Managing Distance.
Small Firm Networks at the Geographic Margins.
Managing Distance
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Alexandre Dubois
Abstract

Small businesses located in the most sparsely populated and peripheral parts of Europe are frequently believed to be marginalised with respect to the processes of economic globalisation. This thesis proposes to explore an alternative perspective for understanding how small businesses that are located at the geographical margins engage with the globalised economy. Distance is no longer a purely physical phenomenon. Meanwhile, networks are considered to be the primary means for small firms to mobilise external resources and stay competitive. Acknowledging these conceptual shifts, this thesis explores how peripheral small businesses develop network configurations with multiple actors across multiple geographical scales to engage in the global economy.

This thesis consists of four papers and a cover essay. The four papers share the theme of the network interaction of small and medium-sized enterprises (SMEs) in peripheral regions and discuss this theme from various perspectives with different research questions. The papers use combinations of quantitative and qualitative analytical methods to empirically investigate the configuration of small firm networks in the case study of Upper Norrland in Sweden.

The cover essay introduces the overarching conceptual framework that is grounded in ideas from the seminal work of Granovetter on the social embeddedness of economic interactions and the ‘strength of weak ties’, and this essay contributes to the debate in geography on multi-scalar proximity dynamics. The empirical findings of the papers describe the collaborative and transactional forms of firm relations and describe the wide networks of SMEs in peripheral regions and the role of key actors—such as international customers or regional intermediary organisations—in bridging the local and extra-local dimensions of small firm networks. The conceptual contribution of this thesis corroborates the understanding that small firm development requires a balance between regional and international networks. This thesis also contributes to the debate on development policies for peripheral regions by offering insights into the manner in which institutional support for the design and implementation of open, flexible network arrangements may provide a leverage effect for small firm development.

Keywords: globalisation; periphery; small firms; embeddedness; extra-local networks; proximity
List of Papers

Paper I

Paper II

Paper III
Dubois, A. Business networks and the competitiveness of small manufacturing firms in the periphery, Manuscript submitted to Norwegian Journal of Geography.

Paper IV
Dubois, A. Brokering proximity - facilitating small firm networks in the Northern Periphery, Manuscript submitted to Regional Studies.
## Contents

Acknowledgments.................................................................................................................. 13

1. Introduction .................................................................................................................... 15
   Being small and peripheral in a globalised world ......................................................... 15
   Key concepts: distance and networks ........................................................................... 16
      Distance ....................................................................................................................... 17
      Networks ................................................................................................................... 18
   Shifting policies for changing geographies in the periphery ....................................... 19
      Sparsity, peripherality and polarisation ..................................................................... 20
      An outlook on development policies for sparsely populated areas ....................... 24
   Aim and focus ............................................................................................................... 25
   Structure of the cover essay ......................................................................................... 26

2. Networks and the periphery – a conceptual Framework ............................................. 27
   On agglomeration and cluster theory .......................................................................... 28
      On agglomeration and localisation economies ....................................................... 28
      The rise of cluster theory ......................................................................................... 29
      Cracks in the theory? ............................................................................................... 30
   Cluster policies in peripheral regions? ......................................................................... 32
   The new network paradigm in three debates ............................................................. 33
      Debate 1: core and periphery .................................................................................. 34
      Debate 2: the local-global dichotomy ..................................................................... 35
      Debate 3: new approaches to proximity .................................................................. 36
   How do small peripheral firms network? .................................................................... 37
      Social capital and rural networking ........................................................................ 38
      A historical account of ‘embeddedness’ ................................................................ 39
      When embeddedness becomes spatial .................................................................. 40
      The ‘lock-in’ syndrome and the ‘strength of weak ties’ .......................................... 41
      Previous findings on business networks and embeddedness in peripheral regions ................................................................................................................................. 44
      Summary: the stretching and embedding of networks of small firms in the periphery ................................................................................................................. 46

3. Methods and data ......................................................................................................... 49
   The research context: DERREG project ..................................................................... 49
   Methodological considerations .................................................................................... 50
      General considerations ............................................................................................. 50
Electronic survey and the gathering of perception data...............50
Firm sampling..................................................................................52
Analysing survey data........................................................................53
Other sources of information............................................................59
Limitations.......................................................................................60

4. Summary of Papers ..................................................................................63
   Paper I: Local Embeddedness and Global Links in Rural Areas:
   Euclidean and Relational Space in Business Networks...............63
   Paper II: A Spatial Perspective on Small Firm Networking from
   a Rural Periphery – The Case Study of Swedish Norrland.............64
   Paper III: Business Networks and the Competitiveness of Small
   Manufacturing Firms in the Periphery.............................................65
   Paper IV: Brokering Proximity - Facilitating Small Firm
   Networks in the Northern Periphery..............................................66

5. Concluding discussion...............................................................................69
   Empirical contribution.....................................................................69
   Conceptual contribution.................................................................71
   Policy relevance .............................................................................72

References............................................................................................75
List of Figures and Tables

Figure 1. The territorial context of Europe’s sparsely populated areas. .......22

Figure 2. Population change in settlements 2006-2011 (Spain 2001-2006) .................................................................23

Table 1. Main characteristics of responding firms........................................54

Table 2. Defining criteria for calculating the grading scale of the degree of internationalisation of inputs (purchases) and outputs (sales) of SMEs........................................................................................................56

Table 3. Globalisation typology of small firms resulting in four levels of globalisation of small firms (numeric value refers to the number of firms)..................................................................................................................................................56

Table 4. Degree of centrality measure of actor groupings involved in collaborative inter-firm networks..........................................................58
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1. Introduction

Being small and peripheral in a globalised world

Although the challenges faced by small peripheral firms have long been identified, their opportunities to engage in new forms of economic relations are not well known or well researched. The challenges result partly from locational disadvantages (such as a small market size that limits business opportunities or a long distance to travel to national and international markets) and partly from a historical socio-economic legacy (such as the absence of entrepreneurial skills or a monolithic industrial structure relying on nature-based industries) (Anderson et al., 2010; Young, 2010a; Moyes et al., 2012). For peripheral firms, long distances engender additional transaction and transportation costs (Malecki, 2007; Anderson et al., 2010), which make it more difficult for them to compete with firms that are located in more urbanized regions (Moyes et al., 2012).

In general, there is little research investigating the challenges and opportunities of small businesses that are located in sparsely populated peripheral regions (Lundmark and Pettersson, 2012, S42). The studies that have been undertaken tend to emphasise the negative effects of peripherality on the development trajectory of small firms. Indeed, based on the case of small rural firms in Scotland, Moyes argues as follows:

SMEs in rural communities tend to be smaller, less growth orientated and are slower at adopting innovation and technology. Additionally, SMEs in rural areas suffer from shortages of a skilled work force, with difficulties in finding appropriately skilled labour. Furthermore, there appears to be a lack of formal networking amongst the SME community within rural areas with a higher proportion of family-owned businesses. (Moyes et al., 2012, p136)

The long distance to large urban markets has been identified as a prime obstacle for the development of small peripheral firms (Anderson et al., 2010; Young, 2010a; Galloway et al., 2011) because the development of extra-local linkages is more difficult to undertake for these firms. However, the literature has indicated that such linkages are important because they stimulate the capacity of small firms to develop products and market innovations (Huggins and Johnston, 2009). The latter is perceived to be a key condition to assisting small peripheral firms in overcoming the lack of critical mass that result from the limited size of their local market (Varis and Lit-
Consequently, the investigation of small firm internationalisation has become an important focus for research on small business and entrepreneurship in smaller regions (Chetty and Blakenburg Holm, 2000; Fletcher, 2004; Nummela et al., 2006; Winch and Bianchi, 2006).

Reflecting on the meaning of peripherality in an era of globalisation is timely, as it is often argued that the technological progress that is inherent to globalisation has led to new threats and opportunities for small peripheral firms. Transportation infrastructure and modern logistics have significantly increased the connectivity of economic actors in both urban and peripheral regions. The development of the Internet and the online market has, for instance, enhanced the ability of peripheral firms to ‘overcome distance’ by easily accessing distant markets and interacting with their suppliers (Galloway et al., 2011).

Nonetheless, the effects that globalisation may have on the development of small peripheral firms are complex. Indeed, Kilkenny (1998) has suggested that lower transportation costs will ultimately increase the competition among places that share similar locational preconditions. Malecki (2007, p638) more recently concurred with this understanding when advocating that global competition essentially assumes the form of enhanced rivalry between places with similar profiles—what he calls ‘peers’—for attracting flows of different types (e.g., investments, workers or tourists). Hence, one effect of globalisation is that it has enhanced competition among peripheral regions rather than between urban and non-urban regions, as is often assumed in globalisation studies.

The endemic focus of peripheral firms on local trade and markets (Galloway et al., 2011) shows that a high degree of inertia is continuing to slow the process of the extra-localisation of peripheral local economies, as these economies still confront persistent organisational and cultural constraints. Geography remains a constraining factor for peripheral regions by limiting their external connectivity. Another important obstacle may be the persistent lack of entrepreneurial culture that is viewed as symptomatic of many of these regions (Coffey and Polèse, 1984; Tödtling and Trippl, 2005). In that respect, Moyes et al. acknowledged that firm networks have been found to be underdeveloped in certain peripheral and rural areas and often require ‘artificial’ encouragement through specific policy-induced support programmes (2012).

Key concepts: distance and networks

Two concepts are woven into this thesis: distance and networks. Whereas distance is one of the foundational concepts in economic geography (Pirie, 2009), the focus on networks as a primary mode of economic organisation is more recent in the field of economic geography and has gained a significant
amount of momentum in the wake of its 'relational turn'. The objective of this section is not to provide a comprehensive definition of the two phenomena but rather to highlight their key features from an economic geography perspective and thus to provide a clear understanding of how these phenomena are conceived and applied in the present work.

Distance

Distance commonly refers to the measurement of the geographical separation of two points located in Euclidean space that one could easily plot on a map. Historically, the notion has played a major role in economic geography in terms of understanding the reasons behind the observed uneven patterns of economic development concentrations in space.

In locational theory models, distance has been modelled in terms of transportation costs that are induced by the distance to be bridged between a production site and its market and between a production site and its suppliers (Essletzbichler, 2011). Thus, the decision for a firm to locate in a certain geographic area is the result of optimising this simple and rather rational trade-off. Subsequently, economic models in new economic geography theorised the effect of distance on economic relations in a rather simplistic manner, according to which “longer distance for transportation of goods” is “causing diseconomies of spatial agglomeration” (Fujita and Krugman, 1995, p 506).

However, the multiplicity of long-distance interactions enabled by economic globalisation processes and particularly the role of technological advancements in improving the ability of actors to interact over long distances (Rodriguez-Pose, 2011) have provided renewed conceptual grounds for understanding how distance is 'bridged' between economic actors. Although the predicted 'death of distance' (Cairncross, 1997) never actually occurred, there have been extensive academic debates theorising the interplay between the spatial and temporal aspects of economic interactions, especially with respect to the assumed diminishing role of distance as a friction force on the development of social-economic activities (Young, 2010, p842).

Hence, the purely physical and immutable conceptualisation of distance appears to be less pertinent and overly simplistic to explain the complex spatial patterns of contemporary economic development processes (Young, 2006; Garretsen and Martin, 2010; Rodriguez-Pose, 2011). In that respect, distance should be understood as a relational phenomenon that Young defined as “an active combination of natural, technological, and social elements” (2010, p842). This latter understanding radically changes how the relationship between actors and distance is conceived: for firms, distance has shifted from an exogenous development factor into a development endogenous factor that can be managed, coordinated and influenced by actors themselves. The necessary reconceptualization of distance as a relational process
is framed in greater detail in the first paper of this thesis. This matter raises questions relating to the traditionally weighty importance in the field of economic geography with respect to spatial proximity and clustering as the main modes of economic interactions and to the understanding of what ‘peripherality’ actually entails in contemporary times.

Networks

The 'relational turn' in contemporary economic geography has triggered an enhanced focus on the conceptual and empirical investigation of the structure, form and dynamic of relations between actors and their effects on the spatial organisation and location of economic activities (Yeung, 2005). The notion of network appeared in economic geography as an alternative way of understanding forms of economic organisations beyond the usual market and hierarchy perspectives (Taylor and Asheim, 2001). The market perspective claimed that economic relations between firms are established purely on the basis of transaction costs, transportation costs and arm’s-length ties, whereas the hierarchy perspective tended to conceptualise relations between firms in terms of power relations with a domination-subordination dichotomy. In a third alternative, the network perspective envisaged a firm as embedded in multiple socially constructed relations based on reciprocity and interdependence (Yeung, 2000; Taylor and Asheim, 2001). However, the primary criticism voiced by geographers highlights the rather heteroclite and little formalised use of the notion of network in the field (Glückler, 2007). Hence, a victim of its own success, the notion of network has become a vague concept used in various research contexts.

Peter Nijkamp (2003) identified two main categories of networks in economic geography. Networks may refer to either physical configurations supporting the greater connectivity and mobility of persons, goods or capital (such as aviation networks, road networks, railway networks or telecommunication networks) or to virtual networks channelling immaterial exchanges of information and knowledge (such as industrial clubs, knowledge networks or information networks).

A simple definition of business networks was propounded by Johansson and Quigley, who identify business networks as consisting “of nodes, and links connecting these nodes, in order to facilitate transactions among agents” (2004, p165). The investigation of business networks is of particular interest in the case of small firm development, as it offers new insights regarding how competencies and resources that are external to a firm are mobilised and coordinated to complement or substitute the firm’s internal capabilities (Malecki and Tootle, 1996).

Two main types of network linkages are emphasised in the literature on small firm networks, in which they are considered to be based on either transaction or collaboration relations (cf. Gelsing, 1992; Malecki and Tootle,
1996; Uzzi, 1997; Copus et al., 2003). Transaction networks correspond to market-based relations formed on the buyer-supplier relationships in which a firm is engaged, which may be performed in a fairly routinised manner. In contrast, collaborative ties correspond to processes that involve exchanges of information and knowledge transfer on matters as diverse as market, production or process development information and issues among firms that are based on kinship and acquaintance, and no financial compensation is typically involved. Although this dichotomy is useful from an analytical perspective, the finding that customers and suppliers are typically central sources of information for small firms (Van Hippel, 1988) reduces the significance of the distinction between transaction and collaborative networks in terms of relational process.

