

Firm-Location Dynamics and Subnational Institutions: Creating a Framework for Collocation Activities

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Abstract

The dynamic interaction between locational attributes and foreign direct investment (FDI) is an important condition for successful economic activity. Yet while significant research has identified the integral role of socio-spatial aspects to the duration, composition and performance of multinational enterprise (MNE) activity, there is limited understanding of how subnational regions coordinate with investment. This paper seeks to explore how subnational regions, and their composite institutions, function in coordinating - or not - to attract multinational investment and facilitate collocation advantages. Using case study analysis of two subnational regions within a single advanced economy, we illustrate the potential variation and implications of subnational institutional structure, posturing and engagement with FDI. Our findings are discussed in terms of the role of subnational variation for MNEs and insights to industrial policy for developed countries.

KEYWORDS: subnational institutions; foreign direct investment (FDI); multinational enterprise; collocation advantages

Firm-Location Dynamics and Subnational Institutions: Creating a Framework for Collocation

Advantages

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1. Introduction

Given the increasing interest in interactions between multinational enterprises (MNEs) and its range of locations, research on the interplay between the firm and its geographical environment is growing. An important catalyst in exploring this connection is the diverse contribution of research across a number of core disciplines, including international business (IB), strategy, economic geography (EG) and innovation (Alcácer, 2006; Beugelsdijk and Mudambi, TO CHECK; Dunning, 2009; Phelps and Fuller, 2000; Porter, 2000). Amongst these scholarly disciplines are three concurrent elements which serve as a motivation for this paper. Firstly, firms are increasingly cognizant of the potential for knowledge externalities within the local environment to enhance their innovation propensity and offer collocation advantages (Hagedoorn, Link, and Vonortas, 2000; Jaffe, Trajtenberg, and Hendersen, 1993). Secondly, a more nuanced understanding of this dynamic interplay between firm-specific activities and location-specific advantages is warranted at the subnational level of analysis (Narula and Santangelo, 2009; 2012). Finally, there is substantial scope to achieve this by utilizing an interdisciplinary IB-EG framework (Beugelsdijk, Mudambi, and McCann, 2010; McCann and Mudambi, 2005).

In light of these three features, extant evidence has primarily focused on the attributes and behaviour of the firm within geographical space (Beugelsdijk and Mudambi, 2013; Cantwell and Mudambi, 2000; Mudambi, 1998). However, research suggests that locations seeking to attract and retain foreign investment often align their institutional framework to enable collocation advantages – essentially providing the locational supports to optimize engagement amongst MNEs, enhance knowledge flow between firms within the spatial ecosystem through viable systems of exchange, facilitate synergy of firm-specific activities and location-specific resources and generate a distinct

focus on developing the local economy (Meyer, Mudambi, and Narula, 2011; Narula and Santangelo, 2012; Young, Hood and Wilson, 1994). Particularly in response to potential innovative activity of investment, subnational institutions – such as regional development agencies, local universities and local authorities - operate as effective intermediaries and boundary spanners between the policy and enterprise continuum (Etzkowitz and Leydesdorff, 1995; Fuller, Bennett, and Ramsden, 2003; Hagedoorn et al., 2000; Narula and Santangelo, 2009). Nevertheless, we lack an understanding of the internal mechanisms through which subnational regions activate this alignment and the impact of these initiatives in their interaction with investment. Consequently, this paper seeks to explore how subnational regions and their composite institutions within a developed country function to coordinate, or not, in attracting MNE investment and facilitating collocation advantages.

In order to respond to this question, we first build a conceptual framework which integrates socio-spatial constructs from EG with those of IB. Adopting an interdisciplinary perspective, we conceptualize the process by which subnational regions, and their composite institutions, organize for optimal engagement with MNE investment within a single advanced country context. As per Monaghan, Gunnigle and Lavelle (2014, p. 132), we define subnational institutional actors as “the body of local regulatory and service-providing institutions with a functional remit to engage with foreign-owned enterprise at a subnational level”. Comparative case study analysis of two subnational regions within a single country context allows a richer understanding of these elements of exchange between subnational actors and MNEs, where similarities and differences between the regions enlighten the conceptual model and highlight the dimensions of this interaction.

This study offers two contributions to existing literature. First, we provide a greater understanding of how subnational regions organize their interaction with foreign investment. While significant research has enlightened the benefits of alignment between firm-specific advantages and locational attributes (Beugelsdijk et al., 2010; Meyer et al., 2011; Mudambi, 1998), a more fine-grained analysis of how the subnational locations, particularly with significant geographical and resource based similarities, coordinate with MNE investment is required (McCann and Mudambi, 2005; Narula and Santangelo, 2012). Our comparative research highlights the mechanisms by which subnational regions and their composite institutional actors, arrangements and coalitions, function

with MNE investment, including alternative approaches to structure, posturing and engagement. Moreover, as interest in collocation of MNE investment increases, we provide a perspective on the subnational institutional elements which support, or potentially negate, these advantages. Our second contribution rests in illustrating and discussing the significant subnational variation which exists within a single, advanced economy context. Developed countries are witnessing greater internal competition for MNE, due to the benefits that accrue from foreign investment such as employment effects, economic growth, knowledge spillovers and resource transfer effects (Oxelheim and Ghauri, 2004). As substantial research on subnational institutional variation has been provided within emerging economies, such as Vietnam (Meyer and Nguyen, 2005) and China (Shi, Sun, and Peng, 2012), we contribute to the growing discourse on subnational differentiation within advanced economies (Mudambi and Santangelo, 2015 TO CHECK; Narula and Santangelo, 2012) and illustrate how this framework can be applied to other developed nations.

The following section illustrates the theoretical underpinnings and motivation for this paper. The third section describes the case study method, which facilitates illustrative evidence of two subnational regions in the fourth section. The fifth section presents a cohesive discussion and conclusion to the study.

