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SHORT ARTICLE

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# Foreign workers and international partners as channels to international markets in core, intermediate and peripheral regions

Marte C. W. Solheim

## ABSTRACT

Past contributions stress that international ties in the form of foreign workers and international collaboration enable firms to be present in international markets by providing access to diverse knowledge, and professional and social networks. These mechanisms have, however, not undergone the same empirical scrutiny for firms in intermediate and peripheral regions. If firms in more peripheral regions are able to tap into the global economy using international channels, this has important implications, for example, for the localization decision of firms. The empirical analysis builds on linked employer–employee data (LEED) merged with community innovation survey (CIS) data. The results demonstrate that there is a positive association between international ties and international market presence for firms in core, intermediate and peripheral regions, demonstrating that peripheral regions are not detached from global processes. There are, however, slight different patterns observed, for example, indicating that different collaboration partners are used in order to reach international markets for firms in core, intermediate and peripheral regions.

## ARTICLE HISTORY

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## KEYWORDS

Foreign workers; international markets; export; regions; Norway

## INTRODUCTION

A wealth of contributions stress the importance of personal contacts for market entry (Bonaccorsi, 1992; Ellis, 2000; Liang & Stump, 1996; Simmonds & Smith, 1968). Following up on the seminal insights of Gould (1994), Head and Ries (1998) and Rauch and Trindade (2002) scrutinizing the ‘migration–trade nexus’, several contributions have established a link between foreign workers and international market presence. This has been explained by foreign workers’ social proximity to actors operating in international markets as well as information they hold about these markets. Their networks also induce social capital and lower transaction costs. Awareness of opportunities in international markets are furthermore facilitated through relationships with partners external to the firm (Ellis, 2000; Johanson & Mattsson, 1988). Unique competitive advantages are created by links to international partners, considered as ‘exclusive or non-redundant ties to distant clusters’ (Ellis, 2000, p. 447). Nevertheless, these studies have for the most part not considered the location of the firm. Sassen (2006, 50) argues that much of what is referred to as ‘global’ essentially

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materializes in cities, e.g., as do contributions concerning world cities (Friedmann & Wolff, 1982; Hall, 1966). Cities and core regions have greater diversity in terms of foreign workers and greater possibilities to connect to global partners, e.g., through global city networks (Beaverstock, Smith, & Taylor, 2000; Castells, 1996; Taylor & Derudder, 2004). This stands in sharp contrast to the studies of smaller, peripheral regions that have not only received less attention but also are often seen as less diverse and less capable of taking part in the global economy. A key question is therefore whether firms in peripheral regions are also able to use foreign workers and international partners to reach international markets.

This paper examines the relation between foreign workers, international collaboration and international market presence for firms in core, intermediate and peripheral regions. The results demonstrate a positive association between foreign workers, international collaboration and firms exporting to international markets. This indicates that peripheral regions are not detached from the global processes, but are able to partake in the global economy, particularly through collaboration with international partners. When subdividing the foreign workers and international partners into more detailed categories, a more fine-grained picture is painted, e.g., demonstrating that peripheral regions reach international markets through collaboration with Nordic partners, whilst core and intermediate regions benefit from collaboration with European partners.

The paper is structured as follows. The theoretical framework is introduced in the next section. The data and models are presented in the third section. The results are presented in the fourth section. Finally, the conclusions and implications discussed in the final section.

## THEORETICAL FRAMEWORK

A wealth of contributions stress the importance of creating competitive advantages for sustaining a strong market presence (Pfeffer, 1994; Porter, 1990). Referring to Basile (2001), Dhanaraj and Beamish (2003) and Roper and Love (2002), Lewandowska, Szymura-Tyc, and Gołębiowski (2016, p. 3674) argue that it is 'the new products and technologies that contribute to the competitive advantage of firms in international markets'. On the operational side, Kaleka (2002) argues that part of firms' competitive advantage is the ability to make contacts in international markets. There are numerous contributions stressing the importance of collaborating with various partners in relation to exports and internationalization of firms (Lewandowska et al., 2016). A presence on international markets through exports of products is increasingly important for the survival of firms (Lim, Sharkey, & Heinrichs, 2006). Foreign workers and collaboration with international partners are two ways of accessing important information and networks that in turn might facilitate export. Therefore, the theoretical discussion starts by debating the role of foreign workers and international partners in relation to international markets. Not all regions have the same capabilities (Boehe, 2013; Ebersberger, Herstad, & Koller, 2014) of attracting foreign workers or collaboration partners, and this will be discussed below.

### Foreign workers and tapping into international markets

Over the past 50 years, global flows of international migration have more than doubled (Kemeny & Cooke, 2015), and due to the globalization of the world economy, there has been an upsurge in interaction between actors at diverse locations in the world. Following up on insights made by Gould (1994), Head and Ries (1998) and Rauch and Trindade (2002), several contributions have found positive associations between migration and trade, e.g., Hatzigeorgiou and Lodefalk (2016), Aleksynska and Peri (2014) and Felbermayr and Toubal (2012), who all find that foreign workers positively affect international trade. The mechanisms through which foreign workers might affect exporting are many. Foreign workers might increase firms' search scope (Østergaard,

Timmermans, & Kristinsson, 2011) and absorptive capacity, which in turn could be important in order to be present on international markets. Lee and Nathan (2010) argue that foreign workers reduce costs tied to the sourcing of information due to their contacts in their country of origin and since they are 'more likely to speak the language of those in their origin country and will be more astute at tacit communication' (p. 58). Foreign workers do not make a sharp and definitive break with their homelands, but often sustain ties with their birthplaces (Brubaker, 2005; Herander & Saavedra, 2005; Saxenian, 2006), which could lead to augmented levels of trust towards these contacts in their native country, e.g., manifested as social proximity based on social interaction between actors (Boschma, 2005).

