as jobs were lost at home, and firms sought to demonstrate their support for their home country, often linked to marketing initiatives (our UK call centres), efficiency seeking FDI became associated in the west with protecting more

skilled activities, and retaining innovation at home, rather than the wholescale relocation of activities. Vetter et al. (2014) discuss the changing nature of FDI flows in some detail, highlighting the changing nature of efficiency seeking, to becoming what may be considered more “defensive” in nature, seeking to engender efficiency savings to protect jobs at home, rather than wholescale relocation of activity.

In a similar vein, Desbordes and Wei (2014) explore the changing nature of FDI through the financial crisis, arguing that while the crisis caused firms to scale back their operations, it leads to FDI being used to underpin operations at home. At the same time, Pessoa and Van Reenen (2014) and Oulton and Sebastiá-Barriel (2017) suggest a degree of labour hoarding occurred in the West through the crisis, suggesting that firms did not shed labour at home to the extent to which this may have been predicted. There are a number of suggested reasons for this, such as not wanting to lose skilled workers during what may have been a short term crisis, to inflexibility in EU countries that render laying off people difficult. As such, we suggest that FDI in this period was less about moving jobs abroad. This is in contrast with the 20 years of globalisation in the run up to the crisis, where firms had sought to take advantage of global value chains, and capture location economies through globalisation, building on the well-known analysis of Mudambi (2007).

Taking this together, this raises the question of the extent to which one can employ arguments developed within the efficiency seeking literature in the manufacturing setting to the case of offshoring / outsourcing in the service sector. However, extending the analysis of Beerepoot et al. (2013), one needs to consider not merely the propensity for offshoring / outsourcing, building on Kundu and Lahiri (2015)

but the extent to which this leads to employment substitution away from the home country. Relocating low cost activities potentially frees up resources for investment in more knowledge intensive activities at home. Indeed, as Beerepoot et al. (2013) point out, few jobs that appear to be offshored in US services are subject to further upskilling or development. While there are examples of offshoring in the service sector, the opportunities for this are more limited than in manufacturing. This leads to our fourth hypothesis:

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H4: The Global Financial Crisis has lessened the negative impact of offshoring on employment at home.

Research Design

The challenge with a large scale firm-level data set is to appropriately identify the effects discussed above. We start by distinguishing between FDI by service sector firms to high and low income countries. This offers a clear indication of what may or may not be considered outsourcing / offshoring, in order to test hypotheses 1. However, this in itself is insufficient for the analysis. We then employ the distinction between information intensive and location intensive services (see table 1) and examine these separately. We therefore have FDI by the two groups of services, and to both high and low income countries. Employment growth in location intensive sectors, especially in high income countries is indicative of market seeking FDI, based on ownership advantages which provides a direct test of hypothesis 2, while employment growth in information intensive

sectors, represents servicing new markets locally, possibly at the expense of home employment, as a test of hypothesis 3.

Insert Table 1 here

Our data are taken from the Orbis database, provided commercially by Bureau van Dijk, and cover the period 1997-2008 which includes a total of 5,746 MNEs (3,534 firms from location intensive services industries and 2,212 from information intensive services industries) located in European countries. These MNEs control 9,416 subsidiaries located in 87 countries around the world (7,635 in high-income countries and 1,781 in low-income countries). The Appendix shows the classification of high versus low income distinction and a country by country list.

Table 2 shows the distribution of MNEs and their subsidiaries by country and sector and table 3 offers descriptive statistics for the MNEs in our sample. Based on our sample, table 2 shows the distribution of parent firms and their subsidiaries across the various countries and regions. France, Germany, Sweden, Spain combined host around 57 per cent of the parent firms in the sample, while Italy, Great Britain, Belgium, Denmark, Finland each host at least 5 per cent of the parent firms. With regards to the subsidiaries, the EU-15 region holds the majority of subsidiaries at 53 per cent followed by Eastern Europe at 24 per cent. The lower panel of table 2 illustrates the sector distribution of parent and subsidiary firms across the sectors. Of all the location intensive industries in the sample, Germany, Spain, France and Sweden host the majority of parent firms (66 per cent) which is followed by Belgium, Denmark, Finland, Great Britain and Italy. In terms of information intensive firms, the parents are mostly located in Germany, Spain, Great Britain and France. With regards to the distribution of subsidiaries, the EU-15 and Other