2. Literature Review

Spatial attributes and location-specific assets have increasingly captivated attention within IB, which is traditionally associated with the organization of economic activity across national boundaries, while interest in the MNE has become more prevalent amongst EG scholars. In light of the growth of knowledge intensive industries, the global factory, advances in technology and business networks, innovation has served as a significant mediator of the interdisciplinary relationship between IB and EG (Beugelsdijk et al., 2010; Dunning, 2009; Mudambi, 2008). For example, Mudambi (1998) finds that while investment location decisions are initially driven by portfolio considerations of the firm, incremental investments over time are shaped by experience effects. Moreover, as these continued investments fund the development of subsidiary units into more strategic and value-add business activities, Mudambi (1998) draws significant conclusions on the important role and activity of inward

investment agencies in enabling these growth opportunities. Arguably, this signals the need for inward investment agencies to carefully evaluate both the short- and long-term factors in attracting MNEs, a point which has been further validated in terms of local knowledge creation and research and development (R&D) investment (Cantwell and Mudambi, 2000). However, most of this research positions inward investment activity at a national level context, which Narula and Santangelo (2009) note, is less relevant for firms seeking more localized and innovative engagement, such as R&D alliances and collocation advantages. In fact, the advantages of collocation – “the spatial proximity to specific unaffiliated firms, which may be suppliers, competitors, or customers” (Narula and Santangelo, 2012: p. 6) – demand a more nuanced exploration of how subnational spatial heterogeneity can enhance, or impede, location-specific attributes for MNE investment (Beugelsdijk et al., 2010; Beugelsdijk and Mudambi, 2013).

Given that MNE subsidiary activities are quite localized, considerable evidence suggests that subnational institutions participate as key actors in the interactive exchange between MNEs and its local environment. For example, the role of subnational institutions in promoting a location for investment within particular national contexts has become increasingly prevalent, primarily in emerging economies (Ma, Tong, and Fitza, 2013; Meyer and Nguyen, 2005; Nguyen, Le, and Bryant, 2013). Zhou, Delios, and Yang (2002) explored the locational determinants of Japanese FDI to 27 provinces and regions in China and found that Japanese FDI was more likely to locate in one of the numerous special industrial areas, including Special Economic Zones (SEZ) and Opening Coastal Cities (OCC). In addition to the effect of industrial zones, Zhou et al. (2002) found that companies were particularly sensitive to local levels of infrastructural, economic and social development. While the role of subnational locations for MNE investment has also been documented across European regions (Mudambi and Santangelo, 2015; Narula and Santangelo, 2009) and the United States (Head, Ries, and Swenson, 1995; 1999), relatively less research has been offered on the mechanisms by which subnational regions coordinate with MNE investment within a single country context.

In order to investigate a more refined level of firm-location dynamics and explore their role in collocation advantages, we present an interdisciplinary framework to facilitate an integrative analysis

of structure, posturing and engagement of subnational institutions with MNEs within a localized region.

2.1 Subnational Institutional Structure

The relationship between a MNE and location is highly symbiotic (Dunning, 1988; Vernon, 1966), with considerable work substantiating the importance of alignment between the activities of a firm and the specific attributes of a location. In the smile of value creation model, Mudambi (2008) identifies that higher order value creation activities (marketing, R&D) are located in advanced economies, while more standardized activities in the middle of the value chain (such as manufacturing) are placed in emerging market or developing economies. Although this taxonomy is fundamentally positioned at national level and most pertinent to knowledge-intensive industries, it illustrates the importance of aligning value creation drivers of firm activities with location-specific advantages. Access to, and provision of, location-specific assets is a fundamental component of the firm-location dynamic, whereby centralized coordination of resources and services can significantly enhance investment, while proliferation may impede FDI location. For example, Goerzen, Asmussen, and Nielsen (2013) highlight the strong propensity for MNEs to locate subsidiaries in global cities, due in part to the abundance and availability of advanced producer services which assist in reducing the barriers to entry created by the liability of foreignness. Equally, the location of firms within a particular cluster is often motivated by the accumulated stock of knowledge and resources already available within agglomerated industries, accessible through producer services, agencies or other firms (Bathelt, Malmberg, and Maskell, 2004). In contrast, the dispersion of localized brokerage services, or lack of accessibility to these services, can negate the economic activity of firms (Boschma, 2005; Cantwell and Mudambi, 2011). Thus, across subnational regions, the capacity for cohesive networks of support and resources offer a positive heuristic for inward investment. In fact, many of these initiatives and unifying infrastructures are premised on the relative strategies of subnational locations hungry for inward investment (Tewdwr-Jones and Phelps, 2000; Phelps, 2008). We define subnational institutional structure as the extent to which coordination of resources, services and assets necessary for foreign investment are centralized or proliferate within a subnational region.

Within this, the potential for subnational institutions to be structurally unified or centralized in their activity towards inward investment, versus holding dispersed or proliferated remits, can have a significant influence on the capacity for MNEs to identify, access and benefit from collocation advantages.

2.2 Subnational Institutional Posturing

Subnational institutional posturing relates to the approach and functional remit of subnational institutions to the attraction of investment, ranging from a geographical to a sectoral orientation. Much like the discussion on global cities (Goerzen et al., 2013), research on core or peripheral regions delineates the geographical propensity of innovation available to inward MNE subsidiaries within a specific location (Mariotti, Piscitello, and Elia, 2010). Cantwell and Iammarino (2000) illustrate the hierarchy of regional centers within and across a national context, premised on innovation activities and capabilities of MNEs. More recently there is evidence to suggest that regionalization may no longer be a viable form of categorization – as MNEs push through these structures in terms of their innovative strategies. For example, Mudambi and Santangelo (2015) highlight the capacity for peripheral regions to serve as initial clusters for investment, particularly if firms can identify unique localized resources and appropriate international connectivity from this location. Moreover, the role of internal experimentation and competence development enables MNEs to adapt, shape and appropriate local resources, such as knowledge, technology and business networks, to develop and sustain value creating firm activities (Cantwell, 2009; Mudambi, 1998). Indeed, clusters and agglomeration are increasingly advocated as microcosms of sectoral activity, particularly as these clusters enable knowledge spillover and industry growth amongst composite firms (Bathelt et al., 2004). As subnational institutions evolve – in terms of their remit and potential autonomy from national administration - there is also greater scope for malleability and transformation in their approach to investment. Within this, there is potential for a shift away from a traditional regionalized, geography-based approach to investment towards a more agglomerated, sector-based emphasis, thus altering the way in which subnational institutions coordinate with investment and enable MNEs to access and avail of collocation advantages.

