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The effects of firm relocation on firm performance: A literature review

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Abstract

On the one hand, the importance of the geographical and organizational position of a firm for organizational processes, like innovation, and firm performance has become more and more profound over time. On the other hand, the number of firm relocations has increased dramatically during the last decades. It therefore seems logical to study the effects of changes in a firm's geographical and organizational position as a result of relocation on the (innovative) performance of that firm. The goal of this paper is to provide an overview of the existing insights about these effects.

Given the above, this paper asks the question: *What is known in the literature about the effects of firm relocation on the performance of firms?* In order to answer this question a literature review has been performed. Based on this literature review it is argued that the scarce literature that is available has an extremely narrow focus and largely neglects the importance of the geographical and organizational position of a firm and thereby might ignore important factors influencing the effects of firm relocation on firm performance.

Key words: firm relocation, geographical position, organizational position, firm performance, and innovative performance

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1. Introduction

Relocation is, from a spatial point of view, one of the most radical strategic decisions a firm can make. Moreover, firm relocation is a significant undertaking, a key company event and a surprisingly common feature of organizational life (Carter 1999). The past decades, the number of firm relocations in the Netherlands has grown steadily and considerably (Pen 2002).

Following this trend, a large number of studies that explain and describe the relocation decision as well as the choice of the new location have arisen. As a result of these studies, relatively much is known about the (re)location decision (see for an overview of this literature: Pellenbarg et al. 2002). However, much less research focuses on the effects of relocation. This is remarkable since the importance of the geographical and organizational position of firms for firm performance, and especially innovative performance, has become more and more profound over time. The notion that no firm may function as an island on itself is accepted by and large (Freel 2003) and the importance of both types of a firm's position mentioned above for (innovative) firm performance is sometimes even described as exaggerated in the literature (Oerlemans et al. 1998). It therefore seems logical to study the effects of changes in a firm's geographical and organizational position as a result of relocation. The goal of this paper is to provide an overview of the existing insights about these effects.

Given the above this paper asks the question: *What is known in the literature about the effects of firm relocation on the performance of firms?* In order to answer this question a short description of the trends concerning firm relocation will be given in order to substantiate the empirical relevance of the phenomenon (section 2). Subsequently, the possible effects of firm relocation for firm performance will be discussed as well as the determinants of those effects (section 3). In section 4, a review of a selection of the available literature dealing with the effects of firm relocation will be presented and discussed with the determinants found in section 3 as criteria. Finally, the findings are summarized and discussed (section 5).

2. Developments in firm relocation

Firm relocation is, scientifically speaking, a relatively young phenomenon. In 1962, Luttrell stated that: "*For most firms, the question of looking for new locations […] seldom arises"* (Luttrell 1962). Even though some earlier studies dealing with firm relocation do exist (see for example: McLaughlin and Robock 1949), the relocation literature really emerged in the 1970's in the United Kingdom (Pellenbarg et al. 2002). The first scientific definitions of firm relocations also stem from this period. In 1976, Townroe defined firm relocation as: "A move which involves both the closure of previously occupied premises and the opening of a new establishment. Although, of course, all or part of the activities of an existing plant may be relocated to the new plant to make space for the expansion of new or existing products in the existing building" (Townroe 1976:3).

In the last decades, the frequency and societal relevance of firm relocations has increased sharply. As can be seen in Figure 1, the percentage of firms that relocates has increased from approximately 3.75% to 6% over the period 1986-1995. The rise in the number of firm relocations is often seen as a natural consequence of historical economic and urban developments. The spatial conditions for firms to operate in many regions, and especially in large urban areas, have become oppressive. Firms find it increasingly difficult to secure sites for their growth and development and witness growing hindrances in the flow of goods. Relocation to less congested areas seems a logical strategy, resulting in higher levels of firm relocation (Pen and Pellenbarg 1999:153).

Insert Figure 1 about here

The composition of the relocation coefficient can be seen in Table 1. In this table, the corrected relocation coefficient of 1995 is decomposed by sector and distance of the relocation. Table 1 shows that there are large sectoral differences in the propensity to relocate and that short distance relocation is more common than long distance relocation. Nevertheless, the number of firms that migrates over longer distances is not negligible, especially in the sectors wholesale and commercial services. Furthermore, all sectors experience a significant amount of relocations every year. The sectors retail and personal services show the lowest relocation coefficient, whereas the sectors wholesale and commercial services show the highest relocation coefficient. This is not surprisingly since retail and personal services are often location specific activities.

Insert Table 1 about here

From the above we can conclude that firm relocation is indeed a surprisingly common feature of organizational life (Carter 1999) and that the number of firm relocations has been growing and is likely to continue to grow in the future. As such, it seems interesting to study the effects of these relocations. Research by Townroe has indicated that, after relocation, the risk of going bankrupt is heightened for a period of 9 years (Townroe 1976:141), indicating that relocation might have negative effects for firm performance. However, this research is largely out-dated, uses coarse measures and focused on large industrial enterprises only. In order to map the existing insights with regard to the effects of firm relocation on firm performance a literature review has been performed. Before presenting the results of this review, the possible effects of firm relocation will be discussed first.

3. The effects of firm relocation

The contemporary literature dealing with firm performance emphasizes the role of the geographical (Audretsch et al. 2003; Cohen and Morrison Paul 2005) and/or organizational position of a firm (Baum et al. 2000; Oerlemans and Meeus 2005). The geographical position of a firm is determined by its physical location, which determines the physical distance to all other economic actors (costumers, suppliers, etc.). The organizational position of a firm, however, is determined by its position in the inter-organizational network(s) it participates in. The relationship between both positions and firm performance will be elaborated on in the next paragraphs.

In the literature a distinction between two types of firm performance, namely financial or economic performance and innovative performance, is often made. The financial or economic performance is often expressed in terms of growth of sales, turnover, employment, or stock prices (Havnes and Senneseth 2001), whereas the innovative performance is generally expressed by R&D expenditures, patents, percentage of innovative sales, or self reported innovations (Oerlemans et al. 2001b; Hagedoorn and Cloodt 2003). Both types of performance are often inter-related (Damanpour and Evan 1984), but since the literature often uses both types of performance as separate concepts or only focuses on one of the two they will be used separately here as well.