Europe (i.e. Switzerland and Norway) have a lower percentage of manufacturing firms compared with service firms whereas for the other regions the opposite is true. On the bottom of the table, one can see that 14-16 per cent of the parent firms have subsidiaries in only the manufacturing sector, 74-79 per cent in only the services sector and 6-8 per cent have subsidiaries in both the manufacturing and services sector.

Insert Table 2 here

Table 3 presents some summary statistics for selected firm level performance indicators of interest for MNEs. Location intensive MNEs are on average larger in terms of employing 417 workers whereas this figure is 349 for informative intensive MNEs. The sales figure of location MNEs is on average 208 million US dollars which is significantly more than 116 million sales by informative intensive MNEs. Also, the capital intensity of location intensive MNEs is higher (37 million) compared with informative intensive MNEs (17 million). However, the difference between location intensive MNEs and information intensive is less pronounced with regards to the wage bill. Interestingly, information intensive MNEs invest somewhat more on average in intangible assets (13 million) than location intensive MNEs (10 million).

Insert Table 3 here

The main form of analysis employed in this paper will focus on labour demand functions augmented by measures of outward FDI along regional and industry lines. In terms of estimation, the number of employees of the parent firm (in log form) acts as the dependent variable in an attempt to identify whether outward FDI stimulates or hinders labour demand at home.

Following the large literature on factor demand modelling, we adopt the approach outlined in some detail in Hijzen et al. (2005, 2006) and Barrel and Pain (1997), with a simple model of labour demand. This links employment at home to past employment, investment in capital, average wages, output, and outward FDI. Thus Equation 1 divides the subsidiaries according to their location, namely high versus low income countries (see Appendix for classification).

$$L^{P}_{ijt} = \beta_0 + \beta_1 L^{P}_{ijt-1} + \beta_2 X_{ijt} + \beta_3 \sum_{i}^{n} L^{S-HIC}_{ijt-k} + \beta_4 \sum_{i}^{n} L^{S-LIC}_{ijt-k} + \beta_j + \beta_c + \beta_t + \upsilon_{it} \qquad (1)$$

where L^{P} is the log of employees for the firm *i*, industry *j* and at time *t*; X_{ijt} is a vector of explanatory variables that contains lagged employment, output measured by sales, the average wage of employees in the parent firms and capital intensity measured by tangible fixed assets. $\sum_{i}^{n} L^{S-LIC}_{ijt-k}$ ($\sum_{i}^{n} L^{S-HIC}_{ijt-k}$) represents the aggregate labour of all subsidiaries in low (high) income countries. β_j, β_c and β_t are industry, country and year dummies respectively and k stands for the number of lags. Finally, υ_{it} represents the error term.

It is well known that using a standard ordinary least squares with such a specification and with panel data, will lead to biased results. We therefore estimate these using a fixed effects estimator that allows for the correlation between the lagged dependent variable and the fixed effects, and also allows for correlation in the areas across years for the same firm[ii].

This is in turn consistent with the literature on estimating employment or labour demand equations, see for example Barrel and Pain (1999) or Driffield (1999), building

