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The Urban Turn

And the Location of economic Activities

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Competitiveness of city regions has gained a more and more central position in regional development and regional planning within the last decades. A reason for this is that globalisation has caused pressure on industrial structures forcing firms to increase their competitiveness by more actively promoting innovation and knowledge creation. Access to knowledge has therefore become vital for most types of productions in the Western economies.

As creation of and access to knowledge have become increasingly important in order to stay competitive, a growing focus has been put on the geography of highly skilled labour. A growing string of this literature argues that large cities shall be understood as locomotives of regional development and growth because they have an attractive effect on highly skilled labour. This line of thinking is called the urban turn in economic geography. This study examines the urban turn by studying the dynamics of location of economic activities in Nordic countries. In doing so, the study takes a critical look at Richard Florida's widely used concept of the creative class and the relation between talent, people climate, business climate and regional development.

Høgni Kalsø Hansen is affiliated with Department of Social and Economic Geography, Lund University. *The Urban Turn – and the Location of Economic Activities* is his doctoral thesis.



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The Urban Turn



- and the Location of Economic Activities

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The Urban Turn

- and the Location of Economic Activities

Høgni Kalsø Hansen



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List of Papers

This PhD thesis consists of the following research report and 5 papers

1. Hansen, H. K. (2007) Technology, Talent and Tolerance – The Geography of the Creative Class in Sweden. *Rapporter och Notiser* 169, Department of Social and Economic Geography, Lund Universitet
2. Andersen, K. V.; Hansen, H. K.; Isaksen, A. & Raunio, M. (2007) Nordic City Regions in the Creative Class Debate - Putting the Creative Class Thesis to a Test. Paper presented at Annual Meeting of the Association of American Geographers (AAG) Chicago 2006 Submitted to a peer reviewed journal November 2007
3. Andersen, K. V.; Bugge, M.; Hansen, H. K.; Isaksen, A. & Raunio, M. (2007) Regional Development in Nordic Regions: The Impact of People Climate and Business Climate. Paper presented at Annual Meeting of the Association of American Geographers (AAG) San Francisco 2007. Submitted to a peer reviewed journal November 2007
4. Asheim, B. T & Hansen, H. K (2007) The Creative Class, People Climate and Business Climate: Knowledge Bases, Variety of Capitalism and Social Capital. Paper presented at Annual Meeting of the Association of American Geographers (AAG) San Francisco 2007. Submitted to a peer reviewed journal November 2007
5. Hansen, H. K. & Winther, L. (2007) The Spatial Division of Talent in City Regions: Location Dynamics of Business Services in Copenhagen. Submitted to a peer reviewed journal December 2007
6. Winther, L. & Hansen, H. K. (2006) The Economic Geography of the Outer City: Industrial Dynamics and Imaginary Spaces of Location in Copenhagen. *European Planning Studies* 14(10): 1387-1406

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1. Introduction

Competitiveness of city regions has gained a more and more central position in regional development and regional planning within the last decades (Amin & Thrift, 2002; Florida, 2002; Glaeser, 1998). A reason for this is that globalisation has caused pressure on industrial structures forcing firms to increase their competitiveness by more actively promoting innovation and knowledge creation. Access to knowledge has therefore become vital for most types of productions in the Western economies.

Based on growing interest in knowledge creation and knowledge exploitation, a bulk of literature has emerged within the field of economic geography and neighbouring disciplines that study the relation between geography and knowledge creation. Lundvall (1992) points to the importance of establishing and underpinning systems of knowledge creation to facilitate innovation in what he calls the learning economy. These systems of innovation, he argues, depend on national institutions and are thus embedded in a national context. This argument is taken further by Cooke (1992), Cooke, Uranga & Extbarria (1997) and Asheim & Isaksen (1997) who argue that not only national but more importantly also regional institutions underpin the systems of innovation. Therefore a regional innovation system based on institutions embedded in a local and regional context should rather be the perspective for understanding processes of knowledge creation and innovation. Also within industrial geography, the regions are stressed as the key to understanding industrial development. Storper (1997) and Storper & Walker (1989) claim that labour is produced and reproduced within the institutional setup of regions which is underpinned by regional industrial structures. Hence, labour skills and capabilities become deeply rooted in geographical settings and thus production will get a path-dependent character.

This way of understanding institutions as reinforcing regional success, or the lack of it, is based on a systemic line of thinking. The understanding of production and innovation can, however, also be analysed from a more individual perspective. Knowledge is created and used in systems of production of goods and services by people, and, consequently, people are the crucial link for firms to access information and knowledge. In the literature, people in

possession of valuable knowledge are often referred to as talents¹ (e.g. Florida, 2002). Thus talents as carriers of knowledge become a competitive asset. Therefore, the geography of knowledge is also geography of talents. Latter deals with the location of talents who possess valuable knowledge and talents who are capable of absorbing and applying knowledge and information. The understanding of location of talents can, however, not be detached from the analysis of institutions (understood as the rule of the game, norms and values), organisations and economic structures which will influence on location of talent and the efficiency to generate and use knowledge.

As creation of and access to knowledge have become increasingly important in order to stay competitive, a growing focus has been put on how, who and where knowledge is produced, used and diffused. The interest in the relation between knowledge and the regional competitiveness and in how knowledge creation is underpinned has been addressed within study areas of innovation system (e.g. Lundvall, 1992; Edquist, 1997; Braczyk, Cooke & Heidenreich, 1998; Asheim & Isaksen, 2002), learning regions (e.g. Florida, 1995; Asheim, 1996, 2000; Morgan, 1997; Archibugi & Lundvall, 2001), industrial districts (e.g. Brusco, 1986, 1990; Beccatini, 1990; Asheim, 1996, 2000; Markusen, 1996), regional clusters (e.g. Malmberg et al., 1996; Porter, 1998) and urban dynamics (Jacobs 1969; Florida 2002, 2005a). The last is often referred to as an urban turn in economic geography (see chapter 2 for a more thorough introduction to urbanisation economies). Shortly, the urban turn argues that due to the diversity that cities offer they provide an excellent arena for accessing new knowledge (defined as the ability to materialise information into productive ideas). Therefore the city becomes central to understanding the location dynamics of economic activities in a knowledge economy (defined as the use of knowledge to produce economic benefits).

¹ In the literature, talent is only one of several concepts covering the same area of interest – people who become assets in the knowledge intensive production due to skilled or special competences, high educational level or due to their creative mindset, which makes them valuable for solving problems, generating new ideas etc. Concepts used to cover the same group of people are e.g. human capital and creative capital. Forwardly, the term talent will be used as a common denominator for this group of people though the difference between the concepts will be touched upon in chapter 2

1.1. Content and Contribution

Within literature on urbanisation economies, it is believed that cities can stimulate growth by securing that talent is plentiful (Glaeser 1994; Rauch, 1993; Florida, 2002). In some parts of the literature, talents are seen as very mobile (Florida 2002; 2005a; 2005b), and, thus, an understanding of what attracts and retains talent becomes interesting from a regional development perspective. Further, the understanding of which institutions that underpin knowledge creation, and at what geographical level they operate, becomes interesting as well in a regional development perspective (Cooke, 1992; Lundvall, 1992; Markusen, 1996; Asheim & Isaksen 1997). All these perspectives will be addressed more thoroughly in chapter 2, in the research report and in the five papers that constitute this thesis. The research report and papers 2, 3 and 4 have a cross regional perspective while papers 5 and 6 are more concerned with intra regional dynamics of location². Together, they cover a broad perspective on the region and the structures and dynamics that regions are struggling with to stay competitive in the knowledge economy. Based on this area of interest, the aim of the thesis is *to analyse the location patterns of economic activities in the knowledge economy*. This will be done by scrutinising the research questions below:

1. *What role does talent play for regional development?*
2. *What are the roles of people climate and business climate for location of economic activities and for location of talent?*
3. *What are the location dynamics of the knowledge economy from an intraregional perspective?*

The overall research theme originates from two areas of interest. First, the link between talent and regional growth is a debate that goes back several years (Romer, 1986; Lucas, 1988; Rauch, 1993; Glaeser, 1994), but recently it has been fuelled by the bestselling book *The Rise of the Creative Class* by Richard Florida (2002). The impact of *The Rise of the Creative Class* has been so

² Forwardly, the research report will be addressed paper 1 and the actual papers will be referred to as papers 2, 3, 4, 5 and 6 for pragmatic reasons.

massive that many local planning authorities in i.e. Denmark and Sweden have implemented central concepts in their strategic plans. The Northern welfare state, with its few large city regions and its industrial structure, differs significantly from the North American context which Florida develops his creative class approach within. Therefore studies within a Nordic context examining the effects of people climate³, business climate⁴ and the effect of talents on growth as well as what impacts this has on geography are needed before local planning authorities implement the theoretical perceptions into the regional planning.

Secondly, as trained economic geographers, we are preoccupied with the spatial dimensions and uneven distribution of economic activities. The city region is a very unevenly distributed unit when it comes to economic activities, skilled labour force, income and even population density. This results in city regions where one northern area differs significantly from a southern part, eastern from western and central from the outer areas. Most geographers are aware of the spatial unevenness within e.g. city regions. Theory on regional development and growth do, however, have a tendency to understand the region as homogeneous (e.g. Florida, 2002; Porter 1998). Especially current literature concerned with regional growth tends to focus on fancy knowledge intensive production without any major considerations regarding the limited volume that these industries often have in the overall economic structures of city regions. Thus, the literature only points to strategies that cover a minority of the economic activities within most regions. Consequently – I would argue – there is a need to study the region and theorise on intraregional level as a supplement to the intraregional level of analyses which dominates economic geography today. By doing so, we can get a better understanding of the

³ People climate can be seen as a set of ingredients that spice up a city and make it attractive to people to live in. Two basic elements of a good people climate are a high level of tolerance and quality of place which is characterised by a high public service level, large supply of cultural amenities, art, music, cafes, architecture etc.

⁴ Business climate is a co-location of firms to interact with and the institutional and organisational setup that supports production and entrepreneurship through education, research, networks etc.

dynamics that shape the economic geographies of regions, and, thereby, we can develop better tools for strategic planning.

This thesis contains of six papers that address the main research question from different directions. The overall research theme is common for all the papers but the analytical perspective differs.

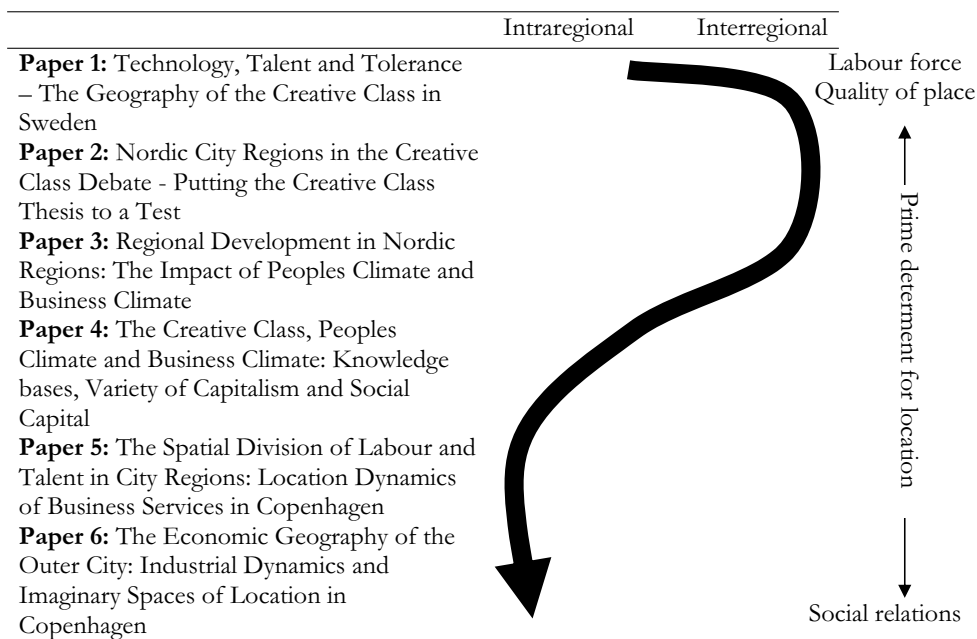


Figure 1: Geographical perspective of analysis and main focus

Figure 1 illustrates the changing analytical perspective in the papers. Paper 1 discusses how Florida’s (2002) theory on the creative class fits Sweden. Here regions’ interregional differences are addressed on a national level. Papers 2 and 3 have an interregional perspective both within and across national borders; the two papers report from a comparative study of regions across national boarders. Paper 4 addresses intraregional, interregional as well as international levels. First, it questions some of the fundamental assumptions in the creative class argument by decomposing the creative class concept by introducing the knowledge base approach (Asheim & Gertler, 2005). Thereby the paper touches upon both intraregional and interregional elements regarding industrial structures and quality of place. Further, the paper discusses other

fundamental assumptions of the creative class thesis in regard to variety of capitalism; here international structures are addressed. Consequently, paper 4 discusses the adequateness of central prerequisites in the creative class thesis on different regional levels. Lastly, papers 5 and 6 address location dynamics within the region; here intraregional tensions and the classical distinction between the central city, the suburb and the outer city are addressed. Operating at the intraregional level opens a discussion of the differences in location patterns within a region. The two different perspectives of analytical departure naturally have different methodological approaches. The empirical material that covers Copenhagen in Denmark as well as Sweden contains equal variables, and the theoretical reasoning comes from the same line of thoughts but addresses the regions from different analytical perspectives accordingly eliciting different results.