This latter point emphasises the need to understand business networks from a systemic perspective. Indeed, business networks cannot be considered as mere collections of dyadic (i.e., firm-to-firm) network linkages but rather as “an integrated and co-ordinated set of ongoing economic and non-economic relations embedded within, among and outside business firms” (Yeung, 1994 in Copus and Skuras, 2006). Hence, business networks consist of both inter-firm relations and extra-firm relations (Yeung, 2000), corresponding to relations with public or semi-public organisations that are involved in local economic development (e.g., development agencies, public authorities, trade and sectoral associations and educational centres).

A feature of business networks that has arisen in economic geography addresses the spatial configuration of networks. Glückler (2007) considered business networks to be purely relational (i.e., aspatial) constructs, whereas other researchers have acknowledged that they are spatial constructs because the actors involved can be characterised by their location (Bouba-Olga and Carrincazeaux, 2001; Andreosso-O’Callaghan and Lenihan, 2008). This debate is strongly related to the dual understanding of networks in terms of both process and structure. The former tends to emphasise the dynamic and evolving nature of networks, whereas the latter tends to bind networks into a particular geographical context, such as a region.

Shifting policies for changing geographies in the periphery

The present thesis uses the sparsely populated areas of Northern Sweden as a test lab for investigating the forms that small firm networks take when emerging from a sparse and peripheral environment. The introductory chapter emphasised the general conditions to which small peripheral firms are subjected, whereas this sections aims to contextualise the research both geographically (by describing the territorial context of the Norrland region) and
institutionally (by reviewing the main features of development policies that target peripheral regions).

Sparsity, peripherality and polarisation

An important research pathway for economic geographers undertaking small firm network studies has involved investigating the potential role of geography in shaping the spatial configuration of such networks. In this respect, the geographical context within which a firm evolves is understood essentially in terms of the physical distance to other potential partners and markets.

In the Upper Norrland case study, two spatial notions relating to the perception of remoteness are relevant: peripherality and sparsity. The first notion, peripherality, is often understood in terms of *macro*-remoteness, which corresponds to the perception that actors are far away in terms of physical distance and travel time from large agglomerations and dominant economic centres on the national (e.g., Stockholm, Gothenburg or Malmö) and continental (e.g., London, Paris or Frankfurt) scales. Second, sparsity corresponds to *micro*-remoteness, as it corresponds to features that are linked to a local, daily context for accessibility (i.e., commuting catchment areas) and access to personal and business services.

A recent measurement of sparsity recently applied assessed the number of persons reachable within a reasonable commuting distance from each location (Gløersen *et al.*, 2006). This indicator is termed ‘population potential’. Sparsely populated areas are places in Europe with low population potential (i.e., areas that are characterised by an absence of agglomerative advantages and a lack of economic critical mass). According to Gløersen *et al.* (2006), the latter is a critical point for understanding local economic development in those areas, as low market potential and limited labour-market resources act as significant constraints on economic development.

A recent pan-European study investigating ‘areas with geographic specificity’ has shown that although sparsely populated areas can be found in many countries across Europe, the territorial preconditions found in the northern parts of the Nordic countries, and thus in the case study region of Upper Norrland, are extreme in terms of both the physical distance to main markets and the small-size of local economies (Dubois and Roto, 2012). Figure 1 presents an empirical application of the population potential indicator. The threshold of 100,000 persons residing within commuting distance of an area was chosen to distinguish between ‘sparsely populated’ areas and other areas in Europe. Figure 1 also shows that there is a strong gradient in terms of population potential even among sparsely populated areas. Indeed, sparsely populated areas of Central Spain have much higher levels of population potential (between 50,000 and 100,000), whereas most of the sparsely populated areas of the Nordic countries, especially inland, have fewer than 5,000 inhabitants. Moreover, whereas sparsely populated areas of Spain are
within a three-hour distance of European agglomerations (Madrid, Barcelona and Valencia), the corresponding Nordic areas tend to be more than three hours away from the nearest regional centre (e.g., Umeå or Luleå) (Dubois and Roto, 2012). In addition, Figure 2 shows that most of the settlements in sparsely populated areas tend to stagnate or decline, whereas the larger coastal settlements tend to grow.

It is arguably the combination of sparsity and peripherality that engenders the crux of the local development challenge that was identified in the introduction: sparsity acts as a force that urges firms to reach out to extra-local markets, and peripherality acts to pull back and constrain these endeavours. The acuteness of these challenges will likely increase in the future as the polarisation dynamics cause the Upper Norrland region to become simultaneously more urban and more sparse (Wiberg, 2004). This increasing imbalance of the geographical context of Norrland may have significant implications for the scope of development policies that are created and implemented in the region, especially with respect to the ability of such policies to foster development processes equally in both the sparsely populated and urban areas of Norrland.
Figure 1. The territorial context of Europe’s sparsely populated areas

Although sparsely populated areas in Europe are characterised by low population potential, there are significant regional variations across Europe with respect to access to urban centres and gradients of population potential.
The analysis of recent demographic trends in Europe’s sparsely populated areas shows a strong tendency towards more polarised regional distribution with growing regional and local centres and the thinning-out of smaller settlements (Source: ESPON Geospecs).
An outlook on development policies for sparsely populated areas

Traditionally, regional policy in the European Union was conceived as a redistributive process and implemented through the design of support schemes and financial allocations. This type of regional policy is termed redistributive because it was originally viewed as a means to compensate the rather low development prospects of the least-developed European regions by injecting public funds into their regional economies. During recent decades, a paradigm shift witnessed the evolution of regional policy into regionalised tools for fostering growth and competitiveness across European regions and territories. In this new framework, the view of sparsity and peripherality has changed from being considered as a permanent geographical handicap that must be compensated through pan-European solidarity mechanisms to a geographic specificity with its own combination of weaknesses, assets and potential that must be more efficiently exploited and utilised in local development strategies (Gløersen, 2012). These territorial development strategies must consider both the ‘hard’ locational factors inherent in sparsity and peripherality (and exacerbated by demographic polarisation) and the ‘soft’ factors that are related to the socio-economic legacy.

In the specific case of peripheral regions, Nuur and Laestadius identified two main avenues that are pursued in such development strategies:

In the last few decades, the debate on regional development policies towards peripheral regions has focused on the two interrelated issues of, on the one hand, strategies to induce the emergence of small and medium-sized firms (SMEs) in place of the manufacturing industries that previously dominated the economic landscape of today’s peripheral regions and, on the other hand, the ability of information and communications technology (ICT) to allow peripheral regions to overcome the disadvantages of their position in terms of knowledge formation, which is accepted to be the genesis of regional development (see, e.g., McQuaid, 2002; Benneworth, 2004). (Nuur and Laestadius, 2010, p294)

These authors advance the view that contemporary development strategies for peripheral regions must trigger a shift in the local economic structure from a structure that is dominated by large firms and natural resources exploitation to a local economy based on flexible and innovative SMEs, with the access and use of ICT as an important precondition for supporting this transition. Moreover, the enhancement of network participation in peripheral regions, especially when based on cooperation and trust, is identified as a critical success factor for these regions (Nuur and Laestadius, 2010). For instance, when presenting the case of the Ljusdal community, Nuur and

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1 In the remainder of the thesis, we refer to ‘peripheral region’ in place of ‘sparsely populated and peripheral region’, which is our main focus, to lighten the text.
Laestadius claimed that cluster thinking need not be hampered by the lack of absolute critical size of the local business environment. Nuur and Laestadius (2010, p302) ultimately argued that the focus of development policies for peripheral regions should promote more entrepreneurial and dynamic attitudes towards economic development rather than focusing on compensating for this lack of critical mass.

Aim and focus

The aim of this thesis is to explore the emergence of specific forms of business networks developed by small peripheral firms to ‘manage distance’ and to foster their integration into wider patterns of economic exchanges.

A more implicit objective of this work is to develop a conceptual framework that facilitates an understanding of the reasons for and ability of peripheral actors to engage in economic relations with more or less distant actors and to project their activities outside of their traditional local markets. With this rationale, the thesis assumes the position that peripheral actors are not merely subject to but are also actively contributing to the unfolding of globalisation processes. Thus, the main focus of investigation is, as Young aptly phrased it, “how economic globalisation is performed by small actors on the geographic margin” (2010a, p838).

Although there is extensive research on what may be deemed the ‘core’ of globalisation (i.e., global production networks and global cities), the place of peripheral regions within wider economic networks has received much less attention. Some researchers have claimed that there is a greater need for research on the participation of geographic margins to fully understand the processes of economic globalisation (Hayter et al., 2003; Young, 2010a). This gap in the literature is even more surprising from a policy-oriented research perspective, as investigating the behaviour of firms and the link between firm and regional competitiveness is central to contemporary regional development policies.

This thesis aims to contribute in three different ways to the research on peripherality and small firm networking:

- **Conceptual:** Grounded in the notion of *embeddedness* and using insights from the *social capital* and *internationalisation* debates, this thesis argues that the local and extra-local dimensions of small firm networks must be conceived as feeding into one another with leverage effects reinforcing one another.

- **Empirical:** Empirical studies of small firm networks in peripheral regions tend to focus on investigating clustered forms of networks, i.e., relations between firms within a specific industry and/or a specific locality (e.g., Johannisson et al., 2002; Nuur and Laestadius, 2010; Lundmark and Pettersson, 2012). The point of departure of these
studies is that localised ties are the most beneficial for small firms. In contrast, our empirical evidence shows that extra-local ties, including international ties, are commonly enjoyed by small peripheral firms and that looser forms of geographical and institutional network arrangements may better fulfil the specific needs of small peripheral firms.

- **Policy relevance**: Because SMEs constitute the most common form of business found in peripheral regions and because national and European regional policies increasingly urge all regions to contribute to economic growth, this thesis is a timely contribution to the policy-making debate regarding the types of relational ties that small peripheral firms aim to establish and maintain, and it contributes to the discussion of how public intervention may support SMEs in such endeavours.

**Structure of the cover essay**

The introductory chapter (Chapter I) has addressed the two concepts (distance and networks) that frame most of the conceptual and empirical work in this thesis. This chapter also provided necessary insights into the geographical and institutional contexts that are inherent to peripheral economic regions in general—and to the case study region of Upper Norrland in particular—and presented the overarching aim of this thesis.

Chapter II elaborates on the conceptual framework of this thesis. The chapter begins by identifying the main features of agglomeration and cluster policy in mainstream contemporary economic geography and by identifying critical conceptual points for the consideration of territorialised network models as ‘blueprints’ for the development of business networks. The chapter continues by arguing that the changed perception of distance and the emergence of networked forms of economic organisations have fostered new insights into long-standing debates regarding economic geography. This chapter concludes by elaborating on a network-based approach to local development in peripheral regions that is based on the ideas of ‘embeddedness’ and ‘the strength of weak ties’ introduced by the American sociologist Mark Granovetter.

Chapter III provides useful information on the methods and data that are used as a basis for the empirical material that is presented in the four different papers.

Chapter IV provides a summary of the main results and findings from these papers.

Chapter V summarises the achievements of this thesis and explains how the thesis responds to the expressed aim and its subsequent research questions.
2. Networks and the periphery – a conceptual Framework

As Garretsen and Martin (2010) asserted in a recent article, the *raison d’être* of economic geography as a field of social sciences has been to pursue an understanding of the processes that may cause the observed tendency of economic activities to be concentrated in certain locations on different geographical scales (e.g., local, regional, national or global). A decade earlier, Malmberg and Maskell argued that economic geography is focused on matters of spatial clustering and agglomeration because these concepts are fundamental for exploring the role of geography in economic development patterns, such as proximity, place or milieu (2002).

With the increased urbanisation of societies worldwide and continued demographic polarisation trends within most developed countries, agglomerations are increasingly considered to be the primary sites of economic growth and societal development. Embracing the ideas of new economic geography, which theorised about the inter-regional and inter-sectoral processes underpinning spatial economic agglomerations that lead to regional imbalances at the national and international levels (Fujita and Thisse, 2009, p109), policymakers worldwide have appeared to promote these processes of concentration and densification (cf. European Commission, 2008; World Bank, 2009). In this new world order, territories outside of agglomerations are considered to be ‘economic deserts’ (Rodríguez-Pose, 2011, p351).

Simultaneously, some in the research community have voice the possibility that the absence of agglomeration economies need not hinder economic development, as spatially looser forms of economic interactions may provide similar types of benefits as agglomeration economies:

> [T]hese latter connections may lead to precisely the same external benefits that arise from agglomeration and for precisely the same reasons. Indeed, networks among economic actors dispersed over space may act as a substitute for agglomerations of actors at a single point, providing some or all of the utility gains and productivity increases derived from agglomeration. (Johansson and Quigley, 2004, p2)

The latter arguments provide the necessary conceptual room for envisaging the competitiveness of firms in peripheral regions in terms of mobilizing network resources and capital. This conceptualisation is a key starting point.
for the conceptual framework of this thesis because it assumes that development in peripheral regions may be possible through adapted relational arrangements despite the absence of agglomeration economies. The present conceptual framework aims to explore what forms these relational arrangements may take.

On agglomeration and cluster theory

This thesis does not aim to provide a comprehensive review of agglomeration and cluster theory. However, because of the dominant character of these theories in contemporary thinking with respect to economic geography, it appears necessary to review the theoretical foundations of these theories and to position the argumentation of this thesis vis-à-vis these theories.

On agglomeration and localisation economies

The term ‘agglomeration’ refers to the tendency of people and economic activity to be concentrated in space, such as in cities or industrial cores (Malmberg and Maskell, 2002). Understanding the processes that lead to the agglomeration of people and activities has been the core of modern economic geography. In this framework, spatial proximity is thought as the prime mechanism for establishing and maintaining social and economic interactions and is considered to be the main process leading to further agglomeration (Simmie, 2006; Rodríguez-Pose, 2011).

