

Makkonen, Teemu

Conference Paper

The competitive advantage of a peripheral university town: Human and social capital perspectives from Joensuu, Finland

52nd Congress of the European Regional Science Association: "Regions in Motion - Breaking the Path", 21-25 August 2012, Bratislava, Slovakia

Provided in Cooperation with:

European Regional Science Association (ERSA)

Suggested Citation: Makkonen, Teemu (2012) : The competitive advantage of a peripheral university town: Human and social capital perspectives from Joensuu, Finland, 52nd Congress of the European Regional Science Association: "Regions in Motion - Breaking the Path", 21-25 August 2012, Bratislava, Slovakia, European Regional Science Association (ERSA), Louvain-la-Neuve

This Version is available at:

<https://hdl.handle.net/10419/120642>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.

The competitive advantage of a peripheral university town: Human and social capital perspectives from Joensuu, Finland

Conference paper presented in: **Regions in Motion – Breaking the Path. 52nd European congress of the Regional Science Association International. Bratislava, Slovakia, 21–25.8.2012.**

Teemu Makkonen

University of Helsinki, Department of Geosciences and Geography

PO Box 64, FI-00014 University of Helsinki

Tel. +358 9 191 50794

teemu.makkonen@helsinki.fi

DRAFT, PLEASE DO NOT QUOTE

ABSTRACT

The positive impacts of social and human capital on individual, firm and geographical level are well known. Accordingly, the literature on social capital has advocated the impacts of social networks, norms and trust in securing individual and mutual benefits. Already, the early literature on human capital was concentrated on the economic advantage of individuals, that is, on the impact of education on wage levels. Recent economic studies underline the importance of human capital in creating firm-level innovations and fostering regional economic development. The role of universities has been highlighted in this discussion. However, it seems that this educated human capital is geographically concentrated on the largest urban regions. Whether, this imposes difficulties for firms located in more peripheral regions is discussed here with a case study from a small university town of Joensuu situated in peripheral Eastern Finland. The proposition presented here is that the negative impacts of locational factors, in the periphery, and having a small labour pool will be partially compensated with close social ties and worker immobility. First, the question is approached through official statistics showing that the mobility of educated workforce is smaller in more rural and peripheral regions compared to that of the capital and other densely-populated regions of Finland. Second, the tentative picture drawn from the statistics is deepened with data from semi-structured thematic interviews conducted in Joensuu. The main stakeholders interviewed were chosen, according to the framework of regional innovation systems, from both public and private organizations (n = 15). The results confirm that although a peripheral location of firms does impose limitations to the availability of human capital at hand, the negative impact is compensated with low outmigration of educated workers due to existing

well-knit social ties. Furthermore, employee loyalty to their employers is high in Joensuu, that is, the thinner possibilities for other employment renders the educated workforce in Joensuu relatively immobile even in intraregional scale. Although, worker immobility can be seen as a drawback for a region it can also be considered as a regional asset for firms that have decided to locate their activities in Joensuu, as it saves the firms from the mandatory allocation of resources to the training and introductory procedures of new employees. Accordingly, a local university both attracts and supplies educated workers in the region for the benefit of local enterprises and is an important partner in cooperation for local firms.

KEYWORDS: Finland; Human capital; Social capital; Worker mobility

JEL CLASSIFICATIONS: J24; J61; R12

INTRODUCTION

Despite regional policies directed in alleviating regional differences [for example the establishment of provincial universities in Finland, that took place between the late 1950s and early 1980s, was founded upon the idea of spreading development across the nation (Tervo 2005)], the population in Finland has concentrated in a small number of larger cities (Heikkilä 2003). This has resulted in a situation, where the vast majority of the educated workforce resides in the capital region of Helsinki and few other regional centres of Finland. These centres are, with few exceptions, also the larger university regions in Finland (Antikainen & Vartiainen 2002; 2005). The regional concentration of educated human capital can be viewed as a global phenomenon as several international studies (e.g. Berry & Glaeser 2005; Ewers 2007) have concluded in similar resolutions as the studies carried out in Finland.

In Finland the regional variations in socio-economic development are best characterized by urban-rural and proximity-remoteness axes; remote and rural municipalities especially in northern and eastern Finland have clearly fallen behind urban centres in southern and western Finland when measured for example in unemployment and educational levels (Siirilä et al. 1990; 2002). In fact, Lehtonen and Tykkyläinen (2010) have demonstrated with data on migration that despite various policy measures the self-reinforcing processes envisioned by classic cumulative causation theories (e.g. Myrdal 1969) still gather development to a limited number of spatial clusters which has resulted in a socio-economically polarised regional

system. The same applies in varying spatial scales (see Lehtonen & Tykkyläinen 2011). In other words regional success has been concentrated in a small number of growth centres (also Loikkanen & Susiluoto 2012). At the same time developed societies such as Finland are already witnessing problems (academic employment) related to overeducation. According to Jauhiainen (2011) the risk of overeducating oneself depends on the region, that is, living in a large regional labour market decreases the probability of being overeducated.