Addressing the region as the unit of analysis is however not unproblematic. Unfortunately in economic geography, there is a tendency to address the region without demarking it. Therefore comparison of results is sometimes misleading. A good example is the cluster literature where a chaotic conception of clusters (Martin & Sunley, 2003) results in analyses of very uneven regions. Wireless telecommunication in the Aalborg area in Northern Jutland in Denmark (e.g. Dalum, 1995; Dalum, Pedersen & Villumsen, 2005) or entrepreneurialism and network relations in Gnosjö in Sweden (Johannisson, 1983; 1988) is discussed along with Baden-Württemberg in Germany (Digiovanna, 1996) or Silicon Valley in the San Francisco area in California in USA (Digiovanna, 1996; Saxenian, 1996). The areas or regions have very different regional government structures, urbanisation degrees etc. Similarly, the Third Italy is now and then addressed as one large industrial district when small and medium sized towns have been studied by Italian regional economists (Brusco, 1986; 1990). Thus the concept of a region is applied for many different purposes and therefore comparison of results shall be taken with some caution.

All six papers in this dissertation demark the region from a functional viewpoint. Regions can be viewed from administrative, functional, ethnic etc. perspectives. The functional region is defined by patterns of spatial interaction and characterised by a coherence of political, economical and social structure

and dynamics. The regions that are used as analytical units here are based on economic interaction in combination with political power. Regions are based on travel-to-work-patterns which constitute a coherent labour market. Data in papers 1, 2, 3 and 4 is Swedish data on the municipality level which is aggregated up to functional labour market regions based on travel-to-work-patterns. Papers 5 and 6 include Danish data on the municipality level, but as the intraregional dynamics are the focus of interest in these papers data is not aggregated. The analysis does, however, only include municipalities of the larger Copenhagen city region which constitutes the dominating travel-to-work-patterns⁵. Consequently, the six papers in this dissertation all have a consistent understanding of regions as they rest upon functional labour markets and thus travel-to-work-patterns.

Returning to figure 1, it is evident that having different analytical perspectives also brings different results and builds upon different methods. Parts of the overlaying economic and political structures that have an impact on intraregional, interregional and international dynamics are the same, but the impact may vary between the different geographical levels whereas some structures may only influence on one specific geographical level. Obviously, this calls for a modification of methodology and theory. The arrow in the right side of figure 1 indicates what can be read out of the six papers. Location of economic activities can be understood as a quest for qualified labour from the interregional perspective, but the more localised the study becomes, the more weight is put on the influence of social relations to understand why economic activities are located where they are.

With this consideration in mind, the next chapter provides a theoretical background in which to frame the six papers. However, first a short introduction to the papers is given below.

1. *Technology, Talent and Tolerance – The Geography of the Creative Class in Sweden* is an introduction to the central arguments and concepts in the creative class debate. Further, it addresses the most central critiques put forward by

⁵ Though the overlying unit of analysis is functional regions, both Swedish and Danish data include municipalities, consequently administrative demarcations, as point of reference. This is necessary because data on the municipality level is the most reliable until now. Until now, attempts to use 100m² net have been unreliable and encumbered with errors.

sceptic researchers within regional studies. The report only slightly touches upon the theoretical discussion of the impact of the creative class on regional growth and how technology, talent and tolerance are the key elements to understanding growth processes. The paper is an analysis of empirical findings and presents a thorough empirical study of the links between technology, talent and tolerance and regional growth. The analysis is based on data from 70 Swedish labour market regions. It modifies some of Florida's original indexes to make a better fit for a European context. Further, the one sided understanding of tolerance is addressed by introducing a labour market integration index to debate a potential bias toward ghettoisation which Florida's original work presents. Finally, the value of explanation for the creative class thesis in a Swedish context is discussed based on the empirical results.

2. *Nordic City Regions in the Creative Class Debate - Putting the Creative Class Thesis to a Test* studies the Nordic countries of Denmark, Finland, Norway and Sweden as a critical case for testing basic assumptions put forward in Richard Florida's theorizing on the creative class (Florida 2002). Nordic cities and the Nordic social systems are quite different from those in the US in many respects and therefore constitute a critical test for the empirical reach of the creative class thesis beyond North America. The paper employs comparative statistics to examine the importance of the quality of place in attracting members of the creative class to Nordic city regions and analyses the role of the creative class in the economic development of the city regions.

3. *Regional Growth in Nordic City Regions: The Impact of People Climate and Business Climate* analyses the creative class thesis put forward by Florida (2002) by use of qualitative data from 14 city regions across Denmark, Finland, Norway and Sweden. The 14 regions include capital regions, regional centres and semi-peripheral regions. Building upon the findings of papers 1 and 2, the paper analyses the role of people climate and business climate with respect to the location of the creative class and firms in different kinds of regions and for policy formulation.

4. *The Creative Class, People Climate and Business Climate: Knowledge Bases, Variety of Capitalism and Social Capital* studies the geography of the creative class and its impact on regional development which has been debated for a few years now. Critiques have been numerous while the ideas of Florida (2002) have

permeated local and regional planning strategies in most parts of the western world. The adoption of Florida's 3T's has taken place without considering whether or not the theory fits into the settings of a specific context. The critique of Florida's 3T approach is touched upon in papers 1, 2 and 3, but this paper unpacks the creative class along three dimensions. Firstly, the knowledge base approach is introduced to break down the rigid assumption that all people belonging to the creative class share common preferences. The creative class consists of approximately 35% of the employed workforce, and thus it includes a very heterogeneous population. Secondly, the question of variety in capitalism is addressed in regard to Florida's thesis. Nordic countries and North America have two very different versions of capitalism. Thus, the underlying structures of the context in which the creative class thesis is developed differ substantially between countries where the approach is adopted. Thirdly, a discussion on social capital versus creative capital is touched upon by arguing that social capital can take many forms and, thus, be productive.

5. *The Spatial Division of Talent in City Regions: Location Dynamics of Business Services in Copenhagen* studies the heterogeneity of city regions. City regions are seen as cauldrons of creativity and innovation and have become the prime object for understanding and targeting economic growth. Talent is one of the central elements in providing an attractive business climate, and the paper focuses on the location dynamics and spatial division of labour and talent to provide evidence of the multiplicity of economic geographies of city regions. City regions are not merely homogenous growth machines, but complex urban landscapes. The economic growth and revitalisation of the city region and the rise of the knowledge economy, including the growth of advanced business services, have produced new location dynamics that change the spatial division of labour. The rise of the knowledge economy is related to the increasing focus on labour and labour qualification as an important location factor, including focus on symbolic-analytical jobs, the creative class and human capital.

6. *The Economic Geography of the Outer City: Industrial Dynamics and Imaginary Spaces of Location in Copenhagen* focuses on the business climate aspect of the changing economic geographies of the outer city of Copenhagen. The outer city is not a well-defined place but can be understood as a set of processes that transform the urban economic landscape outside the built-up

area. Several central and interrelated economic processes transform the outer city. The paper examines the changing industrial dynamics and location spaces within the framework of geographical proximity and relation propinquity in order to examine the social and cultural embeddedness of location. Imaginary spaces of location are the social constructs of the firm (of the interviewee representing the firm). They are representations of the perception, experience and interpretation of the location of the firm. The imaginary spaces of firms in the outer city are different from those of firms in the built-up area, and a survey points to the fact that multiple rationalities are important in order to understand industrial location.

2. Theoretical Background – Framing Location

This chapter introduces the theoretical arguments that explore regional dynamics of location and growth within a knowledge economy. The chapter sets the theoretical framework within which the six papers shall be read and understood. It starts with a brief historical review of the major tendencies in the economic development and the spatial outcome in post-war Europe and how regional policies have been affected by these trends. Next, a discussion of industrial dynamics and how they correspond with location dynamics of the economic activities is presented. The section is followed by a discussion of urbanization economies and localisation economies and how localisation and growth are looked upon. Within this debate, a discussion of most recent trends in location dynamics is explored. Finally a summary is provided.

2.1 Regional Growth in Post-War Europe

Post-war Western Europe experienced a booming economy based on mass consumption underpinned by Fordist mode of production and a Fordist regime of accumulation. Agricultural production was undergoing mechanization at a rate that had never been seen before. The booming economy of the 1950s absorbed most of the “new” labour force that a decade earlier would have found its way into the agricultural sector. In the late 1960s unemployment rates in the Nordic countries were lower than ever and shortage on labour supply brought many western governments to invite labour from neighbouring regions to help filling out the gaps on the labour market (Williams, 1992).

While labour supply was short and consumption was high, structural crises emerged in the Western European capitalist economy in the late 1960s and early 1970s. The oil-crisis in 1973/74, which it is most often referred to, was a symptom of several problems in the predominant Fordist mode of production and regime of accumulation. On the one hand, political instability in the Middle East and tension between the Arabic and the western countries due to the war between Israel, Syria and Egypt caused decreasing oil

production and increasing oil prices (Williams, 1992). On the other hand, the structural crisis can be explained by falling profit rates due to an increasing capital/out-put relation, growing outward investments due to a more globalised and internationalised world and by the organisation of Fordist production characterized by inflexible systems of production with only limited ability to change and adjust production into the more rapidly changing patterns of consumption (Lepietz, 1987; Leborgne & Lepietz, 1988; 1992; Amin, 1994; Webber & Rigby, 1996).

While the 1950s and 1960s to a large extent was characterized by urban growth and pressure on urban areas, the first desperate answers to the structural economic crises of the 1970s were an attempt to lower production cost and raise profit rates by moving production into more periphery regions locally and globally. Regional development and growth have always been characterised by a tension between the centre and the periphery materialising as a divergence in sectoral development. In Sweden this has been studied by Lundquist et.al. (2007a; 2007b). Findings by Lundquist et.al. demonstrate that the regional hierarchy is important for understanding diffusion of new technologies. Large urban regions tend to be first movers on technology shifts while secondary regions come along on a later stage. In Denmark Maskell (1986) describes how deindustrialisation in general and around Copenhagen specifically changed the national industrial centre of gravity up through the 1970s and early 1980s. According to Maskell, the more urbanised eastern Denmark lost employment in the manufacturing sector to western Denmark and in particular Jutland. This tendency was not only visible in the Nordic countries. In all Western European countries the crises in Fordist production and the emerging post-Fordist modes of industrial organization had major impact on the geographical distribution of economic activities (e.g. Dicken, 1992). Based on studies from Germany, Fröbel, Heinrichs & Kreye (1980) identify an emerging geographical division of labour – the new international division of labour – where headquarters and highly skilled job functions were located in larger western city regions while low skill and labour intensive production was increasingly sited in developing economies such as many African, South American and Asian countries. One important argument for this peripheral Fordism was that changing technologies, new improved logistic

systems and lowering of import barriers made large-scale production of standardized goods abroad profitable. (Dicken, 1992)

In the impasse of the capsizing Fordist production, a post-Fordist mode of production emerged. While large scale production moved toward the national and international periphery, researchers within economy and regional studies identified a growing economic development in some small areas in Italy and especially in the Central and North-eastern parts (see e.g. Brusco, 1982; 1986; Piore and Sabel, 1984). Research showed evidence that smaller communities in the Third Italy managed to be very competitive based on small-scale production. A flexible production system was identified which combined flexible labour force and machinery and strong social ties that made the economy robust. The flexible specialization mode of production became a new focus in regional research and in regional policy. Small-town areas where social cohesion and social capital⁶ were considered high were believed to be in possession of the socio-economic structures and institutional thickness that could take western production out of its crises. Therefore regional policy had a clear tendency to focus on how to underpin production systems located in distance from the larger and densely populated urban areas. Social capital was believed to be one of the main drivers, and primarily to be sufficiently dense in peri-urban areas.

Little by little, a vast literature on the industrial districts in Italy, Germany, Sweden and Denmark and with this a focus on clusters as well as localized learning and knowledge as a regional sticky asset (Markusen, 1996; Asheim 1996; 2000; Maskell & Malmberg, 1999) emerged, but also critique materialized which primarily questioned the sustainability of systems based on social capital in a globalizing economy (e.g. Harrison, 1992). Some of this will be touched upon later.

In the mid 1990s new growth patterns could be identified in large parts of Europe, and with them a changing political focus. The service sector had

⁶ Social capital can be defined as strong and dense relations within social networks. Social capital can have both positive and negative consequences. Positive are mutual support, cooperation, trust and institutional effectiveness etc. while negative consequences are sectarianism, ethnocentrism and corruption etc. (Putnam, 2000). In regional studies the positive effects are most often underscored.

already in the 1980s developed into significant importance for economic development and especially employment. One reason for this was the outsourcing of former in-house activities such as marketing, research and development activities etc. Another and equally important reason was the changing character of consumption that asked for better marketing, trend spotting and design. The coming of the service economy as Bell (1979) labelled the new economy, later redefined and rephrased as the knowledge economy, asked for new systems of production. The literature had for long had a tendency to address either industrial production or service activities – the two were never really put together in the same analytical framework (Walker, 1985; Tickell 1999; 2001; 2002)⁷. Within the last decade service activities have begun to play a major role in the understanding of production and regional development – bringing a revitalized focus on larger urban areas which are the natural location for most service activities. Consequently, cities and the diversity that city regions supply have become the new major focus of regional policy arguing that city regions shall be seen as locomotives for economic growth eventually bringing economic growth to the less urbanized and peripheral regions (Florida 2002; Glaeser 1994). This understanding is underscored by the findings of Lundquist et.al. (2006; 2007a; 2007b) who, based on a unique dataset, identify a resurgence of urban and metropolitan regions in Sweden within the last decades. Findings show that technology shifts most often start in the most urbanised regions and spread downwards in the regional hierarchy with some delay.