on the seminal work on employment modelling by Card (1990). Typically, these models have been developed in the context of globalisation to examine the impact on earnings or employment of workers facing foreign competition. The modelling therefore starts with an employment equation, linking employment adjustments to a set of firm level variables, as well as to inward FDI and more general indicators of activity in the sector/ region. Alternative estimation strategies are discussed in detail in Flannery and Hankins, (2013). They apply a series of econometric approaches to a series of problems commonly found in corporate finance, serial correlation, endogeneity and lagged dependent variables. In summary, they find that with the econometric issues identified here, including a lagged dependent variable, and other potential endogeneity problems, that the class of GMM- IV estimators outperform the class of least squares estimators, irrespective of how the least squares estimators treat the problem of fixed effects. This is consistent with the literature that has developed in this area, see for example Machin and Van Reenen 1998, Machin 2003), or from inward investment directly (Figini and Gorg, 1999, 2011. We therefore adopt the dynamic GMM approach (Blundell and Bond, 2000) to estimating our models, and present the models, for both the full sample, the pre and post crisis period, and distinguishing between low income and high income countries (see Table A1 and A2 in the Appendix for categorisation). [1]

[1] For completeness, we did perform least squares (fixed effects or LSDV) estimation of these models. Qualitatively the inferences are the same, though as one would expect, the standard errors on both the lagged dependent variable, and on the FDI terms are someone smaller when one does not consider their potential endogeneity, potentially over stating the effects. In the interests of brevity, we do not include these results.

Results

The results of the estimation are presented in tables 4, 5 and 6. Table 4 shows our findings for the full sample of service MNEs. The control variables work very much as expected; employment in the previous year is positive and significant, with output and capital strongly correlated with employment. Average wage rate is negative, as one would expect, suggesting the model is correctly identified as a labour demand model (Barrel and Pain 1999). There is no evidence of collinearity or non-normality. However, there is an interesting difference in the control variables between the pre- and crisis-period. In the pre-crisis period, firm size, measured through both output and capital were positively associated with employment growth, while average wages were to an extent negatively associated with employment growth. After the onset of the crisis however, these firm level drivers of employment growth decline in significance, such that there is no difference between small firms and large firms, or between high wage and low wage firms in terms of employment dynamics. In other words, after the onset of the crisis any firm level effects were swamped by macro factors.

Turning now to the FDI terms, there is no evidence that offshoring abroad led to a reduction in employment at home for the pre-crisis period. However, in the crisis-period, an increase in employment abroad is associated with a positive impact on parent employment. This offers at least tentative support for hypothesis 1 stating that offshoring from the service sector does not lead to a reduction in employment in the parent firm at home.

Insert Table 4 here

The results become somewhat more informative once we divide the sample into location intensive services and information intensive services. Employment growth abroad by location intensive firms is associated with expansion or market seeking. As such, not only is there no evidence of reduction in employment at home from FDI, but in the aggregate FDI in these sectors leads to an increase in employment at home, particularly in the crisis-period. This overall result seems to be driven by FDI to high income countries, such that FDI by these firms is either technology sourcing or market seeking, therefore more likely to be home-labour augmenting rather than substituting for employment at home. This therefore offers support for hypothesis 2.

Insert Table 5 here

In contrast, the results for the information intensive group are associated with employment growth abroad replacing employment at home. However, this does not occur as a result of employment growth in low income countries, but in high income countries. This confirms our hypothesis 3, that information intensive FDI does involve relocation, as foreign markets are served locally rather than remotely from the parent company. Overall, a doubling of employment abroad in high income countries would lead to a 3.5% reduction in employment at home. When one considers that the average size of the parent is five times larger than the average employment abroad, this represents a significant reduction in home employment, although it is a lot less than 100% substitution that would be indicative of simple relocation of activity. Interestingly, the results for the high income countries are not matched by the result of employment growth in low income countries, where the coefficient is insignificant.

Insert Table 6 here

Finally, we have strong support for our final hypothesis, that across tables 4-6, the effect of the financial crisis has been to remove any suggestion that offshoring / outsourcing in the service sector lead to job losses at home. The reduction in real wages in much of the developed world, combined with increasing labour costs in locations such as China, and skill shortages becoming apparent in higher value added activities in countries such as India, have led to a change in approach by western service sector MNEs. Offshoring / outsourcing has become part of a strategy to underpin activities in the home location rather than replace them.