2.3 Subnational Institutional Engagement

Research on local networks, inter- and intra-firm collaboration, knowledge flows and circulation have substantiated the role of connectivity and engagement in technological innovation (Bathelt et al., 2004; Gertler and Levitte, 2005). In terms of identifying alternative forms of engagement and connectivity for geographically dispersed firms, Lorenzen and Mudambi (2013) conceptualized different types of knowledge exchange, crystallizing the various channels of communication as personal flows of knowledge and organizational pipelines of connectivity. Equally, subnational institutions seek to identify and capitalize on the local strengths of their environment to attract MNEs and initiate a mutually beneficial dialogue with foreign investors. Insights on national and regional systems of innovation have highlighted the role of the surrounding environment in enabling these flows of interaction. Indeed, the subnational business system is also a nascent theoretical framework which substantiates the malleable role of alternative business-related systems within a subnational jurisdiction in response to FDI (Monaghan, 2012). Moreover, research within both IB and EG has advocated the influence of subnational institutional capacity on MNE investment, whereby cohesive and unified subnational institutions participate as key actors in the interactive exchange between MNEs and its local environment to enhance the positive economic and social gains from investment (Cantwell and Mudambi, 2000; Fuller et al. 2003; Monaghan et al., 2014; Phelps and Fuller, 2001). As the majority of research on firm-location engagement has been conducted within a national level context, there is substantially less information available on how subnational regions within a single country dynamically engage with and navigate MNE investment, particularly when there is very little differentiation in specific resources. We define subnational institutional engagement as the level and flow of interaction between subnational institutions and MNEs. Within this, there is potential to differentiate between patterns of personal, informal engagement and professional, formal engagement.

In light of this interdisciplinary review of the literature, we propose a framework to summarize the preceding discussion on the potential variance in subnational institutional structure, posturing and engagement in their coordinated interaction with MNEs (see Table 1).

<Insert Table 1 about here>

In order to explore the elements of this framework, we analyse two subnational regions within a single, advanced economy context, both of which have been successful in the attraction of MNE since the early 1960s.

3. Method

3.1 Research Design

The nature of the research question, namely to explore how subnational regions coordinate, or not, to attract MNE investment, is most suited to a qualitative case study research design to develop new insights from an integrated IB-EG perspective (Miles, Huberman and Saldana, 2014; Welch et al., 2011; Yin, 2009). Thus, our chosen research design allows us to understand the mechanisms by which subnational regions coordinate with FDI and how this exchange may enable or impede collocation advantages.

The Republic of Ireland is the research context of this study. A small, highly globalized economy on the periphery of Europe, Ireland has been highly successful in attracting multinational investment (see Table 2). This was first initiated as a public policy imperative in the late 1950s when the Irish government devised an economic development strategy to prioritize the attraction of FDI where the subsequent introduction of a syndicate of substantial financial incentives, low corporate tax, a low cost base and a targeted investment strategy resulted in a strong level of MNE investment in Ireland (Barry, 2007; Brennan and Verma, 2010; 2012). While the sustainability of Irish FDI-led industrial policies overall has received substantial attention, regional distribution of FDI within the country remains a significant policy issue (Bailey and Lenihan, 2015). Indeed, the establishment of regional development agencies in the 1950s – in line with the opening of the economy and aimed at driving balanced industrial and socioeconomic growth – have been a considerably contentious topic for industrial policy for years (Barry, 2007; IDA, 2010).

<Insert Table 2 about here>

Two subnational regions within the Republic of Ireland - hereby referred to as the Sigma Region and Gamma Region to maintain anonymity - were selected as a natural laboratory for comparative case study analysis. The choice of these neighbouring subnational regions within a single

country context is premised on theoretical sampling synonymous with the nature of our research question (Yin, 2009), motivated primarily by their propensity to facilitate collocation advantages for FDI and their existing subnational institutional infrastructure. Given that each subnational region has been active and successful in attracting and retaining FDI, this sample offers theory-building opportunities (Yin, 2009). In addition to being the first two subnational areas to initiate a regional development strategy in the late 1950s, these two regions are adjacent and their proximity means that they share similar physical and geographical attributes. Equally, although Ireland is often considered a single region, constructive variation in the cultural and social characteristics of the Sigma and Gamma regions also substantiate this comparative analysis. Secondly, these two regions are equally distant from the political and economic capital of Ireland. Finally, the administrative, political and economic boundaries of the Sigma and Gamma regions have experienced significant change and modification over time. As such, the parameters of these subnational regions largely coincide with the definition of MacKinnon et al. (2009: 140), which identify regions “in institutional terms, as territorial entities that are constructed and reproduced through a range of socio-spatial relations, connections, practices and discourses, rather than as administrative or economic units”. Data on the two regions, in addition to their composite subnational institutions, are provided in Table 3.

<Insert Table 3 about here>

3.2 Data Collection

The initial stage of data collection centred on collating significant archival material on the two subnational regions, with a discrete focus on their geographical attributes, economic, political and industrial profile, governance structure and MNC composition. A chronological representation of the two subnational regions was created to signal key events, development and activity (see Table 4). Following a more specific understanding of the industrial and institutional profile of each subnational region, subnational institutions were invited to participate in the study.

<Insert Table 4 about here>

Previous research has identified 14 subnational institutions within Ireland who hold an active FDI-related remit, including local governance actors, subnational offices of national development agencies, regional development agencies (RDA's), educational institutions, skills bodies, private

sector bodies and employment relations actors, in addition to the functional role of established MNE subsidiaries and local firms in attracting and retaining FDI (Monaghan, 2012; See Table 3). Data was collected using qualitative semi-structured interviews with key subnational institutional actors across the two subnational regions. Representatives from each of these subnational institutions in both regions were interviewed over a three year period from 2009-2012, in addition to five MNCs, resulting in 59 interviews from 29 institutions. Of these, 15 respondent institutions operated in Sigma, 14 in Gamma with two inter-regional institutions. Of the five MNEs, two were Greenfield investment and three were acquisitions, the average location duration of which was 19.5 years, with an average size of 1,260 employees. Based on their activity, the MNEs were categorized into the following activities – high technology, process development manufacturing (3 MNEs); leading edge aquaculture (1 MNE) and advanced international financial services (1 MNE).