### International partners and tapping into international markets

'Foreign market opportunities are seen to be communicated to the firm via its relationships with network partners' (Ellis, 2000, p. 447), hence partners can be a source of a firm's competitive advantage (Lavie, 2006; Lechner & Dowling, 2003). Access to essential knowledge can be facilitated through these contacts that in turn might aid international market presence (Coviello, 2006; Johanson & Mattsson, 1988; Johanson & Vahlne, 2009; Lewandowska et al., 2016; Rauch, 2001). Firstly, this could be caused by international partners connecting the firms to their local network. Market entry is not straightforward because 'to the outsider looking in, local business networks are opaque as a consequence of the general invisibility of relationships' (Ellis, 2000, p. 450). Secondly, connecting to international partners is vital because they can provide firms with information and ties that are not only new to the firm but also bridging what Burt (1992) refers to as 'structural holes' (Ellis, 2000). Bridging these could lead to information benefits acquired by communicating with people or firms with knowledge that complements what is already known to the firm (Granovetter, 1973). Transnational networks may be beneficial in several ways as they facilitate market information about potential opportunities, e.g., how consumers would respond to new products, or by helping firms find and access suitable distributors or partners for joint-venture projects (Rauch, 2001, p. 1184). International partners also have information about market regulations and laws that is vital in order for operations to run smoothly.

### Regional capabilities for tapping into international markets

Developed, high-cost economies are incapable of competing on cost alone and increasingly rely on exports of knowledge-intensive-produced goods. These are often developed in core regions as the 'terrain where a multiplicity of globalization processes assume concrete, localized forms. These localized forms are, in good part, what globalization is about' (Sassen, 2005, p. 40). A presence in the global economy is facilitated by being located in world cities (Friedmann & Wolff, 1982; Hall, 1966; Sassen, 1991) and engaging in world-city networks (Castells, 1996; Taylor & Derudder, 2004). Hence, cities around the world benefit not only from regional knowledge spillovers, and 'diverse labour markets, diverse networks of firms and colleagues, concentrations of diverse types of information on the latest developments and diverse marketplaces' (Sassen, 2006, p. 37), but also from taking part in a global network. In world cities, a thick and diverse concentration of people and firms provides many opportunities for interaction as well as exchange of ideas and greater diversity in terms of foreign workers and international collaboration.

Regional characteristics influence international presence (Ebersberger et al., 2014; Herstad & Ebersberger, 2015; Laursen, Masciarelli, & Prencipe, 2012), and past contributions have demonstrated a link between firms' location in a strong regional business environment and being able to export successfully (Boehe, 2013; Yu, Gilbert, & Oviatt, 2011; Zhou, Wu, & Luo, 2007). Smaller peripheral regions often tend to operate in more narrow and specialized economic sectors (Wolfe, 2014). This could represent a threat of being locked into diminishing

industries with limited input from the outside world (Wolfe, 2014). Engaging in non-local linkages, e.g., international linkages, is one way to avoid spatial lock-in because they provide contact with the outside world (Boschma, 2005, p. 70), and new input might be reached that could prove pivotal for firms. Contributions from, for example, Fitjar and Rodríguez-Pose (2011), Doloreux and Shearmur (2012) and Grillitsch and Nilsson (2015), demonstrate that these mechanisms of knowledge spillovers and access to global pipelines are at least as important in peripheral regions. This provides a background in which it is essential to learn more about the mechanisms by which firms in intermediate and peripheral regions are tapping into international markets.

## DATA AND MODELS

The empirical estimations are carried out on linked employer–employee data (LEED) that comprise information on all individuals and firms in the private sector in Norway. LEED is then merged with an extended version of the community innovation survey (CIS), which asks about firms' innovation activity.<sup>1</sup> The dependent variables regarding international market presence are gathered in the three years leading up to the survey in 2010. The variables concerning collaboration are from the CIS in 2008. The independent variables about foreign workers are from the LEED in 2007. Thus, the independent variables are measured in the period before the observed international market presence.<sup>2</sup>