Agglomeration economies (i.e., the benefits derived by actors from clustering) can be categorised into two main types: urbanisation economies and localisation economies (Simmie, 2006). Urbanisation economies refer to the more general advantages that are derived from being located near a large and diverse pool of potential suppliers, customers and competitors, whereas localisation economies embody the mechanisms that drive firms that are evolving within the same or related industries to cluster in certain places (Malmberg and Maskell, 2002, p430).

The notion of localisation economies is central to Marshall’s conceptualisation of ‘industrial districts’, which is based on “a simple triad of external economies: the ready availability of skilled labour, the growth of supporting ancillary trades, and the development of a local inter-firm division of labour in different stages and branches of production” (Asheim et al., 2006, p5). Thus, the co-localisation of economic agents provides a source of increasing returns for individual firms (Asheim et al., 2006), as it helps to minimise the risks and costs of transactions and to maximise external economies in the production supply chain (Storper, 2002). Specifically, Malmberg and Maskell identified four main mechanisms leading to localisation economies:
First, there are benefits to be gained from the possibility for agglomerated firms to share the cost of certain collective resources among several firms. [...] Second, agglomeration makes for the development of a local labour market for specialized skills. [...] Third, firms in agglomerations can reduce their costs as inter-firm transactions and shipments are simplified when the distance between firms is negligible. [...] Fourth, localized clusters of similar and related firms form the basis of a local milieu that may facilitate knowledge spillovers and stimulate various forms of adaptation, learning, and innovation. (Malmberg and Maskell, 2002, p432-433)

Behind its ‘intuitive’ understanding, there have been two main criticisms of the ‘universal’ nature of agglomeration economies. The first criticism relates to the scalability of the concept. Similar conceptual frameworks are typically used to explain the spatial clustering phenomena that are observed at different geographical scales and for different types of activities on transnational, national and regional scales—from the intra-city and neighbourhood levels in a specific branch of industry to industrialisation patterns at the continental level (Malmberg and Maskell, 2002, p442-443).

The second criticism is the lack of knowledge regarding the causality of mechanisms related to agglomeration economies. Indeed, although the apparent correlation between the localisation of growth industries and spatial clustering has been emphasised, it remains unclear whether agglomeration is a resulting effect or a causal factor of this observed phenomenon (Martin and Sunley, 2003, p29).

The rise of cluster theory

In recent decades, the work of certain economists, geographical economists and economic geographers has provided a plethora of new concepts adding to agglomeration theory and making it more attuned to the specifics of contemporary economic development. The most emblematic of these theories, cluster theory, is the subject of the present section.

According to Martin and Sunley (2003), the success of cluster theory since its introduction by economist Michael Porter (1990; 1998) is less a result of its academic brilliance and explanatory power than because of the outstanding popularity that it has gained in policymaking circles worldwide. Indeed, Porter’s cluster theory has been applied, adapted and reconfigured at length by policymakers and stakeholders from different geographical and institutional contexts.

Porter’s original definition describes a cluster as follows:

a geographically proximate group of interconnected companies and associated institutions in a particular field, linked by commonalities and complementarities (1998, p199).
An important contribution of Porter’s cluster theory arises from the elaboration of a cluster model known as ‘Porter’s diamond’ (Porter, 1980). The diamond articulates the following main characteristics of a cluster model along reciprocal feedback loops: firm rivalry and strategy, factor input conditions, demand conditions, and related and supporting industries. In addition to these inter-firm processes, the diamond emphasises the potentially important role of government and chance in fostering these processes. Originally designed to be applied at the national level, the diamond model has been widely used for describing processes on the regional and local scales (Asheim et al., 2006).

According to several researchers (Malmberg and Maskell, 2002; Asheim et al., 2006), cluster theory extends agglomeration theory, as the emergence of clusters cannot be explained solely by classic transaction cost reduction arguments (see previous section). The main feature of clusters is the idea that firms that are co-located are also tightly networked and engaged in reciprocal relations to some degree (Simmie, 2006; Swann, 2006).

Indeed, according to Gertler and Wolfe (2006), it is the importance of social interaction between cluster members and its effect on creating enhanced institutional proximity (i.e., shared norms and values that promote the bonding process) between actors. According to other researchers, the strong relations between cluster firms create a “functionally defined industrial system” (Malmberg and Power, 2006, p56). Finally, the informal nature of contact among clustered firms creates a social environment that causes the exchange of information and knowledge to become a more fluid process (Malmberg and Power, 2006; Ter Wal and Boschma, 2011).

The latter point on knowledge exchanges and innovation has arguably emerged as the key argument advanced in the literature for differentiating ‘actual’ clusters from mere spatial gatherings of firms, which invoke localised collective learning as a necessary mechanism for the transmission of tacit knowledge (Crévoisier, 2004; Ter Wal and Boschma, 2011, p920).

Hence, cluster theory is grounded in the externalities that are linked to both spatial clustering and networking (i.e., strong linkages among actors). Furthermore, an important added value of the theory is its assumption of a causal relationship between cluster belonging and competitiveness (Martin and Sunley, 2003, p8). Furthermore, it may be conjectured that the enthusiasm for cluster theory relates to its theory-spanning character not only by spanning agglomeration theory (from economic geography) and social network theory (developed in economic sociology) (Martin and Sunley, 2003) but also by bridging network theory and competition theory (Porter, 1998).

Cracks in the theory?
The original all-encompassing, nearly ‘universal’ nature of cluster theory has raised numerous criticisms from economic geographers, who have promptly
identified several conceptual inconsistencies and noted the difficulty of finding empirical data that either contradict or confirm the theoretical claims. The present section presents three main avenues of criticism.

Clusters and Competitiveness
With cluster theory, Porter brought the issue of ‘competitiveness’ at the forefront of the debate on agglomeration economies applied at entities as diverse as individual firms and local business clusters to entire industries and nation-states (Martin and Sunley, 2003, p14). In addition to the criticism of being overly broad, critics have also noted that cluster theory develop a rather normative argumentation; its circular reasoning in connecting clustering with competitiveness as examples of clusters are often perceived as de facto success stories (Malmberg and Power, 2006, p57). Thus, it is unclear whether cluster thinking is a cause or effect of competitiveness (Simmie, 2006, p164).

Empirically, there are debates as to how much the link between clusters and competitiveness can actually be shown. Indeed, Swann (2006, p256) claimed that there is indirect evidence that firms perform better when located in clusters, whereas Simmie (2006, p173) argued that firm clustering may not lead to enhanced competitiveness for individual firms. In this debate, Lechner and Leyronas’ argued that “performance within clusters is highly distributed: clusters are made up of high- and low-performing firms” (2011, p12), implying that clustering may enhance the performance of some (but not all) clustered firms. The heterogeneity in terms of firm performance within clusters is an important reason for the relative lack of evidence of significant differences in the average performance within and outside of clusters (Lechner and Leyronas, 2011, p12).

Clusters and localised ties
Another significant characteristic of Porter’s cluster is that it corresponds to “a form of network that occurs within a geographic location” (1998, p2269). A criticism of that particular point is that it considers clusters to be “isolated islands in the economy” (Martin and Sunley, 2003, p18), which appears to contrast with the understanding that has been emerging from subsequent literature.

A main point of confusion originates from the normativity of cluster thinking that attempts to make the functional and geographical dimensions of firm networks coincide (Malmberg and Power, 2006). For instance, Simmie questioned the pertinence of the assumption in cluster theory regarding strong localised ties because agglomeration theory already explains the advantages of co-localisation without making this assumption (Simmie, 2006, 184). Furthermore, the body of empirical studies on clusters tends to show that there are rather modest levels of transactions occurring within clusters.
and that most clustered firms remain primarily integrated in supply chain linkages reaching outside of the clusters (Malmberg and Power, 2006, p61).

As a matter of consequence, critical voices have claimed that non-local ties and global connectivity actually play a major role in creating conditions for the competitiveness of clusters (Gertler and Wolfe, 2006; Malmberg and Power, 2006). Non-local ties are considered to be instrumental for firms to secure access to diverse areas of knowledge (Noo teboom, 2006, p147). Hence, one could argue that the success of clusters and their constituent firms is strongly linked to their capacity to channel and integrate relevant knowledge originating from various sources around the globe (Gertler and Wolfe, 2006, p222) and to their capacity to penetrate external markets (Simmie, 2006).

Thus, although the argument that intra-cluster firm relations represent a central competitive advantage may remain valid, the competitiveness of clusters is also strongly defined by their capacity to reach other regional economies. In that respect, Simmie (2006) argued that connectivity in terms of transportation, ICT and business networks is an important factor in explaining the competitiveness of certain clusters.

**Dynamics in Clusters**

The final point of criticism of cluster theory refers to its lack of consideration of dynamic aspects with respect to the functioning of clusters. Nooteboom argued that the implementation of different networking strategies is necessary during the life-cycle of a cluster. In his own words, “in early development there may be a relatively greater need for local embedding, whereas later development requires disembedding” (Nooteboom, 2006, p138). Moreover, cluster theory appears to support the idea that the success of clusters is self-perpetuating, but Martin and Sunley countered that these advantages “may erode with time” (2003, p18). Furthermore, certain authors have argued that the dominant focus on localised firm networks may lead to a ‘lock-in’ effect that may explain the decline of previously flourishing clusters (Martin and Sunley, 2003; Simmie, 2006). In fact, to explain the lock-in effect of clusters, Nooteboom (2006, p141) argued that mature relations between firms tend to diminish innovative capacity over time.

**Cluster policies in peripheral regions?**

Asheim *et al.* acknowledged that ‘policy-makers at all levels have become eager to promote local business clusters’ (2006, p3), and similar debate appear to have reached sparsely populated and peripheral regions. Indeed, there is an increasing focus by both the research and policy community in the Nordic countries regarding the possible relevance of implementing cluster policies even in sparsely populated and peripheral business environments.
In this framework, peripheral regions are considered to be poorly equipped as incubators of such clusters; the lack of critical mass, scarce physical infrastructure, thin business-organisational structures and the generally long distances to primary markets are perceived as deterrents to the development of cluster-based regional growth strategies (Tödtling and Trippl, 2005, p1210; Lundmark and Pettersson, 2012, S49).

This understanding that the geographic specificity of peripheral regions renders them ‘unfit’ for cluster initiatives is strongly anchored although cluster theory does not define how geographically proximate firms need in order to benefit from cluster economies (Simmie, 2006). For instance, Dubois and Roto (2012) have highlighted that local clusterings of manufacturing firms can be observed in many sparsely regions (particularly in the Upper Norrland). Although these clusterings are less extensive than in urbanized regions, previous studies have shown that they may nonetheless be important to the dynamism of the local economy (Johannisson et al., 2002; Nuur and Laestadius, 2010).

Furthermore, the idea that peripheral regions are endemically ‘uncompetitive’ and that they cannot incubate high-growth businesses remains pervasive in this discourse. Several studies have argued that these regions actually may host firms that are highly innovative and competitive, although they are less numerous and found less commonly in such regions compared with more urbanised contexts (Huggins and Johnston, 2009; Lagendijk and Lorentzen, 2007; Virkkala, 2007).

In that respect, more recent work has often argued that policies supporting the development of networks of peripheral firms should focus on the establishment of extra-local—including international—ties rather than on the scarcity of local opportunities for networking. Nonetheless, policymakers ‘endemically’ continue to overlook the importance of non-regional and global connections for the development of peripheral regions (Huggins and Johnston, 2009).

The new network paradigm in three debates

More than two decades ago, Ward and Hite (1998) acknowledged that rural development theorists had not been able to propose scientific models that predicted how globalisation would affect the development of rural and peripheral regions. The sheer diversity of these territories in terms of geography, human capital and natural assets makes such a task unlikely to be achieved. However, this lack of formalization in the rural growth debate should not be considered a sign that no growth prospects can be found in such territories.
Although urban regions are likely to continue to outperform rural and peripheral regions on average because they benefit from agglomeration economies, it is important to note that the corollary to 'urban growth' is not necessarily *de facto* 'rural decline'. I argue that development in peripheral regions must be reconceptualised in relation to their own potential rather than being compared to urban regions.

In that respect, the network approach to local development in the periphery that I advocate and frame in this thesis elaborates on the “network capital” (Huggins and Johnston, 2010) that may be required by peripheral actors to engage in economic interactions in wider economic spaces. This rationale tends to be consistent with Ó Riain’s understanding that the mobilisation of relational assets has been a central mechanism for enabling regions to catch up to more established regions (Ó Riain, 2011).

In this thesis, I argue that the extent to which such a network approach is a paradigm shift for the development of peripheral regions can be assessed through the recent effects of network thinking on three founding debates in economic geography: the understanding of what is *core* and what is *periphery*, the interplay between the *local* and *global* scales, and the idea that *proximity* refers to more than simply physical nearness.

**Debate 1: core and periphery**

The relationship between core and periphery is one of the founding themes of modern economic geography (Fujita and Thisse, 2009). Although it is an inherently geographical concept (Crone, 2012), ‘peripherality’ is considered a spatial theory that links geography and economic processes (Anderson, 2000). Recently, Crone (2012) claimed that the traditional notion of peripherality focused on the idea that firms in peripheral regions are disadvantaged because of the long distance to main markets and the higher transportation costs for the shipment of their products.

The traditional understanding of peripherality tends to portray it in terms of structural geographical structures, whereas Crone (2012) has suggested that a more contemporary view of this debate must acknowledge that peripherality is a *relational concept*, as ‘the periphery’ must be defined in relation to something else. In that respect, Anderson (2000) advocated that peripherality refers to the condition of being at the edge of a communication system and to the perception of being marginalised and distant from decision-making centres. This understanding of the core-periphery debate in terms of asymmetric power relations (Dicken, 2007, p11) has been strongly advocated in globalisation studies in which metropolitan areas and transnational corporations are perceived as dominant centres of command and control of the global economy (e.g., Sassen, 1991; Soja, 1999; Dicken *et al.*, 2001; Dicken, 2007). In this framework, the periphery is understood as “subordinate to the core” (Anderson, 2000, p92). This perception of subordination is
reinforced by the tendency for rural and peripheral regions to be primarily defined *vis-à-vis* a single, central market (Ward and Hite, 1998).