3.1 Geographical position

The geographical position of a firm denotes its location in physical space and determines its geographical environment. The geographic environment of a firm is usually expressed as the state, province, or region a firm is located in. Other measures, such as a circle with a radius of x kilometers around the firm or a certain amount of travel time from the firm, are sometimes used as well (Torre and Rallet 2005).

The geographical environment can influence the performance of firms through spatial externalities also known as agglomeration effects (Glaeser et al. 1992). The literature usually distinguishes localization effects and urbanization effects (Feldman 1999). Localization effects refer to the effects having many firms from the same industry in the area, whereas urbanization effects refer to the effects of having firms from different industries in the area.

Besides the obvious and tangible benefits of firms operating in close geographical proximity, such as access to specialized labor forces or reduced transport costs, which can lead to lower production costs and therefore to enhanced economical performance, more intangible benefits could arise as well. These intangible benefits are caused by the fact that knowledge is (partially) non-rival and not completely appropriable (Harabi 1997). As such, knowledge can spill-over from the knowledge owning or creating organization to other firms located in the same geographical area who can then benefit from it (Jaffe 1989). As such, firms can get access to knowledge available in their geographical environment, which can enhance their innovative performance (Oerlemans et al. 2001a). An important characteristic of these spill-over effects is that the transfer of knowledge is involuntary and unintended (Feldman 1999). Nevertheless, these spillovers do not need to be completely freely available and not all firms might be able to utilize the benefits from these externalities in equal amounts. Firms might need to develop special skills or attributes (absorptive capacity) in order to be able to use the knowledge that is available in their geographical environment (Cohen and Levinthal 1990).

3.2 Organizational position

In contrast to the geographical position of a firm, the organizational position of a firm denotes its relational position among the whole of actors present in the economical system in which the firm operates (clients, suppliers, competitors, stakeholders, central and local public administration, consultants) (Minguzzi and Passaro 2001). No firm is an island on itself (Freel 2003) and, as such, all firms need to collaborate with other firms through inter-

organizational relationships (IORs). The organizational position of a firm is based on its position in the, in principal a-spatial, inter-organizational network(s) it participates in. The interaction between a firm and other actors leads to a situation in which the firm becomes embedded (which can also imply dependent) in its current organizational position (Granovetter 1985). Embeddedness refers to the fact that economic action and outcomes are affected by the actor's dyadic relations and by the structure of the overall network of relations (Oerlemans et al. 2001b).

The literature dealing with (inter-organizational) networks and embeddedness contains many intricate ways describing the organizational position of a firm. Measures that are most often used in studying the effects of IORs and networks on firm performance are network centrality and the number of (in)direct ties (Ahuja 2000; Baum et al. 2000; Stuart 2000; Bell 2005). Centrality measures the extent to which an actor is deeply involved in network relations and is often used as a measure of the power of a certain actor to influence the actions of other actors in the network. The number of ties, on the other hand, simply represents the amount of other actors the focal actor has (indirect) relationships with.

It seems plausible that the access to resources and knowledge that would not be accessible (or only accessible at higher costs) through the market leads to both economical as well as innovative advantages for firms. The literature however, mainly focuses on the latter. The main theoretical argument behind the relation between a firm's organizational position and its innovative performance is that firms that try to innovate need knowledge that is not necessarily available within their own boundaries. This is especially true for firms that develop radical innovations (Oerlemans et al. 1998). Firms that are embedded in their organizational environment can access the necessary knowledge more easily and therefore experience an increased innovative performance (Love and Roper 2001). The importance of having both a high level of centrality and a large amount of (indirect) relationships has been substantiated empirically (Ahuja 2000; Bell 2005).

3.3 Interaction between the geographical and the organizational position

The organizational position of a firm is in principle a-spatial. However, the knowledge and resources that are exchanged through IORs are often (partially) tacit. Face-to-face contacts between actors facilitate the formation of IORs (McCann et al. 2002) as well as the actual transmission of tacit knowledge between economic actors (Saviotti 1998). Since face-to-face contacts are most easily kept over relatively short distances (Howells 2002), the

geographical environment of a firm also influences the firm's position in its organizational environment.

The importance of both the geographical and the organizational position of a firm for firm performance are supported by a large (and growing) number of empirical studies (see for example: Mosakowski 1991; Hagedoorn and Schakenraad 1994; Combs and Ketchen 1999; Baum et al. 2000; Stuart 2000; Stuart and Sorenson 2003; Bell 2005). Especially the literature dealing with territorial innovation models draws heavily from both theoretical mechanisms described above (see for a good review of this body of literature: Lagendijk 2003; Moulaert and Sekia 2003). Some research even indicates that external sources of knowledge and resources (either available through spatial externalities or IORs) are more important for innovation than in-house R&D (Mackun and MacPherson 1997). The next section will discuss what role the geographical and the organizational position play in determining the effects of the relocation of a firm for firm performance.

3.4 Firm relocation effects and its determinants

The relocation of a firm inevitably leads to changes in the geographical position of a firm. However, these changes might be very small in the case of short distance relocations. Therefore, a certain threshold distance has to be moved in order to experience any significant changes in geographical position. Since interactions between actors are facilitated by geographical proximity, it seems plausible that a change in the geographical location of a firm will have an impact on its organizational position as well. Therefore, the impact of the relocation of a firm on performance might be twofold. Firstly, there might be an effect from changes in the geographical position. Secondly, the changes in the geographical position can lead to changes in the organizational position, which, in turn, has an effect on firm performance. However, as will be discussed below, the effects of changes in the geographical and organizational position of a firm are ambiguous and are dependent on several determinants.

Any change in the geographical position of a firm is likely to bring about significant moving costs. These costs are mostly single-shot costs associated with the move itself (such as the fees of a removal company), and are unlikely to influence the actual performance of the firm. On the medium and long run, changes in the geographical

position of a firm can have both positive and negative consequences for both financial and innovative firm performance. Some of these consequences will be discussed below.