The above compounding issues raise the question, whether or not a small peripheral town with significantly thinner regional labour markets can compete against its larger counterparts in today's competitive and global environment in attracting and maintaining educated human capital. Therefore, this paper draws attention to a small university town of Joensuu, situated in the eastern periphery of Finland, in the perspective of its human and social capital accumulation, that is, what could be the competitive advantage of a small and peripheral town in terms of human and social capital? This paper thus aims at contributing to the relatively scarce literature on the competitive possibilities of less-favoured Finnish regions (cf. Sotarauta & Kosonen 2004), as more commonly the research has been carried out in the perspective of the best-in-class, that is, the larger urban regions and especially the Helsinki metropolitan area (e.g. Kepsu & Vaattovaara 2008; Schulman & Mäenpää 2011).

THEMATIC FRAMEWORK: HUMAN AND SOCIAL CAPITAL

Up until the 1950s the main factors of production consisted of physical capital, labour, land and management. However, a gap grew from the difficulties in explaining the growth of the contemporary economy with these four traditional factors (e.g. Solow 1957). To fill in this gap, named 'Solow residual' (see Grossman & Helpman 1991), the concept of human capital was identified (see Nafukho et al. 2004). The concept has its roots in much earlier literature (see Sweetland 1996), but it was the works of Mincer (1958), Shultz (1961a; 1961b), Denison (1962a; 1962b) and Becker (1964) that grounded the concept on economic growth literature. Human capital was defined as the knowledge and skills that people acquire through education and on-the-job training (Shultz 1961a). The line of reasoning that follows is that personal income dispersion and regional economic growth is driven by education, training and human capital. Although, the essential focus on competencies and knowledge and the positive impacts of education on economic growth have prevailed in the centre of the concept, the

literature proceeding the early descriptions on human capital [notable contributions have been made in particular in the endogenous growth theory literature including the works of Lucas (1988), Romer (1990) and Stokey (1991)] have defined the concept in varying ways (Nafukho et al. 2004) and used divergent modelling techniques (Engelbrecht 2003). Therefore, although on-the-job-training (or learning-by-doing) appears to be at least as important as schooling in the formation of human capital (Lucas 1988), and although human capital investments include also inputs in health and nutrition (Shultz 1961a), education has been the most consistent indicator for empirical analysis (Sweetland 1996). To this day, as proposed by Teixeira and Fortuna (2010), data on formal education attainment levels still provides the best available proxy information on the human capital on national and regional scales.

The concept of educated human capital has broadened to encompass terms including creative (Florida 2002), skilled (Leiponen 2005) and talented (Gössling & Rutten 2007) workers. Of these, the concept of creative workers has gained the most attention in recent discussion on regional development. The basic argument behind the emphasis on creativity is that when human capital measures are typically based on formal education statistics, Florida (2002) argues instead that an occupational division of people into what is described as creative class outperforms the traditional indicators of human capital in explaining economic development. Empirical validations of this superiority are, however, at best, inconclusive (cf. Rausch & Negrey 2006; McGranahan & Wojan 2007; Boschma & Fritsch 2009; Hoyman & Faricy 2009). Furthermore, the occupational composition of the creative class is debatable. Thus, the creative class thesis has met an increasing amount of criticism both from empirical and conceptual perspectives; notably, Glaeser (2005) stated that creative class is only another name given to what is still essentially human capital. Despite competing concepts and the problems in the measurement of human capital, there is little doubt in the positive impacts of its most common proxies on economic growth; authors have observed that a direct link exists between education and economic development (Engelbrecht 1997; Gyimah-Brempong et al. 2006; Tsai et al. 2010) and underlined their potential as a target of development policy in the European Union (de Bruijn & Lagendijk 2005). A parallel proposition, supported by remarks highlighting the importance of education and training in the innovation performance of regions (Varsakelis 2006; Gössling & Rutten 2007), by Strulik (2005) suggests that, although, economic growth is explained through innovation it is still ultimately driven by human capital accumulation. In light of the emphasis laid on knowledge and learning in regional development, universities have gained increasing amount of attention as producers of

knowledge and knowledge workers. However, the logic behind the causal relationships between human capital (and related concepts) and economic development has, still, been questioned as fuzzy and undefined (Krueger & Lindahl 2001; Markusen 2006).