With this short introduction to the major trends in industrial production, organization and location in post-war Europe, the sections below offer a more dedicated focus on theoretical arguments for agglomeration economies and how location and urbanity is related to this string of literature.

⁷ Recently, Lundquist et.al. (2006; 2007a) have provided an empirical and theoretical framework which is based on long term economic growth studies relation and consequences for manufacturing and service in Sweden.

2.2 Location and Regional Growth

Traditionally, location has been seen as an outcome of two variables; distances to material used in production and distance to market. Consequently, transport costs have played a major role in analyses of location of economic activities. Weber launched the minimum transport cost model in 1909 (Weber, 1909). Down to basics, the model argues that location of firms is an outcome of distance to materials and market. According to Weber, materials can be categorised into two groups; ubiquitous and localised⁸. Based on the two categories of material, Weber constructs the ton-mile to decide the most adequate location of economic activity. The ton-mile represents the relationship between the distance, amount and category of the material that has to be transported to the production site and the weight of the product that has to be transported to the market. The relationship between the weight of the localized material used in production and the weight of the end product gives a mass index. An index value lower than 1 favours a location close to market whereas an index value above 1 favours a location closer to resources used in production. Dicken and Lloyd (1990) provide a classic example where the location of a brewery is being determined by the ingredients in the product. Beverages hold more water than sugar, hop etc. Consequently water will be crucial for location. As water is a ubiquitous material, the brewery will tend to locate close to the market where the beverages are sold.

The case above describes a very simple situation. When production is a composition of several materials, both ubiquitous and gross localised and pure localised (for details see footnote 8), then a much more complex pattern rises; the basic principals are, however, the same.

The main gain from Weber's minimum transport cost model was that he managed to model location within a heterogeneous surface. By stressing the

⁸ Ubiquitous materials are materials that can be found most places – water is a typical ubiquitous. Localized material is the second type of material and can be divided into two groups. Pure material is material like yarn for manufacturing of cloth. Gross material is material that loses weight in production. An often used example of a gross material is production of sugar from sugar beets where the dry sugar represents a considerable lower weight than the crude beet.

difference between ubiquitous and localised material, Weber opens for an analysis of why economic activities tend to cluster on the one hand, and why certain types of inputs in the production process favours location within a specific area on the other hand. The minimum transport cost model was modified in several generations and by various researchers up through the 1940s, 1950s and 1960s, e.g. Lindberg's (1953) on location patterns of paper and pulp production in Sweden, Isard's (1956) transformation line which illustrates possible combinations of location based on distance to market and distance to resources, and Smith's (1955) study on location patterns of manufacturing in England.

However, Weber made three important notions that are critical for understanding the journey that location theory has taken within the last four decades. Firstly, resources are unevenly distributed across space; secondly, labour and labour costs and qualification are unevenly distributed across space; third and finally, industries tend to agglomerate where specific resources and/or labour force are present. Weber saw labour costs as a factor of location, and, further, he acknowledged that some industries have a "*...more specific degree of labour orientation due to the greater importance of labor input in relation to that of other factors*" (Dicken and Lloyd 1990, p.157). Also Smith (1955) took up this possibility in the conclusion of a Weberian inspired study of location of the manufacturing industries in England: "*Some industries are tied firmly to a local market, though improvements in transport services have greatly expanded the range of distribution and the size of that local market; but some have a market covering the entire country. Some are tied, relatively or absolutely, to areas where the labour skills they require are present; but others migrate readily to areas where labour is cheaper, if less skilled.*" (Smith, 1955, p. 18)

Following Smith's conclusion, two location factors will have significant impact on location of economic activities. Natural resources can be of major importance for location of certain types of industries, e.g. those which are dependent on a high input rate of gross material, while location of other types of industries is based on the dependency of qualified or cheap labour. Along with technological breakthroughs in logistic systems and management and in transport in general, transportation costs have become a less important factor for location dynamics, especially as the service based and knowledge based

production has become more important for the North American and European economy. Economic geographers and researcher within regional studies have become more and more aware that parts of the production is footloose, in the sense that location is not only determined by natural resources and transportation costs, but rather determined by market and labour qualifications.

2.3 Downscaling Transport Cost – Upscaling Behaviour, Business Strategies and Economic Structures

Along with the modified models of Weber's transport cost model entering academia, a growing interest in functional division of labour emerged within the field of geography. Törnqvist (1968, 1970) identified a growing spatial division of production processes. Findings from a study of processes of urbanization in Sweden suggest that location patterns of production sites are scattered distributed while administrative, decision and information units tend to be concentrated in urban areas. One of the findings was that the three largest city regions held approximately 30 percent of the population, approximately 32 percent of the total employment in Sweden, but held approximately 40 percent of the administrative personal and close to 50 percent of the jobs that are most dependent upon face-to-face contact (Törnqvist, 1970). Hägerstrand (1970) argued that urbanisation is a way of economising time. This fits the argument Törnqvist put forward when he stressed that administrative functions gain from location parameters that are different from the production site. The argument runs that while production sites might be located due to natural resources or physical infrastructure, administration units are more footloose and will benefit from urban location where face-to-face activities with customers, suppliers etc. are less time consuming.

Inspired by political scientist like Simon (1957) who tried to understand the logic of firm decision making as based on bounded rather than full rationality and thus on satisfying rather than a maximizing strategy, Törnqvist's (1968) understanding of firm location is based on a behavioural approach to business strategy (Walker, 1989). Partly inspired by Törnqvist and partly inspired by Marxist structural thinking, Dicken (1971; 1976; 1992) Massey

(1979; 1984) and Massey & Meegan (1982) started to address the underlying structures and rationalities for multi localised enterprises and the exploitation of uneven regional development. Massey (1979; 1984) is one of the forerunners within the restructuring approach which emerged in the aftermath of the structural crisis of Fordist production. Massey (1973) starts questioning the adequateness of neoclassic location theory by examining the processes that influence on location of economic activities. Massey (1979, p. 234) puts it this way: *“What it ignores is the variation in the way in which different forms of economic activity incorporate or use the fact of spatial inequality in order to maximise profits.”* Hereby Massey points to an important weak spot in location theory up to the 1970s. Regions differ – and so do means for capitalist accumulation. In developing her understanding of location dynamics, Massey introduces her concept of spatial division of labour and emphasises the social element in production. In *The Spatial Division of Labour*, Massey (1984) argues that geography should be an integrated part of analysing and solving problems because social relations are spatial and spatial patterns are social processes. Hence, geography of e.g. unemployment has to be understood as a multi-dimensional *“outcome of socio-economic processes operating over space”* (Peet, 1998, p. 178); the social aspect of space is important for understanding the spatial division of labour. The increasing internationalisation of production exploits regional variation in order to maximise profit. One main concern to Massey is that investments are based on present facilities. Thereby investment in white-collar job will take place where previous investments are located. The consequence is that regions are more or less stocked within the present balance of power. Capitalism does not imperatively dilute spatial variation, and capitalism therefore represents and underpins a structural variation across space which results in growing socio-economic inequality.

Dicken also addresses this new division but where Massey focuses on the spatial dimension of labour and the anatomy of job loss that it brings along, Dicken (1976; 1992) addresses the division of production following the idea that corporations organise trans-nationally in order to exploit national and regional differences through new organisation of production. This line of reasoning is to a large extent also represented by Porter who points to national and later regional differences in the competitive advantages that underpin

certain types of location (Porter 1985; 1990). With the changing dynamics of location which the above mentioned researchers tried to frame together with a growing inspiration from sociologist theory the understanding of the interplay between location, agglomeration and regional development was renewed in the mid 1980s.

2.4 Economies of Externalities: Localisation and Urbanisation – Two Perspectives on Location

Going into a more detailed discussion of the new light put on location, a short introduction to agglomeration economies is helpful. Economies of agglomeration are a theoretical understanding that originates from Marshall and later Weber. Advocates of agglomeration economies argue that firms benefit from external factors by locating in proximity to each other. The traditional highlighted advantages of agglomeration are transportation, communication and services. However, external benefits can also originate from location of a skilled and specialised labour force, organisations that provide specialised knowledge, specialised services, input-output relations etc. These factors differ from the traditional perspective in location economies on cheap labour and materials.

Agglomeration economies can be divided into two dominating directions. First, localisation economies '*...are external to firms but internal to an industry within a geographical region*' (Feldman 2000, p.383). Localization economies can be understood as knowledge, labour pool, and organisational spillovers that are external to a firm but internal to firms within an industry in a geographical bounded area. Localisation economies relate to firms within closely related industries and the basic argument is that co-location can help to spread new knowledge – codified and tacit – on the one hand and provide a large pool of highly qualified labour on the other. Secondly, urbanisation economies can be seen as '*... scale effects associated with city size or density.*' (Feldman 2000, p.383). Urbanization economies shall be understood as effects that are external to industries but internal to a bounded urbanised area. Urbanisation economies are related to all firms in all industries, and the basic argument is that density

and diversity can help reduce search costs on the one hand and expose firms to unexpected events that can bring along innovations on the other. Agglomeration economies also have a counterpart. Diseconomies of scale relate the disadvantages that firms might experience from being located in proximity to each other. Pollution, rising prices on land etc. are examples of this, but in the following I will only address the positive effects of agglomeration economies.

2.4.1 Localisation Economies

Localisation economies and urbanisation economies are two variants that have gained more important positions in economic geography within the last three decades. One major reason for this is the work done by Italian regional economists on industrial organisation in Northeast and Central Italy (e.g. Brusco, 1982). The Italian school reactivated the thoughts of Marshall on industrial districts performed almost a century earlier. Eventually, this work inspired the book *The Second Industrial Divide* by Piore and Sabel (1984)⁹ who identified two industrial divides based on technologies. Piore and Sabel (1984) argue that a shift in the capitalist mode of production away from Fordist mass-production and towards specialised flexible production systems favours co-localisation of production within the same industries – consequently arguing for location economies.

The flex-spec approach is inspired by the work done by Alfred Marshall on industrial districts in the 18th century England. Marshall finds that some aspects of economic activities are difficult to explain by straight economic rationality. He concluded that the success of some industrial districts could partly be explained by input-output relations between firms, a pool of skilled labour, spillovers of knowledge and by what has been called industrial atmosphere and *in the air* mechanisms being factors which reduce transaction cost and stimulate informal networking to raise trust (Asheim, 2000). Piore and

⁹ The first industrial divide is identified in the late 19th and early 20th century when mass production and mass consumption slowly started to overtake traditional artisan production. The second industrial divide emerged in the 1970s where mass production was overtaken by a flexible mode of production based on flexible labour, machinery and organisation.

Sabel point to the competitiveness and flexibility of small and medium sized enterprises (SME) within the same industry and located within small communities. Findings from case studies of the geographical co-localised SME's suggest that strong social relations, a flexible labour force and flexible machinery offer a competitive and flexible production system (Piore & Sabel, 1984). Flexibility within the system is found on several levels. First, a highly skilled work force provides flexible labour. Secondly, production organised around use of subcontractors provides a flexible production system, and thirdly using CAM and CAD machinery provides flexible technology. All this – it is argued – can be linked to social ties between the economic actors within the flexible network. Advocates of flex-spec stress the social dimension of the competitive systems arguing that the embedded nature of mutual understanding, trust, knowledge spillovers and knowledge exploitation are crucial for the competitiveness of the system. Consequently the flex-spec approach has a spatial dimension which stresses the importance of co-location to obtain mutual trust and thereby harvest the fruits of localisation economies (Piore & Sabel, 1984; Sabel, 1994).

Critics of the flex-spec approach have pointed to the instability of industrial districts in an increasingly globalised world (Tomaney, 1994). Questions have been put towards the sustainability of small local production systems based on trust and social relations when local firms tap into global networks or when small successful firms are overtaken by trans-national corporations. Others question the ability of the local production systems to stay competitive for a longer period of time because the tight relations that they build upon may reduce the chances of acquiring new knowledge and hence successful innovations (Grabher, 1993).

The flex-spec debate contributes with important insights on the localisation debate by stressing the impact of social capital and the link between social capital and geography. While the flex-spec argument lost some interest from geographers in the mid 1990s, it did help to put agglomeration and localisation economies on the agenda by changing the analytical perspective from only addressing horizontal learning (hierarchical) to also including vertical learning (input-output relations). Debates on industrial districts by Asheim (1996), Markusen (1996) and Harrison (1992) among others, followed by

conceptualisation of learning regions (Morgan, 1997) and regional clusters, (Malmberg & Maskell, 1997; Maskell & Malmberg, 1999) provided a new perspective on location dynamics and competitiveness by placing localisation economies very central. The inspiration came from sociologists like Granovetter's (1985) and political scientist like Putnam (1995; 2000) who with concepts such as embeddedness and social capital argued that economic transactions would be constrained by social relations. Additionally, inspiration from organisational economists work on transaction cost theory (Coase, 1937; Williamson, 1985) entered the field of economic geography through by Scott (1988) who argue that economic agents act opportunistically which is why all economic actions hold an element of uncertainty. Therefore firms try to reduce uncertainty by integrating sub-production internally in the organisation, if profitable, or by cooperating with firms that they already trust, because building trust is costly and time consuming. The cost of building trust between economic agents is one of the most important insights that transaction costs have contributed with in economic geography.