First of all, since the benefits accruing from a firm's geographical environment are available as externalities, no, or relatively small, specific investments have to be made in order to benefit from operating in close physical proximity to other firms. As such, a firm can relocate from a peripheral region to a more urban or industrial region, in which these spatial externalities are more abundant, and benefit from being close to other firms almost instantaneously (Holl 2004). On the other hand, for firms moving from an industrial or urban to a peripheral region the loss of spatial externalities can be severe. As such, characteristics of both the location of origin as well as of the destination should be taken into account when studying the effects of firm relocation.

Secondly, a firm that is located in a region in which many spatial externalities are available does not necessarily benefit from them. Moreover, it might even experience negative effects from being in an urban or industrialized area in the form of congestion effects and high labor costs. As such, a firm that moves from an industrialized or urban area to a peripheral area might experience positive effects due to better accessibility, whereas it experiences no loss of spatial externalities. Empirical evidence for such cases can be found in the "edge city" literature (Garreau 1991; Medda et al. 1999). This literature describes firms that escape the urban centers and settle at the borders of cities together with their important buyers and suppliers. These firms move from an urban center to a more peripheral region and retain (almost) all the relevant spatial externalities while negating congestion effects of the urban centers. The extent to which firms actually benefit from spatial externalities should be taken into account when determining the effects of firm relocation.

Significant changes in the geographical position of a firm are also likely to have an effect on the organizational position of firms. This effect can either re-enforce the existing organizational position or lead to a different position. Firms that relocate towards the main partners with whom they interact are likely to experience a re-enforcing effect of their relations with those partners due to the reduction in geographical distance between them. However, in cases in which a firm moves away from its key partners, the organizational position will change, and negative effects on innovative firm performance seem likely to occur on the short run. In these cases firms have to decide whether to maintain their existing IORs or to terminate them and build new ones. Both cases are problematic with

respect to interaction and the exchange of resources and knowledge through IORs. Therefore, the direction of the relocation might be an important determinant of the effects of that relocation.

When relocating, there are several different strategies a firm can follow with regard to their organizational position. The viability of each of these strategies is dependent on the level of embeddedness in its current organizational position. Firstly, an increase in the geographical distance between the relocation firm and its partners can lead to the termination of the existing IORs. This, however, is a major disinvestment since considerable amounts of relation-specific investments are tied up in IORs (Gulati and Singh 1998). Furthermore, building new ones takes a lot of effort and might prove difficult (Park and Russo 1996; Pangarkar 2003). As can be concluded from inter-organizational network theory, structural properties of IORs are important to knowledge transfer. Direct, stable, durable, dense, and contact-intensive relations facilitate the transfer of information and knowledge and therefore enhance (innovation) outcomes (Ahuja 2000). Since these structural properties are largely lacking when new relationships are developed, the innovation process and its outcomes for relocated firms are probably hampered, leading to a (at least temporary) decrease in innovative performance. Furthermore, a (temporary) decrease in the innovative performance can lead to a decrease in the financial performance on the medium- and long run.

Secondly, a relocated firm can decide to maintain existing innovative network relations. This strategy, however, brings about another problem. As can be deduced from post-Weberian industrial location theory (Oerlemans et al. 2001a), especially the transfer of tacit and firm-specific knowledge are spatially bounded. If relocation increases the geographical distance between the relocated firm and its partners, than, depending on the distance of the relocation, the transfer of knowledge and information might be hampered, reducing the innovative performance of the relocated firm. This effect is likely to be protracted, since few new relations will be initiated at the new location and interaction will continuously have to take place over large(r) distances.

Thirdly, besides the two extremes outlined above, a relocated firm can decide to take a portfolio approach in which both different strategies outlined above are combined. Some IORs are terminated, whereas others are continued. Moreover, the negative effects of relocation could be counter-acted by a strategy of co-location in which important suppliers are invited to set-up facilities close to the buyer. Such a strategy might partly negate the

negative effects that are associated with both strategies described above. Although this seems a feasible strategy, it asks for considerable investments and persuasiveness by the suppliers and, as such, might only be an option for very central and powerful network actors.

The arguments presented above are summarized in Table 2. In this table the expected effects of relocation for firm performance are given dependent on the utilization of the organizational and spatial environment of a firm.

Insert Table 2 about here

The top left cell of Table 2 represents firms with a low level of organizational embeddedness and a low level of utilization of the geographical environment (either because spatial externalities are not present or because they cannot or do not need to utilize them). These firms are likely to experience small positive effects or no effects at all from relocation. These firms are currently footloose and will experience little costs when relocation besides the costs associated directly with the move itself. Depending on the destination of the move, these firms can benefit from lower costs at a different location or from spatial externalities available at their new location.

Firms with a high level of organizational embeddedness (bottom left cell) but that make little use of their spatial environment can experience both negative and positive effects depending on the direction of the move. As has been argued earlier, firms that move towards their partners are likely to re-enforce their organizational position, which can enhance their performance, whereas firms that move away from their partners are likely to experience a decrease in firm performance.

Firms with a high level of utilization of their spatial environment but a low level of embeddedness (top right cell) can experience negative performance effects as the result of a relocation, but only if they move to a location in which less spatial externalities are available or if they do not possess the competencies to utilize the externalities available at their new location. In other cases, the effects for these firms will be neutral.

Firms with both high levels of embeddedness and utilization of spatial externalities (bottom right cell) are most likely to experience negative performance effects as the result of relocation. These firms have become so dependent on both their spatial and organizational environment that relocating presents them with many difficulties. The

extent to which performance will be hampered will depend on several factors, but negative performance effects seem likely to occur. Choosing a specific relocation can possibly counteract some of these effects, but negative effects seem likely nevertheless.