Human capital is not the only form of capital proposed to result in positive economic outcomes. Examples of these include e.g. knowledge-based intellectual capital (Nahapiet & Ghoshal 1998), but probably the most widely used, among human capital, is the concept of social capital (see Bourdieu 1986). Despite differences in the definition of social capital, it can be seen to stand for the ability of actors to secure benefits by virtue of membership in social networks or other social structures. The birth of the concept itself can be traced back to criticism towards economic studies focusing exclusively on individual human capital. These early notions paved the way for Coleman (1988) to refine and introduce the concept of social capital, which he saw in an aiding role in the formation of human capital [for a review on the origin and applications of social capital see Portes (1998)]. Putnam (1995; 2000), another notable advocate of the concept, stresses the importance of social capital in the well-being of a society and refers to social capital as the features of social organization such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit. According to common wisdom this social capital is higher in small and rural communities compared to urban communities (Hofferth & Iceland 1998). However, the problems identified with human capital, namely the lack of consensus on the definition hamper also the application of social capital in economic studies (e.g. Lillbacka 2006).

DATA CONSIDERATIONS

The analysis part of this paper is organized in two parts. First, regional educated human capital mobility in Finland is described through official statistics (obtained from Statistics Finland). Unfortunately, these data do not allow a closer investigation in a local level, but only provincial (corresponding to NUTS-3 level) comparisons. Moreover, the data in from the years 2000–2005 so the most recent changes remain unobservable. Still, as the urban-rural and proximity-remoteness axes can be traced to provincial level, a tentative picture on the general features of educated worker mobility can be drawn.

Second, the tentative picture drawn from the statistics is deepened with material from semi-structured thematic analysis. The selection of the interviewed organisations, both from private and public sectors, was done according to regional innovation systems -framework (see Autio 1998; Tödting & Trippel 2005) on the basis that they each represent a significant actor in the regional innovation system [a more detailed discussion is presented in Makkonen (forth.)]. The interviewed organizations include; the local university [University of Eastern Finland (UEF), campus of Joensuu], local intermediaries and business organisations, governmental and administrative organisations engaged in development and promotion of business life and the most notable 'local' firms [in terms of revenue and exportation value (see Kauppalehti, 2011)]. Altogether, representatives from 15 organizations were interviewed (Table 1).

Table 1 The interviewed organizations.

GROUPS:	ORGANIZATIONS:
Firms	Abloy Ltd
	Blanco Ltd
	Cobham Mastsystem Intl Ltd
	Iivari Mononen Ltd
	Ouneva Ltd
Governmental and administrative organizations	Centre for Economic Development, Transport and the Environment for North Karelia
	City of Joensuu
	Regional Council of North Karelia
	Joensuu Regional Development Company, Josek Ltd
Intermediaries and business organizations	Joensuu Science Park Ltd
	North Karelia Chamber of Commerce
	North Karelia Enterprise Agency
	Regional Organisation of Enterprises in North Karelia
University	Aducate – Centre for Training and Development
	UEF, Campus of Joensuu

The list of interviewed organizations is not an exhaustive inclusion of all the regional actors, but rather a sample of important local organizations. The interviewees, each in a managerial role or in a development-related position in their home organization, are threaded anonymously. The interviewees were asked general and specific question around the themes of 1) the influence of locational factors (periphery as a hindrance vs. asset) for recruiting educated workforce in the region and 2) the influences of social and informal ties for worker mobility.

RESULTS

DESCRIPTIVE STATISTICS

Joensuu (population ca. 73,000; land area ca. 2,380 km²) is situated in the eastern periphery of Finland in the province of North Karelia (Figure 1). North Karelia, as a province, can be considered as rural and peripheral compared to the more densely populated urban regions such as Uusimaa (capital region of Finland), Southwest Finland and Pirkanmaa. Statistics on the overall number of educated workers and their mobility rate (the rate of the cases where an educated worker has changed workplaces during the year compared to the overall number of educated workers) are presented in tables 2 and 3.