The peripherality of certain rural regions is also thought to arise from their traditional economic profiles in nature-based industries. For Lorentzen, even large firms in peripheral regions have a weak position in global production networks because of their role as commodity providers feeding global production chains, despite their worldwide reach. In that framework, SMEs that are located in peripheral regions appear to be in an even weaker position, as the local economy is often dominated by larger actors in the capital-intensive nature-based commodity industries (Young, 2010a).

In conclusion, I argue that the emergence of a network paradigm has shifted the understanding of peripherality from referring to the ‘special’ relationship that a periphery enjoys with a single core market to the capacity of peripheral actors to position themselves in more complex webs of relations originating from multiple (more or less) distant markets.

**Debate 2: the local-global dichotomy**

The traditional perception of geographical scales is based on the integration between politically and historically defined territorial units in vertical and hierarchical order (e.g., international, EU, nation-state, region). The unfolding process of globalisation has changed this understanding by additionally emphasising the importance of horizontal relations (i.e., relations among territories that are considered to be at identical hierarchical levels, such as nations, cities or regions). Hence, the global level takes form through a multiplicity of relational processes intertwined with geographical scales that are produced and reconfigured within sub-global spaces (Brenner, 1999, p44.). Thus, one characteristic of contemporary globalisation is the process of *regionalisation* of economic exchanges, i.e. globalisation ‘in patches’.

Indeed, concomitant to the perception of the weakening influence of the nation-state level, the ‘region’ has been thoroughly debated in economic geography as the main locus of global competitiveness (See Storper, 2002; Nijkamp, 2003; Ó Riain, 2011). In that respect, the *local* aspects of economic development may be related to features such as “labour, entrepreneurship, material and immaterial infrastructures, social culture and institutional framework” (Lorentzen, 2008, p535).

A network-based approach assumes that socio-economic processes are no longer contained within specific territorial boundaries but instead are stretched and embedded within wider socio-economic and political relations (Scott, 2000; Lagendijk and Oinas, 2005; Lorentzen, 2008). The latter arguably makes “any singular geographical scale […] an inadequate means for analysing the global economy because what we have in reality is a complex intermingling of different geographical scales (global, regional, national and local) in network formation and network processes” (Dicken *et al.*, 2001,
p95). As a result, according to Rodríguez-Pose, “the investigation of networks has profoundly changed how economic development is thought as neither an endogenous nor an exogenous process but a process that makes irrelevant the ‘tyranny’ of scales” (2011, 349).

Thus, the local milieu acts as an interface between global processes and individual economic actors, for instance, by fostering the dissemination of new external knowledge within the local economy (Lorentzen, 2008, 535). Endowed with different assets, different local milieux will thus respond differently to similar global economic forces (Scott, 2000, p10).

With respect to networks, it is increasingly understood that regional networks are functionally intertwined with international or global networks. Indeed, Lorentzen offers the following explanation:

[Integration into international and global networks plays an essential role in the continual renewal of regional networks. Yet small firms would not have access to global knowledge resources without the regional network. (Lorentzen, 2008, p539)]

In the case of peripheral regions, this capacity to collectively develop regional networks as necessary platforms to access extra-local resources is often underscored.

**Debate 3: new approaches to proximity**

The introductory chapter emphasised that the understanding of distance has progressively shifted from a purely physical notion to the complex interplay of social, technological and geographical factors (Young, 2006). Combined with recent theoretical advancements exploring new time-space relationships (Harvey, 1989), this shift has changed the perception of economic geographers with regard to the dominance of physical proximity in shaping economic interactions (Rodríguez-Pose, 2011). According to Torre (2008), this shift has resulted in the relaxation of the constraint of geographical proximity.

Emerging from this debate, two main modes of proximity dynamics are conceptualised, *geographical proximity* and *organised proximity*: “while geographical proximity is defined as spatial distance between actors, both in an absolute and relative meaning, organised proximity is associated with the closeness of actors in organisational terms” (Boschma, 2005, p63). Although this understanding addresses what proximity entails, it also simultaneously adds more complexity to the term *organised proximity* because it covers a multiplicity of relational processes (Torre and Gilly, 2000; Torre and Rallet, 2005):
Boschma (2005, 62) distinguishes between four such conceptions: (i) cognitive distance, related to exchanges in tacit knowledge; (ii) organizational distance, measuring the interdependencies among firms; (iii) social distance, or the similarities and differences in social context; and (iv) institutional distance, which is regulated by the existence or absence of similar institutions (Boschma, 2005, 63–65). (Rodríguez-Pose, 2011, p349)

Organised proximity is considered to be relational in nature because it is considered detached from spatial configurations (Rallet, 2002; Rodríguez-Pose, 2011) The interplay between geographical and organised proximities has received much attention recently in the economic geography literature. For instance, Lorentzen suggested that organised proximity processes are especially valuable among actors in the absence of geographical proximity, in which the former processes may substitute for the latter (2008, p541). Boschma (2005) acknowledged that geographical proximity may play a complementary role in inducing social, organisational, institutional and cognitive proximity. This understanding was subsequently reprised by Rodríguez-Pose (2011), who suggested that physical distance can no longer be considered the dominant mechanism shaping the geography of economic interactions, although it remains an important driving factor.

Another level of interplay between geographical and organised proximities arises when there is a temporal dimension to these dynamics. Indeed, Torre (2008) argued that the advantages arising from both organisational proximity and geographical proximity can be channelled through the organisation of occasional meeting places, such as expos, conferences or seminars, which he labels as temporary geographical proximity.

The debate on proximity dynamics indicates that relational processes may provide important leverage for economic development in the absence of geographical proximity, which is the case in sparsely populated and peripheral regions. Indeed, for Lagendijk and Oinas, this understanding that organised proximity “can work at a distance endorses the notion of a network-based topology of space” (2005, p16).

How do small peripheral firms network?

The spatial configurations of business network propounded in the economic geography literature—whether talking about clusters, industrial districts, territorial innovation systems or regional milieux—may be generally labelled as territorialised network models. All of these configurations invoke strong localised networks and partnerships as the main drivers of local economic development. Although some important nuances may exist between these models, they are similar in the sense that they consider that the existence of agglomeration economies—in the form of a dense pattern of co-
localised firms—a necessary precondition for the development of efficient business network structures. Thus, these network arrangements become a means of optimising the economic development potential that is inherent to agglomeration. Meanwhile, the literature acknowledges the importance of new knowledge that is sourced from extra-local partners as a key driver of growth and innovation for local firms, as shown in the previous section. Thus, it becomes clear that social relations and economic exchanges should no longer be considered to be occurring within defined territorial boundaries, whether in a locality, a region or even a nation.

In this thesis, I argue that these territorialised network models do not provide a relevant conceptual framework for understanding the emergence of network arrangements in peripheral regions because they rely on co-localisation as a necessary condition. In a seminal contribution, Murdoch (2000) acknowledged that the establishment of a network paradigm for rural development must consider the particular nexus of economic, social, cultural and natural conditions that are found in peripheral and rural settings. A fundamental difference is that the absence of agglomeration economies in peripheral settings indicates that network arrangements in those regions must compensate for the lack of geographical proximity (rather than consolidating it, as in denser contexts) by developing relational processes that are compatible with the existing socio-economic structures and characteristics of these regions. With the notion of embeddedness as a conceptual thread, the framework developed in this section considers the salient characteristics that a network approach to development in peripheral regions must feature.

Social capital and rural networking

A classic observation in the case of rural and peripheral regions is the importance of social capital as a founding element of the rural ‘competitive advantage’. Social capital can be considered an eminently relational concept, as it emerges from the web of social relations that occur within a particular milieu and acts as a common community resource. Indeed, the high level of trust and ‘bonding social capital’ is believed to characterise the network behaviour of rural communities (Young, 2010a) among local actors due to the tightly knit nature of rural social relations. In a recent review of the concept that focused on its relevance for regional development issues, Edward Malecki highlighted two particular features of social capital:

[S]ocial capital explicitly represents the overlap between the social and economic spheres of human life (Malecki, 2012, 1025)

[T]he importance of social capital for development and growth requires a focus on the group rather than on the individual […] it is unclear on which scale or level of analysis we should focus. (Malecki, 2012, 1025)
The first feature emphasises the nature of social capital as the interplay between the social and economic spheres of personal interactions emerging from these territories, whereas the second feature highlights the abilities of social capital to foster organisational proximity, to enhance group building among peripheral actors and to have a foreseeable effect on development and growth processes. An important conclusion deriving from social capital is that social relations may prove to be an important asset for rural communities as a basis for the development of wider economic interactions. However, social capital (much like cluster thinking) tends to focus primarily on strong local relations within the community without addressing the issue of how it can be used by actors to reach out to extra-local business communities, which is the main development challenge in peripheral regions, as discussed earlier.

In my understanding, a network approach must be grounded on a notion that both conceptualises the importance of social relations in economic development processes and enables these processes to occur either in close proximity or over long distances. The notion of embeddedness fulfils these requirements.

A historical account of ‘embeddedness’

Hess (2004) traced the notion of embeddedness to the work of Polanyi, an economist. Although never explicitly referring to ‘embeddedness’, Polanyi established the main elements of its theoretical foundation grounding subsequent research work using the notion. A central argument raised by Polanyi was that trade relations based on reciprocity are embedded in relations that involve trust and confidence between actors (Hess, 2004). The subsequent understanding was that market societies are influenced by non-economic institutions and that market relations are socially and institutionally constructed (Hess, 2004).

The notion of embeddedness became popular four decades after the seminal works of Polanyi as a result of the work of the economic sociologist Mark Granovetter, whose core contribution lies in his skilful conceptualisation of the articulation between social structures and economic behaviour in modern market societies. He argued that transactions do not occur in a ‘social vacuum’ in the sense that trade relations are never fully anonymous (Granovetter, 1985, p495). Granovetter (1985, p490) further argued that social relations and inter-personal networks are important to generate trust among trade partners and may discourage attempts at malfeasance (i.e., by showing that economic relations would not be reciprocally beneficial). Thus, for Granovetter, market relations are achieved through a combination of transactional and collaborative processes. This observation will prove to be especially important for the methodology of this thesis.
Following Granovetter’s work, the notion of embeddedness gained significant momentum in the business-organisational literature. The contribution of this strand of social sciences to the embeddedness debate has been its efforts to clarify this rather fuzzy notion. In that respect, Hess acknowledged that “one of the best-known categorisations that extended Granovetter's allegedly narrow concept is Zukin and DiMaggio's (1990: 15-23) classification of cognitive, cultural, structural and political embeddedness mechanisms” (2004, p171). By conceptualising the different mechanisms through which ‘social’ and ‘economic’ aspects interact more thoroughly, this strand of literature makes a substantial qualitative contribution that has advanced the theoretical foundation of embeddedness in social sciences.

Another important contribution to the business-organisational literature is providing original empirical works that investigate the problem of embeddedness in situ. Such seminal studies include the investigations of inter-firm interactions in the New York garment industry performed by Brian Uzzi (1996; 1997), who advanced an important conceptual argument linking the structure of networks and the level of performance of organisations, i.e., positive to a certain point (see the section on ‘lock-in’ syndrome). Moreover, Uzzi argued that a balance between embedded (i.e., collaborative) ties based on strong social interaction and arm's-length (i.e., purely trade-based) networks is necessary to reach higher levels of organisational performance (Uzzi, 1997). In my understanding, these observations of embedded processes within defined geographical contexts have become a stepping stone for the subsequent inclusion of embeddedness in the field of economic geography.

When embeddedness becomes spatial

The original conceptualisation of embeddedness by Granovetter did not make reference to space, geographical scale or place. Nonetheless, Lorentzen acknowledged that “geographers have been inspired by notions of embeddedness as a way to link economy and place” (2008, p537). According to Hess (2004), the ‘spatial turn’ of embeddedness corresponds to attempts by economic geographers to make the notion ‘fit’ with previous spatial theories that have been developed in the field, which has been problematic from a conceptual vantage point.

According to Hess (2004, p173-174), the earlier use of embeddedness in economic geography, including the work of Dickens and Thrift (1992), aimed to articulate the role of the historical socio-economic legacy of a territory in affecting the manner in which local actors ‘do business’, whereas subsequent works have spatialized the socially embedded aspect of economic interactions by conceptualising such processes as territorially-bounded phenomena.

Hess deems that the latter point has resulted in an “over-territorialisation of the notion in the sense that it proposed local networks and localised social
relationships as the spatial logic of embeddedness” (2004, p174). This focus on the local inertia of embeddedness appears to correspond to the nexus of three core theoretical arguments made in economic geography: the importance of localised external economies of scale in production systems, the role of local institutions and regional cultures as incubators and facilitators of economic development, and the role of spatial proximity as a condition for trust building among actors (Hess, 2004, 174).

Hess (2004) argued that this rather normative interpretation of embeddedness arises from the eagerness of geographers to make the network embeddedness and territorial embeddedness phenomena coincide spatially. First, network embeddedness characterises the structure of the set of relations in which an organisation is engaged, regardless of any type of geographical localisation or association of networked actors (Hess, 2004, p177). Network embeddedness, which represents the overall engagement of an actor in networks, has a spatial manifestation that may also frequently extend outside of the local context, as, in the words of Nijkamp, “many networks may have a local character, but may also extend towards global levels” (2003, p402).

Second, territorial embeddedness considers the extent to which an organisation is anchored in relations with actors located within defined geographical places (Hess, 2004, p177). Territorial embeddedness is closely related to the milieu approach that has been developed in regional sciences. For instance Michael Storper acknowledged that “the milieu is something like a territorial version of […] the ‘embeddedness’ of social and economic processes” (2002, p203). However, even this territorial understanding cannot be reduced to its local or regional manifestation. Indeed, firms also belong to regional, national and even international territories (e.g., the EU) that shape their behaviour through shared norm and values—sometimes to an even greater extent than the local context. This view is corroborated by Lagendijk and Oinas, who remarked that “events, relationships and processes that are relevant for local development may actually take place on scales other than the local” (2005, p11).