4. Literature review

In order to gain insight into which effects of firm relocation on the performance are evidenced empirically, a review of a selection of the available literature has been made. In order to make this selection the ISI database has been used.[1] The database has been searched for the key words: "firm", "organization", and "business" in combination with "relocation", "migration", "effects", and "performance". This search ultimately yielded 10 papers that dealt with the effects of firm relocation, indicating that relatively little research is published about the effects of firm relocation in the journals represented in the ISI database. The papers that were found are: Amrhein (1988), Alli et al. (1991), Chan et al. (1995), Ghosh et al. (1995), Moenaert and Caeldries (1996), Barrell and Pain (1997), Van den Bulte and Moenaert (1998), Bhabra et al. (2002), Brennan et al. (2002) and Tirtiroglu et al. (2004).

Searching the literature in this way has some drawbacks, however. First of all, only the literature from the period 1984-2005 could be searched due to the limitations of the database. However, because studying firm relocation is a relatively young phenomenon and received its first scientific interest in the early '70s, the impact of this restriction seems relatively mild. Secondly, only journal papers could be searched and book (chapters) could not be included. Nevertheless, due to the fact that all major scientific journals are included in the ISI database, the results are believed to be representative of the available literature.

The papers that were found during the literature search have been analyzed on several criteria discussed in section 3.4. These criteria are: the centrality and the number of IORs of the relocation firm (as indicators of embeddedness in the organizational position), characteristics of both the geographical origin as well as the destination the relocating firm (as indicators of spillover utilization), characteristics of the relocation itself (distance, direction and strategy), the type of performance effects that were studied, and the main findings of the study.

The main results of this analysis are presented in Table 3. From Table 3, it can be deduced that five papers look at the effects of firm relocation on the stock prices of the relocating firm. Furthermore, two papers specifically look at the effects of the relocation of

an R&D facility on the innovative performance of that facility. Finally, three papers deal with various effects of change that cannot be categorized into one of the two groups mentioned above.

Insert Table 3 about here

The three papers that did not fit into the two groups we observe in the literature also carry the least valuable information with regard to the effects of firm relocation. For example, even though Brennan et al. (2002) discuss a firm relocation, the relocation of the firm is only a situational event that makes a change in the (architectural) office design possible. The conclusion drawn by Brennan et al., that a change in office design can seriously reduce employee satisfaction, probably has very little to do with the actual relocation of the firm, but more with the implications of the new office design.

The studies by Barrell and Pain (1997) and Amrhein (1988) only look at the effects of firm relocation on regions. These studies especially focus on the effects of the relocation of regional production capacity to low(er)-wage regions. Even though these studies are highly valuable especially in the light of the current economic developments, such as the relocation of production to India and China (Falzoni et al. 2000), their level of analysis (macro) combined with their high level of abstraction makes it impossible to draw any conclusions about effects of relocation on the level of the firm and therefore these papers are of little value for this review.

4.1 Relocation and innovative performance

Two of the studies found seem study the effects of the relocation of an R&D facility on the innovative performance of that facility. However, on closer inspection, the study by Moenaert & Caeldries (1996) does not focus on the relocation of the R&D facility, but instead on the architectural design of the new building (similar to the approach of Brennan et al. (2002)). This design is made in such a way to encourage interactions between R&D personnel, which should lead to an increase in the innovative performance of the R&D facility. Moenaert and Caeldries indeed find support for this effect, but linking this effect to the actual relocation of the R&D facility is difficult, since this is not to focus of their paper. However, the paper does contain some interesting information with regard to the effects of firm relocation. The R&D facility in this research moved 250 meters away from the rest of the company, with which it had been co-located. After relocation, the intensity

of the communication and the knowledge exchange between the R&D facility and the rest of the company did not change (Moenaert and Caeldries 1996:303). This might indicate that relocations over very small distances are irrelevant for the communication between (parts of) firms and therefore has little impact on (innovative) firm performance.

The study of Van den Bulte and Moenaert (1998) uses a similar design. This study, however, does focus on the effects of the relocation itself. Van den Bulte and Moenaert find that after locating two, formerly separate, R&D facilities in close proximity, their innovative performance increases. Interestingly, they also find that the increased physical distance between them and the other departments does not hamper these R&D facilities. This can imply three things. First of all, it can imply that the effects of geographical proximity depend on the content and medium of the communication flows. For example, some new ICT products might be able to mitigate the effects of increased geographical distance between collaborators. Secondly, it can imply that firms can negate the negative effects of increased physical distance with well-aimed strategies. Finally, it can imply that geographical proximity only matters during a short period during which you get acquainted, but not afterwards (Breschi and Lissoni 2001). However, since this study takes place within a firm and looks at the relative locations of departments some reservations should be made when applying these findings to other (pure) inter-organizational settings.

4.2 Relocation and stock price reactions

Five of the papers found in the literature review employ an almost identical research approach and look at the effects of firm relocation announcements on the stock prices of the announcing firm. These studies form a clearly distinct group and are characterized by a high level of cross-referencing. Due to their similar research approaches, the findings of these studies can easily be compared.

The first study to analyze the stock market reaction to firm relocations has been Alli et al. (1991). Alli et al. focus on the relocation of the headquarters of publicly traded firms. They find that firms that announce a relocation experience a highly significant cumulative abnormal return of 1,29%.[2] Furthermore, Alli et al. show that relocated companies, on average, are larger, less profitable, have more expenses, and pay fewer taxes than comparable non-relocating firms. They also find that firms that move out of their region (i.e. make a relocation over a large distance) experience more negative effects compared to firms that relocate over shorter distances. However, this finding is statistically insignificant.

Chan et al. (1995) use the analysis of Alli et al. (1991) as their point of departure. Chan et al. analyze the relocation decision of several types of facilities. At first they find that there are large differences between the effects of a relocation announcement for headquarters and for plants. Further analysis shows, however, that these differences can be explained by the underlying motives for the relocation. As such, they conclude that the stock market response is not tied to the type of facility that relocates, but to the motive for relocation and the implied prospects for the firm. The stock market reacts positively to relocations motivated by cost savings or business expansions, but negatively to those that are motivated by capacity reduction or facility consolidation. In contrast to the findings of Alli et al. (1991), Chan et al. (1995) find that there are no differences in profitability between relocating and non-relocating firms. The main explanation for this result is that Chan et al. use the income before extraordinary items as their performance indicator, whereas Alli et al. use the income after extraordinary items. Since many relocating firms experience high, but one-off, costs, these differences are not surprising. From these findings we can conclude that relocating firms do experience a loss of profitability, but that this loss is only temporary and is not tied to the operational functioning of the relocated firm.