On average, respondents were interviewed for 40-50 minutes, during which time a number of key issues were explored. Interviews with representatives of subnational institutions focused on the origins and role of the institution, relationship with other subnational institutions, interaction with established MNEs and inward investment, functional remit within the region and relationship with national administration. Alternatively, interviews with MNE respondents focused on the tenure of the firm within the region, information on their subsidiary mandate, identification of business networks, engagement with subnational institutional infrastructure and interaction with national-level institutions. When past events were explored or noted, significant measures were implemented by the interviewer to minimize retrospective bias (Miller, Cardinal, and Glick, 1997). In particular, questions pertained to specific events rather than personal opinions or anecdotes and reference to the archival material enabled clarification of any ambiguous points. Also, participation was sought from the most knowledgeable individuals within the organization or institution who were best positioned to answer our questions.

All 59 interviews were recorded for accuracy, transcribed verbatim, producing almost 3,000 pages of data which was further substantiated and enhanced by secondary archival data, and coded using *NVivo 10*®. Telephone and email follow-up were used to verify outstanding issues with respondents and gather supplementary information.

3.3. Data Analysis

Given that our framework identified a priori constructs, data analysis was simultaneously conducted alongside data collection and involved repeated comparison of our data with our framework (Miles, Huberman, and Saldana, 2014). Using archival material¹, significant contextual information was integrated on the subnational environment in Ireland and the overall process of FDI attraction and retention. Thus, archival documentary analysis was also used to (1) verify the remit and activity of relevant subnational institutional actors; (2) identify significant political, social, cultural and industrial events across both regions, and (3) capture the evolution of industry during this time (Oireachtas, 2014). Additionally, corroborating the occurrence of events across data sources substantially strengthens data reliability (Jick, 1979).

Drawing on the conceptual framework developed from the extant literature, three categories – subnational institutional structure, posturing and engagement – were used to open-code the data. In particular, emphasis was placed on populating the inherent mechanisms of each category. Within this theory-driven coding, specific instances pertaining to these concepts were sought to provide greater evidence of the activities. These instances were then extracted and aggregated into polarized sub-themes, where similarities and differences with each pillar, and across the two subnational regions, were noted. For example, our theme “*proliferation vs centralization*” discusses the diversity of subnational institutional structure and included instances such as “*joined up thinking*”, “*multiplicity of message*”, “*follower*” and “*supporting role*”. Our data also signalled an outcome to these activities – fostering collocation advantages - where some activities signalled complexity in coordinating with MNEs, while others facilitated greater complementarity. We summarize our findings within an enhanced conceptual framework (See Table 5). Supportive quotes for these categories are offered in Table 6.

<Insert table 5 and Table 6 about here>

Several measures were taken to verify the trustworthiness of our data and reliability of our analysis. For example, a thorough chain of evidence was used to record analysis decisions, *Nvivo 10*®

¹ Specific reference and material pertaining to this archival material was removed to maintain anonymity.

was implemented for a more rigorous and systematic analysis, data was triangulated as was the interpretation of analysts (all authors questioned and challenged each other's coding when necessary to arrive at an agreement) and emergent findings were shared with the subnational institutions for validation and subsequently incorporated into the evolving analysis.

4. Findings

In order to explore how subnational regions, and their affiliate institutions, coordinate with MNE investment and facilitate collocation advantages, we now discuss the characteristics of this interaction across the Sigma and Gamma regions under the three conceptual categories from our framework.

4.1 Subnational Institutional Structure

In terms of how subnational institutions coordinate with MNEs, our data indicates that a fundamental premise of the regional economy, namely the establishment of regional development agencies (RDAs), had a lasting influence on the subnational institutional structure. As illustrated in Table 4, the origins of the subnational institutional framework in both regions relates to somewhat idiosyncratic activities of localized actors seeking to differentiate their location, stimulate regional economic development and attract investment. For example, as the core focus of Gamma RDA was on socio-economic and linguistic development, the Gamma region relied significantly on primary industry, such as aquaculture, agriculture and localized textile development. Comparatively, with relatively little domestic industry, Sigma RDA sought to capitalize on the international airport within their region, developing an economic free zone in the area most proximate to the airport with attractive financial incentives for inward investment. However, significant changes in national and European Union industrial policy during the 1970s and early 1980s shaped the trajectory of regional industrial and economic development across Ireland. Much of this was further enhanced by the international success of the national inward investment agency (IIA), an institution originally established in the late 1940s to advise the government on industrial development and promote investment to Ireland. As the flow of inward FDI to Ireland accelerated during the 1960s, their role quickly changed to focusing on encouraging foreign investors to locate, employing substantial

national level financial incentives and targeting strategies to attract MNEs. Thus, the success of the national IIA resulted in an expansion of their mandate in the late 1960s to facilitate regional economic and industrial development (Barry, 2007; Barry and Ó Fathartaigh, 2012).

As a result, the remit for industrial promotion and development in both subnational regions was disrupted. Within the Sigma region, industrial activity effectively became shared between the national IIA and RDA, and so the very existence of Sigma RDA was quickly associated with greater levels of complexity, ambiguity and an overall '*messy interplay*' for inward FDI (US Manufacturing MNE, Sigma region). Indeed, there was a proliferation of agencies who shared a vested interest in foreign investment, seeking to interject and contribute to industrial promotion and development. The difficulties associated with such subnational institutional proliferation were noted by MNEs in relation to a number of practical issues, including auditing and reporting of capital grants, access to information, availability of subsidies and planning requests. Despite an outward display of collaboration between Sigma RDA and the national IIA, other subnational institutions were particularly forthcoming in acknowledging the negative implications, such as '*competition*', '*tension*' and '*politics*', of this overlap. In particular, implications of this duplication and density were noted as hindering industrial development in the region, with respondents noting the lack of coherence amongst agencies in working with investment and an ambiguity in the role of actors.

The ambiguous remit for, and constant changes to, industrial development within Sigma operated in direct contrast to the relatively consistent functioning and appraised unity of subnational regional structure in the Gamma region. As the primary role of Gamma RDA was focused on socioeconomic and linguistic development, there was a more straightforward approach to industrial development as subnational offices of the national IIA held the remit for engaging with FDI within Gamma: "*Gamma is [now] stronger because the national IIA has always been the main institution in that region ... whereas here ... it was hard to know who was the organisation – was it Sigma RDA?, Was it the national IIA? There was [always] that ambiguity and tension between them*" (Educational Institution, Sigma Region).