Discussion and Conclusion

This paper investigates the labour demand effects of offshore investments using a panel of 5,746 European service sector MNEs and their foreign subsidiaries from 87 countries around the world between 1997 and 2016, the pre- and post-GFC period. Our results suggest a number of findings. Firstly, our analysis shows that there is no evidence that offshoring has a negative impact on employment at home. Distinguishing between the pre-crisis and crisis period shows that offshoring may even have had a positive impact on home employment. Similar interesting differences are uncovered by our analysis that distinguishing between location intensive and information intensive service MNE offshoring. Our evidence shows that positive and significant effects are to be found in the location intensive sector, with greater benefits from investing in high income countries, during in the crisis-period. Foreign employment growth in location intensive services results from market seeking activity, supporting employment growth at home, driven by ownership advantages developed in the home country. In contrast, employment growth in the foreign subsidiaries of information intensive MNEs was associated with employment

reduction at home during the pre-crisis period, particularly from FDI that is destined to high income countries. Our results with respect to the impact of the financial crisis is that it did not lead to employment reduction at home.

Theoretically, our results impact the OLI paradigm as follows. Our findings confirm Doh's (2005:698) argument that 'the phenomenon of offshoring would appear to both reaffirm and to challenge the OLI framework'. We empirically show evidence that 'location' is a major motivator for offshoring, but the impact of offshoring on employment due to this location motive seems to be positive, which goes against the prevailing conventional wisdom. The assertion by Doh (2005) that the offshoring phenomenon is a challenge when it comes to the 'internalisation' and 'ownership' aspects of the firm are also highlighted by our analysis. We show that MNE's that offshore information intensive activities are likely to experience a negative impact on employment, thus theoretically not eroding the 'internalisation' advantages of the firm, through for example, the ability to exploit tacit knowledge in foreign markets. In terms of ownership advantages, we provide evidence that, over a period of time, firms define themselves through '…developing new ways of exploiting OLI-type advantages by combining low labour costs, specialized technical capabilities, and organizational coordination expertise' (Doh, 2005:699), albeit, not at the expense of loss of employment in the home country, specifically in the services sector.

Overall, to the best of our knowledge, these result has not been reported elsewhere. This suggests that, while the overall results are consistent with the dominant IB paradigms, internalisation is more important in information intensive services sectors, driven by the desire to protect their intellectual property, and relocate closer to the client.

It is easy to imagine that, for example, an advertising or consultancy firm based in London, decides to move nearer to say its German clients and thus relocates its key team to Frankfurt. This contrasts sharply with, for example, a retail firm expanding its operations abroad, which is more likely lead to increased employment at home. This distinction however declines after the onset of the crisis, as information intensive firms engaged in a period of "labour hoarding" to avoid subsequent skill shortages.

Linking our findings to the literature, we summarize in Figure 1 the various effects that we argue can come from services offshoring activities, particularly when distinguishing between location and information intensive services MNEs. Services MNEs which offshore small levels of both location and information intensive activities will have an ambiguous impact on home employment. A similar outcome can be argued to be the case for equally high levels of offshoring for both types of services activities. However, the employment effect becomes less ambiguous when either of the services types becomes more dominant in the offshoring mix. If location intensive services offshoring dominates information intensive offshoring, the employment impact at home is likely to be positive. Alternatively, the employment impact is negative if information intensive services offshoring dominates location intensive offshoring.

Insert Figure 1 here

From a policy perspective, these results raise several questions. Typically, regional development agencies charged with maximising the benefits of internationalisation to a country focus on two issues, exporting and inward investment. These are the two activities that are most associated with both technological development and employment growth. This is discussed in detail for example in BIS (2011). However,

these results suggest that there may be merit, not merely in helping firms become exporters, but also encouraging location intensive firms to carry out FDI. Investing in high income countries generates employment growth at home. In contrast however, encouraging information intensive firms to carry out FDI may lead to a brain drain. In the short term, firms in the developed world did not cut back on employment of skilled workers following a decline in demand after the onset of the crisis. As is well known, much of the developed world is facing significant skill shortages, so firms appeared willing to "take the hit" in the short term to prevent further skill shortages later.