Ghosh et al. (1995) perform a study that is highly similar to the one by Alli et al. (1991) and looks at the effects of corporate headquarter relocations. The findings of Ghosh et al. are consistent with those of Chan et al. (1995). Ghosh et al. also find that stock markets react positively to relocation announcements motivated by costs savings or business expansions, but negatively to relocations prompted by managerial self-interest or business downsizing. Interestingly, Ghosh et al. relate their study to the existence of spatial agglomeration effects. They do so by paying special attention to the corporate headquarters relocations out of New York City (NYC). Since they assume that the stock market will only react positively to a relocation announcement when the overall cost benefit exceeds relocation expenses plus any loss of agglomeration benefits, studying the moves out of NYC is a way to incorporate agglomeration effects into the study. Ghosh et al. find that firms announcing a move out of NYC experience a positive stock market reaction, which implies that cost savings at less centralized locations can outweigh the loss of enhancements associated with spatial clustering in urban centers. However, there are two drawbacks to his approach. First of all, this interpretation focuses solely on spatial externalities and neglects the existence of IORs either in or outside the home region. Furthermore, it was assumed that all firms that moved out of NYC did in fact benefit from

being in an urban center, whereas it is very well possible that many firms experienced little benefits but did experience high (congestion) costs. Finally, the study did not take into account the destination of the relocation firms. As has been argued earlier, firms might relocate towards important partners or to a region in which they can benefit from spatial externalities (more) easily. Closer inspection of the data indicates that 35% of the firms that moved for cost reasons did so in order to be closer to customers and suppliers. So it might be the case that firms purposefully move closer to the actors that actually matter for their organization. The exodus of firms from city centers to the edges of cities is a well-documented phenomenon (Garreau 1991; Medda et al. 1999). As such, the relocating firms might have settled down several kilometers away at the edge of the city, together with many of the firms they benefit from. As a result they might not have lost any benefits accruing from spatial externalities by their relocation, which undermines the interpretation of Ghosh et al.

Bhabra et al. (2002) broaden the geographical scope of the earlier studies, that all took place in the United States, to Canada. In their study they reach (roughly) the same conclusion, namely that especially relocations motivated by cost savings lead to positive stock market reactions. The main value of this study lies in the fact that it shows that the effects are similar in other countries as well.

The study by Tirtiroglu et al. (2004) also takes place in Canada and looks at the effects of firm relocations out of a politically unstable area. They find that firms relocating out of this unstable area experience a positive stock market reaction, whereas firms moving into this area experience a negative stock market reaction. Another interesting finding of this study is that firms that move within a province experience a positive stock market reaction, whereas firms that move between provinces experience a negative stock market reaction. This finding is similar to the (albeit insignificant) findings of Alli et al. (1991), but in this study the findings are statistically significant and robust. Their explanation is that firms that move within a province do not lose any of the “economic incentives” that the province offered. Even though this finding seems very important in the light of the effects of the economical and geographical environmental on firm performance discussed earlier, the paper does not contain enough information to make any founded statements about the underlying mechanisms.

Since all papers employ roughly the same research strategy, they also suffer from roughly the same drawbacks. First of all, because all studies look at performance as stock market

reactions, only large, publicly traded firms are taken into account. From other empirical sources we know that relocating firms are, on average, relatively small, which might seriously bias the results (Van Dijk and Pellenbarg 2000; Brouwer et al. 2004). Secondly, these studies assume that the stock markets only react positively to a relocation announcement if the relocation has a positive net present value (NPV) (Fama 1991). Given the complexity and uncertainty of these decisions it seems unlikely that shareholders can distinguish ex ante between positive and negative NPVs. Thirdly, most studies only look at the expected financial consequences of firm relocations and neglect the effects on the innovative performance of firms. Fourthly, the studies that do take the geographical position of a firm into account neglect some important aspects of this position, such as the destinations of the relocating firms. As a result they assume that firms will experience negative effects from a loss of spatial externalities by leaving an urban region. Furthermore, they neglect a well-documented possible explanation for their empirical findings, namely the edge city theory. Finally, the focus on spatial externalities is only one side of the environmental medal. The importance of the organizational position for firm performance is not taken into account explicitly in any of the reviewed papers, even though some of the studies hint at its importance by referring to the "economic incentives" as firm has in its home region. By failing to do so, an important determinant of the effects of firm relocation on firm performance might be neglected.

5. Discussion and Conclusions

Firm relocation has been shown to be a surprisingly common feature of organizational life. The past decade, the number of firm relocations has grown steadily and considerably. However, the consequences of firm relocation are a hardly studied. This seems strange since the importance of both the geographical and the organizational position of a firm for its (innovative) performance has central stage in the literature. The presented literature search yielded only 10 papers on this topic over the last 2 decades in all major scientific journals, which supports the claim that little research has been done on this subject. Nevertheless, the literature review yielded some interesting findings.

First of all the relocation of a firm leads to large one-shot costs. However, these costs do not significantly impact on the structural financial performance of the relocating firms. Secondly, relocations over small distances do not seem to have any effect on firm performance, whereas firms that relocate over larger distances can experience negative effects with regard to firm performance. However, these negative effects are not a given. In

some cases, depending on the content and nature of IORs, the increased physical distance might not lead to problems. Furthermore, implementing organizational strategies can potentially negate the negative effects of increases in physical distance between firms resulting from relocation. Thirdly, the type of facility that relocates has no influence on the effects of the relocation, but the motive for the relocation does. Only firms that move for motives of cost reduction or business expansion experience positive results from relocating. Fifthly, the benefits associated with agglomerations do play a role in the relocation of firms but are not prohibitively high. Firms located in agglomerations can still experience positive effects of relocation. Finally, these findings are consistent over time (1991-2004) and, to a lesser extent, over space (United states and Canada).