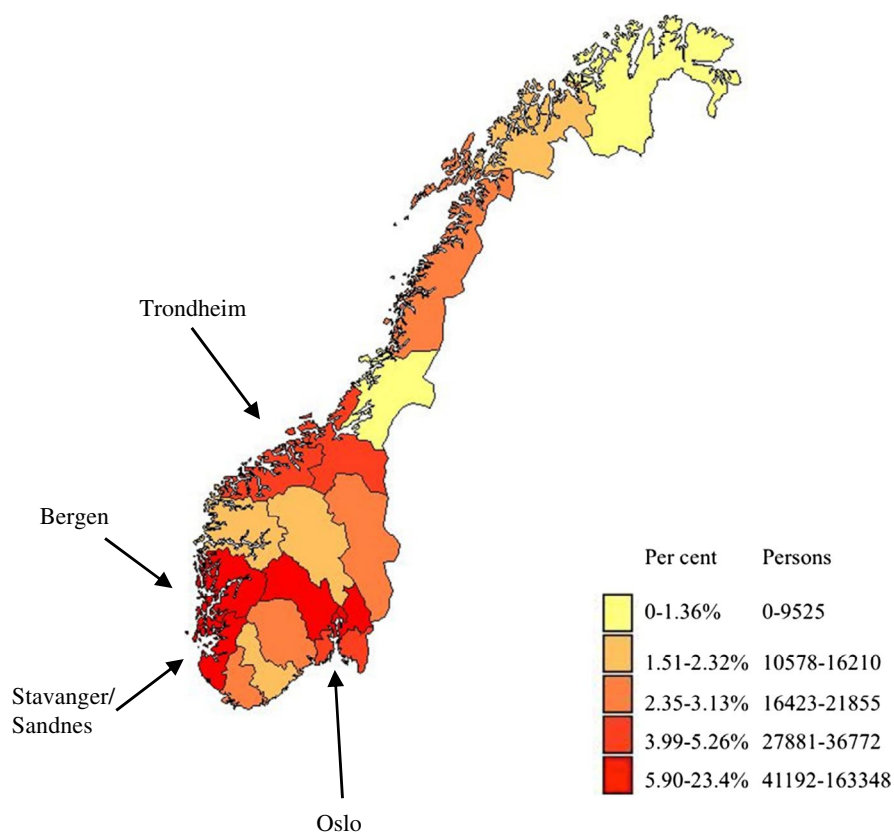
The following model is considered:

$$\text{logit}(\Pr(\text{InternationalMarket}_{it} = 1)) = \alpha + \beta_1 \text{ForeignWorkers}_{i(t-1)} + \beta_2 \text{InternationalCollaboration}_{i(t-1)} + \text{controls}_{i(t-1)} + \varepsilon$$

Two binary dependent variables are used in the estimations: European market presence and presence in other international markets.<sup>3</sup> This is done in order to see whether the international ties affect different markets differently.

The econometric approach is twofold. Firstly, the estimations are run using the share of foreign workers and overall international collaboration as predictors. Foreign workers is measured as the share of foreign workers in the firms. International collaboration is a binary variable where 1 equals that the firm has collaborated with partners abroad, and 0 if it has not. The controls include regional and national collaboration, industry (based on nine different industry classifications; Figure A1), size (measured by log of employees), education (measured by the share of college-educated workforce) and log of research and development (R&D) expenditure. International, national and regional collaboration refers to whether firms have collaborated with eight different types of partners: other businesses within the conglomerate, suppliers, customers, competitors, consultancies, universities, research institutions and commercial laboratories, and whether these partners are located locally/regionally, elsewhere in Norway or internationally.

The second approach is more specified. Since the dependent variables are concerned with European and other international markets, and past theoretical contributions have emphasized that foreign workers and international partners might facilitate access to international markets corresponding to their country of origin (Ellis, 2000; Rauch & Trindade, 2002), foreign workers and international collaboration are divided into categories in order to demonstrate a more fine-nested picture of the relation. The groups of foreign workers comprise the share of workers from Nordic countries (excluding Norwegians), the EU-15, other European Union, and other Western,<sup>4</sup> and non-Western countries.<sup>5</sup> International collaboration comprises collaboration with partners from Nordic, European, US, Chinese and Indian, and other countries.



**Figure 1.** Map of Norway. The core regions indicated and population density of first generation immigrants in 2016 shown. Data source: Statistics Norway.

The estimations are carried out using logit regression models:

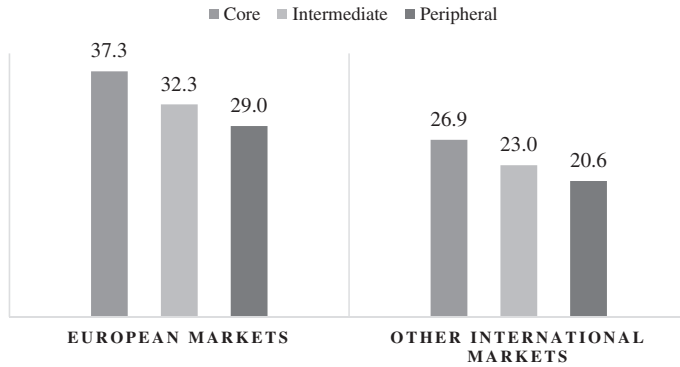
- On all firms in the dataset.
- On firms in core regions only.
- On firms in intermediate regions only.
- On firms in peripheral regions only.

Core regions consist of the largest city regions in Norway (Oslo, Bergen, Trondheim and Stavanger/Sandnes; Figure 1) with more than 200,000 inhabitants. Intermediate regions consist of regions with between 50,000 and 200,000 inhabitants. Peripheral regions are smaller regions with fewer than 50,000 inhabitants. See figure 1 demonstrating the core regions and population density of first-generation immigrants in 2016. The empirical case is Norway, a small and open economy dependent on being present in the global economy. The top five trading partners for Norwegian firms are the UK, Germany, the Netherlands, France and Sweden; export goods are produced in all regions in Norway, particularly located on the west coast.