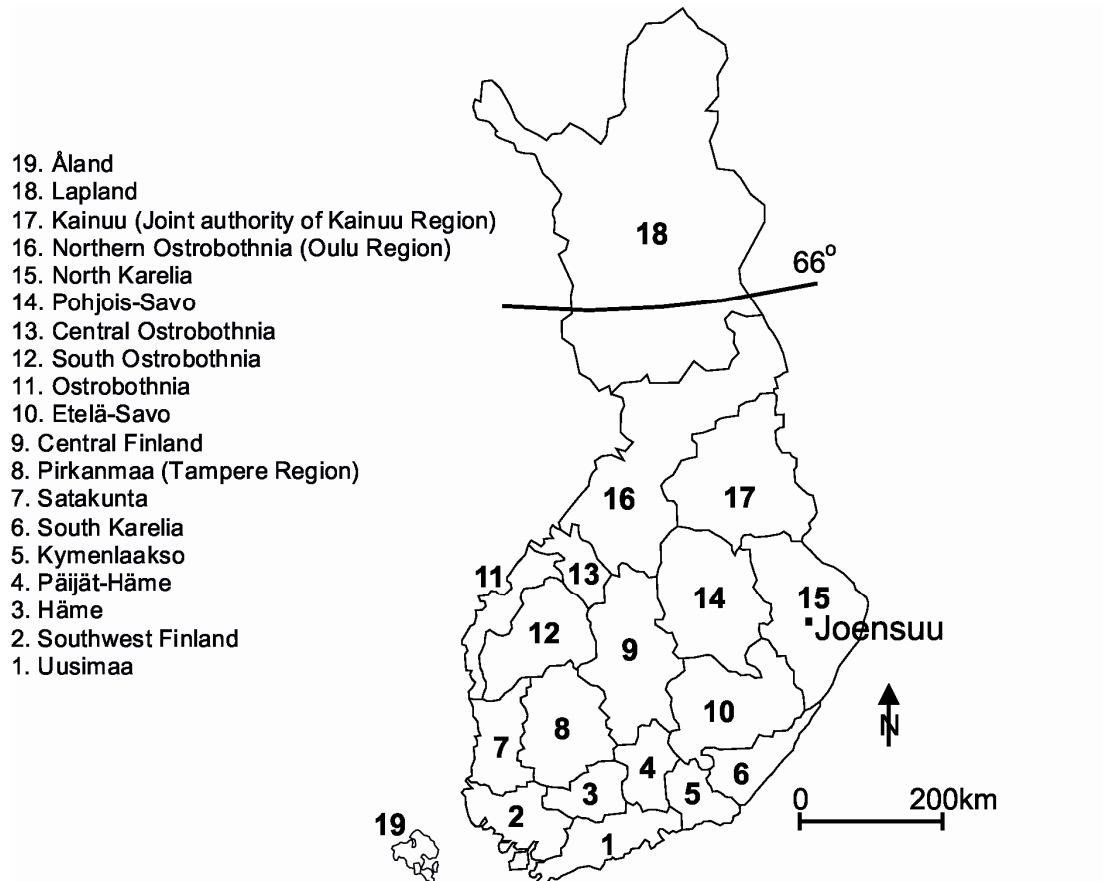


Figure 2 The provinces of continental Finland and Åland (in the current provincial division the former province of Eastern Uusimaa now belongs to the province of Uusimaa).

Table 2 Educated workers' mobility rate in Finnish provinces.

	Educated workers' mobility rate %					
	2000	2001	2002	2003	2004	2005
Åland	24,0	22,0	19,1	19,4	21,4	29,9
Central Finland	24,1	24,3	21,1	20,6	20,3	24,3
Central Ostrobothnia	19,3	18,4	18,4	16,9	17,0	23,4
Eastern Uusimaa	25,5	25,7	20,4	21,7	23,4	24,7
Etelä-Savo	22,6	29,2	20,1	20,0	20,3	21,3
Häme	19,9	21,8	18,1	19,5	18,0	21,4
Kainuu	24,0	21,4	18,1	19,4	21,2	41,1
Kymenlaakso	19,2	22,6	18,7	24,4	18,3	25,3
Lapland	25,3	24,4	23,8	22,2	19,5	22,2
North Karelia	22,7	24,9	20,2	19,4	19,0	23,7
Northern Ostrobothnia	24,1	26,7	24,7	21,3	20,8	24,8
Ostrobothnia	20,8	21,7	18,4	17,5	19,6	23,9
Päijät-Häme	23,0	20,9	19,2	19,8	19,3	26,8
Pirkanmaa	23,9	24,8	22,4	27,6	20,8	25,0
Pohjois-Savo	21,4	22,3	20,8	19,5	22,3	21,8
Satakunta	23,0	24,1	24,3	23,0	20,9	27,0
South Karelia	22,3	20,4	20,7	18,9	19,7	22,9
South Ostrobothnia	19,6	20,4	18,6	18,3	18,4	27,3
Southwest Finland	27,3	26,5	23,9	22,9	20,7	23,0
Uusimaa	31,3	31,3	28,1	28,5	25,9	27,4

Table 3 The total number of educated workers of Finnish provinces.