However, despite the fact that the link between the geographical and organizational position and the effects of firm relocation on firm performance seems logical, none of the studies found in the literature review focuses on IORs and networks and only two of the studies (partially and implicitly) take spatial externalities into account.

Furthermore, only two studies take the innovative performance of firms into account, one of which does not focus on the relocation as such but on the architectural design of the new building. The fact that only one study was found that related relocation to innovative performance makes it impossible to draw any founded conclusions about the effects of relocation on innovative performance.

Finally, even though most studies focus on the financial performance of firms they do so with a very narrow focus. By only focusing on the effects of a relocation announcement on stock prices, the effects on the real performance of firms (in terms of growth of sales or employment) are not taken into account. Furthermore, the effects over time (short versus long term effects) are unclear. Finally, only large companies are traded at the stock market. As such, smaller firms, who make up the vast majority of the relocating firms (Van Dijk and Pellenbarg 2000), are not taken into consideration, which might seriously bias the results.

The considerations discussed above raise the following question: *What is the effect of firm relocation on the (innovative) performance of firms embedded in their geographical and organizational environment?* The current literature dealing with the effects of firm relocation on firm performance cannot shed any light on this question. However, arguments from the inter-organizational network literature and agglomeration theory point

at the importance of the distance and direction of the relocation, the characteristics of the both the region of origin and the region of the new location, the number of IORs and the centrality of the relocating firm, and the chosen relocation strategy. However, empirical research that links these concepts to the effects of firm relocation on firm performance is missing from the literature.

Notes

[1]: Available at: www.isiknowledge.com

[2]: The cumulative abnormal return is the cumulative stock return beyond that predicted by general market movements.

[3]: Figure 1 shows the development of the relocation coefficient over time based on data from the "mutation survey". The "mutation survey" is a record of the Dutch Chambers of Commerce. Regrettably, the measurement of relocation changed in 1991. In order to prevent misinterpretations of the data, the new measurement is depicted as a different line in Figure 1. Furthermore, the "mutation survey" contains a number of administrative relocations of "empty" firms. As such, this indicator overestimates the relocation coefficient by approximately 25% (Beernink et al. 1998). The data depicted in Figure 1 has been corrected for these "empty" relocations.

[4]: In this table it is assumed that a threshold distance is moved, since moves over small distances are likely to have little effect on the organizational position of firms.

References

Ahuja, G. (2000). "Collaboration networks, structural holes, and innovation: A longitudinal study." Administrative Science Quarterly **45**(3): 425-457

Alli, K. L., G. G. Ramirez and K. Yung (1991). "Corporate headquarters relocation: Evidence from the capital markets." AREUEA Journal **19**(4): 583-599

Amrhein, C. G. (1988). "Simultaneous firm and worker relocation and regional economic performance - A simulation model." Canadian Geographer - Geographe Canadien **32**(4): 328-339

Audretsch, D. B., E. E. Lehmann and S. Warning (2003). University spillovers: Strategic location and new firm performance. CEPR discussion papers. London**:** 37

Barrell, R. and N. Pain (1997). "Foreign direct investment, technological change, and economic growth within Europe." Economic Journal **107**(445): 1770-1786

Baum, J. A. C., T. Calabrese and B. S. Silverman (2000). "Don't go it alone: Alliance network composition and startups' performance in Canadian biotechnology." Strategic Management Journal **21**(3): 267-294

Beernink, B., J. Hagens and R. Buck (1998). Locatievoorkeur en ruimtegebruik van verhuisde bedrijven. Den Haag, Ministerie van Economische Zaken

Bell, G. G. (2005). "Clusters, networks, and firm innovativeness." Strategic Management Journal **26**(3): 287-296

Bhabra, H. S., U. Lel and D. Tirtiroglu (2002). "Stock market's reaction to business relocations: Canadian evidence." Canadian Journal of Administrative Sciences **19**(4): 346-358

Brennan, A., J. S. Chugh and T. Kline (2002). "Traditional versus open office design: A longitudinal field study." Environment and Behavior **34**(3): 279-299

Breschi, S. and F. Lissoni (2001). "Knowledge spillovers and local innovation systems: A critical survey." Industrial and Corporate Change **10**(4): 975-1005

Brouwer, A. E., I. Mariotti and J. N. van Ommeren (2004). "The firm relocation decision: An empirical investigation." The Annals of Regional Science **38**(2): 335-347

Van den Bulte, C. and R. K. Moenaert (1998). "The effects of R&D team co-location on communication patterns among R&D, marketing, and manufacturing." Management Science **44**(11): S1-S18

Carter, S. (1999). "Relocation or dislocation? Key issues in the specialist management of group moves." Management Research News **22**(5): 22-36

Chan, S. H., G. W. Gau and K. Wang (1995). "Stock market reaction to capital investment decisions: Evidence from business relocations." Journal of Financial and Quantitative Analysis **30**(1): 81-101

Cohen, J. P. and C. J. Morrison Paul (2005). "Agglomeration economies and industry location decisions: The impacts of spatial and industrial spillovers." Regional Science and Urban Economics **35**(3): 215-237

Cohen, W. M. and D. A. Levinthal (1990). "Absorptive capacity: A new perspective on learning and innovation." Administrative Science Quarterly **35**(1): 128-152

Combs, J. G. and D. J. Ketchen (1999). "Explaining interfirm cooperation and performance: Toward a reconciliation of predictions from the resource-based view and organizational economics." Strategic Management Journal **20**(9): 867-888

Damanpour, F. and W. M. Evan (1984). "Organizational innovation and performance: The problem of "organizational lag"." Administrative Science Quarterly **29**(3): 392-409

Van Dijk, J. and P. H. Pellenbarg (2000). "Firm relocation decisions in The Netherlands: An ordered logit approach." Papers in Regional Science **79**(1): 191-219

Falzoni, A. M., G. B. Navaretti and A. Turrini (2000). The decision to invest in a low-wage country: Evidence from Italian textiles and clothing multinationals, C.E.P.R. Discussion Papers: 2395 2000