This literature argues that knowledge spillovers are facilitated by social institutions like trust, and the social institutions are embedded in the local or regional geography. Further relations are strengthened by cognitive, geographical, institutional, organisational or social proximities (Boschma, 2005). Moreover, this literature claims that the overall institutional setup which underpins knowledge production and knowledge diffusion and helps regions to become competitive is deeply rooted in geography and space. Examples from Jutland in Denmark, Gnosjö in Sweden, Northern Italy, Baden Württemberg in Germany and Silicon Valley in California USA suggest that social processes embedded in the regional structure provide favourable milieus for innovation. The processes occur due to the embedded character of spatially fixed assets and are thus difficult or impossible to replicate. Markusen (1996) uses the term 'sticky' about knowledge, and based on studies from Germany and Canada, Gertler (1997; 2003) argues that exchange of knowledge is difficult across distance and in particular across cultures because knowledge is not always codifiable; tacit knowledge (Polanyi, 1967) is passed on by routines in combination with culture that calls for spatial proximity. Consequently, geography and spatial proximity become central to understanding economic

activities, and being there becomes essential in order to acquire the knowledge that a given region possesses.

Becoming embedded in local institutions and structures over night is, however, impossible and just being there is no warranty for becoming a part of the localised knowledge creating networks. It takes time to tap into networks and pipelines of knowledge and to win trust. Advocates of localisation economies argue that face-to-face interaction is critical for building trust, lower transaction costs and increase knowledge diffusion within production networks (Grabher, 1993). Consequently, due to the embedded character of institutions, norms and values – that constitute the localised knowledge producing networks and help to utilise the tacit knowledge – the chances of accessing knowledge increases with location within the local area where it is produced.

2.4.2 Urbanisation Economies

Urbanisation economies and the urban dynamics which it represents differ fundamentally from dynamics emphasised by advocates of localisation economies. Localisation economies rest on industry internal spillovers while urbanisation economies rest on spillovers external to industries but internal to a bounded urbanised area. Contrary to localisation economies, studies inspired by dynamics of urbanisation economies suggest that social capital and strong ties can be obstructing creation of new knowledge (Florida, 2002; Grabher, 1993). Knowledge creating networks need to be shaken now and then to secure new inputs, and the strong ties that social capital facilitates restrict such new input, according to Florida (2002). The more loosely organised networks of the city – characterised by a thick and diverse access to knowledge – is a strength according to advocates of urbanisation economies. Knowledge inputs from several different sectors will help innovation and thereby competitiveness. Further the density of multiple economic activities in itself raises the face-to-face contact between economic actors. Earlier in this chapter the pioneering work by Törnqvist on location dynamics was introduced. Törnqvist was used to show this growing interest for the spatial patterns of location for economic activities in the late 1960s and early 1970s in an attempt to explain urbanisation processes in Sweden. However, the work of Törnqvist (1968; 1970) is also an

example of the growing interest in urbanisation, cities and the link between urban economic activities and growth. The argument put forward by Törnqvist (1970) and Hägerstrand (1970) is that the densely populated areas are highly sufficient for activities that require high rates of face-to-face contact. In that sense cities can be understood as constructions that lower transaction costs for economic actors by lowering search costs by raising the density of actors in a geographic area.

Traditionally, cities are centres of service supplies. These service activities are characterised by a considerable different organisation of production and exploitation of knowledge compared to traditional manufacturing which has often been the main focus for studies inspired by localisation economies (Gershuny, 1978; Bell, 1979). Glückler (2007) examines firms in knowledge based business services and argues that because these services are not produced in value chains based on traditional input output linkages, there is a need to develop explanatory approaches different from those based on a traditional understanding of transaction cost advantages and technological spillovers etc. Most often service commodities are produced and consumed at the same time. Consequently, to understand urban location of service activities, Glückler (2007) asks for a shift away from the traditional theoretical approaches on externalities that favour technological know-how towards a relational understanding of the importance of know-who. According to Glückler, this is necessary because knowledge based business service firms do not innovate in laboratories but in close interaction with their clients. Therefore the market place for knowledge services become intransparent and consequently know-who becomes “*a vital form of knowledge that relates to the interconnection of people and the quality of their relation*” (Glückner, 2007 p. 952).

Glückler's (2007) notion of the advantage of knowing-who in densely urbanised areas corresponds with Jacobs' (1961; 1969) focus on diverse economic activities as the prime advantage of cities. Jacobs (1969) argues that cities are the most innovative places through history. Large cities that offer diversity, i.e. externalities external to industries, have shown to be competitive over time. Jacobs exemplifies this by addressing the competitiveness in Birmingham. Though no industrial specialisation can be identified in the city, it stays highly competitive while highly specialised cities like Manchester

witnessed enormous problems of staying competitive in the 1960s. Basically, what Jacobs argues is that specialisation and concentration of specific industries will eventually lead to a negative lock-in situation while the diversity in economic activities will promote continuous innovation because economic actors are exposed to multiple ways of thinking and multiple ways of producing.

Jacobs' ideas of diversity as a competitive advantage are often addressed as Jacobs' externalities in the literature. Boschma (2004; 2005) argues that negative lock-in can be avoided by the presence of a diversified local knowledge base. Henderson, Kuncoro and Turner (1995) identify a distinction between location of industries based on localisation and urbanisation economies. They argue that firms in mature industries tend to locate where localisation economies are at place, i.e. where spillovers within matching industries can be accessed. On the other hand, industries in new fields of knowledge e.g. high-tech industries tend to locate in large cities characterised by diverse structures of economic activities. Consequently, the results based on Henderson, Kuncoro and Turner (1995) are that localisation economies are favourable in order to attract and retain mature industries while Jacobs' externalities are important when regions seek to attract high-tech industries.

Recently, Frenken et.al. (2004) and Frenken et.al. (2007) have launched the conceptual idea of related variety arguing that the relatedness and diversity of regional industrial structures can facilitate a high level of regional competitive and thus regional growth. Related variety is best explained as a hybrid resting on urbanisation economies building on Jacobs' externalities but adding insights from localisation economies. Models that measure related variety do not only look for diverse industries but also for the density of sub-industries within every industrial sector; thereby the approach argues that firms can benefit from both firm and industry external spillovers as well as firm and industry internal spillovers. The critical volume and combination of a both related and diverse industrial structure are, according to Frenken et.al. (2007), best found in larger city regions.

2.5 Creativity and Talent

As an outcome of the deindustrialisation debate in Sweden in the 1980's, concepts like creativity and culture were already linked to urban development and the future role of larger cities. Andersson (1985), Andersson and Strömquist (1988) and Törnqvist (1994) all stress the role of creativity and communication for de-industrialised cities to adapt to the challenges of the post-industrial society. This debate, however, never really managed to get on the international agenda, and hence contributions from these pioneering thoughts were only limited in an international perspective.

Seeing the city region as the centre of the most innovative and dominating economic dynamics is also the foundation in Florida's (2002; 2005a; 2005b) work on what impacts regional growth. Florida has two entrances to his understanding of regional growth. Firstly, Florida is heavily inspired by Jacobs' (1961; 1969) view on the importance of quality of place and tolerance. Florida comprises the two into his people climate concept. People climate is conceptualised as tolerance through cultural diversity and openness and quality of place through architecture, pedestrian area, bicycle tracks, cultural amenities etc. According to Florida (2002), people climate is however not enough to compose a competitive region in the knowledge economy. Therefore he introduces business climate as a supplementary to people climate. Business climate covers qualified labour, business policy, industrial structure, universities etc. Florida argues that the presence of these two types of climate is central to underpinning a competitive economic milieu.

Secondly, Florida (2002; 2005a; 2005b) acknowledges the work done by regional and urban economists on the linkages between growth and knowledge. Romer (1986) stated that knowledge and growth could be linked to each other, and increasing returns could be accomplished by investment in knowledge. These insights were taken further by Lucas (1988) and Glaeser (1994) who found that growth is associated with the density and level of human capital. Human capital is directly linked to the years of studying. Most often the level of human capital is described by the share of people who have a college degree or bachelor degree (Glaeser, 1994). Florida, however, sees the definition of human capital as too narrow to describe the creative mindsets that bring along growth and prosperity. Florida argues that growth is dependent upon innovation – at

least in a Western context – and that innovation and creativity are inseparable, and, consequently, the most creative occupations must be the ones that are linked to innovation and hence economic growth. Therefore Florida introduces the concept of the creative class based on people occupied in creative job functions. Florida divides the creative class into two subgroups. First, the creative core is defined as people who have to be very creative to fulfil their job. This group includes researchers, teachers etc. Secondly, the creative professionals are people who are more creative by routine. These include administrative associate professionals, business professionals, lawyers etc. (For details see Appendix 1 in paper 1). Florida links regions that experience economic growth with regions that hold a high share of creative class people, and he further links location of creative class people to regions that have an attractive people climate.

Basically Florida argues that welcoming, diverse and open minded cities attract creative class people in large volumes, and large volumes of creative class people attract investments in high-tech industries leading to economic growth. Accordingly, Florida, like Glaeser (1994; 1998) and Lucas (1988), identifies a positive correlation between a group of people, highly educated or creative, and regional growth.

The difference between the human capital and creative capital argument has, however, led to a discussion of old wine on new bottles. Glaeser (2004) argues that the subdivision of the creative class, called the creative core, is almost identical with his human capital concept and further that this group shows the same correlations as Glaeser's calculations; hence, Florida is actually reinventing the well accepted human capital concept. On the other hand, Florida argues that the creative class concept is wider than the human capital and more accurate in regard to innovation because it does not discriminate between people with or without higher education, but rather between the extent of creativity that people have to unfold in their work process.

Results presented in paper 1 demonstrate that the correlation between human capital and creative class people is 0.93 in Sweden based on data from 2002. Consequently, as human capital people and creative class people in Sweden tend to co-locate in 2002, a debate concerning a clear distinction between creative class and human capital is uncalled for. For the results

presented in this dissertation, human capital and creative class can be understood as two concepts having almost equal geographical characteristics. However, though the correlations point towards co-location of creative class people and highly educated people, it should be stressed that only 40% of the creative class in Sweden holds a university degree of a bachelor level. Consequently, when human capital is measured as university degrees, it only covers 40% of the creative class people. Therefore a considerable difference between the two concepts can be identified in a Swedish context, but location patterns due to the regional hierarchy of Sweden makes it difficult to determine whether the one has more impact on regional growth than the other, based on the data available for this study. This can partly be ascribed to lack of historical data on the creative class which was impossible to obtain at the time when data for this project was generated (ultimo 2004/primo 2005). Therefore, based on the studies from Sweden in paper 1, it makes most sense to rank the two concepts alongside within this thesis.

The line of reasoning that Florida represents argues that regional development is facilitated by an attractive people climate and an attractive business climate¹⁰. Further, regional development depends on three pillars: technology, talent and tolerance. The 3T's as they are often referred to, all have to be present in a region to generate growth. Tolerance provides an attractive city for creative class people, creative class people represent talent, talent attracts investments in technology, and together the 3T's generate growth. A thoroughly introduction to the 3T's and to the creative class thesis is given in papers 1, 2, 3 and 4 which also question this line of argument by unpacking and developing on the often square assumptions that Florida represents (see also Glaeser, 2004; Markusen, 2006; Hansen, Vang and Asheim, 2005; Peck 2005 and Wojan, Lambert and McGranahan, 2007).

¹⁰ Appendix A in this thesis presents Florida's indexes to measuring the creative potential of regions developed in an American context and a brief introduction to the indexes adapted to a European context. The adapted indexes are more thoroughly presented in paper 1 together with Appendix 1 in paper 1. These indexes are used in the Swedish and European studies of the technology, talent and tolerance developed in a European context, partly by the Technology, Talent and Tolerance research team, partly by Karl-Johan Lundquist and I.

Further, along with the growing focus on the urban as the nexus of regional development, a growing interest for the service industries has emerged. As mentioned earlier in this chapter, Törnqvist (1970) identifies a mismatch between the location needs and preferences of service activities and manufacturing. Now we know that the relocation that Törnqvist identified should actually be characterised as an ongoing process of outsourcing of service activities from manufacturing activities. This process of externalising knowledge intensive service activities such as marketing, research and development etc. from manufacturing resulted in and still results in a growing mass of economic activities that are located as independent firms in urban areas and with it a bulk of literature focusing on the geography of service activities. This literature has for a long period been running parallel with the discussions within industrial geography (Walker 1985; Tickell, 1999, 2001; 2002). Lately, however, the two parallel strings have approached each other due the obvious link between the knowledge economy and the concentrations of knowledge intensive business services in the city. Bryson (2000), Bryson et.al. (2004), Beyers (2003; 2005), Daniels and Bryson (2005) and Miles (2005) are good examples of analyses that link the service economy to a more general understanding of urban economic dynamics as well as innovation and thus regional development. The geography and dynamics of the knowledge intensive business services is an important insight if we shall come to an understanding of the geography of talent and creativity because these industries hold a large share of the talented and creative labour force (Kahin and Foray, 2006). Therefore the dynamics and patterns of location for knowledge intensive business services are the focus of papers 5 and 6.