Region	Number of educated workers					
	2000	2001	2002	2003	2004	2005
Åland	3654	3750	3819	3753	3796	3820
Central Finland	33922	34771	35721	36492	37343	37945
Central Ostrobothnia	7423	7644	7976	8130	8273	8528
Eastern Uusimaa	9498	9575	9691	9943	10203	10403
Etelä-Savo	17376	17719	18144	18406	18546	18892
Häme	19665	20084	20655	21270	21662	22201
Kainuu	9064	9076	9225	9386	9529	9716
Kymenlaakso	21279	21517	22019	22397	22736	23143
Lapland	21851	22013	22568	22816	23139	23257
North Karelia	18020	18390	18741	19096	19415	19901
Northern Ostrobothnia	47354	48862	50333	51568	52822	54106
Ostrobothnia	24239	24618	25055	25491	26025	26653
Päijät-Häme	23245	23701	24122	24439	24799	25206
Pirkanmaa	63036	64965	67184	68804	71029	73177
Pohjois-Savo	30384	30929	31639	32270	32820	33435
Satakunta	27592	28045	28466	29122	29415	30003
South Karelia	15317	15609	15992	16183	16579	16806
South Ostrobothnia	21433	21522	22183	22639	23018	23713
Southwest Finland	62477	63608	64608	65623	66668	68524
Uusimaa	273622	281066	285001	287968	293036	300946

The number of educated workers in a given region and the corresponding mobility rate are closely connected (Pearson's correlation coefficient 0.757; p-value < 0.001; tested with average values). If not taking into account the high mobility rate of Kainuu in 2005, which was largely caused by the administrative experiment of the Joint authority of Kainuu region whereby a large number of workplaces were 'nominally' moved, from being the

responsibility of local municipalities, under the joint regional government, the provinces with the highest educated workers' mobility rates are the largest also in terms of overall numbers of educated workers. Mobility rates are also in part explained through interregional mobility, that is, at the same time that being highly mobile environments for educated workers, the larger urban regions due draw significant numbers of educated workers from the less-favoured regions. In sum, educated workers are more likely to switch between workplaces in the densely populated urban regions than they do in small peripheral regions, where also the pool of educated workers is thinner. The results presented here support the literature on agglomerations and worker mobility (e.g. Eriksson et al. 2008).

INTERVIEWS

In general the locational factors of Joensuu were not conceived as problematic as expected in recruiting and maintaining a well-educated workforce and staff: Joensuu is conceived by the interviewees to be a comfortable living place, where the supply side of educated workforce is (mostly) in order. In particular, the situation was considered good in fields taught at the local university. In sum, the interviewees stated that the local university both works as an important producer of educated workers and in the same time also attracts them to the region. This has, according to the interviewees, in some cases even led to a situation, where there is an 'overproduction' of educated workers in the region for some fields. However, the interviewees acknowledged that the peripheral location of Joensuu poses restrictions to the availability of educated workers especially in narrow and specific fields. In particular, attracting outside workforce from other regions was seen as problematic. Moreover, there are differences between the centre of Joensuu and its more peripheral parts, as is evident from the following excerpts:

If you think of the centre of Joensuu, it is not a problem, but as Joensuu is such a vast region I imagine that it is harder to attract educated workers to the outskirts of Joensuu in light of their logistical position.

Design Manager, local company (author's translation)

Yes, in some ways it is difficult to attract educated workforce as we are situated many miles outside the centre of Joensuu.

Managing Director, local company (author's translation)

The negative impact of having a small labour pool and the problems in recruiting educated workers from outside the region is (at least partially) compensated by reported interregional worker immobility. The interviewees viewed the employees in Joensuu as loyal to their employers. Whether or not, this can be considered as a disadvantage for the individual worker (cf. Frank 2004), the interviewees considered it as an asset for the local firms, as firms save costs, when they can get out of allocating resources on mandatory instructional training. Of course a certain amount of worker mobility is needed in order to maintain the vitality of an organization or a region, as has been shown for example in the case of Silicon Valley (Angel 1989; Saxenian 1996), but excessive changes in the staff, can be considered as harmful to firm level performance. The line of reasoning goes as follows:

We do not have to attract that much workforce outside the town. This affects the locational decisions of many firms, as the situation here is that the workers do not change workplaces as often as they do let's say for example in the capital region. This means that the companies there (in the capital region) have to constantly train the ever-changing workforce, whereas here (in Joensuu) the workforce is more stable... ..This is precisely the point for local firms, that the worker mobility is not excessive, meaning that the staff is constantly changing, but that the workers stay longer in one place and in one company.