Thus, the original establishment of industrial development with the two subnational regions precipitated an approach to the structure of institutional actors towards FDI, which persisted over

time. In light of national-level initiatives, subnational institutions sought to identify and assert the functionality of their structure for investment. The centralization of subnational institutions in the Gamma region was both caused, and fostered by, an alignment of national industrial policy with local resources. However, the evident synergy amongst subnational agencies in the Gamma region stands in contrast to a proliferation of agencies and FDI-related structure in the Sigma region, which responded differently to national level changes. While the density of agencies in Sigma was initially amplified by the fissure of coherence with national administration in the 1970s, these implications remain manifest thirty years later. As illustrated in Table 3, the employment figures for foreign-owned companies highlight a distinctive difference between the two regions, which is often attributed to the centralization of subnational institutions in the Gamma region as opposed to the proliferation of agencies in Sigma². Institutional density resulted in limited resources and attention being awarded to attracting new investment, while the lack of coherence amongst institutions created greater complexity and barriers to collaboration amongst local investment. In summary, we observe that the structure of subnational institutions may vary in terms of its centralization vis-à-vis its proliferation and this variation has important implications for attracting, and indeed retaining MNE investment.

4.2 Subnational Institutional Posturing

There is limited evidence of a deliberate industrial policy to strategically develop clusters in Ireland and, as noted above, the original role of subnational institutions was in response to region-specific needs for local economic development. Across both regions, many sectoral clusters emerged serendipitously over time to avail of region-specific resources and incentives, with one subnational actor noting that *'the development of [subsequent localized] clusters was to some degree accidental'* (Inward Investment Agency, Gamma office). However, the initially opportune sectoral-based concentration of FDI resulted in a somewhat symmetrical pattern of investment across different subnational locations in Ireland, further substantiated by the emergence of sector-specific bodies, development of new academic courses within educational institutions, networking events within the

² As the subnational institutional infrastructure was fraught with complexities and ambiguity during the 1990s, where regional and national development agencies sought to operate in tandem (Culliton, 1992), the remit of both Gamma and Sigma RDAs were re-evaluated and redefined in the late 2000s.

region and promotion of synergy between sectors and subnational institutional agendas. Moreover, this focus towards a more sectoral delineation of investment is also strongly advocated at national level, where one respondent noted *“You need [MNEs] to be more involved with academic institutions in terms of research ... to make sure that the cluster continues to develop and becomes stronger. Colleges in Gamma need to be running courses that are suitable for MedTech companies and to have research going forward that will get collaboration from these same companies.”* (International Executive, Inward Investment Agency).

In light of this sectoral orientation, subnational institutions aligned with localized sectors of investment to nurture and cultivate greater collocation activities. However, this did not occur consistently. For example, the original structure of subnational institutions – as outlined above – had cultivated a distinct industrial and regional identity whereby the type of inward investment to both Sigma and Gamma reflected the initial clustering and identity of industry within these regions. Primarily driven by the availability of tailored financial incentives, the Sigma region boasted a comparative concentration of national and international hardware manufacturing and engineering companies. Yet as the Sigma region sought to retain their identity and defend their position in light of changes in industrial policy (as noted above), there was less evidence of subnational institutions seeking new forms of investment or different industry. Comparatively, the Gamma region was significantly less successful in attracting investment, until the location of two large US MNEs within the urban centre in the late 1970s and early 1980s. From this point, many companies in high-technology industries have successfully located in this region with subnational institutions having fostered greater sector-specific activities.

Thus, while the administrative and political parameters of a jurisdiction may remain regional in their focus, there is evidence to suggest an increasing shift towards a sectoral focus: Subnational institutions have evolved from proactive strategies of attracting inward investment, through reactive changes in their remit and role, towards more sectoral-based exchange with MNEs. Indeed, in light of greater levels of investment and economic development, subnational institutions enhanced their remit to provide duality in their role (economic development and sector-based agglomeration) while also focusing on greater engagement with MNE investment. Collectively, our observations illustrate that

this posturing of a subnational region, in terms of its sectoral or regional focus, can be an important distinction for attracting MNE investment and fostering collocation advantages.

4.3 Subnational Institutional Engagement

As national level changes espoused the attraction of FDI, greater attention and support was directed towards sectoral concentration, supporting MNE subsidiary mandates and embedding value-creating activities over time. As subnational institutional structure had been established and entrenched in Ireland since the 1950s, there was evidence that this consistent tenure enabled an evolution in their engagement with MNEs towards a more localized interaction. For example, local government adopted a more instrumental role in cultivating, creating and sustaining a physical environment conducive to foreign investment, advancing beyond their official remit for the delivery and maintenance of physical infrastructure. Equally, an increasingly prominent role of educational institutions became apparent in both regions with the creation of specific research units, which were funded and sustained through engagement with local MNEs.

Furthermore, substantial experiential knowledge of MNE activities from the early 1960s enabled many subnational institutions to effectively coordinate and coalesce with FDI. For example, many subnational institutional actors noted their previous work in, or with, different departments, sectors and layers of localized MNEs, or highlighted extensive experience in related institutional arenas. One respondent outlined that this provided a *“tremendous training ground in terms of management development and leadership”* (Managing Director, Gamma RDA). Moreover, there appears to be a more concerted capacity for subnational institutions, and their representatives, to effectively attain, manage and support MNE subsidiary mandates, investing *“a lot of time working with managers to look at increasing and expanding the [Irish subsidiary] mandate”* (Subnational Director, Inward Investment Agency Gamma office). Of particular interest is the point that subnational institutions are highly cognizant and supportive of the mechanisms by which Irish subsidiary managers seek to nurture their relationship with corporate headquarters. *“We have been supported by [subnational institutions] in terms of having access to people ... We have networked quite a lot with nearly every other manufacturing facility or company in this country because every*

single one of them is in the same boat with competition coming out their ears from their sister companies in other parts of the world” (HR Director, German Manufacturing MNE, Sigma). In fact, many of the elements of engagement traverse the personal and professional domain of subnational institutional actors.