## RESULTS

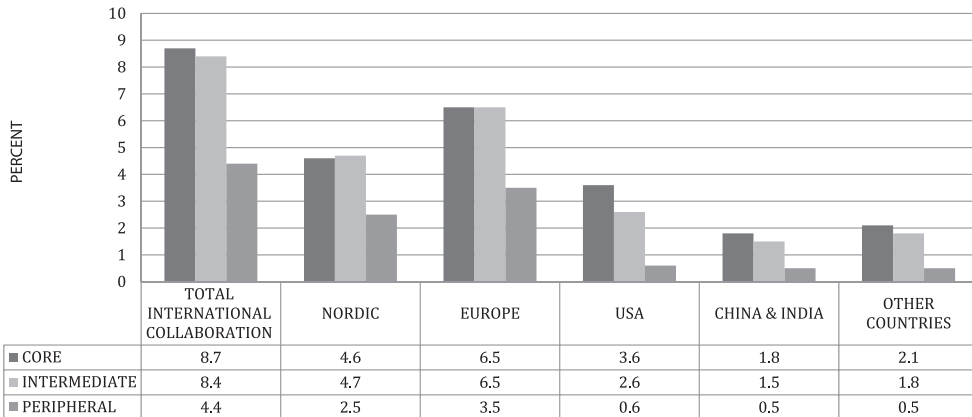
There are more firms in core regions that export than firms in intermediate or peripheral regions (see figure 2). A total of 37.3% of firms in core regions have reported that they exported to

## INTERNATIONAL MARKET PRESENCE



**Figure 2.** International market presence in core, intermediate and peripheral regions (%).

## INTERNATIONAL COLLABORATION



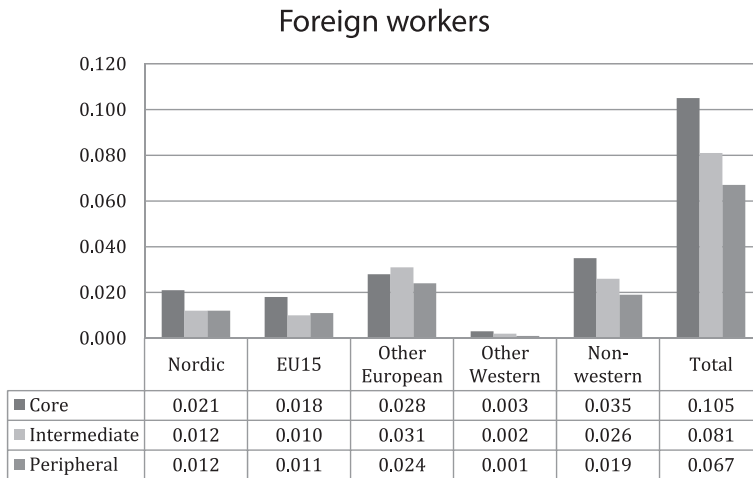
**Figure 3.** International collaboration in core, intermediate and peripheral regions (%). Firms may choose several partners within the different categories, therefore numbers do not add up to the total percentage of international collaboration.

European markets compared with 32.3% in intermediate regions and 29.0% in peripheral regions. For other international markets, around 26.9% of the firms in core regions report that they have exported, compared with 23.0% in intermediate regions and 20.6% in peripheral regions.

Firms in core and intermediate regions also collaborate more internationally (see figure 3). A total of 8.7% of firms in core regions report that they have collaborated with international partners. Relatively similar numbers are found for firms in intermediate regions (with 8.4%). In peripheral regions, 4.4% reported that they collaborated with international partners.

Quite similar patterns are found for firms in core and intermediate regions and in terms of the percentage of firms stating that they collaborate with international partners, e.g., in both cases, 6.5% of firms collaborate with European partners. Firms in peripheral regions collaborate substantially less.

Foreign workers tend to centralize, and there are more foreign workers in core regions than in intermediate and peripheral regions (e.g., 0.2% of all workers are Nordic and 0.2% are from



**Figure 4.** Descriptive statistics. Foreign workers in core, intermediate and peripheral regions. Values shown are means.

EU-15 countries in core regions, whilst 0.1% of all workers are Nordic and 0.1% are from EU-15 in intermediate and peripheral regions). See figure 4.

Turning to the regression results for all firms,<sup>6</sup> foreign workers and international collaboration are positively associated with a presence in European markets. International collaboration is also positively associated with a presence in other international markets, while the coefficient for foreign workers is in this case not statistically significant (see table 1).

Collaborating with international partners is positive for firms in all regions, apart from those in intermediate regions. Foreign workers are positively associated with European market presence, for firms in intermediate and peripheral regions, whilst none of the variables concerning foreign workers was statistically significant for other international markets.

Moving on to the second part of the analyses, the general results for all firms in the sample demonstrate that in order to export to European markets, firms benefit from having workers from EU-15 countries, as well as collaborating with Nordic and European partners (see table 2). For a presence in other international markets, firms benefit from having workers from EU-15 countries, workers from other Western countries, as well as collaboration with European, US, and Chinese and Indian partners. The results demonstrate that firms benefit from employing foreign workers (in particular from the EU-15). There are also positive associations between collaboration with partners from other countries and a presence on other international markets. This lends support to theories of international partners holding vital information about international markets.