2.6 Summing Up

This chapter has presented some of the most important trends within current economic geography. Two lines of arguments are of major importance for the thesis. Firstly, the increasing importance of constant innovation has resulted in a focus on talents as motors for regional development. Economic activity locates where talents are plentiful, and talents locate where the people climate is appealing. This line of reasoning is the point of departure in the first

four papers of this thesis where regions are analysed from an interregional perspective. Next, the relationship between social relations, space and location dynamics has been touched upon from the restructuring approach by e.g. Massey (1984) and by underlying arguments in localisation economies. The relational approach that these strings represent is used for explaining intraregional diversity in papers 5 and 6. Figure 2 conceptualises the causal relationship of concepts based upon the reviewed literature and the findings of the papers.

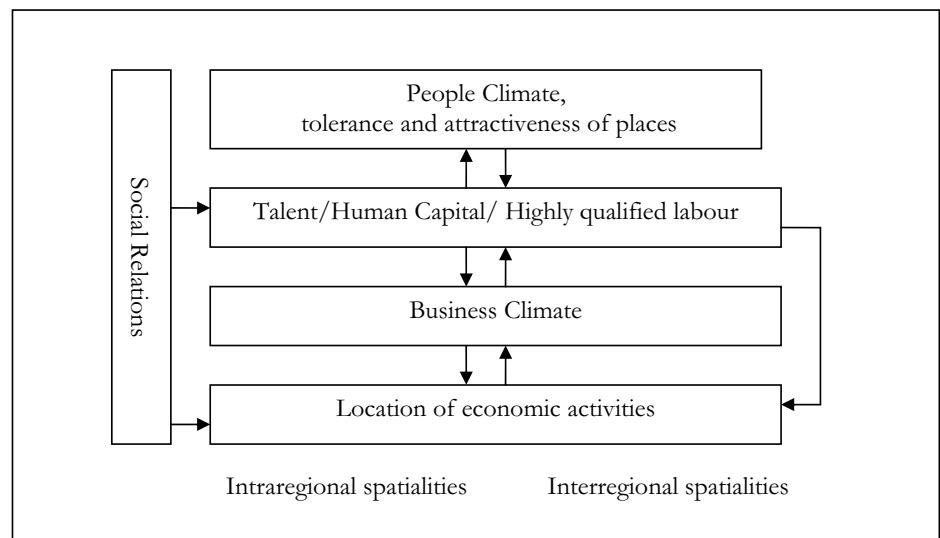


Figure 2: Schematic illustration of the theoretical framework

People climate is defined as tolerance and attractiveness of place influences the geography of talents. However, high concentrations of talent may also help to improve people climate. Next, talent improves the business climate, but business climate also influences on the concentration of talent. Likewise a high concentration of talent has an impact on the positive location of economic activities, just like a favorable business climate will, but location of economic activities may also improve the business climate. Finally, social relations influence both location of talents and location of economic activities – talents, entrepreneurs etc. are restricted by bounded rationality rooted in social relations. Consequently, the relationship between the concepts listed here is not

straightforward – the concepts influence one another both in positive and negative directions; thus to get a better understanding of the dynamics of location in the knowledge economy, all concepts has to be taken into account.

3. Research Design and Methods

This dissertation contains empirical material from Denmark, Finland, Norway and Sweden. Papers 1 and 4 present data only from Sweden processed by the authors whereas papers 2 and 3 present data from Denmark, Finland, Norway and Sweden. The Danish, Finnish and Norwegian data is processed by the co-authors while I am responsible for the Swedish data – data is however gathered on collective decisions. Data from papers 5 and 6 is Danish and processed by the authors. In this chapter the research design and methods will be portrayed and the empirical material presented.

Research can be divided into three processes often interacting along the research process: extensive, intensive and abstraction. Extensive and intensive research is linked to empirical work; the first is associated with quantitative methods, the latter with qualitative methods. Abstraction, on the other hand, is theory-based. All three processes are used in this dissertations and reflections on why and how will be scrutinised below.

3.1 The Research Object and How to Approach It

I believe that the world cannot be understood as straightforward. To come to an understanding of the spatial patterns of location, one needs to go beyond the observable events and look for necessary and contingent relations and causal mechanisms which causes an observable event to take place.

‘...social science is not simple or monistic but differentiated in its aims, methods and types of objects.’ (Sayer 1992, p:44). Both empirical and theoretical research calls for reflections on how to approach a research question, what mix of methods can lead to the best possible answer, and how ontology and epistemology interfere with this (Hansen, 1997). Epistemology concerns the theory of knowledge and how we understand the realm of knowledge (concepts) and the realm of objects (including experiences). Ontology concerns the theory of what exists. Critical realism offers epistemology and a stratified ontology because *‘Only with an ontology which admits both external and internal relations, internally structured and differentiated objects having causal powers and liabilities is it possible to*

distinguish qualitative changes, and mere successions of events and hence between necessary or causal changes and relationships and accidental once? (Sayer 1992, p. 157). The stratified or deep ontology allows researchers to look into multiple layers and levels of abstraction to find possible linkages between what events we can observe, what mechanisms can lead to the observable event and what structures that lays behind.

Positivism argues (with some scepticism) that everything that exists is observable. Within positivism, it is believed that arguments and rules shall be based on logical deduction in combination with observable facts (Thurén, 1995). On the other side of the spectrum of philosophy of science, social constructivism argues that the world (or at least our knowledge of the world) is a subjective construction. From a social constructive viewpoint, concepts and practices are fabrications of culture and society – nothing can be understood as natural (Hansen & Simonsen, 2004). Between these two arguments, critical realism claims that the world is existing without our knowledge and experience of it, and that the aim of science is to disclose the structures and mechanism that result in the observable events – an aim that social science and physical science share (Hansen & Simonsen, 2004).

The stratified ontology that critical realism operates within leads to the premise that events are the result of structures and mechanisms. Central to critical realism is the analysis of causality being the relation between events, mechanisms and structures. Accordingly, critical realism works with two types of conditions – necessity and contingent relations. To give an example: a necessary condition for capitalism is that labour is paid less for the work put into a product than the actual value added to it. Otherwise, capitalism would not succeed in creating profit. However, the negotiated salary between the individual worker and the individual firm is contingent – some people might get paid more than they are worth, while others are paid far less than they are worth. Causal reasoning and causal powers are also very important parts of critical realism. Causal powers are sensitive to time and space: High unemployment rates can, in one situation, be caused by poor competitiveness, in another situation by economic recession and in a third situation by technological breakthroughs. Consequently, A is not always caused by B; it can also be caused by C or D, events can be caused by several different

mechanisms and mechanisms can be initiated by several different structures. Consequently, structures in one setting do not necessarily lead to the same observable events in a different setting or even within the same setting at a different time.

To be able to make abstraction within the stratified ontology, critical realism introduces three overlapping levels of reality: the real, the actual and the empirical (Sayer, 2000). The real refers to structures that possess causal mechanisms and causal powers – regardless of it being in nature or in the social settings. Put differently, the real represents everything that exists, naturally as well as socially. The actual refers to concrete events being an outcome of structures and mechanisms. In other words, the actual is the consequences of the real when structures and mechanisms are effectuated. The empirical is experiences based on our perception of the actual. Not everything is observable, but empirical information can help us to be more confident in our beliefs of the underlying structures and mechanisms that influence a certain observable event.

3.2 The Empirical

According to critical realism, the theorising of empirical findings must be based on the interplay between events, mechanisms and structures - theory to some degree influences empirical findings and empirical findings influence on theory. Therefore research in social science must be based on an ongoing interplay between the concrete and the abstract. The papers that are presented in this thesis use both extensive and intensive methods in the empirical analyses.

3.2.1 Extensive Research

Extensive research seeks to answer questions regarding regularities and common patterns. Methods are usually large surveys, structured questionnaires, standardised interviews etc. (Sayer, 2000). Within this thesis, quantitative data based on extractions of larger databases at Statistics Swedish and Statistics Denmark are used for the extensive research process.

Analysis on register-based data aims towards answering the questions: How many? How much? Where? etc.. In that sense the extensive research addresses the actual. Extensive analysis is more generalising and structuring than intensive analysis. Further, quantitative analysis (here as a representative of extensive research) is generalising and basically selective (Andersen, 1990). However, extensive research is when data is available in an effective way to come up with relatively precise and to some degree detailed results. Using quantitative analysis is an excellent tool for handling massive statistical information. Within this thesis, extensive research is used for exploring patterns that influence the geography of economic growth within the research area of interest.

In an orthodox reading of realism, one could argue that case studies should provide the empirical material to design the ideal extensive research design. This is however seldom the case due to pragmatic reasons such as time, funding etc. Therefore, theoretical and empirical findings from other studies within the area of interest are often used as inspiration (as substitutes for case studies) when designing extensive research. This has also been the case for the studies presented in this thesis.

The value of extensive methods as the single source of explanation is debatable. Compared to intensive research, a shortcoming of extensive analysis is its limited ability to explain causality. It has, however, also a virtue compared to its intensive counterpart – it is an excellent tool for pointing to areas that would benefit from further analysis due to its ability to reduce large sums of information into more capable masses. Thus, besides pointing to patterns and generalities, extensive findings are here used to operate and conceptualise the intensive research process.

Extensive methods are used in all six papers. All six papers examine register-based data in order to get an overview of the present conditions within the geographical area(s) of interest. The results of papers 1 and 2 raise questions that are more carefully scrutinised in paper 3 where intensive research helps to look beyond the findings of the extensive research in search for the causal powers that have lead to the observable events presented in papers 1 and 2. Paper 4 has the ambition to develop the theory that structured the analysis of papers 1 and 2 with the findings of papers 1, 2 and 3. Thereby,

paper 4 can be seen as an abstraction and synthesis of the results from the former papers. Papers 5 and 6 apply the extensive findings to demonstrate intraregional differences in location dynamic in the Copenhagen region. In this type of analysis, the extensive results are found in the process of abstraction by raising questions for further research as well as portraying a state of condition. Paper 5 draws on statistical material showing location patterns for industries and industries' use of highly educated labour. Lastly, based on triangulation of extensive and intensive findings as well as theory, paper 6 introduces the concept of imaginary spaces which is used for conceptualizing the location dynamics that shape location of economic activities within metropolitan areas.

The data material used for the extensive research in the papers of this dissertation draws upon two datasets – one that contains information on Copenhagen, the other information on Sweden. Both datasets hold data on the municipality level and contain key variables on economic activity; they origin from the national statistical bureaus in Denmark and Sweden and are acquired from extractions of larger data registers. Consequently, data is a combination of information from the tax register, the employment register, the educational register and the population register. All variables originate from central official registers and, thus, data can be considered highly reliable.

Two sets of quantitative data have been used for this dissertation. The first set of data contends information on Copenhagen. Data is acquired through COMET project¹¹ and origins from Statistics Denmark. The data set counts day time population and includes various variables on a municipality level where the following are used for the two papers that are included in this paper: age, education, industry affiliation (2 digit NACE) and social code/status.

The second set has been acquired through the project Technology, Talent and Tolerance in European Cities¹² and holds information on Sweden.

¹¹ COMET was an international research project sponsored by EU's 5th frame programme which I worked on when I was associated with Institute of Geography, University Copenhagen from 2002 to 2004. The project aimed to map the intra-urban competition within service industries in European cities.

¹² Technology, Talent and Tolerance in European Cities: A Comparative Analysis is a project funded by The Swedish Research Council and accepted as a European Science Foundation

Both information on daytime and night time populations is being applied in combination with variables on sex, age, country of origin, education, industrial affiliation (3 digit NACE) and occupation (3 digit ISCO). Originating from national statistical bureaus, the data can be considered of very high quality and contains information of the total population. Both sets of data have been acquired in raw form which is why all processing has been done by the author(s). Data variables, and the later constructed parameters, are however results from collective decisions. As both sets of data originate from research projects with a comparative aim, data collection is based on compromises and what is feasible within scheduled time and within financial constraints of a specific problem and is, consequently, not necessarily fully focused on the question raised in this dissertation.

3.2.2 Intensive Research

Intensive research aims to answer questions regarding how and what produces a certain change. It studies individual agents by interviews, participation or observation. Due to the individual level, intensive research does not seek to generalise results. Andersen (1990) argues that one of the great advantages of the intensive research is its flexibility as a project evolves – adjustments can be done along the way if necessary. Further, a virtue of the intensive research phase is that it allows searching for causality to a much higher degree than the extensive research phases do. However, the process of gathering data is often hermeneutic because statements are interpreted and communicated both by the researcher and by the reader. Therefore, intensive data can be seen as less objective than its quantitative counterpart. Within this dissertation, semi-structured interviews are used as the means of the intensive research process.