Unlike the previous themes, there is greater unilateral support for the presence of personal relationships alongside professional associations in both Sigma and Gamma. Nonetheless, the collaborative dynamic of institutions within the Gamma region appeared to substantiate and foster greater capacity for personal ties and connectivity within and across subnational institutions as opposed to the proliferation of agencies and lack of coherence in the Sigma region. However, across both regions, it is evident that, over time, subnational institutions have become more flexible and innovative in their engagement with MNEs, where their interaction operates beyond the formal conventions generally espoused by national level institutions and official corporate mandates, allowing for a more localized and reciprocal exchange amongst a cohort of firms within their jurisdiction.

5. Discussion and Conclusions

The primary aim of this paper was to explore how subnational regions coordinate with MNE investment and facilitate collocation advantages. Drawing on comparative analysis of two subnational regions within a single country context, our findings highlight significant variation in the structure, posturing and engagement across the two regions, and their composite institutions, with foreign investment. As such, we find support for the alternative means by which subnational institutions coordinate with MNE investment and illustrate the potential for this coordination to encourage, or impede, collocation advantages for investment.

Within our study, it appears that the rationale for the establishment of specific regional agencies in the late 1950s, in addition to the successive changes at national level, laid the foundations for a subsequent era of institutional and industrial inertia within the Sigma region. Comparatively, the lack of specific industrial-based structures within Gamma facilitated an opportunism from institutional voids whereby a deficiency of institutional determinism at a local level resulted in greater

internal centralization amongst subnational institutions and coordination with MNE investment. Consequentially, this enabled a more organic evolution of collocation advantages within the Gamma region and the absence of industrial myopia experienced in their neighboring region, Sigma. Despite these gestational issues of structure however, our findings demonstrate that the coordination options available to and employed by subnational institutions in terms of interaction with investment resulted in somewhat alternative paths to a similar outcome, fostering collocation advantages.

Within the context of subnational institutional structure, posturing and engagement, a fundamental outcome of our framework is the dichotomy between complexity and complementarity of coordination activities in fostering collocation advantages. For example, we identify that complexity - associated with proliferation of agencies, a strictly regional approach to subnational remit and more professionally oriented ties - reduced the flow and transfer of information, generated higher barriers to entry and performance and overall, inhibited investment to a subnational region (Bathelt et al., 2004; Boschma, 2005; Goerzen et al., 2013; Twedwr-Jones and Phelps, 2000). Comparatively, complementarity - in terms of centralization of subnational institutional structure, increased focus on sectoral concentration and integration of personal and professional relationships - encouraged investment and reinvestment, increased opportunities in terms of promoting knowledge sharing, networking and fostered more positive collocation advantages (Cantwell and Mudambi, 2011; Lorenzen and Mudambi, 2013; Mariotti et al., 2010). However, while collaborative coordination mechanisms are more positive for investment and facilitate greater collocation advantages by enabling firms to appropriate and internalize localized physical and relational resources, we do observe equifinality in our framework insofar as complex mechanisms of coordination are required to ensure an adequate duration of investment and commitment of resources to the location (Mudambi and Santangelo, 2015; Mudambi, 1998; Meyer et al., 2011; Narula and Santangelo, 2009). Thus, while complex elements of subnational institutional coordination may potentially reduce the flow of information and increase barriers to investment, they also substantiate the decision and commitment of investment to contribute and engage with the subnational location and therefore act as a necessary component of the overall framework.

This study offers two significant contributions to the extant literature. Building upon the increased interest of firm-location dynamics, we generate an interdisciplinary conceptual framework of subnational institutional coordination with MNE investment. Applying this framework to our study of two subnational regions, we highlight the capacity for integrated insights from both IB and EG to inform current theory on the variation by which subnational institutional structure, posturing and engagement coordinate with MNE investment (Beugelsdijk et al., 2010; McCann and Mudambi, 2005). We demonstrate the polarization of alternative coordination mechanisms, suggesting that despite variation in subnational institutional structure, posturing and engagement, subnational institutions serve to provide and facilitate collocation advantages. Building upon the seminal work of Mudambi (1998), we enlighten the importance of locational attributes in facilitating investment decisions of MNEs by presenting a more nuanced exploration of the subnational mechanisms of exchange. As such, our study contributes more focused observations towards the organization and functioning of the subnational socio-spatial environment for MNE investment (Beugelsdijk et al., 2010; Meyer et al., 2011; McCann and Mudambi, 2005) and advance a more holistic understanding of collocation advantages (Narula and Santangelo, 2012).

Secondly, in light of the rapid growth of emerging economies, advanced economies are adopting alternative strategies to attract and retain investment with many nations engaging in “*location tournaments*” for foreign investment (Oxelheim and Ghauri, 2004). Equally, significant research is available on the presence, and potential opportunity, of subnational variation in emerging economies (Meyer and Nguyen, 2005; Zhou et al., 2002). Within this study, we demonstrate how two subnational regions within a single advanced economy coordinate differently in their interaction with MNE investment. With growing interest in global cities, industrial agglomeration and clusters (Alcácer, 2006; Goerzen et al., 2013; Porter, 2000), it is important for countries to acknowledge the capacity for subnational regions to coordinate with investment. Building upon the work of Mudambi and Santangelo (2015) and Narula and Santangelo (2009), we highlight that subnational variation, and the implications of this variance, is not limited to emerging economies, nor is it necessarily negative, thus providing qualitative insights to illustrate the ways in which this variation can accrue.

As industrial policy is regularly reconsidered and negotiated at supra-national, national and regional levels, policy-makers must recognize, engage and cultivate a cohesive subnational institutional space to ensure firm-location dynamics reflects a suitable environment for investment. Greater research on subnational variation amongst advanced economies is required and the entrepreneurial activity of subnational institutions – proactive attempts to attract investment, reactive measures to meet national level policy, mutual exchange with localized MNEs and concerted evolution over time – must not be underestimated. As evidenced in this study, regional and local government, development agencies and educational institutions form a significant community for enterprise and need to be considered within the constituent subnational institutional coalitions engaging with FDI. The Republic of Ireland offers an appropriate laboratory for this exploratory study, due mainly to its relatively recent economic and industrial development, the comparatively organic progression of the subnational institutional context and the significant dependence of the Irish economy – both national and subnational - on FDI (McDonnell et al, 2007). As such, our findings may be of value to similar advanced economies, such as the United Kingdom and Spain, seeking greater discussion on the potential opportunities of their subnational regions and their capacity to attract and retain investment (Almond et al., 2016). Moreover, the nature of this study may also enable greater research on subnational institutional capacity in emerging economies such as Baltic States and Eastern European countries (Bailey and Lenihan, 2015). Furthermore, comparative research between subnational regions in Ireland, an advanced economy, with that of an emerging economy would greatly substantiate this framework and significantly advance this line of academic discourse.