The results subdivided by region demonstrate that firms in all types of regions benefit from employing workers from EU-15 countries when exporting to European markets. For firms in intermediate and peripheral regions, collaborating with Nordic partners is positively associated with export to European markets, whilst firms in core and intermediate regions benefit from collaborating with European partners. For non-European markets, firms in core and intermediate regions benefit from hiring workers from EU-15 countries, other Western countries, and collaborating with partners from other countries. Moreover, firms in core regions benefit from European collaboration, and collaboration with Chinese and Indian partners, whilst for firms in intermediate regions, collaborating with US partners is beneficial. Nordic collaboration is positive for firms in peripheral regions, but negative for firms in core and intermediate regions.



**Table 1.** International market presence for firms in core, intermediate and peripheral regions.

	European market			Other international market				
	All firms	Core	Intermediate	Peripheral	All firms	Core	Intermediate	Peripheral
Foreign workers	.52** (.22)	.21 (.28)	.76* (.45)	1.31** (.59)	.39 (.24)	.35 (.30)	.44 (.51)	.57 (.65)
International collaboration	1.03*** (.16)	.95*** (.22)	.96*** (.31)	1.11*** (.44)	.49*** (.15)	.44** (.21)	.27 (.28)	.84** (.43)
Norwegian collaboration	-.18 (.15)	-.15 (.22)	.06 (.29)	-.50 (.38)	-.07 (.15)	-.15 (.20)	.19 (.28)	-.05 (.38)
Regional collaboration	-.46*** (.14)	-.38** (.19)	-.66*** (.27)	-.32 (.33)	-.27** (.14)	-.01 (.18)	-.62** (.26)	-.48 (.35)
Log of employees	.16*** (.03)	.10*** (.04)	.14*** (.05)	.52*** (.08)	.15*** (.03)	.10*** (.04)	.14** (.06)	.43*** (.08)
Log of R&D	.18*** (.10)	.18*** (.14)	.20*** (.03)	.14*** (.28)	.19*** (.01)	.17*** (.01)	.23*** (.02)	.18*** (.03)
Share of college educated	1.34*** (.18)	1.31*** (.23)	1.29*** (.39)	1.46*** (.57)	1.60*** (.19)	1.55*** (.24)	1.95*** (.42)	1.60*** (.61)
Sector	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled
Observations	5947	3002	1727	1182	5943	3002	1724	1181
Pseudo-R <sup>2</sup>	17.5	16.2	20.1	21.2	19	17.3	23	22.3

Notes: R&amp;D, research and development.

\* $p < .1$  \*\* $p < .05$  \*\*\* $p < .01$ .

Table 2. International market presence with specifications.

	European market				Other international market			
	All firms	Core	Intermediate	Peripheral	All firms	Core	Intermediate	Peripheral
Nordic workers	.09 (.62)	.08 (.81)	.18 (1.20)	.83 (1.68)	-1.17 (.76)	-1.34 (1.00)	-2.0 (1.88)	.03 (1.90)
EU-15 workers	4.14*** (.75)	3.89*** (.93)	4.8*** (1.84)	3.98** (1.77)	2.78*** (.74)	2.24*** (.90)	6.04*** (2.0)	2.90 (1.87)
Other EU workers	-.53 (.44)	-1.38** (.70)	-.38 (.80)	.66 (.90)	-.06 (.47)	-.11 (.68)	-.86 (.98)	.57 (.98)
Other Western countries workers	2.75 (1.80)	1.60 (1.82)	13.6** (5.94)	2.37 (8.49)	6.59*** (2.17)	6.18*** (2.40)	15.6*** (5.80)	-13.95 (13.5)
Non-Western workers	-.07 (.39)	-.06 (.47)	1.15 (.86)	1.40 (1.21)	.03 (.43)	.012 (.51)	.68 (.96)	-.11 (1.43)
Nordic collaboration	.61*** (.22)	.36 (.30)	.73** (.38)	1.12* (.62)	-.27 (.20)	-.47* (.29)	-.68* (.36)	1.07* (.58)
European collaboration	1.04*** (.20)	1.28*** (.28)	.68* (.37)	.50 (.54)	.35* (.19)	.43* (.25)	.11 (.35)	.08 (.54)
US collaboration	.26 (.37)	.26 (.37)	1.13* (.62)	-1.06 (1.29)	.43* (.26)	.50 (.33)	.94* (.50)	-.26 (1.28)
China and India collaboration	.38 (.37)	.37 (.47)	.37 (.70)	1.23 (1.37)	.97*** (.36)	1.48*** (.48)	-.42 (.66)	1.89 (1.33)
Other countries collaboration	-.38 (.34)	-.50 (.44)	-.44 (.61)	-	1.28*** (.37)	.90** (.45)	2.04*** (.72)	-
Norwegian collaboration	-.30** (.16)	-.31 (.22)	-.02 (.30)	-.48 (.38)	-.13 (.15)	-.25 (.21)	.19 (.30)	-.09 (.38)
Regional collaboration	-.47*** (.14)	-.36* (.19)	-.73*** (.27)	-.37 (.35)	-.36*** (.14)	-.13 (.19)	-.73*** (.27)	-.61* (.37)
Log of employees	.17*** (.03)	.10*** (.04)	.13*** (.05)	.54*** (.08)	.16*** (.03)	.11*** (.04)	.15*** (.06)	.44*** (.09)
Log of R&D	.18*** (.01)	.18*** (.01)	.19*** (.02)	.13*** (.03)	.18*** (.01)	.17*** (.01)	.23*** (.02)	.18*** (.03)
Share of college educated	1.21*** (.18)	1.16*** (.23)	1.25*** (.40)	1.41*** (.58)	1.50*** (.20)	1.45*** (.25)	1.91*** (.43)	1.60*** (.62)
Sector	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled	Controlled
Observations	5947	3002	1727	1176	5943	3002	1724	1175
Pseudo-R <sup>2</sup>	18.4	17.4	21.3	21.1	20.1	18.8	25.2	22.2

Notes: R&amp;D, research and development.