Finally, we are able to highlight significant changes that took place at the time of the financial crisis. Firms in the West undertook a significant amount of labour hoarding as demand at home fell, and also came under considerable pressure from both their home country stakeholders, and to an extent their governments to not move jobs abroad. This narrative has continued in the UK since the Brexit vote, and in the US since the election of President Trump. As such, while our results highlight a good deal of heterogeneity in the impact of FDI on employment at home, they remain never the less consistent with IB theory (Buckley, 2016), and link well to analysis of service industries based on a well-known classification of industries. Outsourcing / offshoring has beneficial effect, where location strategy is used to support and augment home country activities. It is possible of course that employment losses from such activity are not felt within the firm, but elsewhere in supply chains. Work of this type has been done for manufacturing, where the impact of outsourcing / offshoring is examined back up the supply chain, and these results suggest that more work is warranted for this in the service sector. This seems to be an important avenue of further research to assess the heterogeneous employment effects

induced by the expansion and relocation of MNEs around the world. Our results suggest something of a breakdown of the traditional models of "job exporting", and also in the apparent differences between small and large firms. In the short term, this is perhaps driven in the west by skill shortages, and the reluctance of forms to shed scarce labour. In the longer term however, we may see a return to the previous norms, especially if higher levels of protectionism force firms to move nearer to their customers. This however awaits further investigation.

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Table 1 Description of Information and Location intensive industries

Information intensive industries	NACE code	Location intensive industries	NACE code
Sale, maintenance and repair of motor vehicles and motorcycles; retail sale of automotive fuel	50	Financial intermediation, except insurance and pension funding	65
Wholesale trade and commission trade, except of motor vehicles and motorcycles	51	Insurance and pension funding, except compulsory social security	66
Retail trade, except of motor vehicles and motorcycles; repair of personal and household goods	52	Activities auxiliary to financial intermediation	67
Hotels and restaurants	55	Renting of machinery and equipment without operator and of personal and household goods	71
Land transport; transport via pipelines	60	Computer and related activities	72
Water transport	61	Research and development	73
Air transport	62	Other business activities	74
Supporting and auxiliary transport activities; activities of travel agencies	63		
Post and telecommunications	64		
Real estate activities	70		

Table 2 Distribution of Firms by Country and Sector (in % over sample period)

Parent firms	Frequency	Subsidiaries	Frequency
Austria	0.99	EU 15	53
Belgium	5.06	North America	8
Germany	12.46	Other Europe	7
Denmark	6.63	Latin America	6
Spain	14.98	Africa & Middle East	1
Finland	6.75	Asia & Oceania	1
France	17.51	Eastern Europe	24
Great Britain	7.17		
Greece	0.56		
Ireland	0.47		
Italy	8.14		
Netherlands	3.83		
Norway	2.82		
Portugal	0.8		
Sweden	11.82		
Total	100.00		100

Parent firms	Location intensive	Information intensive	Subsidiaries	Manufacturing	Services
Austria	1.19	0.68	EU 15	54	61
Belgium	6.11	3.39	North America	11	8
Germany	11.63	13.79	Other Europe	2	9
Denmark	5.8	7.96	Latin America	5	2
Spain	15.76	13.74	Africa & Middle East	1	1
Finland	7.39	5.74	Asia & Oceania	1	1
France	16.95	18.4	Eastern Europe	26	18
Great Britain	5.23	10.26			
Greece	0.51	0.63			
Ireland	0.31	0.72			
Italy	7.81	8.68			
Netherlands	4.22	3.21			
Norway	2.72	2.98			
Portugal	0.99	0.5			
Sweden	13.38	9.31			
Total	100.00	100.00		100	100

Parent	Subsidiary		
	Manufacturing	Services	Both
Location-intensive	14.3	79.1	6.6
Knowledge-intensive	16.4	74.8	8.8

Source: Authors' calculations using Orbis database.