Within social science, many theoretical concepts are highly abstract and thus difficult to operate in an empirical research process. While extensive research seldom manages to fully scrutinise abstract concepts, intensive

project. The project included 8 national research teams and aimed towards examining the claims put forward by Florida (2002) that people in creative occupations can help regions to become more competitive.

research can become very helpful in exploring them. One way to do this is by asking questions to the same area in different ways. Thereby it is easier to move beyond the semantics of words in order to find the “truth”. In that sense, qualitative studies provide a fine opportunity to study underlying processes and thus explain causality. This thesis also includes abstracts concepts; quality of place and imaginary spaces are some of them. These concepts are difficult, if at all possible, to measure quantitatively. Interviews will contribute to come closer to an understanding of the content of such concepts because it allows for asking into issues on a more personalized level.

Paper 3 includes interviews in Denmark, Finland, Norway and Sweden based on the same questions. The interviews are based on semi-structured interviews guided by questions based on project discussions. Three locations are studied from criteria outlined within the international project. Firstly, it was agreed to study the capital city because in most of the participating countries this is the centre of economic activity and power. Therefore interviews were conducted in Stockholm. Next, it was agreed that we would study the effect and impact that the creative class has on regional growth in peripheral or semi-peripheral regions to test if the approach has an effect on less urbanised regions. Karlskrona became the representative of a semi-peripheral area for two reasons: Karlskrona is a UNESCO world heritage city, therefore it could represent an extreme case (Flyvbjerg, 1991) in regard to people climate by arguing that if its not of importance here, it will not be of importance in any semi-peripheral region. Further, the Karlskrona-Ronneby region has been relatively successful in developing an ITC sector; accordingly, interesting insights on business climate might emerge. Finally, the research group decided that each partner should find an interesting case to study. Malmö-Lund was selected as a case region because the especially the city of Malmö is undergoing a transformation from based on traditional manufacturing to a region dependent upon tourism and knowledge production. While Lund has a long tradition within university related activities and spin-offs The region is the Swedish bridge to Western Europe linked by a crossing to Copenhagen (the capital of Denmark), and the region has experienced immigration of Danes moving to Malmö, but still working in Copenhagen as well as a large and

growing number of Swedes working in the larger Copenhagen metropolitan region.¹³

In all case cities, interviews have been conducted with the same type of people based on the same interview guides. The interviewees were: eight to ten creative class people, two politicians, one city planner, two business leaders, here minimum one from a knowledge intensive firm, and one representative of minority groups (ethnic or sexual) (see Appendix B for a list of interviewed persons and guidelines for interviews). All interviewees – except from the creative class people – were relatively easy to get in contact with because they were interviewed primary due to their profession. The creative class people, however, were more difficult to get in touch with as I wanted them to think that they represented themselves and not a firm – hence, using firms to access creative class people was precluded. The snowball effect (asking one informant to name another possible informant) was also eliminated because I was afraid that I would end up with people of almost equal opinions, values etc. Therefore, I contacted DIK¹⁴ and with well-willing help from them I managed to get in contact with a number of creative class people who was willing to participate in group interviews – four people in each group and two groups in each region. The result is presented in paper 3 where the findings from Stockholm, Karlskrona-Ronneby and Malmö-Lund are mixed with results of similar interviews in Denmark, Finland and Norway.

In many ways the three case studies were successful. A combination of theoretical arguments and the findings of the extensive analysis were discussed, given perspective, confirmed and disconfirmed. However, the group interviews with representatives of the creative class have one shortcoming. The majority of creative class people that were willing to participate in the interviews was

¹³ As the scheduled interviews in Stockholm and Karlskrona-Ronneby collided with my child leave, the interviews in Stockholm were conducted by Jenny Sjöholm, Department of Human Geography Uppsala University and the interviews in Karlskrona-Ronneby were conducted by Mareile Walthers, Blekinge Tekniska Högskola and CIRCLE, Lunds University. Both were guided and instructed by me, and records of the interviews were carefully analysed afterwards.

¹⁴ DIK (Dokumentation, Information och Kultur) is a Swedish labour union for people within some of the, by Florida (2002) defined, creative occupations.

occupied within different areas of communication of culture. Consequently, the interviews in Malmö-Lund and in Stockholm lacked creative class people within engineering. This can be seen as a problem when looking at Sweden isolated, but as paper 3 presents qualitative results from Denmark, Finland, Norway and Sweden, the problem becomes less distinct. Further, when comparing and analysing the results from Sweden Denmark, Finland and Norway, it becomes clear that the statements by the Swedish creative class correspond to the statements of the creative class in the three other Nordic countries. Therefore it is reasonable to believe that the results from Stockholm and Malmö-Lund in Sweden are representative for the majority of the creative class, despite the lack of people within technical occupations.

Moreover, paper 6 represents material that originates from interviews in the Copenhagen area. Here themes are also based on collective decisions within an international project. First 182 firms were interviewed by phone with a structured interview guide that had both open and close answers (see Appendix C). The interviews were conducted by five people and answers were entered into an SPSS database. Besides these interviews, which are in the gray zone between intensive and extensive research, six semi-structured interviews were carried out with six key persons engaged in urban planning in the Copenhagen area (see Appendix D). Here, we interviewed persons from local, regional and national planning authorities and private firms who were in consultancy business within regional planning. These interviews were conducted by my co-writer on papers 5 and 6, Lars Winther from Department of Geography at University of Copenhagen, and analysed by both Lars Winther and I.

3.3 Abstraction

Within critical realism, research comprises two elements: abstraction and concretisation. Research based on a critical realistic perspective should constantly shift between the concrete and the abstract. Only by doing so, findings will be valid and theorising will mirror the real.

An ongoing movement between the concrete – represented by empirical results – and the abstract – represented by the widely accepted theory of chapter 2 and in the papers – has characterised all six papers in this dissertation,

but to exemplify how the process of abstraction can lead to new concepts and theorising, I will provide two examples below.

The first example is from paper 4 where the theoretical arguments by Florida (2002) are the point of departure. The co-author and I argue that the theory is square and inconsistent with what one can expect to find in Denmark or in Sweden. Therefore, we line up three areas that need to be decomposed and retheorised. Based on these areas, we introduce the knowledge base approach created on the reasoning by Asheim & Gertler (2005); Hansen, Vang & Asheim (2005) and Asheim et.al. (2007). By combining theoretical and empirical findings, abstraction leads to a less rigid understanding of location dynamics of creative class people. The same movement between the concrete and the abstract leads to two additional areas to unpack Florida's understanding of location dynamics which provides less rigid analytical tools.

The second example comes from paper 6 where location dynamics of the outer city area of Copenhagen are analysed and the concept of imaginary spaces are introduced. The empirical data origins from three sources described above: Structured interviews with open and closed answers, interviews with key informants and statistical data from national registers. Of the 182 phone interviews, 30 were done with representatives of firms located in the outer city.

We started to decompose the information in our possession which was based on 30 interviews with firms located in the outer city (out of the overall 182 interviewed firms), findings from the statistical analysis, information from key informants and theoretical inspiration predominately from Siverts (2003) and Borsdorf & Zembri (2004) who argue that the transition zone between the urban and the hinterland is becoming more integrated in the urban context; Illeris (1997) and van Crieelingen et.al. (2004) who identify a specialisation and division of labour between the main axes of Copenhagen, and the argument by Massey et.al. (1999), Amin & Thrift (2002) and Amin (2004) that there is a need to rethink the city and urban regions by developing a new conceptual framework.

By decomposing the framework, we could identify a mismatch between what the representatives of the firms saw as important for their choice of location and what was actually present in the outer city. By constant movement between the concrete and the abstract, we eventually had to accept that the

location dynamics we could identify did not correspond with any concepts that we knew of within economic geography. Therefore, abstractions lead to a construction of a new theoretical concept to embrace the mismatch that we could identify. Representatives of firms (of which many were the owners) argued that location was based on access to costumers and markets, access to corridors of traffic etc. On the other side, most of the firms live and die in the outer city – they do not relocate. They stressed social relations as one of the single most important reasons for location. Accordingly, we came up with the concept of imaginary spaces of location defined as “*social constructs based on personal beliefs and discursive practice. It is related to a variety of discourses arising from multiple rationalities including social and cultural embedded rationalities.*” (Winther & Hansen, 2006, pp. 1403). Imaginary spaces are used as an analytical tool to conceptualise the strong influence which affinity to place have on locational dynamics. Consequently, by abstraction, the concept is developed to get a better and more nuanced and open understanding of factors that interfere with the traditional economical arguments that dominate theory on location of economic activities.

3.4 Summing up

Summing up, this chapter has presented the analytical framework from which the findings of the papers have emerged. This framework is also presented in figure 3 below.

This chapter have shown that results and theorising have emerged from viewing research from a critical realism perspective. Empirical research, both extensive and intensive, has been inspired by theory. The findings from the extensive research have helped to operationalise the intensive research process, and abstraction has been a key to transform the findings into useful knowledge and usable concepts as well as bringing us a step further to understanding the structures and dynamics of location of economic activities.

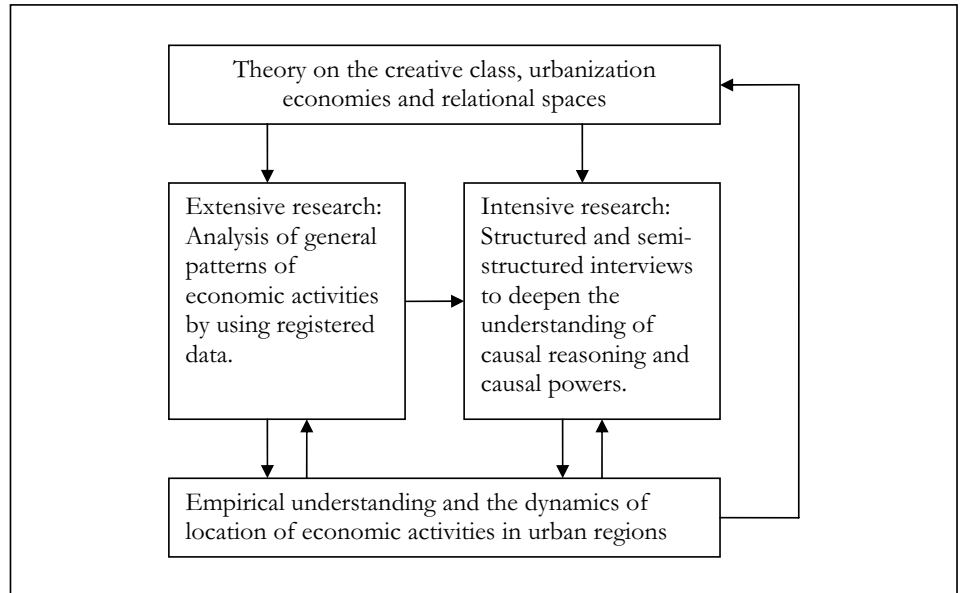


Figure 3: The relation between theory, empirical research as well as unpacking and theorizing

4. Findings and Concluding Remarks

This chapter offers findings and concluding remarks based on the above theoretical and empirical discussion in combination with the findings of the six papers that constitute the thesis. It provides the arguments put forward in papers 1 to 6 and the essential findings. Based on these findings, concluding remarks are presented and areas important for further and future research are addressed.

4.1 Summary of Findings

Paper 1 is a statistical analysis of how the creative class approach and specifically how technology, talent, tolerance and the creative class are linked to regional growth in Sweden. When examining the location of the creative class, technology, talent and tolerance, Uppsala, Stockholm, Gothenburg and Malmö-Lund appear as the most competitive Swedish regions.

By use of multivariate regression models, the relationships between people climate and the creative class, secondly between the creative class and business climate and, lastly, between business climate and regional growth are examined. Unfortunately, occupation data, and thus data on the creative class, is not available in Sweden further back than 2002. To compensate for that, educational data of talents are used as a proxy for the creative class. This method is acceptable because talents and creative class correlate with 0,935 in 2002. The results for the statistical analysis lead us to believe that over time the creative class has a positive impact on regional development, but that the business climate part of Florida's theoretical model does not prove very important in a Swedish context. The most obvious explanation for this lack of statistical cohesion is very likely that the proxies used within this analysis are imprecise or far more complex than suggested by Florida. The paper concludes that the importance which Florida's theoretical approach assigns to business climate might be exaggerated. The knowledge economy might be far less dependent on traditional business climate parameters. As competitiveness increasingly depends on a labour force as carriers of knowledge, business

climate might have lost its importance in contemporary regional development. Further, based on the statistical models, it is stated that the 3T model which argues that growth is an outcome of co-presence of technology, talent and tolerance does not reflect the case in Sweden. Rather growth is linked to tolerance and talent. Thus in Sweden, the three T's are narrowed down to two – based on the variables used in this analysis.

Paper 2 examines to what extent quality of place attracts creative class people, and to what extent they support high-tech performance in Nordic city regions. The main answers to these questions are firstly that in general the large Nordic city regions are performing best among all Nordic regions on indicators related to the quality of place, the share of creative class and the performance of high-tech industries. Secondly, bohemianism and cultural opportunities as indicators of people climate correlate with concentrations of creative class people. This indicates that people climate may have a positive impact on location of creative class people.

The study also finds that correlations between people climate, creative class and high-tech performance are strongest in large city regions (with more than 100,000 inhabitants), while less convincing and even negative correlations can be found for creative class people and high-tech growth in less populated areas. This leads us to conclude that the creative class approach is of no or small relevance when explaining industrial development in modest populated Nordic regions, while it may have some relevance for policy prescriptions in the large Nordic city regions.