\* $p < .1$  \*\* $p < .05$  \*\*\* $p < .01$ .

## CONCLUSIONS AND IMPLICATIONS

The results support the idea that cooperation with international partners give firms access to vital information that enables them to be present in international markets. This could be explained by the knowledge or networks held by international partners. This is further underlined when introducing the variables concerned with collaboration with specific partners. Firms also seem to benefit from foreign workers in order to tap into international markets.

When subdividing the variables concerned with the international ties, a more fine-grained picture is painted, e.g., collaboration with European partners aids a European market presence, and collaboration with other international partners is associated with a presence on other international markets. The results also demonstrate a positive association between international market presence and foreign workers, particularly the share of workers from EU-15 countries. The results have implications for localization decisions, recruitment strategies and for how to organize activities related to international market presence, for example, through networking and allocation of personnel.

The results indicate that peripheral regions are not detached from global processes, but are capable of partaking in the global economy. This participation in the global economy is particularly facilitated through collaboration with international partners (and specifically through Nordic partnerships).

The results have several important implications for practice and theory/research: firstly, the paper shows that firms in peripheral and intermediate regions tap into the global economy, and that international ties act as facilitators. The results motivate that there is no 'one-size-fits-all' application. Firms in core, intermediate and peripheral regions are present in international markets, and through the help from foreign workers and international collaboration, but they do so in slightly different ways, e.g., there is a positive link between Nordic collaboration and exports for firms in peripheral regions, while firms in core and intermediate regions seem to benefit more from European collaboration. For future research, the paper shows the importance of studying diversity-related issues in peripheral and intermediate regions in addition to core regions.

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## NOTES

1. It is mandatory for Norwegian firms to respond to the CIS survey, and the response rate is approximately 95% (Wilhelmsen, 2012).

2. Firms might have launched goods and/or services in these markets prior to this survey, and these variables capture whether they are still present
3. Based on the question: in which geographic markets did your enterprise sell goods and/or services during the three years 2008–10?
4. Japan, United States, Canada, Australia and New Zealand
5. The countries not included above
6. For correlation matrices for the regression results, see Tables A2 and A3 in Appendix 1. Z-tests were carried out in order to determine whether there are statistically significant differences in international market presence, international collaboration and foreign workers between core, intermediate and peripheral regions. The results indicate that there are statistically significant differences between these levels.

## REFERENCES

- Aleksynska, M., & Peri, G. (2014). Isolating the network effect of immigrants on trade. *The World Economy*, 37, 434–455.
- Basile, R. (2001). Export behaviour of Italian manufacturing firms over the nineties: the role of innovation. *Research Policy*, 30, 1185–1201. doi:10.1016/S0048-7333(00)00141-4
- Beaverstock, J. V., Smith, R. G., & Taylor, P. J. (2000). World-city network: A new metageography. *Annals of the Association of American Geographers*, 90, 123–134.
- Boehe, D. (2013). Collaborate at home to win Abroad: How does access to local network resources influence export behavior? *Journal of Small Business Management*, 51, 167–182. doi:10.1111/jsbm.12013
- Bonaccorsi, A. (1992). On the relationship between firm size and export intensity. *Journal of International Business Studies*, 23, 605–635.
- Boschma, R. (2005). Proximity and innovation: A critical assessment. *Regional Studies*, 39, 61–74.
- Brubaker, R. (2005). The ‘diaspora’ diaspora. *Ethnic and Racial Studies*, 28(1), 1–19.
- Burt, R. (1992). *Structural holes*. Cambridge, MA: Harvard University Press.
- Castells, M. (1996). *The rise of the network society*. Oxford: Blackwells.
- Coviello, N. E. (2006). The network dynamics of international new ventures. *Journal of International Business Studies*, 37, 713–731. doi:10.1057/palgrave.jibs.8400219
- Dhanaraj, C., & Beamish, P. W. (2003). A resource-based approach to the study of export performance. *Journal of Small Business Management*, 41, 242–261.
- Doloreux, D., & Shearmur, R. (2012). Collaboration, information and the geography of innovation in knowledge intensive business services. *Journal of Economic Geography*, 12, 79–105.
- Ebersberger, B., Herstad, S. J., & Koller, C. (2014). Does the composition of regional knowledge bases influence extra-regional collaboration for innovation? *Applied Economics Letters*, 21, 201–204. doi:10.1080/13504851.2013.848019
- Ellis, P. (2000). Social ties and foreign market entry. *Journal of International Business Studies*, 31, 443–469. doi:http://www.palgrave-journals.com/jibs/archive/index.html
- Felbermayr, G. J., & Toubal, F. (2012). Revisiting the trade-migration nexus: Evidence from new OECD data. *World Development*, 40, 928–937. doi:10.1016/j.worlddev.2011.11.016
- Fitjar, R. D., & Rodríguez-Pose, A. (2011). Innovating in the periphery: Firms, values and innovation in Southwest Norway. *European Planning Studies*, 19, 555–574. doi:10.1080/09654313.2011.548467
- Friedmann, J., & Wolff, G. (1982). World city formation: An agenda for research and action. *International Journal of Urban and Regional Research*, 6, 309–344.
- Gould, D. M. (1994). Immigrant links to the home country: Empirical implications for U.S. bilateral trade flows. *The Review of Economics and Statistics*, 76, 302–316. doi:10.2307/2109884
- Granovetter, M. S. (1973). The strength of weak ties. *American Journal of Sociology*, 78, 1360–1380.
- Grillitsch, M., & Nilsson, M. (2015). Innovation in peripheral regions: Do collaborations compensate for a lack of local knowledge spillovers? *The Annals of Regional Science*, 54, 299–321.