As a main criticism to this local bias of the embeddedness discourse, Lorentzen argued that the relatively strong momentum of territorial innovation theories in modern economic geography and regional sciences, which tends “to equal the embeddedness of firms in networks with the territorial location of firms and networks” (2008, p537), has contributed to “an exaggeration of the role of local-regional networks and a disregard of possible networks and linkages on other spatial scales” (2008, p537).

The ‘lock-in’ syndrome and the ‘strength of weak ties’
An important legacy of the business-organisational literature on embeddedness discussed earlier in this chapter relates to the identification of a cor-
relation between the degree of embeddedness of an organisation (e.g., a firm) and its level of performance. In particular, Uzzi’s study of embedded relations among firms in the garment industry in Manhattan concluded that embedded relationships between firms are beneficial for firms and organisations up to a certain point (Uzzi, 1997); thus, beyond a certain level, embedded relationships become counter-productive to organisational performance.

In the same vein, Nooteboom subsequently argued that optimal cognitive distance, which measures the degree of alignment of thoughts, experiences and practices between different organisations, is reached at the maximum of an inverted U-shaped relationship between learning performance and cognitive distance (Nooteboom, 2006). Large cognitive distance typically induces novelty, whereas cognitive proximity fosters trust and enhances the likelihood of inter-organisational relations to jointly achieve shared goals (Nooteboom, 2000; Nooteboom, 2004).

In economic geography, this phenomenon has been known as the risk of ‘lock-in’ (Hess, 2004; Boschma, 2005). Similar to earlier works by Uzzi and Nooteboom, Boschma (2005) argued that the relationship between firm embeddedness and innovative performance takes the shape of an inverted U-shaped curve: “the more embedded economic relationships, the better the economic performance of a firm up to a certain threshold, after which adverse impacts arise because of lock-in” (Boschma, 2005, p70). He conjectured that the risk of lock-in results from an endemic lack of openness of regional actors that are overly inward looking, which weakens their learning and innovative capacity and diminishes their ability to engage in strategic development steps (Boschma, 2005, p70).

The theoretical arguments that are necessary to avoid the ‘lock-in’ dead-end were introduced by Granovetter himself in a work preceding the work on embeddedness. According to Atterton in his 1973 article titled ‘The strength of weak ties’,

Granovetter distinguishes between strong ties characterized by high levels of trust and weak ties which provide more valuable, non-redundant information. [...] Weak ties can act as bridges between existing network groups and Granovetter (1973, p. 1378) concludes that weak ties are indispensable to individuals’ opportunities (the ‘strength of weak ties’ argument). (Atterton, 2007, p229)

The risk of lock-in is caused by network configurations that are based only on strong ties, which eventually leads to knowledge redundancy and group thinking (Knoben and Oerlemans, 2012). Granovetter’s idea of ‘the strength of weak ties’ does not dismiss the importance of strong ties; rather, this notion emphasises the need for a network to combine both types because their respective benefits tend to complement and reinforce one another. An important understanding with respect to this strong/weak dichotomy of net-
work ties is that it does not relate solely to the intensity of the relations but also pertains to the distinctive nature of each network type (i.e. a strong tie is not always enjoyed with high frequency).

In that respect, Lorentzen clarified the fundamental distinction between the two types of network ties and the distinct benefits that they bring to organisations:

Strong ties are intense relations between agents of great similarity. They offer great depth of knowledge but little diversity of knowledge. Only weak ties can offer the access to diverse information. (…) Empirically, it has been shown that weak signal networks trigger technological innovation (Julien et al. 2004: 266–267). Weak tie networking can, therefore, be considered an important entrepreneurial behaviour. (…) So, weak tie networking and the use of non-redundant ties is crucial for the sourcing of new and unique information, which again is beneficial for the development and renewal of the firm. (Lorentzen, 2008, 541-542)

In particular, the assumed benefits of weak ties relate to ‘clique-spanning’ (Glückler, 2007) potential, which refers to the capacity to bridge across existing coherent, socially embedded groupings of actors. Again, Granovetter’s conceptualisation of strong and weak ties lacked a spatial connotation. Even economic geographers such as Glückler (2007) and Lorentzen (2008) have emphasised that strong and weak ties cannot be categorised in spatial terms, as both may be either spatially near or distant.

However, the debate on ‘lock-in’ and ‘the strength of weak ties’ was spatialized by economic geographers by creating a conceptual dichotomy between strong local ties and weak extra-local or global ties, which is artfully captured in the ‘local buzz and global pipelines’ metaphor (Bathelt et al., 2004). In those terms, the spatial ‘lock-in’ that results from excessively strong local or regional embeddedness may benefit from the positive externalities that are induced by trans-local linkages (Hess, 2004; Boschma, 2005), particularly by enabling firms to capture global opportunities (Oinas, 1997).

The latter understanding constituted a springboard for conceptualising the benefits of non-local ties as a means of improving the competitiveness (Oinas, 2002) and innovative capacity (Knoben and Oerlemans, 2012) of firms. Lorentzen extended this argument by stating that “network research suggests that important network ties are neither close nor local, as suggested by the territorialising innovation theories. Most beneficial are network ties that are weak and global”2 (2008, p542).

Lorentzen’s bold claim grasps an important conceptual shift in how business networks are conceptualised and investigated empirically. Hence, the

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2 The emphasis in the quote has been added by the author of the current study.
extent to which a firm is able to establish extra-local ties, i.e., to “reach out to the global” (Young, 2010, p839), is considered to be a strong driver for understanding firm development. This ability is arguably even more critical in the case of small peripheral firms, as these firms theoretically have the weakest position with respect to external connectivity.

Previous findings on business networks and embeddedness in peripheral regions

Not surprisingly, the notions of business networks and embeddedness have arguably played an important role in reviving the conceptual debate on peripherality in economic geography by providing a new vantage point from which to analyse how peripheral actors are situated in contemporary economic processes:

Previous research has emphasized the issue of embeddedness as a contributing factor in business process (Whittington, 1992; North and Smallbone, 1996; Uzzi, 1997; Dacin et al., 1999). Jack and Anderson (2002) suggest that embeddedness plays an integral role in entrepreneurial processes for rural small businesses. Moreover, local embeddedness, through accumulation of local knowledge and assessment of opportunities, can offset limitations of the environment (Chell and Baines, 2000) and equips rural businesses with stronger contextual competitive advantage and sustainability (Jack and Anderson, 2002). (Anderson et al., 2010, p47)

[T]he notions of embeddedness and business networks are attractive to rural scholars because they establish both that place matters and that rural places possess special assets that allow them to overcome disadvantages of location and size. (Young, 2010b, p394)

However, few studies have actually undertaken the task of empirically investigating such networks. The existing studies (Atterton, 2007; Fløysand and Sjøholt, 2007; Young, 2010a, 2010b) have typically focused on the dual objective of confirming that local embeddedness is a central socio-economic process bringing together local economic agents in peripheral regions and of understanding how peripheral actors are able to establish extra-local ties over long distances despite their locational disadvantages.

These studies indeed confirm the importance of locally embedded relations as a developmental condition in peripheral regions. For instance, in her study of local business communities in the Highlands and Islands, a peripheral and sparsely populated region of Scotland that is comparable to Northern Scandinavia (see Dubois and Roto, 2012), Atterton (2007) found that the most remote communities, compared with other communities, tend to develop networks that are essentially turned towards informal, locally-based social relations and to have a less open attitude towards the establishment of extra-local ties. Observing that remote communities tend to be less vibrant
than communities that are closer to regional centres, Atterton (2007, p233) conjectured that remote communities are more likely to be subject to the risks of over-embeddedness and lock-in and that an overly embedded rural milieu may prove detrimental to firm development in the long term.

Given these results, studies investigating small firm networks in peripheral contexts have conjectured that the establishment of extra-local ties is beneficial for generating new opportunities and leverage effects for peripheral local economies (Fløysand and Sjøholt, 2007; Young, 2010a, 2010b). In a study of Northern Norway, Fløysand and Sjøholt emphasised that extra-local trade networks have “made the industry global in its embeddedness” (2007, p233). This phrase from Fløysand and Sjøholt is central to the elaboration of this thesis’s conceptual framework: the internationalisation of trade networks is accompanied by a move towards the geographical expansion of socially embedded relations emerging from peripheral regions.

These studies tend to show that the local and extra-local dimensions of business networks are not opposed to one another; rather, such studies emphasise their complementary functions in small firm networks and the significance of their interplay. Thus, Fløysand and Sjøholt (2007, p233) defined an entrepreneurial peripheral region as a region with actors that are simultaneously locally embedded and oriented towards larger external markets. Following the same line of reasoning with empirical results from western Canada, Young (Young, 2010b, p405) conjectured that local networks and resources are instrumental in enabling firms to penetrate and maintain their presence in extra-local markets. This notion acknowledges the idea that the successful extra-localisation of small peripheral firms is strongly related to the efficacy of local relational processes. In a reverse argument, Young (2010b, p403-404) posited that locally oriented firms have also developed important extra-local networks that enable them to retain their competitive edge in local markets.

Clearly, these studies emphasise that network strategies in peripheral regions must efficiently combine the traditional advantages of localised networks with an extra-local orientation. In practice, the findings indicate that the traditional cohesiveness characterising peripheral communities must coincide with a more open attitude towards external—particularly international—partnerships. Thus, the capacity of small peripheral firms to mobilise adequate relational resources originating from multiple geographical contexts becomes central to achieve this goal. As a matter of consequence, Atterton advocated the following:

[Networks can] help to overcome some of the disadvantages of a peripheral location by serving as a means of achieving economies of scale (for example, in accessing distant markets) or as a source of support, information and knowledge (especially given the absence of more formal information sources in many sparsely populated areas). (Atterton, 2007, p230)
However, studies of small firm networking in peripheral regions have also noted that considerable challenges remain for the future. For example, in his survey of local businesses in Port Hardy (Canada), Young (2010a, p852) showed that a great majority of SMEs are not interested in or capable of engaging with extra-local markets. This conclusion is consistent with the perception of firms in peripheral regions as traditionally inward looking with respect to the local market despite its small size and limited economic prospects. Young’s conclusion is that physical distance and relative geographical isolation still act as an obstacle for rural SMEs to grasp global opportunities and to gain wide access extra-local markets (2010a, p852). Moreover, he argued that connections to distant markets are deemed tenuous, asymmetrical and too demanding in terms of internal managerial resources to be sustained over a longer period of time even by those small peripheral firms that actually manage to penetrate such markets (Young, 2010a, 851).

Thus, the geographical expansion of small firm networks towards extra-local markets may thin out even more with their limited network capital. In addition, because it is difficult to determine a priori which ties may become the most beneficial (Nooteboom, 2006), it may be challenging for small peripheral firms to identify such key extra-local ties on their own.

In contrast with Young’s conclusion, which may appear to support the unsustainable nature of small firm networks in peripheral regions, I view the current situation as a call to engage a broader debate on the potential role of public or semi-public organisations in facilitating and supporting the emergence and maintenance of inter-firm networks that reach out both within and outside of such regions (cf. North and Smallbone, 2006; Huggins and Johnston, 2009; Huggins and Williams, 2011; O’Gorman and Evers, 2011). This perspective is more widely discussed and analysed in the fourth paper.

Summary: the stretching and embedding of networks of small firms in the periphery

A recurring question in economic geography asks whether globalisation has triggered an irreversible process of disembedded local economies (cf Hess, 2004). However, it has recently become more widely understood that economic interactions remain deeply embedded in particular places and territories although they indeed extend across geographical space and over longer distances (Dicken et al., 2001). For small peripheral firms whose locally embedded relations clearly remain important, embeddedness should be understood as a multi-local phenomenon (i.e., the combined process of the geographical stretching and re-embedding of firms into distant local economies through increased extra-local ties). In this thesis, this process is termed trans-local embeddedness (cf. Paper I).
This geographical stretching of business networks does not indicate that localised networks have become obsolete and irrelevant. In his work aimed at framing the relational processes of small peripheral firms, Young appropriately claimed that “globalisation starts at home” (2010b, p405). This affirmation concisely emphasises the idea that local networks remain an important asset that small peripheral firms must mobilise to reach external markets and consolidate their competitiveness. For instance, there is evidence that information and communication technologies (whose developments are emblematic of contemporary globalisation) improves the ability of economic agents to coordinate initiatives and exchange information locally before fostering their connectivity to extra-local markets (Galloway et al., 2011). Thus, the present research considers global engagement and local embeddedness as intertwined relational processes for the development of peripheral regions.
3. Methods and data

Each paper of this thesis contains a thorough description and explanation of the specific methods and data that are used in the empirical analysis. To provide a broad empirical basis for the thesis, each paper uses different empirical methods that investigate various dimensions of small firm networking in the case study region. This section proposes a more general overview of these methodological considerations underlying this work.

The research context: DERREG project

The main bulk of data used in this thesis was compiled in the framework of the DERREG (Developing Europe's Rural Regions in the Era of Globalization) project, which was financed by the European Commission through its research programme, the 7th Framework Programme under the socio-economic sciences and humanities strand. The project was coordinated by Professor Michael Woods (Aberystwyth University, Wales), and it combines research teams from seven different countries over a three-year period (2009 to 2011). The project was structured along four thematic working packages: one on business networks, one on international migration, one on environmental impact and one on governance and learning regions. The empirical work was conducted in 10 case studies of rural and peripheral regions across Europe.