The findings of the paper imply that the creative class approach summarizes some useful insights into regional industrial development and regional development policies of particular relevance for the large Nordic city regions. Nevertheless, it is also argued that much work remains to clear off the ambiguities and the relevance of the approach to apply it in a Nordic context. Finally, the findings suggest that the creative class thesis offers interesting insights to the debate of knowledge regional development, but it does not substitute the more traditional human capital approach.

Papers 1 and 2 represent extensive research and aim to modify a theoretical approach developed within a North American context. Paper 3 is based on intensive research which is operationalised by the results of papers 1

and 2. Paper 3 goes behind the statistical findings and looks for causal coherence by interviewing creative class people and key persons within politics, ethnic or sexual minorities, planning and businesses. A main finding is that the Nordic regions will experience difficulties in creating competitive advantages by merely focusing on people climate due to three main factors: Firstly, people climate is generally considered to be important for the creative class, but it is still secondary to attractive job markets. Further, Nordic countries have an uneven spatial distribution of jobs which is attractive to the creative class. Especially for highly skilled people, job markets are strongly dominated by capital city regions and to less extent the regional centres. Secondly, welfare state policies ensure a relatively equal distribution of some of the most important aspects of people climate, e.g. schools, childcare, healthcare etc. Consequently, regions face difficulties in marketing themselves on such parameters. Thirdly, people climate is perceived differently in different regions, by different parts of the creative class and by people in different phases of life.

These considerations testify to an analytical approach that does not suit all types of regions. Our findings point to the fact that an attractive people climate in a Nordic context to some extent differs from the one that Florida emphasises - particularly for regions that do not enjoy the privilege of being a capital. Further, vibrant street life, music scenes and cultural diversity are priorities that Florida (2002) link to the creative class. However, these are less important to job and career opportunities for 'creative class families' in a Nordic context.

The findings of this study raises concerns about the potential of applying the creative class approach beyond large city regions which greatly limits the usability of the approach in regional planning in its present form. Further, people climate is of a very subjective nature. Different people value different aspects of a people climate – which is also dependent upon which type of region they live within. People learn to appreciate what they are surrounded by. Maybe more importantly, people's climate preferences change in different phases of life. Consequently, the paper concludes that studies of perceptions of people climate for people in different phases of life would prove valuable to understanding the location patterns of highly skilled people.

Paper 4 unpacks and retheorises Florida's creative class approach, partly by taking up some of the general concerns that can be found in the first three papers. It is argued that the creative class approach will benefit from adding a knowledge-based approach, a variety of capital perspective and a more nuanced understanding of social capital. Firstly, the bold claim, put forward by Florida, that 35% of the employed labour force shares the same preferences are questioned. We argue that three ideal knowledge bases can be identified within the occupations of creative and talented people. Only few occupations depend solely on one of the knowledge bases; rather they represent a mix of two or three bases, but we identified a number of occupations that primarily draw on one of the three. By combining information of the five highest ranking city regions of respectively synthetic, analytical and symbolic knowledge bases with business climate and people climate, we are able to illustrate a relationship that to some degree underpins the argument. City regions with a high concentration of synthetic knowledge base workers tend to score comparably higher on the business climate index than on the people climate index. The same tendency, but with an inverse result, tends to be the outcome of city regions with concentrations of symbolic and analytical knowledge bases.

Secondly the unpacking of the creative class thesis addresses the impact that variety of capitalism can have on Florida's 3T model. By debating the labour mobility issue, which is central to Florida, the paper presents data on the participation of women on the labour market in Sweden and USA, respectively. The data illustrates the structural differences between society and the labour market. In Sweden, the higher participation rate of women on the labour market, their qualifications and the size of the labour market lead to a less mobile labour force. Moving from one place to another is not only a question of one job for one person, but of two jobs for two persons with specialised qualifications, and this will cause more friction on the labour market. Based on differences between the American model and the Nordic welfare state model, we stress the importance of taking the local context into consideration when applying a holistic model like the one offered by Florida.

Thirdly, we have addressed the discussion of social versus creative capital. In paper 4, we argue that Florida fails to understand social capital in other forms than bonding and thus perceives of social capital as restricting

creativity due to its exclusive nature. Based on two examples, we argue that social capital can be both bonding and bridging. Further, we argue that though bonding capital is exclusive, it can have positive effects as well. Based on references to a study of knowledge intensive entrepreneurship, the paper shows that bonding social capital can help to get firms started and, thus, stimulate entrepreneurship. Tight relationships can contribute to raise capital for investments, but some of the strong ties can also have a negative effect. Furthermore, based on an example from the agricultural machinery production industry in Denmark, the co-operative movement has facilitated technological development by enabling interactive learning and knowledge transfer between farmers and producers of agricultural machinery on the one hand, and the promotion of technology diffusion on the other hand, which shows that bridging social capital can enhance technological development.

The first four papers circle around the creative class approach and examine its potential contribution to regional development in Nordic countries and in Sweden in particular. The last two papers of this thesis move beyond interregional competition and discuss intraregional tensions and the dynamics of location within city regions.

Paper 5 identifies a spatial division of labour and talent between different parts of the Copenhagen city region. Going one step further, analysis shows that even within the knowledge based industries (two-digit NACE codes), a spatial division of talent can be recognized. Therefore regional strength and weaknesses cannot be narrowed down to whether or not the right constellation of industries is present. The talent perspective within the industries has shown that large spatial differences can be identified and, consequently, location is not only a discussion of industries but also of the level of talent within the industries.

An important outcome of the paper is a call for rethinking the consequences of uneven distribution of talents. We need to understand location dynamics between, but more importantly, also within industries. Further, while doing so, we need to look at the consequences of uneven intraregional development when city regions are regarded as locomotives for economic growth.

Finally, while paper 5 analysed the suburbs of Copenhagen, paper 6 studies the outer city.

The paper studies the economic geography of the outer city defined as the edge of the city region. The motive for studying this area is that the cities and landscapes of Europe are changing toward an integration of the countryside in the urban economy. The result is complex urban landscapes in which new spaces and scales of relations and flows have emerged which creates new spatial divisions of labour. It is in this process that the outer city has appeared as a new urban form. The paper analyses the industrial and locational dynamics of the outer city of Copenhagen which is transforming into a service and knowledge economy. From being a place dominated by agricultural and related industries, the outer city now has an industrial structure which approaches the built-up area; it is becoming a service and even knowledge economy.

In the paper we conceptualise the locational preference of service firms in the outer city as imaginary spaces of location. The imaginary spaces of location are social constructs based on personal beliefs and discursive practice. We argue that the imaginary spaces of location can be related to a variety of discourses arising from multiple rationalities, including social and cultural embedded rationalities. The imaginary spaces of location are different between the built-up area and the outer city. This is probably a result of differences in markets, size and knowledge intensity, etc. The imaginary spaces of location of the firms in the outer city emphasize “soft factors” such as personal reasons, attractive housing, social and cultural facilities and nature. These spaces are not likely to arise from an economic rationale but from for instance family strategies of residences of the owner. An affinity to place a sense of belonging seems to have decisive influence on industrial location.

A central contribution from the paper is the call for a more differentiated understanding of industrial dynamics to understand the complexity of urban economics. Affinity to place seems to be a very strong issue for location dynamics – also for economic activities. Different imaginary spaces of location call for an approach that makes room for a more differentiated perception of location dynamics of economic activity because economic rationality is accompanied by social and cultural rationales.

4.2 Concluding Remarks

This thesis focuses on the location dynamics of economic activities in the context of urbanisation economies. It has been essential to examine the location patterns of economic activities in the knowledge economy. To come to an understanding of this topic, the area has been approached from several directions. First and foremost, the increasing focus on innovation and talent has led to an examination of the influential writings of Florida (2002; 2005a; 2005b). The basic argument for this is that the theoretical viewpoints shared by Florida tend to be holistic and embedded in a socioeconomic context different from what can be identified in Europe. Therefore, four papers in this thesis unpack and retheorise the creative class thesis to adjust it into a context different from the American.

The papers show that it is not a simple task to fit the model to a Swedish and Nordic context. Findings suggest that variation in context reduces the effect of the creative class thesis as a model to explain regional development on all geographical levels in Sweden and in the Nordic countries. Firstly, the urban hierarchy is significantly different from the urban hierarchy in USA. Only few cities in the Nordic countries and even less in Sweden have a mass of economic activities that justify a comparison to cities like San Francisco, Houston and Minneapolis, Chicago, Boston or Pittsburgh. Combined with a different tradition of organising capitalism by use of welfare goods and services etc., this results in a different set of economic dynamics. Therefore the findings and retheorising presented here suggest that regional characteristics should be carefully examined before a creative class inspired approach on regional development is adopted – and in a modified version regional specifics should be considered.

However, the findings show that the large city regions in Sweden, and in particular Stockholm, have a central position in the Swedish economy. The large cities can be considered as economic powerhouses. They hold the most important universities, the largest number of talents, the most diverse industrial structure etc. Lundquist et. al. (2006) has shown that the developments in Stockholm can be identified in most other urbanised regions with approximately ten years' delay. Consequently, based on these findings it can be

argued that the most urbanised regions can be seen as locomotives of growth in Swedish regional system.

One of the findings from this thesis is that talents and even creative class people are positive correlated with regional growth. Paper 1 suggests that the technology parameter in Florida's technology, talent and tolerance approach correlates less with regional growth than the talent parameter – if growth is measured as jobs pr. inhabitant, increase in employment and even increase in population. The absent relationship between technology and regional growth is to some extent contradictable to the findings in paper 3 where job opportunities and careers seem more important to location than the supply of cultural amenities. These are, however, not necessarily contradictable findings. It calls for new analysis and use of different or additional variables as proxies for measuring business climate. Such variables could be patents, a more narrow definition of high tech industries or even a different measurement of growth, e.g. value added. This is something that is worth examining in the future studies of the relationship between the regional growth and technology, talent and tolerance.

Other studies on the impact of the creative class on regional growth in Sweden have been provided by Mellander & Florida (2007) and Tingali et. al. (2007). Both studies find a positive correlation between the creative class and regional growth. These studies, however, apply different regional units than the one used here, and, accordingly, comparability of results is difficult. Also, both studies use variables considerably different from the one used in this study which complicates comparison of results even more. Most importantly, the two studies only report statistical findings. Consequently, the empirical evidence is based on methods that without additional information can have difficulties in explaining causality. All this said, the essence of the findings from both Mellander & Florida (2007) and Tingali et.al. (2007) is that a positive relationship between regions that experience growth and regions with a high share of creative class people can be identified in Sweden. Therefore, some truth in this relationship must be expected. The studies of Mellander & Florida and Tingali et.al., together with the studies of this dissertation, however, also leave the impression that further research within this field is needed. A critical approach to developing new additional indexes to measure technology, talent

and tolerance, and more empirical evidence based on interviews will provide a better understanding of the impact that talents have on regional growth – and how to attract and retain them. One such attempt has been executed in the research report by unpacking the understanding of tolerance by introducing an integration index, and in paper 4 by applying a knowledge base approach, but more needs to be done.

Further, to examine whether this relationship between technology, talent and tolerance and regional growth goes beyond the human capital approach, we need more long-term studies. The impact of a people climate might be highly influenced by economic fluctuation. If the economy is booming, people might run greater risks and move from one place to another without having a job. If the economy is in a period with stagnation, low growth rates etc., followed by insecure employment then factors that can be linked to people climate might be far less important than a secure job. Therefore one of the future aims must be to study the relationship between technology, talent and tolerance in a historic perspective and cover periods of increasing as well as decreasing economic structures.

Some more general implications can be derived from the above findings. Firstly, the creative class approach that Florida advocates is problematic to use in Sweden. The findings unambiguously state that the relation between technology, talent and tolerance is absent when looking at regions with less than 100.000 inhabitants. Consequently, the tendency of small and medium sized regions to implement 3T arguments in their local policy and strategic planning cannot be justified from the findings of this thesis. Rather, small and medium sized regions should put effort in analysing the regional industrial structure. By doing so, the small and medium sized regions would be able to adapt holistic models like Florida's to the actual need of the industrial base rather than uncritically implementing them in local and regional policies. All this said, it is also important to stress that positive linkages between people climate, talent, business climate and regional development can be found in larger city regions. Consequently, we cannot ignore the notion of technology, talent and tolerance that Florida has put on the political agenda, but retheorising and profound empirical work need to be done.

A changing focus from interregional to intraregional dynamics and a major contribution from this thesis is that we must start to understand the region as a heterogeneous unit. Dynamics and patterns of location vary across space and cause a spatial division of labour and talent within the region. Based on the findings in Copenhagen, patterns of location in the knowledge economy create growing differences within the region. Talents tend to cluster in specific areas of the region even within knowledge-based industries. This finding raises questions of whether or not city regions can be used as locomotives of growth in the knowledge economy. If the most knowledge intensive firms tend to locate in specific areas within a larger urban area, can we then expect them to spread into less urbanised areas in a longer perspective? This is a question that needs to be addressed in the future to be able to reduce the regional differences, which until now have been the regional policy of Sweden.

One of the keys to reaching an understanding of the dynamics that facilitate the heterogeneity of the region is to look into the impact that soft factors have on location. The study of the outer city of Copenhagen and the interviews with the creative class in Sweden suggest that social relations can play a very influential role on location. Social relations play an important role for location of talents as well as an important role for location of economic activities.