Fama, E. F. (1991). "Efficient capital-markets." Journal of Finance **46**(5): 1575-1617

Feldman, M. P. (1999). "The new economics of innovation spillovers and agglomeration: A review of empirical studies." Economics of Innovation and New Technology **8**(1): 5-26

Freel, M. S. (2003). "Sectoral patterns of small firm innovation, networking and proximity." Research Policy **32**(5): 751-770

Garreau, J. (1991). Edge city: Life on the new frontier. New York, Doubleday

Ghosh, C., M. Rodriguez and C. F. Sirmans (1995). "Gains from corporate headquarters relocations: Evidence from the stock market." Journal of urban economics **38**(3): 291-311

Glaeser, E. L., H. D. Kallal, J. A. Scheinkman and A. Shleifer (1992). "Growth in cities." The Journal of Political Economy **100**(6): 1126-1152

Granovetter, M. S. (1985). "Economic action and social structure: The problem of embeddedness." The American Journal of Sociology **91**(3): 481-510

Gulati, R. and H. Singh (1998). "The architecture of cooperation: Managing coordination costs and appropriation concerns in strategic alliances." Administrative Science Quarterly **43**(4): 781-814
Hagedoorn, J. and M. Cloodt (2003). "Measuring innovative performance: Is there an advantage in using multiple indicators?" Research Policy **32**(8): 1365-1379
Hagedoorn, J. and J. Schakenraad (1994). "The effect of strategic technology alliances on company performance." Strategic Management Journal **15**(4): 291-309
Harabi, N. (1997). "Channels of R&D spillovers: An empirical investigation of Swiss firms." Technovation **17**(11/12): 627-635
Havnes, P. A. and K. Senneseth (2001). "A panel study of firm growth among SMEs in networks." Small business economics **16**(4): 293-302
Holl, A. (2004). "Start-ups and relocations: Manufacturing plant location in Portugal." Papers in Regional Science **83**(4): 649-668
Howells, J. R. L. (2002). "Tacit knowledge, innovation and economic geography." Urban Studies **39**(5-6): 871-884
Jaffe, A. B. (1989). "Real effects of academic research." American Economic Review(5): 957-970
Lagendijk, A. (2003). "Towards conceptual quality in regional studies: The need for a subtle critique." Regional Studies
Love, J. H. and S. Roper (2001). "Location and network effects on innovation success: Evidence for UK, German and Irish manufacturing plants." Research Policy **30**(4): 643-661
Luttrell, W. F. (1962). Factory location and industrial movement: A study of recent experience in Great Britain. London, The national institute of economic and social research
Mackun, P. and A. D. MacPherson (1997). "Externally-assisted product innovation in the manufacturing sector: The role of location, in house R&D and outside technological support." Regional Studies **31**(7): 659-668
McCann, P., T. Arita and I. R. Gordon (2002). "Industrial clusters, transactions costs and the institutional determinants of MNE location behaviour." International Business Review **11**(6): 647-663
McLaughlin, G. E. and S. Robock (1949). Why industry moves south: A study of factors influencing the recent location of manufacturing plants in the South. Kingsport, Kingsport Press
Medda, F., P. Nijkamp and P. Rietveld (1999). "Urban industrial relocation: The theory of edge cities." Environment and planning B **26**(5): 751-761
Minguzzi, A. and R. Passaro (2001). "The network of relationships between the economic environment and the entrepreneurial culture in small firms." Journal of Business Venturing **16**(2): 181-207
Moenaert, R. K. and F. Caeldries (1996). "Architectural redesign, interpersonal communication, and learning in R&D." The Journal of Product Innovation Management **13**(4): 296-310
Mosakowski, E. (1991). Organizational boundaries and economic performance: An empirical study of entrepreneurial computer firms. Strategic Management Journal. **12:** 115-133
Moulaert, F. and F. Sekia (2003). "Territorial innovation models: A critical review." Regional Studies **37**(3): 289-302
Oerlemans, L. A. G. and M. T. H. Meeus (2005). "Do organisational and spatial proximity impact on firm performance?" Regional Studies **39**(1)

Oerlemans, L. A. G., M. T. H. Meeus and F. W. M. Boekema (1998). "Do networks matter for innovation? The usefulness of the economic network approach in analysing innovation." Tijdschrift voor Economische en Sociale Geografie **89**(3): 298-309

Oerlemans, L. A. G., M. T. H. Meeus and F. W. M. Boekema (2001a). "Firm clustering and innovation: Determinants and effects." Papers in Regional Science **80**(1): 337-356

Oerlemans, L. A. G., M. T. H. Meeus and F. W. M. Boekema (2001b). "On the spatial embeddedness of innovation networks: An exploration of the proximity effect." Tijdschrift Voor Economische En Sociale Geografie **92**(1): 60-75

Oerlemans, L. A. G., M. T. H. Meeus and F. W. M. Boekema (2001a). "On the spatial embeddedness of innovation networks: An exploration of the proximity effect." Tijdschrift voor Economische en Sociale Geografie **92**(1): 60-75

Pangarkar, N. (2003). "Determinants of alliance duration in uncertain environments: The case of the biotechnology sector." Long Range Planning **36**(3): 269-284

Park, S. H. and M. V. Russo (1996). "When competition eclipses cooperation: An event history analysis of joint venture failure." Management Science **42**(6): 875-889

Pellenbarg, P., L. J. G. van Wissen and J. van Dijk (2002). Firm migration. Industrial Location Economics. P. McCann. Cheltenham, Edward Elgar

Pen, C.-J. (2002). Wat beweegt bedrijven? Besluitvormingsprocessen bij verplaatsende bedrijven. Groningen, Rijkuniversiteit Groningen

Pen, C.-J. and P. H. Pellenbarg (1999). Firm migration and central government policy; An overview. Grensoverschrijdende activiteiten in beweging: Grensregio's, onderzoek en beleid. F. W. M. Boekema and G. Allaert. Assen, van Gorcum