The Nordregio team consisted of Andrew Copus (senior research fellow), Moa Hedström (research assistant) and myself. Nordregio assumed the overall responsibility on WP1 (global engagement and local embeddedness of rural businesses), which involved the work of elaborating the conceptual framework to be used in the WP, developing the methodological aspects of the work, supporting the WP partners when applying the methodology, confirming the quality and consistency of the empirical material and findings across the case studies, and conducting the empirical work for the Swedish case study. In this specific WP, the empirical work was performed in five case study regions: Upper Norrland (Sweden), Jihomoravský kraj (Czech Republic), Goriška (Slovenia), Westerkwartier (the Netherlands) and Alytus (Lithuania). The empirical material that is presented in this thesis has been produced in that framework.
Methodological considerations

General considerations
The methodology developed in the framework of WP1 of the DERREG project involved the collection of empirical material during three sequential stages:

- The first stage aimed to collect data on the networking behaviour of small firms through an electronic survey. For each of the five case study regions, the quantified objective was to collect 50 usable questionnaires.

- The second stage aimed to provide more qualitative information on the motivations and benefits of network behaviour by performing semi-structured face-to-face interviews with approximately 15 of the SME managers who responded to the survey. As didactic support for the interview, each manager was required to complete an actor map aimed at plotting and assessing the importance of the firm’s main network partners with respect to their type (e.g., national customer or small regional firm) and the perceived benefits of the relationship (e.g., improving market position or developing new products).

- The third stage aimed to provide a greater contextual understanding of small firm networking. This objective was achieved by interviewing key representatives of public organizations facilitating and supporting the small firm networking in each region (approximately 10 brokers interviewed).

Electronic survey and the gathering of perception data
As discussed above, data measuring the networking behaviour of small firms were gathered using an electronic questionnaire. The questionnaire directly targeted SME managers. The objective for such a survey was to obtain a first-hand assessment of the extent to which small firms are engaged in different types of relations with other actors. Whereas such perception data may be considered subjective, its added value is derived from its capacity to characterise and empirically assess what Shaw (2006) designated as the relational environment within which small firms are embedded.

The survey data explore the structure of business networks and ignore organisational, temporally and spatial dynamics related to network creation (cf. Hoang and Antoncic, 2003). Insights regarding such dynamics are compiled using qualitative data (interviews and mind maps) with selected actors in subsequent stages of the empirical work.

The use of either postal or electronic surveys as a means of collecting “self-reported data” (Lechner and Dowling, 2003) at the firm level to pro-
vide a quantitative assessment of the intensity of network ties is standard procedure in business-organisational and economic geography studies (e.g., Malecki and Veldhoen, 1993; Huggins, 2001; Johannisson, Ramirez-Pasillas and Karlsson, 2002; Oerlemans and Meeus, 2005; Lechner, Dowling and Welpe, 2006; Andreosso-O’Callaghan and Lenihan, 2008; Huggins and Johnston, 2009; Huggins and Johnston, 2010). If this procedure generates first-hand accounts of the networking activities of small firms, the generalization of these results to the wider regional context is more difficult, as it is extremely sensitive to the size and representativeness of the sample of firms. Hence, the results generated by the survey must be benchmarked with the results of previous studies and corroborated through more qualitative processes (e.g., interviews).

In the questionnaire, the managers were not asked to assess the extent of their ties with specific individual actors but rather to assess their network engagement with a predefined set of ‘actor groups’; this procedural aspect is a clear departure from previous studies. Thus, rather than focusing on the networking story of firms with identified partners, the questionnaire facilitates an exploration and analysis of the existence of a meta-structure of small firm networking in the case study region.

In practical terms, business networks were analysed according to three main strands of network behaviour: transaction linkages, collaborative ties, and relations with institutional and societal actors. These three types cover the full range of network linkages that are typically encountered in the literature. Transaction linkages were characterised in terms of market penetration. Collaborative ties were introduced as non-market relations with other firms (SMEs, large firms and multinationals) with the overall aim of exchanging information that feeds into the product and market development of firms. Institutional and societal actors comprised educational centres, public agencies, trade or sectoral organisations, and business consultants.

Within each category, the actors were grouped according to geographical scale (regional, national, European and other parts of the world). The distinction among the regional, national and international spaces has recently been used in research whose scope is similar that of this thesis (cf. Doran et al., 2012). The perception data assumed two primary forms in the questionnaire. With regard to buyer-supplier relations, the respondents were asked to assess the percentage of the volume of their respective sales and supplies that originated from the four geographical scales that we defined. With respect to collaborative relations with other firms and with societal actors, the respondents were asked to assess these relations on a Likert-type scale graded from 0 (no interaction) to 4 (highly intense interaction). A Likert-type scale enables the measurement of a qualitative phenomenon that may be difficult to measure otherwise. Likert-scale results also have the advantage of being computable in a straightforward manner using adapted descriptive or exploratory statistical methods (see the following sections).
The design of the survey is aligned with the intentions expressed in the conceptual framework, as it aimed to illustrate the importance of different proximity dynamics in small firm networking. Indeed, the use of a design cross-feeding network types with geographical belonging emphasises the role of spatial proximity in the development of business networks compared with other considerations, such as the type of actors with which relations are established and maintained, much in line with the approach adopted by Knoben and Oerlemans (2012, p1007). Furthermore, the use of the Likert-type scale for measuring the ‘intensity of interaction’ provides an assessment of the degree of organised proximity between a firm and its business partners. In that respect, the methodology used in this thesis focuses on matters that are at the core of the discipline of economic geography.

**Firm sampling**

In the Upper Norrland case study, the sampling of firms was performed in two steps.

The first step of the empirical study was to identify the sample of firms that would be targeted by our electronic survey. An extract of the Affärsdata database of registered Swedish limited companies was performed using the following criteria: each firm should have more than five and fewer than 50 employees (to match the EU definition of small companies), and the firm must be located in sparsely populated or ‘near-urban’ municipalities of the counties of Västerbotten and Norrbotten (using the nomenclature of the former Swedish Agency for Rural Development, Glesbygdsverket). All activity sectors, except agriculture, were considered in this sampling method. As a result, using the Affärsdata database of registered Swedish businesses, we established a list of 800 businesses corresponding to the requirements.

The second step consisted of directly contacting the firms by telephone to request their participation in the survey. SME managers were contacted until the number of returned questionnaires reached 50, which was the quantified objective established for this particular phase of the DERREG project, after which the research team ceased contacting new firms. The companies that were contacted were those for which the product offering was deemed to be potentially non-local (i.e., companies with the potential to sell products or services outside of the local economy). This criterion is important because the current study is particularly interested in investigating the extent to which small peripheral firms are able to reach out to extra-regional actors. The contact process followed the same pattern: each company manager was contacted until the number of returned questionnaires reached 50, which was the quantified objective established for this particular phase of the DERREG project, after which the research team ceased contacting new firms. The companies that were contacted were those for which the product offering was deemed to be potentially non-local (i.e., companies with the potential to sell products or services outside of the local economy). This criterion is important because the current study is particularly interested in investigating the extent to which small peripheral firms are able to reach out to extra-regional actors.

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3 I would like to express my gratitude to Moa Hedström and Tania Stålhe (who were both research assistants at Nordregio at that time) for their valuable assistance in collecting the questionnaires, as they exerted substantial effort in contacting the firms by phone.
asked if he/she would like to participate in the survey; if the manager agreed, then the electronic survey was sent to his/her email address. Ultimately, 47 useable questionnaires were collected for the Upper Norrland case study.

The number of responses used as the basis for analysis in the different papers varies because of the changing scope of each paper: Paper I provides an international comparison of the responses collected in five rural regions of Europe (N=187), Paper II analyses the full sample of useable questionnaires received from Norrland (N=47) and Paper III analyses the responses provided by manufacturing small firms in Upper Norrland (N=26).

Although the sample size for the Upper Norrland case study may seem limited, Huggins and Johnston, in their survey-based analysis of business networks in England, emphasised that 50 observations is standard in survey-based and case study-oriented network studies (2009, p 237-238).

Table 1 presents the main characteristics of the responding firms. The vast majority of the sampled firms are independent firms (i.e., they are not part of a larger industrial group). The most represented activity sectors are manufacturing (26); agricultural, fishing and forestry (6); and professional, scientific and technical Activities (4). Small firms (between 10 and 49 employees) constitute 60% of the firms, whereas 35% are micro firms (fewer than ten employees), and 5% are medium-sized firms (50 or more employees). With respect to the structure of ownership, the majority of firms (39) are independent, five firms belong to national groups and two firms belong to international groups.

Analysing survey data

The collection of survey data using a continuous numerical scale facilitates the treatment of the information using statistical analytical methodologies. Although such a procedure is not uncommon in the field of economic geography (cf. Oerlemans and Meeus, 2005; Andreosso-O’Callaghan and Lenihan, 2008; Huggins and Johnston, 2009; Doran et al., 2012), it is more common in the business-organisational strand of the small firm network literature (cf. Coviello, 2005; Lechner, Dowling and Welpe, 2006; Lechner and Leyronas, 2011; O’Gorman and Evers, 2011). Such an approach integrating the interpretation of qualitative data with its analysis using statistical methodologies is known as a mixed-method research approach (Coviello, 2005). The relevance of such an approach for investigating small firm networks is that it draws on the benefits of qualitative methods that emphasise specific relational processes of network formation and maintenance and on quantitative approaches that highlight structures and patterns in network behaviour.

Three of the four papers in this thesis use quantitative methods that have been applied to the collected network data. Each paper describes the most
important features of each method, and a concise overview is provided below.

Table 1. Main characteristics of responding firms

<table>
<thead>
<tr>
<th>Firm Code</th>
<th>Location</th>
<th>Founded</th>
<th>Ownership</th>
<th>Branch*</th>
<th>Firm Size***</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE_01*</td>
<td>Pajala</td>
<td>1953</td>
<td>Independ. Firm</td>
<td>Agriculture, Forestry and Fishing</td>
<td>Small</td>
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<tr>
<td>SE_02</td>
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<td>National Group</td>
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<td>Small</td>
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<td>Small</td>
</tr>
<tr>
<td>SE_05</td>
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<td>Independ. Firm</td>
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<td>Small</td>
</tr>
<tr>
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<td>Independ. Firm</td>
<td>Construction</td>
<td>Micro</td>
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<tr>
<td>SE_07</td>
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<td>Independ. Firm</td>
<td>Professional, Scientific and Technical Activities</td>
<td>Micro</td>
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<tr>
<td>SE_09</td>
<td>Lycksele</td>
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<td>Independ. Firm</td>
<td>Wholesale and retail trade</td>
<td>Micro</td>
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<tr>
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<td>1985</td>
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<td>SE_11</td>
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<td>1940</td>
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<td>Transport and Storage</td>
<td>Small</td>
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<td>1850</td>
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<td>Agriculture, Forestry and Fishing</td>
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<td>Manufacturing</td>
<td>Small</td>
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<td>Micro</td>
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<td>Micro</td>
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<td>National Group</td>
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<tr>
<td></td>
<td></td>
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<td>nication Activities</td>
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<tr>
<td>SE_39</td>
<td>Kalix</td>
<td>2004</td>
<td>Independ. Firm</td>
<td>Information and Commu-</td>
<td>Micro</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>nication Activities</td>
<td></td>
</tr>
<tr>
<td>SE_40*</td>
<td>Arvidsjaur</td>
<td>1939</td>
<td>Independ. Firm</td>
<td>Manufacturing</td>
<td>Small</td>
</tr>
<tr>
<td>SE_41</td>
<td>Storuman</td>
<td>1986</td>
<td>Independ. Firm</td>
<td>Manufacturing</td>
<td>Micro</td>
</tr>
<tr>
<td>SE_42</td>
<td>Kalix</td>
<td>1997</td>
<td>Independ. Firm</td>
<td>Manufacturing</td>
<td>Micro</td>
</tr>
<tr>
<td>SE_43</td>
<td>Haparanda</td>
<td>1987</td>
<td>International Group</td>
<td>Manufacturing</td>
<td>Micro</td>
</tr>
<tr>
<td>SE_45</td>
<td>Gällivare</td>
<td>2010</td>
<td>Independ. Firm</td>
<td>Manufacturing</td>
<td>Micro</td>
</tr>
<tr>
<td>SE_49*</td>
<td>Lycksele</td>
<td>1995</td>
<td>National Group</td>
<td>Information and Commu-</td>
<td>Small</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>nication Activities</td>
<td></td>
</tr>
<tr>
<td>SE_50*</td>
<td>Lycksele</td>
<td>1987</td>
<td>Independ. Firm</td>
<td>Agriculture, Forestry and Fishing</td>
<td>Small</td>
</tr>
</tbody>
</table>

* Interview with manager performed  
** According to the European NACE 2.2 Classification  
*** According to the EU DG Enterprise definition. Micro: from 0 to 9 employees; Small: from 10 to 49 employees; Medium from 50 to 249 employees

**SME index of globalisation (Papers I and II)**

The SME index of globalisation is a typology of SMEs based on the degree of internationalisation of their sales and purchases. This index was originally developed by the OECD (1997) and has previously been applied to small firms in peripheral regions of Europe (Herdzina *et al.*, 2004). In this thesis, an adapted version of this index is used to fit the transactional data that were collected in the survey.