Finance and Strategy Director, local administrative organization (author's translation)

The importance of well-knit social ties, was brought up as a major reason behind the worker immobility, as despite the positive views on the attractiveness of Joensuu, it is not considered by all interviewees as the most lively and dynamic place to reside in, when compared to other bigger city regions of Finland. Thus, having relatives in the region was seen as an important reason to stay in the locality. Moreover, the advantage of a smaller town, where people tend to know each other and have a multitude of different informal ways to interact was considered as an important asset for Joensuu, as the following excerpts come to show:

Well the location of Joensuu is not to die for. If you put Joensuu in the map, well then you would have to be a student at the university or have relatives, husband or a wife to reside here. In sum, Joensuu is not the sexiest town in Finland, although in my view it is.

Chief Operating Officer, local company (author's translation)

The advantage of a small locality lies in the fact that people, both from private and public organizations, tend to do things together and run in to each other through common hobbies, activities and such.

Managing Director, local business organization (author's translation)

Of course in such a small town as Joensuu, it is easy to imagine that here people meet in many different informal occasions.

Finance and Strategy Director, local administrative organization (author's translation)

There are a lot of informal connections, that is, people working in our company are involved in many activities, as in Joensuu the 'circles' are small.

Product Manager, local company (author's translation)

Personally, I have networked with a lot of people through common hobbies and such.

Managing Director, local company (author's translation)

The above excerpts support the earlier views expressed in the literature (Hofferth & Iceland 1998) and highlight the importance of social capital as a driver of local solidarity leading to mutually beneficial outcomes. In particular, local university-industry collaboration was seen as important driver for innovative and economic activities. However, too strong social ties can also be quite restrictive (see Portes 1998). Moreover, it still remains that the demand side for highly educated human capital is not that wide in a small and peripheral town such as Joensuu. The realities of economic life are, thus, in an important role in affecting the local workforce's decisions in changing workplaces inside the region. The above statement is echoed in the following excerpt:

In particular, when we are speaking of educated workforce, the situation is that the demand side is not that wide-ranging, that is, there are not that many employment opportunities in the region for highly educated workers.

Manager, local intermediary (author's translation)

CONCLUDING REMARKS

The results presented here raise interesting notions. The 'harsh realities' of economic life do propose significant barriers for firms located in small and peripheral localities in attracting educated human capital. Similarly, the possibilities for intraregional mobility for educated workers are limited. However, this is compensated by reported interregional worker immobility (a low outflow of educated workers). The official statistics on educated workers' mobility rates of Finnish regions support the views expressed by the interviewees, that is, educated workers are more mobile in densely-populated urban regions compared to peripheral and rural regions. The reasons behind worker immobility were seen to do with well-knit social ties. At the same time the high level of social capital is posed to lead to mutually positive outcomes. Thus to answer the posed research question: social capital could be viewed as the competitive advantage for firms in small peripheral towns, as the existing social networks result in a situation, where educated workers are unwilling to migrate to another region. As the possibilities of employment in a small town are narrow, this means that the employees are relatively loyal to their employers. This immobility, again, saves firms from allocating resources to the mandatory instructional training of new employees. Accordingly, the role of a local university is highlighted as both a producer of as well as an attraction for educated workers. Moreover, the university can act as an important partner in cooperation for local firms.

Although, most of the empirical material was confined to a single peripheral university town, the discussion offered here has broader application for other less-favoured peripheral regions. Still, it has to be noted that the interviews carried out include only the opinions of a limited number of regional actors. Thus an obvious next step for research would be to conduct a larger scale study or a survey to take into account the views of a larger set of companies and other organizations. All in all, the chosen approach here is descriptive. Thus more analytical work is needed in order to test the validity of the notions raised here in other localities.

REFERENCES

- Angel, D. (1989). The labor market for engineers in the U.S. semiconductor industry. *Economic Geography* 65, 99–112.