Saviotti, P. P. (1998). "On the dynamics of appropriability, of tacit and of codified knowledge." Research Policy **26**(7-8): 843-856

Stuart, T. and O. Sorenson (2003). "The geography of opportunity: Spatial heterogeneity in founding rates and the performance of biotechnology firms." Research Policy **32**(2): 229-253

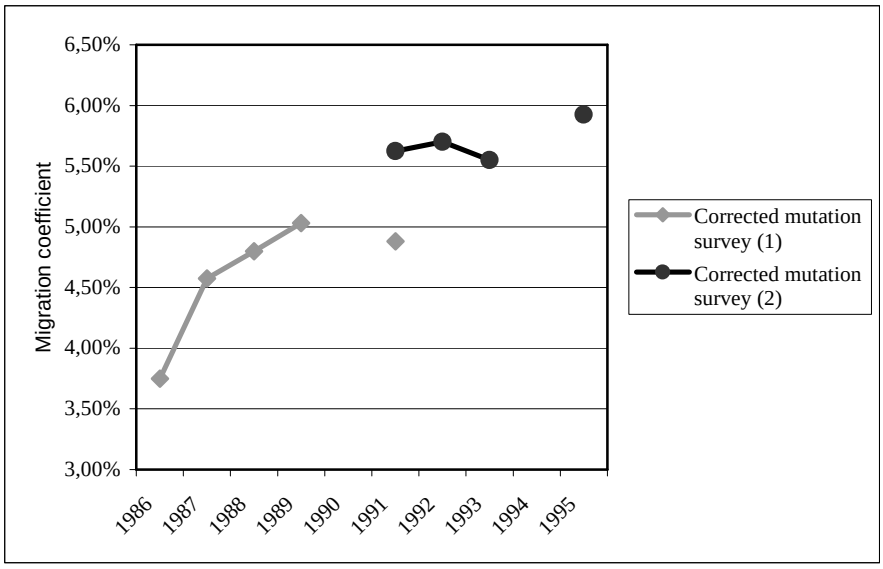
Stuart, T. E. (2000). "Interorganizational alliances and the performance of firms: A study of growth and innovation rates in a high-technology industry." Strategic Management Journal **21**(8): 791-811

Tirtiroglu, D., H. S. Bhabra and U. Lel (2004). "Political uncertainty and asset valuation: Evidence from business relocations in Canada." Journal of Banking & Finance **28**(9): 2237-2258

Torre, A. and A. Rallet (2005). "Proximity and localization." Regional Studies **39**(1): 47-59

Townroe, P. (1976). Planning industrial location. Glasgow, Leonard Hill Books

Figure 1. The firm relocation coefficient over time[3]



Source: Van Dijk and Pellenbarg (2000)

Table 1. The composition of the relocation coefficient

	Corrected Relocation Coefficient (1995)		
	Short Distance*	Long Distance*	Total
Manufacturing	4,35	1,20	5,55
Construction	4,95	0,83	5,78
Wholesale	5,55	2,03	7,58
Retail	2,70	0,45	3,15
Commercial Services[a]	5,70	1,80	7,50
Personal Services[b]	3,15	0,68	3,83
Other[c]	4,73	2,25	6,98
TOTAL	4,73	1,43	5,93

a: transportation, storage, communication, banking and insurance, business services

b: hotel/restaurants, recreation, house agents, laundry, hairdressing etc.

c: mainly financial holdings

*: short distance: relocation within Chamber of Commerce district; long: to another district

Source: *(Pen and Pellenbarg 1999; Van Dijk and Pellenbarg 2000; Pen 2002)*

Table 2. Possible effects of firm relocation[4]

		Utilization of geographical environment	
		Low	**High**
Embeddedness in current position	**Low**	**0/+**	**0/-**
	High	+/-	**-**

Table 3. The effects of firm relocation in the literature

Author(s) and year of publication	*Characteristics of the organizational position*		*Characteristics of the geographical position*		*Relocation characteristics*			*Performance measure(s)*	*Main findings*
	Centrality	*Number of IORs*	***Origin***	*Destination*	*Distance*	*Direction*	*Strategy*		
Amrhein (1988)	-	-	-	-	-	-	-	regional production and employment	- Simultaneous firm and worker relocation leads to better economic performance compared to cases in which firms and/or workers are immobile.
Alli, Ramirez & Yung (1991)	-	-	-	-	yes	-	-	stock prices	- Relocating companies are, on average, larger, less profitable, have more expenses and pay fewer taxes than non-relocating companies.
Chan, Gua & Wang (1995)	-	-	-	-	-	-	-	stock prices & financial performance	- Motivation of relocation decision is the most important determinant of its effects. - There are no differences in profitability between relocating and non-relocating firms.
Ghosh, Rodriguez & Sirmans (1995)	-	-	yes	-	-	yes	-	stock prices	- Motivation of relocation decision is the most important determinant of its effects. - Cost savings at less centralized locations outweigh the benefits of spatial clustering in urban centers.
Moenaert & Caeldries (1996)	-	-	-	-	yes	-	-	innovative performance	- Locating R&D personnel in close proximity increased innovative performance, but had no effect on technological learning.
Barrell & Pain (1997)	-	-	-	-	-	-	-	economic growth	- Production relocation can be both beneficial for the host region as well as for the region of origin.
Van den Bulte & Moenaert (1998)	-	-	-	-	yes	yes	-	innovative performance	- Co-location led to an increase in the innovative performance. - Organizational strategy can cancel out the negative effects of increased physical distances.
Brennan, Chugh and Kline (2002)	-	-	-	-	-	-	-	employee satisfaction	- Firm relocation, and more specifically the change to a new office design, can lead to a decrease in employee satisfaction
Bhabra, Lel & Tirtiroglu (2002)	-	-	-	-	-	-	-	stock prices	- Motivation of relocation decision is the most important determinant of its effects.
Tirtiroglu, Bhabra & Lel (2004)	-	-	yes	yes	-	yes	-	stock prices	- Characteristics of the host region (political uncertainty) influence the effects of relocation. - Relocations over longer distances involve more negative effects.