For each firm, the degree of internationalisation of inputs and outputs is calculated using the market penetration data at different geographical scales (i.e., regional, national, European and beyond) that were collected from the survey. This degree of internationalisation is graded on a five-stage scale, from low to high, according to the criteria presented in Table 2.
Table 2. Defining criteria for calculating the grading scale of the degree of internationalisation of inputs (purchases) and outputs (sales) of SMEs

<table>
<thead>
<tr>
<th>Degree of internationalisation</th>
<th>Criteria used relative to percentages of inputs (outputs) sourced from different geographical contexts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>&gt;80% of inputs (outputs) sourced regionally</td>
</tr>
<tr>
<td>Medium Low</td>
<td>&gt;50% of inputs (outputs) sourced regionally AND &lt;50% of inputs (outputs) sourced from other parts of Sweden</td>
</tr>
<tr>
<td>Medium</td>
<td>&gt;50% of inputs (outputs) sourced from other parts of Sweden AND &lt;10% of inputs (outputs) sourced from other parts of Europe</td>
</tr>
<tr>
<td>Medium High</td>
<td>&gt;30% of inputs (outputs) sourced from other parts of Sweden AND 10%-30% of inputs (outputs) sourced from other parts of Europe AND &lt;10% of inputs (outputs) sourced outside of Europe</td>
</tr>
<tr>
<td>High</td>
<td>&gt;30% of inputs (outputs) sourced from other parts of Europe AND &gt;10% of inputs (outputs) sourced outside of Europe OR &gt;40% of inputs (outputs) sourced outside of Sweden</td>
</tr>
</tbody>
</table>

Table 3. Globalisation typology of small firms resulting in four levels of globalisation of small firms (numeric value refers to the number of firms)

<table>
<thead>
<tr>
<th>Index of globalization</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regional firms (N=6)</td>
<td>Degree of internationalisation of BOTH inputs AND outputs from low to medium low</td>
</tr>
<tr>
<td>Domestic firms (N=12)</td>
<td>Degree of internationalisation of inputs from low to medium AND Degree of internationalisation of outputs as medium; OR Degree of internationalisation of outputs from low to medium AND Degree of internationalisation of inputs as medium;</td>
</tr>
<tr>
<td>Internationalised firms (N=19)</td>
<td>Degree of internationalisation of inputs from low to medium AND degree of internationalisation of outputs from medium high to high; OR Degree of internationalisation of outputs from low to medium AND degree of internationalisation of inputs from medium high to high</td>
</tr>
<tr>
<td>Strongly internationalised firms (N=10)</td>
<td>Degree of internationalisation of BOTH inputs AND outputs from medium high to high (N=10)</td>
</tr>
</tbody>
</table>

For each firm, the two resulting scales (i.e., a scale for firm inputs and a scale for firm outputs) are crossed to produce a typology of small firms (see Table 3). The following four categories can be identified:

- **Strongly internationalised firms**: firms with predominantly international customers and suppliers
- **Internationalised firms**: firms with an important share of either input or output networks sourced outside of Sweden
- Domestic firms: firms with their sales or purchases predominantly sourced in Sweden but outside of Upper Norrland
- Regional firms: firms with most of their sales and purchases with partners in the Upper Norrland region

(Social) Network Analysis (Paper I)

According to Ter Wal and Boschma,

Social network analysis techniques have been applied in an effort to examine the structure of interaction in regions and geographical clusters. […] Hence, social network analysis is viewed as a promising tool for future directions in regional research. That is, now that it is possible to empirically assess the structure of networks, new possibilities have arisen to investigate inter-organizational interactions and their evolution over time in a more quantitative manner. (Ter Wal and Boschma, 2009, p740)

Geography studies using social network analysis techniques (e.g., Lechner and Dowling, 2003; Giuliani, 2007) in the empirical methodology often aim to map the structure of relations existing among a set of identified firms, typically within a geographically defined industrial district or cluster. This methodology was considered to be unsuitable in the context of this research, as it overlooks the importance of ties that are developed with actors outside of local boundaries which can hardly be easily listed. Indeed, the ‘cluster-like’ application of SNA techniques makes the prime assumption that localised network linkages are those that are most central to the business networks of small firms. However, in the conceptual framework that has been developed in this study, it has been argued that extra-local ties may have an important leverage effect for firm and regional competitiveness, particularly in peripheral regions.

Thus, the collection of survey data aims to assess the strength of the ties that each firm has developed with a set of predefined sets of actors. For each sampled firm, it is possible to produce an ego-centred network. According to Wasserman and Faust, an ego-centred network consists “of a focal actor, termed ego, as set of alters who have ties to ego and measurements on the ties among these alters” (2004, p42). In this study, each responding firm is a focal point or ego.

As discussed in this chapter, the ‘alters’ that were chosen for this study were not specific individual actors but rather ‘generic’ actor groupings encompassing both private and public types of organisations: SMEs, large firms, multinational enterprises, trade associations, public agencies, educational and research centres, and business consultants. These groupings were spatialized by allowing each actor grouping to be further divided into regional, national, European and outside-Europe sub-categories. This proce-
dure enabled the coverage of the full spectrum of possible network linkages by small firms.

The compiled dataset enabled the mapping of the ego-centred network of each firm. However, the primary benefit in using network analysis is its capacity to map the meta-structure of network linkages among all sampled firms.

Hence, the network datasets for each firm were combined and analysed in the two following sequences:

1. A co-occurrence matrix was created. The rows and columns of the co-occurrence matrix correspond to each possible combination of actor type and geographical origin. For instance, in the case of inter-firm collaboration, the number of possible combinations or ‘events’ is 12 (e.g., *regional SME, national SME ... European multinational, world multinational*). For each cell in the resulting 12*12 co-occurrence matrix, the degree of association between the two intersecting ‘events’ is calculated (for instance, between regional SME and national SME). This assessment is made for each possible combination. Thus, the quantified figure in each cell is an indication of the frequency with which two types of actor groupings are commonly associated in the business networks of our sampled firms.

2. The co-occurrence matrix was used to calculate the degree of centrality of each actor grouping. The degree of centrality provides a measured ranking of actor groupings based on the extent to which they are typically associated with other possible actor groupings. Hence, an actor grouping becomes central when consistently represented in the firms’ business networks.

<table>
<thead>
<tr>
<th>Centrality Ranking</th>
<th>Centrality Degree</th>
<th>Actor grouping</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>947</td>
<td>National SMEs</td>
</tr>
<tr>
<td>2</td>
<td>908</td>
<td>Regional SMEs</td>
</tr>
<tr>
<td>3</td>
<td>757</td>
<td>National Large Firms</td>
</tr>
<tr>
<td>4</td>
<td>683</td>
<td>Regional Large Firms</td>
</tr>
<tr>
<td>5</td>
<td>587</td>
<td>European Large Firms</td>
</tr>
<tr>
<td>6</td>
<td>581</td>
<td>National MNEs</td>
</tr>
<tr>
<td>7</td>
<td>513</td>
<td>European SMEs</td>
</tr>
<tr>
<td>8</td>
<td>438</td>
<td>Regional MNEs</td>
</tr>
<tr>
<td>9</td>
<td>434</td>
<td>European MNEs</td>
</tr>
<tr>
<td>10</td>
<td>347</td>
<td>World MNEs</td>
</tr>
<tr>
<td>11</td>
<td>336</td>
<td>World SMEs</td>
</tr>
<tr>
<td>12</td>
<td>296</td>
<td>World Large Firms</td>
</tr>
</tbody>
</table>

*Table 4. Degree of centrality measure of actor groupings involved in collaborative inter-firm networks*
Table 4 presents the results of the calculation of the degree of centrality for the entire sample of firms in the case of collaborative inter-firm linkages. The actor grouping that is the most consistently and highly represented across individual firm networks is the national SME grouping, followed by regional SMEs and national large firms. The results emphasise the domestic focus of inter-firm collaborative ties.

Non-parametric statistical methods (Paper III)
As noted previously, the compilation of quantified perception data measuring the engagement of small firms in networking activities with different types of actors opens the (empirical) door for the investigation of possible correlations with other statistical data characterising the firms (e.g., economic accounts, firm size, indicators of geographical location).

In this study (because of the relatively small sample), the choice of the statistical analysis method is critical. Based on their study of the networking behaviour of small firms in England, Huggins and Johnston suggested that “in light of the sample size, non-parametric statistical methods were utilised in the analysis, since smaller samples are less likely to be normally distributed. Non-parametric techniques provide robust results for smaller samples and are less likely to provide spurious results” (2009, p238). Non-parametric methods are adapted to this type of small-scale statistical analysis because they do not presume the a priori form of the relationship between variables (e.g., linear). Thus, the result of the statistical analysis is not ‘distorted’ by the incompleteness of the dataset.

In Paper III, Spearman’s correlation coefficient is used as a non-parametric statistical method to explore the eventual correlation between indicators assessing different structures of business networks and variables describing firm performance (i.e., turnover growth and profitability), firm characteristics (e.g., age, number of employees and total turnover) and firm location (i.e., population potential and distance to urban centres).

Other sources of information

Interviews (Papers II and IV)
Interviews were used to gain a more detailed understanding of the qualitative character that is inherent in the identified network behaviour of firms and to corroborate the results from the survey, for instance, by confirming the central position of certain types of actors (e.g., regional SMEs) over other types.
Two sets of interviews were performed:

- Data from interviews with 14 SME managers (see Table 1) were used in Paper II as a subset of our responding firm sample (the questionnaire respondents were asked if they would be willing to participate in this second phase). The interviews were semi-structured, and the objective was to understand how the actor types that they have identified as the most ‘central’ in their business network actually affect the operations of these firms (using categories developed by Oerlemans and Meeus, 2005, p97);

- Interviews with representatives of nine public or semi-public actors involved in facilitating firm networking in Norrland were used in Paper IV. These interviews were also semi-structured.

Financial and economic accounts (Paper III)

Access to Affärsdata, the database of registered Swedish businesses, offered the opportunity to collect a wide range of financial and economic indicators for our sample of firms over a four- to five-year period of time (depending on the firm) from 2006 to 2011. The data collected included the year of registration, the number of employees, annual turnover, annual net profit and financial solidity. These financial and economic accounts enabled the elaboration of dynamic indicators measuring firm performance (e.g., yearly turnover growth rate) and additionally serve as control variables.

Limitations

I must mention two main limitations with respect to the empirical methods developed in this thesis and its resulting findings, which are (1) the relatively small size of the sample of firms that have responded to our electronic survey and (2) the use of quantitative analytical methods to treat qualitative data (even if collected in numerical form using a Likert scale).

Thus, following the argument by Huggins and Johnston (2009, p237), the aim of this empirical work is not to produce a model of network behaviour that is generalizable to all small peripheral firms but rather to explore the forms that business networks may take in a peripheral region and to use this knowledge as a basis for comparison with other regions endowed with similar geographic specificity.

The focus and scope of the empirical work, which targets a specific population of firms (i.e., SMEs located in the non-urban municipalities of Swedish Norrland), increased the difficulty of contacting these firms, particularly

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4 The interviews with SME managers were conducted by Moa Hedström during the summer of 2010; the interviews with network brokers were performed by Moa Hedström and the author during the winter of 2010-2011.
because most of the work was performed from Stockholm through telephone and email contacts as well as occasional onsite visits.

Because of the limitations of the survey work, the findings have been consistently benchmarked and compared to findings from previous studies considering similar regions throughout the world (e.g., Norway, Scotland or Canada) and triangulated with the understanding emerging from the compiled interview material to test the coherence of the findings.
4. Summary of Papers

This section offers a summary of the four papers that are appended to this thesis. The summaries focus on the main arguments and findings developed in each paper; a more overarching discussion of these findings, in connection with the expressed aims and objectives of the thesis, is provided in Chapter VII (Concluding Discussion) of the cover essay.

The four papers in this thesis investigate firm networking in Norrland using different vantage points; thus, each paper is specific in its method of conceptually and empirically approaching the aim that is expressed in this thesis.

The main scope and focus of each paper can be summarised by the following research questions:

- **Paper I**: In what ways do the configurations of business networks vary among rural European regions?
- **Paper II**: Are trade and collaboration networks two distinct strands of business networks with two distinct geographies? What actors play an active role in integrating them?
- **Paper III**: Are the spatial and functional configurations of small firm networks correlated with firm performance and with the degree of peripherality?
- **Paper IV**: How do policy-induced initiatives support firm networking in the peripheral regions?

**Paper I: Local Embeddedness and Global Links in Rural Areas: Euclidean and Relational Space in Business Networks**

Paper I provides an international benchmarking of key networking behaviours of small firms in the Upper Norrland region and four other European rural regions. In addition to the Upper Norrland region, small rural firms are investigated from the regions of Jihomoravský (Czech Republic), Goriška (Slovenia), Westerkwartier (Netherlands) and Alytus (Lithuania), which represent diverse rural settings in terms of degree of peripherality, size (both

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5 This paper is published in the following anthology:
population and area), demographic dynamics and socio-economic performance levels.

The working hypothesis of the paper is that the business networks of small firms in rural and peripheral regions are essentially trans-local in nature; in other words, such networks are based on intertwining trade and collaborative relations with locally based firms at the same level of the value chain but across regional or national boundaries. This process is assumed to lead to multiple embedding of firms in different rural locations.

An important finding involved the significant differences among the rural and peripheral regions in terms of openness to international trade. For instance, in the case of Sweden, it was found that 50% of the sampled small firms have either partially or strongly internationalised operations, one in three has domestic operations and one in eight has only regional operations. These findings contrast with the findings of the strongly inward-looking peripheral economies that are depicted in the literature. Another noteworthy finding is that the domestic milieu remains the prime geographical context for sourcing external competencies independently of the degree of international trade developed by regional small firms, with respect to both developing collaborative relations with other firms and mobilising support from institutional actors. However, in the case of Upper Norrland, there is evidence of enhanced engagement in international collaborative ties (predominantly with foreign SMEs) for firms that have developed extensive international trade relations.

Paper I concludes by conjecturing that the internationalisation of small firm networks may take a trans-local form in the most open rural economies, which involves a combination of trade and collaborative linkages between SMEs across national boundaries.

Paper II: A Spatial Perspective on Small Firm Networking from a Rural Periphery – The Case Study of Swedish Norrland

Paper II investigates small firm networking in Upper Norrland using two parallel narratives: one narrative illustrates the main features of the trade networks that are developed by small firms, and the second characterises the main motivations for the development of collaboration networks based on knowledge and information exchanges with other firms, as well as with public organisations. The spatial dimension of each networking rationale is neither local nor international but extends across multiple geographical scales. The hypothesis proposed in Paper II is that the integration of these two

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6 This paper is to be published in the forthcoming anthology:
logics is performed through the intervention of key actors, such as international customers and regional public organisations.

As in Paper I, the empirical results are based on survey responses and face-to-face interviews with SME managers. However, Paper II focuses exclusively on Swedish case study material. In addition, material from a set of interviews with institutional actors involved in network facilitation was used to bring more depth to the analysis. To illustrate the empirical analysis, Paper II uses two parallel narratives of small firm networking based on two distinct logics.