Table 3 Characteristics of European MNEs and Non-MNEs

Variable	**Location intensive Industry MNEs**	**Information intensive Industry MNEs**
Number of Employees	417	349
	(3,445)	(1,693)
Sales (US$ mn)	208	116
	(1,274)	(798)
Total Wage Bill (US$ mn)	23	21
	(259)	(119)
Capital (US$ mn)	37	17
	(423)	(123)
Intangible assets	10	13
(US$ mn)	(191)	(167)

Note: Figures are mean values with standard deviations shown in parenthesis. As the Non-MNEs we have taken over 1,000 firms in each European country which operate in the same industries as their MNE counterparts.
Source: Authors' calculations using Orbis database.

Table 4: Effect of Subsidiary Employment on Home Employment of Parent Firms

(Dynamic GMM Estimator)

Dependent Variable: Employment of Parent Firm	**1997-2016**			**Pre-Crisis Period (1997-2007)**			**Crisis Period (2008-2016)**		
Employment ($_{t-1}$)	0.771***	0.755***	0.642***	0.788***	0.756***	0.728***	1.013***	1.029***	0.785***
	(0.0531)	(0.0457)	(0.0732)	(0.0680)	(0.0729)	(0.123)	(0.0502)	(0.0419)	(0.122)
Output($_t$)	0.124***	0.128***	0.197***	0.116***	0.130***	0.159**	-0.0167	-0.0220	0.108
	(0.0287)	(0.0244)	(0.0417)	(0.0362)	(0.0387)	(0.0764)	(0.0263)	(0.0212)	(0.0677)
Average-Wage($_t$)	-0.155***	-0.172***	-0.282***	-0.103*	-0.128*	-0.161	0.0445	0.0618	-0.210
	(0.0525)	(0.0428)	(0.0800)	(0.0599)	(0.0716)	(0.109)	(0.0537)	(0.0490)	(0.142)
Capital($_t$)	0.0416***	0.0456***	0.0586***	0.0431***	0.0455***	0.0391*	-0.00209	-0.00365	0.0331*
	(0.00984)	(0.00895)	(0.0145)	(0.0144)	(0.0139)	(0.0199)	(0.00802)	(0.00661)	(0.0198)
L^{S} ($_t$)	-0.0136			-0.0364**			0.0167**		
	(0.00872)			(0.0155)			(0.00807)		
L^{S-HIC} ($_t$)		-0.00967			-0.0265			0.00964	
		(0.00835)			(0.0167)			(0.0110)	
L^{S-LIC} ($_t$)			-0.0175			-0.0315			0.0167***
			(0.0129)			(0.0287)			(0.00558)
Constant	0.224	0.346***	0.488*	0.148	0.326	0.224	-0.138	-0.190	0.535
	(0.147)	(0.129)	(0.252)	(0.215)	(0.239)	(0.281)	(0.139)	(0.138)	(0.361)
Full set of Year/Industry/Country Dummies									
Observations	16,121	14,475	4,356	5,992	5,343	1,391	9,013	8,126	2,679
R-squared	2,557	2,338	780	1,773	1,610	445	2,071	1,896	650

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 5: Effect of Subsidiary Employment on Home Employment of Parent Firms

(Dynamic GMM Estimator)