The central contribution of this paper is an emergent framework of subnational variation in firm-location dynamics, which offers greater insights on the nuanced exchanges of how subnational regions, and their composite institutions, coordinate with MNE investment to facilitate collocation advantages. In light of our empirical findings, we encourage greater quantitative analysis of this conceptual framework to substantiate subnational institutional coordination with investment and related collocation advantages

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LIST OF TABLES

Table 1: Variation in subnational institutional coordination with MNE investment

| <i>Coordination Mechanisms</i> | <i>Levels of Variation</i> |
|---|--|
| <i>Subnational Institutional Structure</i> | <i>Proliferation</i> \longleftrightarrow <i>Centralization</i> |
| <i>Subnational Institutional Posturing</i> | <i>Regional</i> \longleftrightarrow <i>Sectoral</i> |
| <i>Subnational Institutional Engagement</i> | <i>Professional</i> \longleftrightarrow <i>Personal</i> |

Table 2: FDI inward flows by economy 1980-2010 (millions of US dollars)

| | <i>1980-1985 (average)</i> | <i>1985-1990 (average)</i> | <i>1990-1995 (average)</i> | <i>1996</i> | <i>1997</i> | <i>1998</i> | <i>1999</i> | <i>2000</i> | <i>2001</i> | <i>2002</i> | <i>2003</i> | <i>2004</i> | <i>2005</i> | <i>2006</i> | <i>2007</i> | <i>2008</i> | <i>2009</i> | <i>2010</i> |
|------------------------------|--------------------------------|--------------------------------|--------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <i>Ireland</i> | 198 | 192 | 1 139 | 2 618 | 2 743 | 11 035 | 14 929 | 24 117 | 9 775 | 28 981 | 2 688 | 9 120 | -31 689 | -5 542 | 24 707 | -16 453 | 25 960 | 26 330 |
| <i>European Union</i> | 15 927 | 55 625 | 87 383 | 115 863 | 137 890 | 274 739 | 507 222 | 832 067 | 336 210 | 420 433 | 338 678 | 216 440 | 498 400 | 562 444 | 850 528 | 487 968 | 346 531 | 304 689 |

Source: UNCTAD World Investment Report (1992, 1997, 2002, 2005, 2008, 2011)

Note: Consistent data on the flows of inward FDI to Ireland are incredibly difficult to source. Thus, this table was generated from UNCTAD data, which is renowned for offering the most representation data on international trade and investment trends. The earliest data on inward investment for inward FDI to Ireland is available from 1980.

Table 3: Demographic data on the Sigma and Gamma Regions

| | <i>Sigma Region</i> | <i>Gamma Region</i> |
|---|-----------------------------------|----------------------------------|
| <i>Area</i> ¹ | 8,248.64km ² | 13,801km ² |
| <i>Population (% of national population)</i> ¹ | 8.2% | 9.7% |
| <i>Population Density (Population per sq. km)</i> | 21 | 31 |
| <i>Employment in Foreign Owned Enterprises</i> ² | 14,477 | 18,039 |
| <i>% Employed in Foreign Owned Enterprises</i> ³ | 8% | 10% |
| <i>Gross Value Added (GVA) at Basic Prices</i> ⁴ | 7.2% | 7.7% |
| <i>Establishment of Regional Development Agency</i> | 1959 | 1958 |
| <i>List of Subnational Institutions</i> | Regional Government | Regional Government |
| | Local Authority | Local Authority |
| | Trade Union | Trade Union |
| | Employer Body | Employer Body |
| | National Inward Investment Agency | Inward Investment Agency |
| | Indigenous Development Agency | Indigenous Development Agency |
| | Regional Development Agency | Regional Development Agency |
| | Private Interest Group | University (Technology Transfer) |
| | University (Technology Transfer) | University (Career Services) |
| | University (Career Services) | Institute of Technology |
| | Institute of Technology | National Training Agency |
| | National Training Agency | |

Source: ¹ CSO (2011)

² Forfás (2011)

³ CSO (2010)

⁴ IRO (2006)

Table 4: Evolution of institutional context across both subnational regions

| | ~1961-1970 | | ~1971-1990 | | ~1991-2010 | |
|---|---|--|---|---|---|---|
| | <i>Sigma</i> | <i>Gamma</i> | <i>Sigma</i> | <i>Gamma</i> | <i>Sigma</i> | <i>Gamma</i> |
| Subnational Institutional Policy | <i>Regional development agency with an industrial promotion remit</i> | <i>Regional development agency with a socio-economic and linguistic development remit</i> | <i>Rebranding of agency towards greater industrial development</i> <i>Disjuncture in industrial promotion remit with national inward investment agency</i> | <i>Rebranding of agency to reflect socio-linguistic development</i> <i>Unity of remit in socio-economic and linguistic development</i> | <i>Institutional complexity due to duplication of function with national inward investment agency</i> | <i>Institutional cohesion towards socio-economic and linguistic development</i> |
| Industrial Composition | <i>Export-oriented hardware firms</i> | <i>Local based firms, natural resource-seeking FDI</i> | <i>Industrial Concentration of Manufacturing Firms</i> | <i>Location of Large U.S. MNEs</i> | <i>Little coherent clustering</i> <i>Divestment of legacy companies in hardware and manufacturing to low-cost locations</i> | <i>Sectoral focus and burgeoning growth of clusters</i> |
| Education and Training Initiatives | <i>Activity role for national training agency for technical and vocational programmes</i> <i>No third-level university in the region</i> | <i>Activity role for national training agency for technical and vocational programmes</i> <i>Strong university with core academic focus</i> | <i>Continued and central role for national training agency</i> <i>Establishment of a university with close industry links</i> | <i>Continued and central role for national training agency</i> <i>Increased investment in industry links within university mandate</i> | <i>Reduced role of national training agencies</i> <i>Increase in university-based research initiatives and labour</i> <i>Strong links with industry through training and research</i> | <i>Reduced role of national training agencies</i> <i>Increase in university-based research initiatives and labour</i> <i>Strong links with industry through training and research</i> |