In the narrative of the *trade rationale*, SME managers are found to emphasise the importance and centrality of existing customers and suppliers to their business networks, as they particularly value the marketing and product development ‘insider’ intelligence that such customers and suppliers provide. For institutional actors, the prospects of increased sales and market expansion are strong motivations for enhanced networking, even for small peripheral firms. More than 60% of the sampled firms have developed international trade relations. Overall, the results emphasise the prominence of international partners in the business networks of firms, both in quantitative terms (size of transactions) and in qualitative terms (as gateways to extended markets).

The narrative of the *collaboration rationale* emphasised the central place occupied by domestic (both national and regional) small firms as cooperation partners. The latter corroborates the understanding that trust and informality, which are enabled in a shared institutional environment, are important features that stimulate cooperation among firms. The narrative also highlights the role of regional institutional actors in facilitating the formation of firm-to-firm relations, both within and outside of the regional context.

Paper II concludes that both logics are strongly integrated from a functional perspective, which indicates that trade and collaborative networking significantly feed into one another in practice. Furthermore, a holistic perspective (including local and extra-local dimensions) on small firm networks must acknowledge the importance of extra-local networks for capitalising on the leverage effect of enhanced regionally embedded SME networks.

**Paper III: Business Networks and the Competitiveness of Small Manufacturing Firms in the Periphery**

Building on previous findings in the literature that emphasised the necessary multi-scalar (combining both local and extra-local ties) and multi-dimensional (combining trade and collaborative relations) nature of small firm networks, Paper III provides original empirical evidence on the form

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7 Manuscript submitted to the Norwegian Journal of Geography (Feb 2013).
that this combination of networks takes in the specific case of small manufacturing firms that are located in the sparsely populated areas of Upper Norrland.

The methodology of Paper III is based on an analysis of the statistical correlation among business network configuration, firm performance and geographical location indicators for 26 small manufacturing firms.

Paper III shows that small manufacturing firms that are located in non-urban localities of Norrland are outperformed by their urban regional counterparts, whereas their overall level of performance is equivalent to the national average. Hence, small peripheral manufacturing firms appear to have developed a low-growth trajectory. The empirical results show the following three sets of statistically significant correlation: a positive correlation between the proportion of international customers and the productivity of firms, a positive correlation between geographical remoteness and the overall engagement of firms in collaborative networks, and a positive correlation between geographical remoteness and the proportion of collaborative ties with international partners.

Finally, Paper III proposes a discussion on the extent to which business networks are able to compensate for the locational disadvantages of small peripheral manufacturing firms or if such locational disadvantages permanently constrain small peripheral firms from achieving high-growth strategies.

Paper IV: Brokering Proximity - Facilitating Small Firm Networks in the Northern Periphery

The literature has shown that regional policymakers have been increasingly engaged in supporting small firm networking, as these strategies are perceived as the most efficient for supporting firm competitiveness. Using the Proximity Dynamics debate to construct its conceptual approach, Paper IV investigates the main processes by which network brokers—the semi-public or public organisations that act as intermediaries for facilitating firm networking—concretely support the emergence of firm networks in the context of a peripheral region. Paper IV shows that the combination of multiple relational processes based on temporary geographical proximities provides new opportunities for remote actors to engineer relations with more or less geographically distant actors.

Although the literature has generally emphasised the benefits that small firms can gain by establishing a balanced combination of local and extra-local linkages, the challenge for policy-induced network initiatives is to be able to work across and reach out to different geographical and institutional

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8 Manuscript submitted to Regional Studies (April 2013).
contexts. Paper IV considers three brokering moments that are particularly pivotal in the network facilitation process: reaching out to remote small firms with occasional mobility to establish trusting relations between firms and brokers; fostering regional coalitions between small firms with similar needs and perspectives that lead to mutual benefits and increased visibility outside of the region; and supporting the participation of firms at regional-international interfacing events, such as expos, conventions and onsite visits.

Hence, Paper IV argues that network brokers act as essential bridging links that facilitate the connection of relatively isolated small businesses to other actors both within and outside of the region. The leverage created by this bridging process is accentuated by the willingness of small peripheral firms to participate in brokered network activities as a means of compensating for the lack of 'natural' opportunities to develop inter-firm interactions in sparse environments.

An important conclusion highlighted in Paper IV is that the capacity of brokers to operate across institutional scales and settings for facilitating extra-regional and international inter-firm linkages is strongly conditioned by the efficacy of network linkages among brokers both vertically through different territorial governance realms (local ↔ regional ↔ national ↔ international) and horizontally between actors representing similar territorial levels but located in either Norrland or Sweden or abroad (particularly local ↔ local or regional ↔ regional).
5. Concluding discussion

Throughout this thesis, the adjective ‘peripheral’ is used at length to qualify those regions or firms that are deemed geographically remote from the main centres of the economy. This usage could be considered paradoxical because the objective of this thesis was to show that remote actors are not actually isolated in relational terms, as they are able to establish and manage network relations that assist them in engaging in economic interactions in wider economic contexts. In that respect, this thesis argued that the participation of such firms in the wider economy essentially depends on their ability to manage and coordinate the social aspects of distance.

From this perspective, the consistent use of the term ‘peripheral’ throughout this thesis can be explained as follows. I intended to show that geographical peripherality does not engender *de facto* economic marginalisation. Hence, this thesis contributes to this debate by shifting the accent from a negatively connoted spatio-economic conceptualisation of peripherality—often associated with laggardness, subordination and marginalisation—to a more forward-looking understanding that emphasises peripherality as a specific spatial, social and economic context that leads to specific ways of networking.

With this in mind, the academic contribution of this thesis is addressed *empirically* and *conceptually* and with respect to *policy relevance*.

**Empirical contribution**

Previous studies have emphasised that achieving a more complete understanding of the inner and outer workings of economic globalisation necessitates the investigation of economic development processes in the geographical margins. This thesis contributes to this aim by presenting original empirical evidence on small firm networking in the sparsely populated and peripheral region of Upper Norrland in northern Sweden.

The empirical findings in this thesis show that small peripheral firms can hardly be deemed relationally marginalised and disconnected from international economic processes, as the majority of them have predominantly national or international trade patterns and have established collaborative ties with a varied range of both regional and national actors. Although certain regional characteristics of small firm networks may remain, network config-
urations tend to vary greatly among firms. However, an important conclusion is that peripherality is not *per se* an insurmountable obstacle for firms to engage in local or more distant network activities, but to a certain extent, the insurmountability of this obstacle depends on the ability of a firm itself to manage and coordinate such processes.

Paper I showed that Norrland is a rather open economy with regard to trade. Because the regional market is small, a predominance of regional trade relations would signify a locked-in regional economy. However, a large majority of the firms sampled have developed extra-regional or international ventures to varying degrees. This finding supports the idea that geographical remoteness does not represent a structural obstacle for reaching partners outside of the region. Meanwhile, it has been shown that collaboration with regional actors, particularly with other small firms and public organisations, are central to small firm networks. However, the common consideration of national actors as central tends to enhance the importance given to processes that are linked to institutional proximity, which include shared norms and values, for which the national level is more important than those linked to localised social proximity. This finding does not by any means reduce the importance of this regional milieu and the collaborative process between firms and institutional actors in the region. On the contrary, it emphasises that business networks can enable peripheral actors to mobilise external resources and benefit from the network advantages resulting from multiple proximity dynamics with actors from diverse geographical contexts (regionally, nationally or internationally).

The results of this paper also show that the internationalisation of trade patterns is often accompanied by the internationalisation of collaborative networks of firms. Hence, it was argued that the globalisation process witnessed from the periphery is neither one of global disembedding that results in a decoupling of the economic space of firms from their place of belonging nor one of hardened local embeddedness that results in reinforcing circular patterns of collaboration and trade. On the contrary, we witness a process of *trans-local re-embeddedness of economic interactions* that conciliates both local and extra-local dimensions of trade and collaborative networks.

I reached this conclusion because Paper II indicated that small firms with strong internationalised trade profiles have more enhanced collaborative ties with small European firms than firms with a more domestic trade focus. In addition, the importance of match-making activities brokered by network brokers also led me to this conclusion (cf. Paper IV) because small regional firms appear to be keen to develop collaborative relations with foreign small firms, with the objective of understanding the inner and outer workings of this new market. In that respect, the role of network brokering organisations is to create trust among firms that typically do not share the same geographical and institutional backgrounds. Thus, an important relational process that
is attributed to network brokering relates to the facilitation of inter-regional institutional proximity dynamics.

Throughout this thesis, I chose to analyse business networks using three combined perspectives (based on the results and findings from previous studies): a spatial perspective that aimed to identify the extent to which small firm networks occur within the region, within the nation or beyond; a business-organisational perspective that aimed to understand the importance of transactional and collaborative ties in small firm networks; and an actor-oriented perspective that aimed to understand the role of different types of actors (e.g., other small firms, public organisations) in contributing to the networking process. Although the distinction between these perspectives is analytically well argued in the literature, our empirical material has shown that, the firms themselves do not distinguish their networking practices in those terms. This finding is particularly visible in the results of Papers II and IV. International customers are valued by small firms for the ‘insider’ information that they provide with respect to market and product development. Networking with regional peers is valued because it provides enhanced leverage effects for new market penetration and ensures an optimal trade-off between mutual and individual benefits. Finally, the role of regional stakeholders and public organisations is valued, as these entities may facilitate the establishment of relations with business partners that are located in more distant institutional contexts.

Although the development of networks has been extensively discussed in academic and policy debates as a catalyst for small firm competitiveness, the findings in Paper III indicate that there is little empirical correlation between network configurations and the level of firm performance. This finding corroborates the idea that a ‘generic’ network policy is unlikely to be capable of consistently improving the competitiveness of small peripheral firms. In this respect, the capacity of individual firms to translate these initiatives into sound business opportunities is central, and current regional development strategies in Upper Norrland that promote a combination of enhanced regional collaborative networks and internationalisation are rational under our conceptual framework (cf. Paper IV). Furthermore, a challenge for policies is to be able to target firms populating the more remote parts of the region, in addition to those located in the regional and local centres (i.e., those closest to regional decision centres).

Conceptual contribution

Existing spatial theories of economic development tend to assimilate geographical peripherality with economic marginalisation and power subordination. Indeed, classic conceptualisations of economic organisation have centred on markets (based on transaction and transportation costs) and hierarchy
(based on power relations), which emphasised the rather unfavourable or weak position of peripheral actors in such a system.

In this thesis, I have argued that the changing perception of distance combined with the emergence of a network approach for understanding contemporary patterns of economic interaction has been instrumental in regenerating the debate on peripherality. The traditional interpretation of distance has focused on how far small peripheral firms are from all places, whereas the network approach that has been developed in this thesis proposed the idea that such firms may be functionally or organisationally close to some actors located in more or less distant places.

A main point of this thesis is the role of geography in drawing the contours of firms’ business networks. Physical remoteness is not new to the actors in the Upper Norrland region; it is an intrinsic characteristic of the region. Thus, the networking activities of small firms are adapted to compensate for this feature from the outset. This thesis suggested that globalisation at the geographic margins does not consist of two parallel processes of local embeddedness (focused on social capital at the local scale) and trade internationalisation (with increased trade flows on the global scale). Rather, it was argued that social and economic relations of small peripheral firms are re-embedded into various geographical and institutional contexts.

This thesis also contributes to the literature on geographical and organisational proximity by providing new insights into the role of public organisations in facilitating the development of small firm networks. Geographical distance may be compensated by a combination of temporary geographical dynamics (e.g., mobility, travelling, participation in trade fairs and events), flexible organisational arrangements (e.g., open, temporary projects) and inter-regional institutional cooperation (e.g., networks of brokers).

Policy relevance

Fostering economic development in peripheral regions has been an important subject for decades in Nordic and European regional policymaking. There is a widely acknowledged understanding that the growth of SMEs that is supported through enhanced networking is a central strategy for achieving such an objective. Particularly, this thesis discussed the capacity of small firms to penetrate distant markets as a key feature of regional competitiveness in peripheral regions. However, the scientific and policy debates are firmly based on the idea that peripheral regions have weak preconditions for accommodating growth, as they do not have the critical mass of actors required for the development of ‘generic’ cluster policies. In that respect, this thesis fills an important gap in the literature by providing more concrete information on how inter-firm networks can be generated in peripheral settings,
especially by describing how network facilitation is achieved practically in a peripheral setting.

This thesis has argued that policy intervention is an essential ingredient for the establishment of small firm networks in peripheral settings. However, this policy is arguably difficult to craft, as it requires the commitment and engagement of public organisations that is best illustrated by the frequent mobility of network brokers within the region for setting meetings with small firm managers, but such a situation could blur the boundary between what may be deemed inter-firm or extra-firm networks. Conversely, a certain degree of neutrality is necessary to allow firms to give substance to their cooperation endeavours. Hence, finding the balance between engagement and neutrality is arguably the key to the efficacy of network-brokered initiatives in peripheral regions.

A rather puzzling point to be raised with respect to the link between small firm networks and competitiveness is that the most beneficial and efficient means of supporting the competitiveness of regional small firms may consist of facilitating their access to foreign regional economies. Of course, this strategy is problematic because it conflicts with the traditional means of designing and implementing network policies through local or regional coalitions. Thus, although synergising regionally available resources may be important, especially in the sparsely populated areas in which localities are scattered, it is equally important to acknowledge that the external resources that firms must mobilise may actually be available outside of the region.

The current thinning-out of sparsely populated areas makes it even more necessary to find a perennial development model for these territories, particularly to determine how technological progress, social cohesiveness and institutional engagement can be used to support small firm networking. Moreover, innovative development strategies involving the organisation of temporary meeting places for actors both within and outside of the region may prove to be a pertinent instrument that builds on the strengths of remote actors (i.e., their trust and willingness to engage in networks) and diminishes the disadvantages resulting from the absence of agglomeration.
References