Dependent Variable: Employment of Parent Firm	**Location Intensive Services**					
	Pre-Crisis Period			**Crisis Period**		
Employment ($_{t-1}$)	0.645***	0.543***	0.724***	0.877***	0.978***	0.790***
	(0.0887)	(0.0975)	(0.151)	(0.0876)	(0.0509)	(0.124)
Output($_t$)	0.244***	0.285***	0.175	0.0645	0.00449	0.126
	(0.0603)	(0.0657)	(0.125)	(0.0563)	(0.0345)	(0.0898)
Average-Wage($_t$)	-0.152	-0.286***	-0.0827	-0.112	0.00952	-0.187
	(0.0990)	(0.100)	(0.115)	(0.106)	(0.0578)	(0.139)
Capital($_t$)	0.0288**	0.0439***	0.0160	0.0139	0.00405	0.0217
	(0.0138)	(0.0149)	(0.0205)	(0.00859)	(0.00508)	(0.0154)
L^S ($_t$)	0.00407			0.0276*		
	(0.0206)			(0.0148)		
L^{S-HIC} ($_t$)		0.0136			0.0147*	
		(0.0258)			(0.00800)	
L^{S-LIC} ($_t$)			0.00500			0.0120
			(0.0386)			(0.0154)
Constant	-2.364	-0.362	-0.958	0.103	-0.152	0.370
	(2.586)	(2.435)	(1.533)	(0.262)	(0.157)	(0.508)
Full set of Year/Industry/Country Dummies						
No. of Obs.	1,821	1,640	440	3,159	2,907	921
R-Squared						

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6: Effect of Subsidiary Employment on Home Employment of Parent Firms

(Dynamic GMM Estimator)

Dependent Variable: Employment of Parent Firm	**Information Intensive Services**					
	Pre-Crisis Period			**Crisis Period**		
Employment ($_{t-1}$)	0.783***	0.744***	0.747***	0.849***	0.873***	0.754***
	(0.0744)	(0.0821)	(0.103)	(0.166)	(0.102)	(0.116)
Output($_t$)	0.113***	0.126***	0.140**	0.0671	0.0520	0.122**
	(0.0358)	(0.0423)	(0.0594)	(0.0768)	(0.0450)	(0.0528)
Average-Wage($_t$)	-0.124	-0.148**	-0.184*	-0.131	-0.116	-0.209*
	(0.0776)	(0.0725)	(0.104)	(0.160)	(0.108)	(0.120)
Capital($_t$)	0.0497***	0.0575***	0.0548**	0.0284	0.0245	0.0425
	(0.0172)	(0.0205)	(0.0253)	(0.0331)	(0.0201)	(0.0262)
L^{S} ($_t$)	-0.0386**			0.0142		
	(0.0163)			(0.0134)		
L^{S-HIC} ($_t$)		-0.0353*			0.0196	
		(0.0186)			(0.0169)	
L^{S-LIC} ($_t$)			-0.0498			0.0127
			(0.0329)			(0.0146)
Constant	0.251	0.466	0.298	0.351	0.340	0.484
	(0.721)	(0.748)	(0.331)	(0.457)	(0.322)	(0.386)
Full set of Year/Industry/Country Dummies						
No. of Obs.	4,171	3,703	951	5,854	5,219	1,758
R-Squared						

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix

Table A1 Country Group Classification into Low / High Income Categories

High Income	Western European countries plus Norway and Switzerland. Industrialised countries including Canada, Japan, USA, Australia, Iceland.
Low Income	Central and Eastern European countries including accession countries and candidates for EU membership Asia-Pacific Developing countries including Hong Kong, South Korea, Singapore. Russia and Central Asian economies. Other developing countries including South Asia Africa Latin America The Middle East

Source: Adopted from classification by Becker et al. (2005)

Table A2 Country by Country Classification

High Income			
Australia	Greece	Malta	United Kingdom
Austria	Greenland	Monaco	United States
Belgium	Iceland	Netherlands	Switzerland
Canada	Ireland	New Zealand	Japan
Denmark	Israel	Norway	
Finland	Italy	Portugal	
France	Spain	Sweden	
Germany	Luxembourg	Norway	
Low Income			
Estonia	Guinea	Cameroon	
Czech Republic	Guinea-Bissau	Cape Verde	
Hong Kong, China	India	Tunisia	
Korea, Rep.	Kenya	Turkey	
United Arab Emirates	Madagascar	Bulgaria	
Saudi Arabia	Mali	Chile	
Singapore	Mozambique	Congo, Rep.	
Slovenia	Nigeria	Djibouti	
Slovakia	Senegal	Dominican Republic	
Central African Republic	Hungary	Ecuador	
Gabon	Latvia	Egypt, Arab Rep.	
Congo, Dem. Rep.	Lebanon	Guatemala	
Côte d'Ivoire	Lithuania	Morocco	
Ghana	Mauritius	Paraguay	
South Africa	Mexico	Peru	
Uruguay	Sudan	Croatia	
Venezuela	Tanzania	Panama	
Ukraine	Uganda	Poland	
Argentina	Algeria	Romania	
Brazil	Angola	Russian Federation	
	Bolivia		