- Hall, P. G. (1966). *The world cities*. London: Weidenfeld and Nicolson.
- Hatzigeorgiou, A., & Lodefalk, M. (2016). Migrants' influence on firm-level exports. *Journal of Industry, Competition and Trade*, 16:4, 477–497. doi: 10.1007/s10842-015-0215-7
- Head, K., & Ries, J. (1998). Immigration and trade creation: Econometric evidence from Canada. *The Canadian Journal of Economics*, 31, 47–62.
- Herander, M. G., & Saavedra, L. A. (2005). Exports and the structure of immigrant - based networks: The role of geographic proximity. *Review of Economics and Statistics*, 87, 323–335.
- Herstad, S. J., & Ebersberger, B. (2015). On the link between urban location and the involvement of knowledge-intensive business services firms in collaboration networks. *Regional Studies*, 49, 1160–1175. doi: 10.1080/00343404.2013.816413
- Johanson, J., & Mattsson, L.-G. 1988. Internationalisation in industrial systems - A network approach. In N. Hood & J. E. Vahlne (Eds.), *Strategies in Global Competition* (287–314). London: Croom Helm.
- Johanson, J., & Vahlne, J. E. (2009). The Uppsala internationalization process model revisited: From liability of foreignness to liability of outsidership. *Journal of International Business Studies*, 40, 1411–1431. doi:10.1057/jibs.2009.24
- Kaleka, A. (2002). Resources and capabilities driving competitive advantage in export markets: Guidelines for industrial exporters. *Industrial Marketing Management*, 31, 273–283. doi:10.1016/S0019-8501(00)00148-6
- Kemeny, T., & Cooke, A. (2015). Spillovers from immigrant diversity in cities. SERC Discussion Paper 175.
- Laursen, K., Masciarelli, F., & Prencipe, A. (2012). Trapped or spurred by the home region? The effects of potential social capital on involvement in foreign markets for goods and technology. *Journal of International Business Studies*, 43, 783–807.
- Lavie, D. (2006). The competitive advantage of interconnected firms: An extension of the resource-based view. *Academy of Management Review*, 31, 638–658.
- Lechner, C., & Dowling, M. (2003). Firm networks: External relationships as sources for the growth and competitiveness of entrepreneurial firms. *Entrepreneurship and Regional Development*, 15(1), 1–26. doi:10.1080/08985620210159220
- Lee, N., & Nathan, M. (2010). Knowledge workers, cultural diversity and innovation: Evidence from London. *International Journal of Knowledge-Based Development*, 1, 53–78.
- Lewandowska, M. S., Szymura-Tyc, M., & Gołębiowski, T. (2016). Innovation complementarity, cooperation partners, and new product export: Evidence from Poland. *Journal of Business Research*, 69, 3673–3681. doi:10.1016/j.jbusres.2016.03.028
- Liang, N., & Stump, R. L. (1996). Judgmental heuristics in overseas vendor search and evaluation: A proposed model of importer buying behavior. *The International Executive*, 38, 779–806.
- Lim, J.-S., Sharkey, T. W., & Heinrichs, J. H. (2006). Strategic impact of new product development on export involvement. *European Journal of Marketing*, 40, 44–60. doi:10.1108/03090560610637301
- Østergaard, C. R., Timmermans, B., & Kristinsson, K. (2011). Does a different view create something new? The effect of employee diversity on innovation. *Research Policy*, 40, 500–509. doi:10.1016/j.respol.2010.11.004
- Pfeffer, J. (1994). Competitive advantage through people. *California Management Review*. 36:2, 9–28. doi: 10.2307/41165742
- Porter, M. E. (1990). *The competitive advantage of nations*. New York, NY: Free Press.
- Rauch, J. E. (2001). Business and social networks in international trade. *Journal of Economic Literature*, 39, 1177–1203.
- Rauch, J. E., & Trindade, V. (2002). Ethnic Chinese networks in international trade. *Review of Economics and Statistics*, 84, 116–130. doi:10.1162/003465302317331955
- Roper, S., & Love, J. H. (2002). Innovation and export performance: Evidence from the UK and German manufacturing plants. *Research Policy*, 31, 1087–1102.
- Sassen, S. (1991). *The global city*. New York: Princeton University Press.
- Sassen, S. (2005). The global city: Introducing a concept. *Borwn Journal of World Affairs*, XI:2, 27–43.
- Sassen, S. (2006). Why cities matter. In R. Burdett (Ed.), *Cities: Architecture and society* (pp. 27–51). New York, NY: Catalogue of the 10th Venice Architecture Biennale, Rizzoli.