- Antikainen, J. & P. Vartiainen (2002). Finnish districts and regional differentiation. *Fennia – International Journal of Geography* 180, 183–190.
- Antikainen, J. & P. Vartiainen (2005). Polycentricity in Finland: From structure to strategy. *Built Environment* 31, 143–152.
- Autio, E. (1998). Evaluation of RTD in regional systems of innovation. *European Planning Studies* 6, 131–140.
- Becker, G. (1964). *Human Capital. A Theoretical and Empirical Analysis with Special Reference to Education*. National Bureau of Economic Research, New York.
- Berry, C. & E. Glaeser (2005). The divergence of human capital levels across cities. *Papers in Regional Science* 84, 407–444.
- Bourdieu, P. (1986). The forms of capital. In: Richardson, J.G. (ed.): *Handbook of Theory and Research for the Sociology of Education*, 241–258. Greenwich Press, New York.
- Boschma, R. & M. Fritsch (2009). Creative class and regional growth: Empirical evidence from seven European countries. *Economic Geography* 85, 391–423.
- Coleman, J. (1988). Social capital in the creation of human capital. *American Journal of Sociology* 94, S95–S120.
- de Bruijn, P. & A. Lagendijk (2005). Regional innovation systems in the Lisbon strategy. *European Planning Studies* 13, 1153–1172.
- Denison, E. (1962a). *The Sources of Economic Growth in the United States and the Alternative before Us*. Committee for Economic Development, New York.
- Denison, E. (1962b). United States Economic Growth. *The Journal of Business* 35, 109–121.
- Engelbrecht, H-J. (1997). International R&D spillovers, human capital and productivity in OECD economies: An empirical investigation. *European Economic Review* 41, 1479–1488.
- Engelbrecht, H-J. (2003). Human capital and economic growth: Cross-section evidence for OECD countries. *The Economic Record* 79, 40–51.
- Eriksson, R., U. Lindgren & G. Malmberg (2008). Agglomeration mobility: Effects of localisation, urbanisation and scale on job changes. *Environment and Planning A* 40, 2419–2434.
- Ewers, M. (2007). Migrants, markets and multinationals: Competing among world cities for the highly skilled. *GeoJournal* 68, 119–130.
- Florida, R. (2002). *The Rise of the Creative Class and How It Is Transforming Work, Leisure, Community and Everyday Life*. Basic Books, New York.

- Frank, R. (2004). Human nature and economic policy: Lessons for the transition economies. *The Journal of Socio-Economics* 33, 679–694.
- Glaeser, E. (2005). Review of Richard Florida's 'The Rise of the Creative Class'. *Regional Science and Urban Economics* 35, 593–596.
- Gössling, T. & R. Rutten (2007). Innovation in regions. *European Planning Studies* 15, 253–270.
- Grossman, G. & E. Helpman (1991). *Innovation and Growth in the Global Economy*. The MIT Press, Cambridge.
- Gyimach-Brempong, K., O. Paddison & W. Mitiku (2006). Higher education and economic growth in Africa. *Journal of Development Studies* 42, 509–529.
- Heikkilä, E. (2003). Differential urbanization in Finland. *Tijdschrift voor Economische en Sociale Geografie* 94, 49–63.
- Hofferth, S. & J. Iceland (1998). Social capital in rural and urban communities. *Rural Sociology* 63, 574–598.
- Hoyman, M. & C. Faricy (2009). It takes a village: A test of the creative class, social capital, and human capital theories. *Urban Affairs Review* 44, 311–333.
- Jauhiainen, S. (2011). Overeducation in the Finnish regional labour markets. *Papers in Regional Science* 90, 573–588.
- Kauppalehti (2011) 'Yritykset – menestyjät', available at: <http://www.kauppalehti.fi/5/i/yritykset/menestyjat>, accessed on 16/08/2011.
- Kepsu, K. & M. Vaattovaara (2008). *Creative knowledge in the Helsinki Metropolitan Area: Understanding the attractiveness of the metropolitan region for creative knowledge workers*. Institute for Metropolitan and International Development Studies, Amsterdam.
- Krueger, A. & M. Lindahl (2001). Education for growth: Why and for whom? *Journal of Economic Literature* 39, 1101–1136.
- Lehtonen, O. & M. Tykkyläinen (2010). Self-reinforcing spatial clusters of migration and socio-economic conditions in Finland 1998–2006. *Journal of Rural Studies* 26, 361–373.
- Lehtonen, O. & M. Tykkyläinen (2011). Spatial divergence in living standards during an economic growth phase in the periphery: A case study of North Karelia. *Fennia – International Journal of Geography* 189, 47–62.
- Leiponen, A. (2005). Skills and innovation. *International Journal of Industrial Organization* 23, 303–323.
- Lillbacka, R. (2006). Measuring social capital: Assessing construct stability of various operationalizations of social capital in a Finnish sample. *Acta Sociologica* 49, 201–220.