Source: World Bank; Harrison and McMillan (2007)

[1] The terms offshoring and outward FDI are used interchangeably to mean the same in this paper.

[1] In an earlier study Riker and Brainard (1997) focus only on the employment in the foreign subsidiaries find that US-owned subsidiary employment located in developing countries are complementary to subsidiary employment in industrialised countries. In other words, an expansion in subsidiaries employment in the former region is accompanied with an increase in subsidiary employment in industrialised countries. However, they also show that labour competes across subsidiaries in the same region in countries with a similar skill-level in their workforce.

[1] Bruno and Falzoni (2003) using industry level data on US MNEs for the period 1982-1994 confirms the findings of Blomström et al (1997).

[1] Other studies using this methodology are Egger and Pfaffermayr (2003) for Austria, Barba Navaretti and Castellani (2004) for Italy, Debeare et al. (2006) for Korea and Hijzen et al (2006) for France.

[1] Typically referred to as clustering of residuals

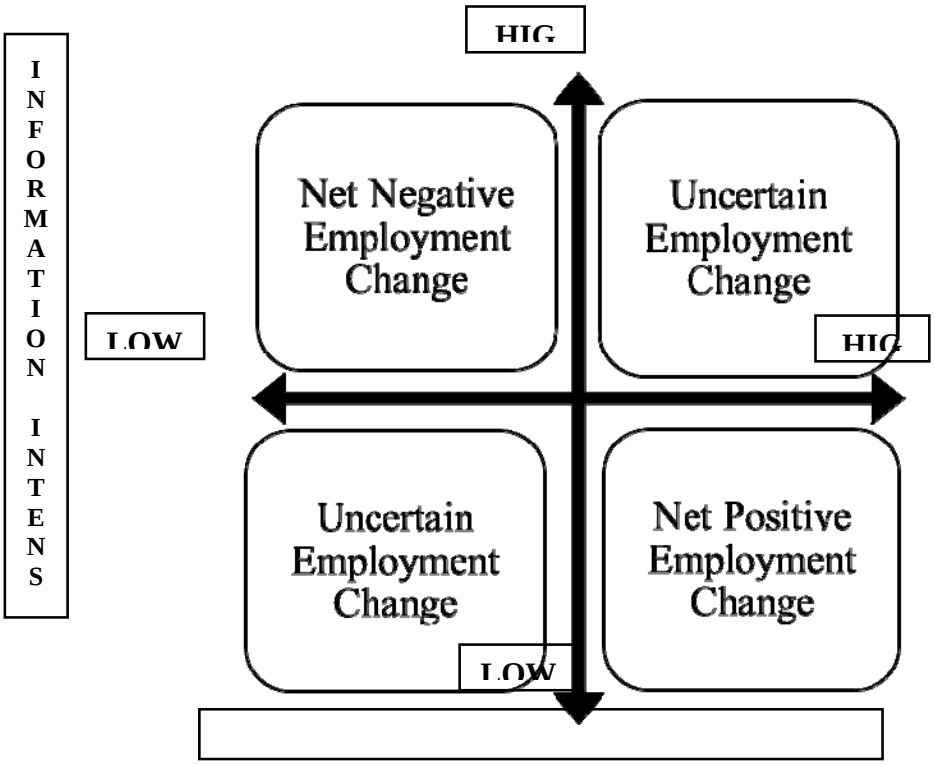

Figure 1: Future research directions relating to location and information.