- Saxenian, A. L. (2006). *The new argonauts: Regional advantage in a global economy*. Harvard University Press. Cambridge, MA.
- Simmonds, K., & Smith, H. (1968). The first export order: A marketing innovation. *British Journal of Marketing*, 2, 93–100.
- Taylor, P. J., & Derudder, B. (2004). *World city network*. London: Routledge.
- Wilhelmsen, L. (2012). *A question of context. Assessing the impact of a separate innovation survey and of response rate on the measurement of innovation activity in Norway*. Statistics Norway. Oslo - Kongsvinger.
- Wolfe, D. A. (2014). Introduction. In D. A. Wolfe (Ed.), *Innovating in urban economics. Economic transformation in Canadian city-regions*, 3–32. Toronto-Buffalo-London: University of Toronto Press.
- Yu, J., Gilbert, B. A., & Oviatt, B. M. (2011). Effects of alliances, time, and network cohesion on the initiation of foreign sales by new ventures. *Strategic Management Journal*, 32, 424–446. doi:10.1002/smj.884
- Zhou, L., Wu, W. P., & Luo, X. (2007). Internationalization and the performance of born-global SMEs: The mediating role of social networks. *Journal of International Business Studies*, 38, 673–690. doi:10.1057/palgrave.jibs.8400282

## APPENDIX 1

**Table A1.** Descriptive statistics sector in core, intermediate and peripheral regions.

Sector	Mean	SD	% Core	% Intermediate	% Peripheral	Total %
Seafood	.01	.12	22.50	13.75	63.75	100
Mining	.03	.17	67.05	13.87	19.08	100
Manufacturing	.32	.47	37.29	36.82	25.89	100
Supply	.04	.20	32.44	29.77	37.79	100
Construction	.10	.29	41.96	34.97	23.08	100
Trade	.12	.32	63.26	25.82	10.92	100
Transport	.06	.23	49.54	33.43	17.02	100
Information	.12	.32	68.12	21.01	10.87	100
Finance	.04	.20	64.11	20.97	14.92	100

**Table A2.** Correlation matrix of the data – first part of the analyses.

	1	2	3	4	5	6	7	8
1. European markets	1							
2. Other international markets	.60***	1						
3. Foreign workers	.05***	.05***	1					
4. International collaboration	.26***	.24***	-.01	1				
5. Norwegian collaboration	.19***	.19***	-.02*	.62***	1			
6. Regional collaboration	.17***	.18***	-.02*	.57***	.49***	1		
7. Log of employees	.13***	.12***	.06***	.15***	.14***	.11***	1	
8. Log of R&D	.39***	.39***	-.03**	.47***	.43***	.43***	.21***	1
9. Share of college educated	.19***	.20***	.04***	.16***	.11***	.15***	-.01	.27***

Notes: R&D, research and development.

\* $p < .1$ ; \*\* $p < .05$ ; \*\*\* $p < .01$ .

**Table A3.** Correlation matrix of the data – second part of the analyses.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. European markets	1															
2. Other international markets	.60***	1														
3. Nordic workers	.01	-.01	1													
4. EU-15 workers	.11***	.11***	.04***	1												
5. Other EU workers	-.02*	-.01	.01	.07***	1											
6. Other Western workers	.06***	.08***	.02	.06***	-.01	1										
7. Non-Western workers	.03**	.02*	.04***	.07***	.11***	.03**	1									
8. Nordic collaboration	.20***	.16***	.00	.04***	-.03**	.03**	-.01	1								
9. European collaboration	.26***	.24***	-.00	.06***	-.03**	.03***	-.01	.59***	1							
10. US collaboration	.19***	.21***	-.00	.06***	-.03**	.05***	-.02	.43***	.57***	1						
11. China and India collaboration	.13***	.16***	-.00	.03***	-.02*	.03***	.02*	.35***	.39***	.45***	1					
12. Other countries collaboration	.13***	.20***	-.00	.05***	-.01	.05***	.00	.32***	.44***	.53***	.47***	1				
13. Norwegian collaboration	.19***	.19***	-.01	.03*	-.03**	.04***	-.03**	.51***	.56***	.39***	.31***	.34***	1			
14. Regional collaboration	.17***	.18***	-.01	.03**	-.03**	.02	-.03**	.44***	.48***	.39***	.29***	.33***	.49***	1		
15. Log of employees	.13***	.12***	.05***	-.01	.02	.01	.06***	.14***	.15***	.14***	.08***	.11***	.14***	.11***	1	
16. Log of R&D	.39***	.39***	-.02	.06***	-.05***	.04***	-.03**	.34***	.42***	.33***	.21***	.27***	.43***	.43***	.21***	1
17. Share of college educated	.19***	.20***	.07***	.15***	-.06***	.11***	-.01	.11***	.13***	.14***	.07***	.10***	.11***	.15***	-.01	.27***

Notes: R&amp;D, research and development.

\* $p < .1$ ; \*\* $p < .05$ ; \*\*\* $p < .01$ .