Source: Culliton, 1992; NESCC, 1975; Oireachtas, 2014; archival sources; interview data

Table 5: Framework of subnational institutional coordination with MNE investment

| <i>Coordination Mechanisms</i> | <i>Levels of Variation</i> | |
|--|---|--|
| <i>Subnational Institutional Structure</i> | <p><i>Proliferation</i></p> <p><i>Institutional density</i></p> <p><i>Lack of coherence</i></p> <p><i>Ambiguity of roles</i></p> | <p>↔</p> <p><i>Centralization</i></p> <p><i>Institutional unity</i></p> <p>vs</p> <p><i>Hierarchical structure</i></p> <p><i>Collaborative dynamic</i></p> |
| <i>Subnational Institutional Posturing</i> | <p><i>Regional</i></p> <p><i>Regional image</i></p> <p><i>Identity of region</i></p> | <p>↔</p> <p><i>Sectoral</i></p> <p><i>Clustering of investment</i></p> <p><i>Symmetrical pattern of sectoral concentration</i></p> |
| <i>Subnational Institutional Engagement</i> | <p><i>Professional</i></p> <p><i>Strong working relationship</i></p> <p><i>Formal, business networks</i></p> | <p>↔</p> <p><i>Personal</i></p> <p><i>Personal ties & connectivity</i></p> <p><i>Informal, social networks</i></p> |
| <i>Fostering Collocation Advantages</i> | <i>Increased complexity</i> | ↔ <i>Increased complementarity</i> |

Table 6: Illustrative qualitative data evidence for subnational variation

| Theme | Construct | Quotes |
|--|--|--|
| Subnational Institutional Structure | <u>Centralization vs Proliferation of Institutions</u> | <p>“We are a follower of what is happening with the national inward investment agency and the national indigenous development agency” (National Training Agency)</p> <p>“I have a view about FDI-related agencies... the proliferation of agencies, educational institutions, local government and development agencies is outrageous. All this proliferation is counterproductive” (Technology Transfer Unit, Educational Institution)</p> <p>“Most of our interaction with FDI would come through the national inward investment agency... We wouldn’t be the main player in dealing with companies on a day-to-day basis” (Local Authority)</p> <p>“There has been a failure of all the components of the (industrial) eco-system to get together. It requires getting some of the key people who make up the eco-system to come together and start singing from the same hymn sheet. There has been a failure of institutional coalition in that region” (National Inward Investment Agency)</p> <p>”There is certainly a sense of unified purpose in this region around investment... In the FDI space, the national inward investment agency are the leaders, but they have support from everyone else around the table, or anyone they call upon” (Local Authority)</p> <p>“I would agree there isn’t any ambiguity in this region. Each of us – the regional development agency, local authorities, our agency – we know our own brief. I can see that if you have different organizations, there is the potential for overlap, which sends out the wrong signals. But certainly here in this region, everybody is focused when we meet” (Local Authority)</p> |
| Subnational Institutional Posturing | <u>Sectoral vs Regional Agenda</u> | <p>“I suppose from a policy and strategic point of view, it would be more approached from a sectoral development point of view, rather than a regional development point of view or rather than developing a particular region. The regional structures within the subnational institutional agencies are mainly to support the development of certain locations.” (National Policy Advisory Body)</p> <p>“Coldly from an FDI perspective, there is no case to be made for having regional agencies in a small country like Ireland, dealing with FDI... It is counterproductive, it doesn’t work... You can’t explain that to an investor” (National Inward Investment Agency)</p> <p>“There is an opinion by leaders higher up the level, who are seeing Ireland as a knowledge map... and they are trying to get clustering going. The idea is that if you get enough companies in there, they will attract other companies in.” (Technology Transfer Unit, Educational Institution)</p> <p>“For us, it is slightly duplicated with some of the agencies. But we would have a much stronger link with the national fishery board,</p> |

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|---|--|---|
| | | <p><i>because they have much more presence in our market” (Swedish Aquaculture MNE)</i></p> <p><i>“Most of our work is now done through the project body, the national specialist area, rather than the regional office. Then the specialist overseeing the requirement would contact our regional office” (National Indigenous Development Agency)</i></p> <p><i>“We have suffered from having the RDA looking after us. I’ve heard anecdotal stories of there being a big black mark around our region. We’ve suffered, basically, because the RDA would have taken anything that came in and so we have a whole array of industries rather than other regions, which had a clear sectoral focus and agenda. We don’t seem to have an identity that would attract in other companies in that domain. We have a couple of medical device companies, we have a couple of chip makers but there is no identity to the region as such, and I think we have suffered from that. We haven’t got the clusters that the other regions have had. That has been a downside” (Technology Transfer Unit, Educational Institution)</i></p> <p><i>“At a regional level, I think there are no real strong structures, or governance structures that make that work. At the moment, it is more responsive and it is not necessarily proactive. Regions do vary in terms of the proactive side of things and some are more open than others. Sectoral concentration is more proactive” (National Policy Advisor Body)</i></p> |
| <p><i>Subnational Institutional Engagement</i></p> | <p><u>Professional Association vs Personal Relationships</u></p> | <p><i>“We have a strong working relationship built up over the years” (National Training Agency)</i></p> <p><i>“The national inward investment agency would take credit for that. We see that these (agencies) are key pieces of our toolbox to make a sale. So we make sure that we have all these different parties on board with us. I personally would keep them reasonably informed about what we are doing, what kind of pipeline we have” (National Inward Investment Agency)</i></p> <p><i>“We have better personal relationships here than in the Sigma region. I would suspect that over the last two or three decades, a competitive element has crept into that environment. The competitive element went back to personalities” (National Inward Investment Agency)</i></p> <p><i>“If I didn’t know Mr X, or if we didn’t get along, those investment visits wouldn’t happen. Sometimes we meet socially, other times it could be a business call” (Employer Association)</i></p> <p><i>“Our main conduit for the business sector is through the national inward investment agency... It is both formal and informal – the rep might pop in to have an informal chat, or if there was a specific issue he needed help with, he would ring us knowing we are only the other end of the phone” (Local Authority)</i></p> <p><i>“Yes, but I would see these as individuals as opposed to agencies. I see them [other subnational institutions] as cornerstones for the region so anything I can do in terms of support for the national inward investment agency, I will do” (National Indigenous Development Agency)</i></p> |