- Loikkanen, H. & I. Susiluoto (2012). *Suurimpien seutukuntien kokonaistaloudellinen kehitys 1975–2008*. Helsingin kaupungin Tietokeskus, Helsinki.
- Lucas, R. (1988). On the mechanics of economic development. *Journal of Monetary Economics* 22, 3–42.
- Makkonen, T. (forth.) Peripheral university region and knowledge-based development: The case of Joensuu. *International Journal of Knowledge-based Development*.
- Markusen, A. (2006). Urban development and the politics of a creative class: Evidence from a study of artists. *Environment and Planning A* 38, 1921–1940.
- McGranahan, D. & T. Wojan (2007). Recasting the creative class to examine growth processes in rural and urban counties. *Regional Studies* 41, 197–216.
- Mincer, J. (1958). Investment in human capital and personal income distribution. *The Journal of Political Economy* 66, 281–302.
- Myrdal, G. (1969). *Ekonomisk teori och underutvecklade regioner*. Tidens förlag, Stockholm.
- Nafukho, F.M., N. Hairston & K. Brooks (2004). Human capital theory: Implications for human resource development. *Human Resource Development International* 7, 545–551.
- Nahapiet, J. & S. Ghoshal (1998). Social capital, intellectual capital, and the organizational advantage. *Academy of Management Review* 23, 242–266.
- Portes, A. (1998). Social capital: Its origins and applications in modern sociology. *Annual Review of Sociology* 24, 1–24.
- Putnam, R. (1995). Bowling alone: America's declining social capital. *Journal of Democracy* 6, 65–78.
- Putnam, R. (2000). *Bowling Alone: The Collapse and Revival of American Community*. Simon & Schuster, New York.
- Rausch, S. & C. Negrey (2006). Does the creative engine run? A consideration of the effects of creative class on economic strength and growth. *Journal of Urban Affairs* 28, 473–489.
- Romer, P. (1990). Endogenous technological change. *The Journal of Political Economy* 98, 71–102.
- Saxenian, A.L. (1996). *Regional Advantage: Culture and Competition in Silicon Valley and Route 128*. Harvard University Press, Cambridge.
- Schulman, H. & P. Mäenpää (eds.) (2011). *Kaupungin kuumat lähteet: Helsingin metropolialueen innovaatioympäristöt*. Helsingin kaupungin Tietokeskus, Helsinki.
- Shultz, T. (1961a). Education and economic growth. In N. Henry (ed.): *Social Forces Influencing American Education*, 46–88. The University of Chicago Press, Chicago.
- Shultz, T. (1961b). Investment in human capital. *The American Economic Review* 51, 1–17.

- Siirilä, S., L. Hautamäki, J. Kuittinen & T. Keski-Petäjä (1990). Regional well-being variations in Finland. *Fennia – International Journal of Geography* 168, 179–200.
- Siirilä, S., M. Vaattovaara & V. Viljanen (2002). Well-being in Finland: A comparison of municipalities and residential differentiation in two cities. *Fennia – International Journal of Geography* 180, 141–149.
- Solow, R. (1957). Technical change and the aggregate production function. *The Review of Economics and Statistics* 39, 312–320.
- Sotarauta, M. & K-J. Kosonen (2004). Strategic adaptation to the knowledge economy in less favoured regions: A South Ostrobothnian university network as a case in point. In: Cooke, P. and A. Piccaluga (eds.): *Regional Economies as Knowledge Laboratories*, 1–19. Edward Elgar Publishing, Cheltenham.
- Stokey, N. (1991). Human capital, product quality and growth. *The Quarterly Journal of Economics* 106, 587–616.
- Strulik, H. (2005). The role of human capital and production growth in R&D-based models of economic growth. *Review of International Economics* 13, 129–145.
- Sweetland, S. (1996). Human capital theory: Foundations of a field of inquiry. *Review of Educational Research* 66, 341–359.
- Teixeira, A. & N. Fortuna (2010). Human capital, R&D, trade and long-run productivity: Testing the technological absorption hypothesis for the Portuguese economy, 1960–2001. *Research Policy* 39, 335–350.
- Tervo, H. (2005). Regional policy lessons from Finland. In: Felsenstein, D. & B. Portnov (eds.): *Regional Disparities in Small Countries*, 267–282. Springer-Verlag, Berlin.
- Tödtling, F. & M. Trippel (2005). One size fits all: Towards a differentiated regional innovation policy approach. *Research Policy* 34, 1203–1219.
- Tsai, C-L., M-C. Hung & K. Harriott (2010). Human capital composition and economic growth. *Social Indicators Research* 99, 41–59.
- Varsakelis, N. (2006). Education, political institutions and innovative activity: A cross-country empirical investigation. *Research Policy* 35, 1083–1090.