Consequently, regional policy and planning have to take into account that social relations have a substantial influence on location of talent and economic activities. Therefore an important learning has to be that improving systems that stimulate processes of innovation among firms already located in a region might prove more valuable than putting effort in attracting investments from outside the region. Firms already located in a region may very likely show more loyalty to the region in a long run due to the social relations that labour as well as owners of firms are engaged in.

Synthesising on the findings of this dissertation, we can conclude that talents can be positively linked to regional growth. Talents are found in highest shares where universities are located and where population density is highest. Talents are attracted by people climate, but more importantly, job markets and social relations play a major role for location as well. The impact of relations on location is underscored by Moodysson (2007) who studies knowledge creation

in biotechnology innovations. He finds that biotech industry is located around Lund due to spin-offs from the university on the one hand, but that the relations of the individual actors are also of great importance for location. So, to conclude: *geography matters* as Massey (1984) has famously stated, but it must be understood as context and not only be reduced to distance.

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I

Technology, Talent and Tolerance

- The Geography of the Creative Class in Sweden

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1. Introduction – The Theory of the Creative Class

This chapter presents and discusses the new and very influencing creative class thesis which has entered planning authorities, the political scene as well as academics working with issues of regional development. The analysis is based on '*The Rise of the Creative Class*' by Richard Florida (2002), which has become very dominant in city planning both in the USA, Canada and in Europe.

As most other researchers within regional growth, Florida (2002) argues that the globalising world introduces new challenges to the production of goods in the high cost areas. Countries like Sweden cannot compete on traditional production because the production cost is relatively high compared to Eastern Europe, Asia, the Middle East or Africa. Decreasing cost in transportation along with technological breakthroughs within information and communication technologies have made traditional standardised industrial production less dependent on place and more dependent on cost. Consequently, industrial production has become more footloose. This is, however, not the case for a more knowledge intensive production.

Having acknowledged that production cost is important, it is fair to state that location preferences for knowledge intensive firms are less concerned with production cost and more concerned with variety of supplementary factors. Theorising on industrial dynamics and regional differences has showed that market, culture, geographical proximity, relational propinquity and institutional differences are important factors for knowledge based production as well. Research has shown that these factors play a crucial role for the creation of new knowledge. Further, the new technologies that new knowledge brings along are vital for the competitiveness of knowledge intensive businesses (Amin and Cohendet 2004, Grabher 1993, Gertler 1997, 2003, Maskell and Malmberg 1999).

Florida argues that the more we move into a knowledge based economy, the more important innovations become in order to maintain our current level of welfare. To facilitate a high rate of innovation, a large and constant supply of talented and creative people is required. In his thesis, Florida puts emphasis on talented and especially creative people as they use their creative mindset to solve problems in their professional occupation¹. The creative class – as Florida calls them – counts 30-45 percent of the total occupied workforce in most western countries and consists of persons in many different occupations like researchers, designers, engineers, artists, architects, leaders in businesses and in the public sector, groups in healthcare and teachers in educational institutions.

¹ A list of creative occupations can be found in appendix 1 table 1

The underlying argument in the creative class thesis is that as talents and creative people become a crucial resource for knowledge intensive production, the quest for talent and creative people increases. Contrary to traditional resources, talents and creative people are mobile. Consequently, regions have to attract and retain talents to attract businesses; firms tend to move to locations close to qualified labour rather than the creative class moving for jobs. Therefore, regional growth has become closely connected to the quality of place and thereby to factors that appeal to the creative and talented workforce.

A Theory on Regional Growth

The basic reasoning of the creative class approach is that technology, talent and tolerance are three crucial cornerstones in facilitating regional growth in the knowledge based economy. The three T's, as they are often referred to, are regarded as interconnected parameters which individually have a positive but limited influence on growth; however, in coexistence they have a significant synergic effect. Florida 2002 puts it this way 'Each is a necessary but by itself insufficient condition: To attract creative people, generate innovation and stimulate economic growth, a place must have all three.' (p. 249)

Florida acknowledges the numerous different explanations of regional growth, which can be found within the field of regional economics and economic geography. Especially Glaeser is credited for his human capital perspective, which argues that a high concentration of highly educated people propels regional growth (Glaeser 1994, 1998). The creative class thesis argues that not only educated people are necessary to promote regional growth – other parameters are of high importance too. 'Regional economic growth is powered by creative people, who prefer places that are diverse, tolerant and open to new ideas' (p. 249); accordingly, a talented workforce and a base of economic activities are important for regional growth only in combination with a tolerant open-minded and diverse climate. Adding tolerance to well-known parameters of economic growth is perhaps the most innovative part of the creative class thesis. By doing so, the approach puts focus on aspects that has to do with the wellbeing of the labour force.

In the creative class approach, technology is understood as high-tech industries, and talent is viewed as formally educated persons as well as talented people working within specified occupations – we will return to these definitions at a later stage. The interrelation between technology and talent has been identified by Glaeser (1998, 2003), among others. The creative class approach specifically points to the connection between clusters of educated and talented people and to concentrations of innovation and high-tech economic activities. Hence, two of three central elements in facilitating regional

growth are the presence of a talent and a high-tech base according to the creative class approach – two parameters that are often pointed to in research on regional growth.

Tolerance, the third parameter, covers a broad range of elements that influence the milieu and atmosphere of the city. Most importantly, tolerance has to do with low entry barriers. Cities not only grow due to birth rates; attraction of talented and creative people is essential too. Therefore, low entry barriers such as openness toward newcomers and open-mindedness toward different cultures and different norms may help regions in the competition for talent. This is partly because open-mindedness makes it easier for foreigners to relocate, and partly because people deviating from the norms can be very innovative.

The line of reasoning is put into schematic form in figure 1.1

The figure illustrates the interconnection of the three T's in the creative class approach. As the model shows, the three T's are all equally related. In theory, the three T's are equally important, and only by combining the three will competitive, attractive and creative regions emerge.

One of the assumptions of the creative class approach is that people within creative occupations base their values on similar grounds and are attracted towards the same type of places. The values that attract and are treasured by talents are openness, diversity etc.; all elements in the tolerance bubble in figure 1.1. In addition to attracting and retaining talent, a tolerant and diverse environment also brings along a higher rate of innovations and thereby becomes supportive to the technology base in the region. This is due to a high tolerance level providing space for people who act and think differently. These people often introduce an outrageous idea, which eventually becomes possible or at least gives birth to other ideas. Therefore, people who think differently are often valuable in generating innovations.

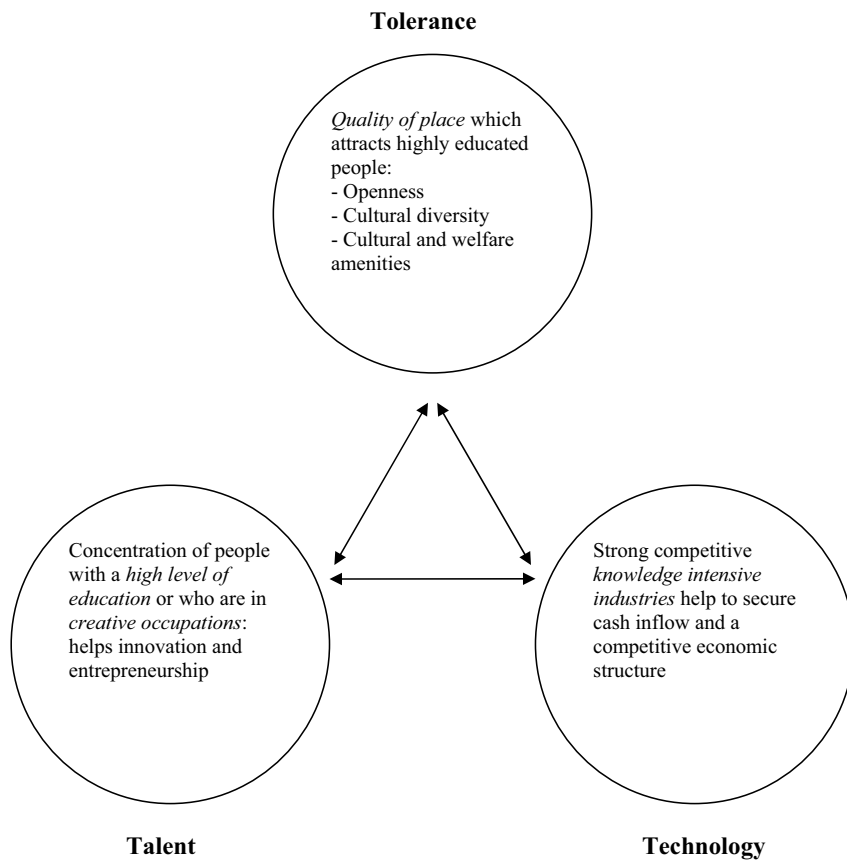


Figure 1.1: Simplified model of the relationship between technology, talent and tolerance (Source: Inspired by Isaksen (2005))

Business Climate versus People Climate

An important point in the creative class approach is that knowledge intensive businesses move to regions with high shares of talented and creative workforce, and that creative people tend to gravitate toward places with certain qualities. This asks for new regional policies to complement the traditional focus on business climate with a people climate angle. People climate can be seen as a set of ingredients that spice up the city and make it attractive for the creative class. Especially the tolerance variables are of importance; however, all three bubbles in figure 1.1 affect people climate. If a good people climate is not present, the creative class will move on to new places.

It is important to bear two things in mind when dealing with the creative class theory. Firstly, the creative class is assumed to be extremely mobile and to put individual needs first; hence, they will move from region to region if their needs are not fulfilled. In Sweden and in the Nordic countries in general, the degree of mobility is, however, not comparable to the North American counterpart – social constraints are generally higher and the social welfare system does not force people to move around in search for jobs to the same extent as the lack of social security in North America does. Secondly, the creative class thesis is developed in a North American context; therefore the number of cities to move between is much higher, and the intercity competition on the national level is much more distinct.

In response to the high mobility of the creative class people, regions have to provide a good people climate to facilitate a good business climate. This is the result of several studies performed by Florida and his colleagues. By studying trends in regional development, they found that though some regions have universities, and thereby a potential pool of well-educated people, and have facilities to start up businesses, they are not always able to stimulate growth. An important explanation shall be found in the absence of an attractive people climate, which causes a flight of talented and creative people. Consequently, potential talent and a good business climate are not sufficient to bring growth to a region – attracting and not least retaining creative people are just as important aspects (Florida, 2002).

There is, however, a fine line between creating an attractive people climate and creating a safe community. Putnam's social capital concept (1993) is based on civicism where, pushing to extremes, everybody looks out for everybody. According to Florida, this does not appeal to the creative class people². On the contrary, the stereotype picture of the American suburb with hundreds of houses looking alike, occupied by people with the same skin colour, within the same social class and with the same religious and cultural belongings kills creativity. The lack of diversity in these suburbs results in closed communities that are difficult to enter for newcomers and provides extremely limited space for people who think differently. Thus, provision of safe communities with good schools etc. can, on the one hand, lead to an attractive people climate. However, without diversity in terms of culture, social class etc. these elements can have the opposite effect.

² Florida's reference to Putnam's work suggests an understanding of social capital as bonding, i.e. rooted in civicism. However, social capital can also be considered as 'bridging'. As such it can co-exist with weak ties as this form of social capital is a result of organizational and institutional innovation on the societal level (e.g. labour market collaboration and legislation in the Nordic countries).

Critique on the Creative Class Approach

While having a massive success within bodies that practise regional planning, Florida's thesis has met serious critique in academic circles, including Malanga (2004), Törnquist (2004) Gibson and Klocker (2005) Scott (2006), Boyle (2006) Rausch and Negray (2006). Among the most well argued ones, we find Glaeser (2005), Markusen (2005), Peck (2005) and Hansen et.al (2005). In the following, we will present and discuss the critique that has been raised toward the creative class approach. By doing so, we also elaborate on areas of the thesis that need to be re-theorised.

Human Capital versus creative capital

Glaeser is a strong advocate of the human capital thesis. His basic argument is that Florida gives the creative class credit for causing regional growth, although, in reality, it is the highly educated workforce that brings regional growth, according to Glaeser. Glaeser touches upon one of the more loosely defined concepts of the creative class thesis, one that can easily cause confusion. The human capital perspective that Glaeser represents sees the educational level of the workforce as a key to understand regional growth. Florida on the other hand uses the concept of talent for the same group of people (Florida 2002 p. 333), but he also uses the same term to cover people with creative occupations (Florida, 2005b p. 51) - and some times both for human capital and creative occupations. Consequently, a rather confusing use of the term talent makes Florida's concept and thus theorising diffuse and misleading. Therefore, in the following discussion Florida's talent concept will be used as if it covers people in creative occupations³. Subsequently, the concept covers a larger number of people than the human capital group as defined by e.g. Glaeser.

Glaeser argues that strong correlations can be found between location of human capital and regional growth. Basically, the significant difference between Glaeser's human capital thesis and Florida's creative class thesis is that the creative class thesis assigns equal importance to other variables than talent when explaining regional growth. Glaeser most likely includes people who are highly educated but are occupied within non-basic jobs, e.g. waitresses. In our point of view, this is a simplified and narrow perception of resources. On the other hand, Florida includes creative workers without formal education, but he most likely also includes people who statistically are within a creative occupation, but do not necessarily perform creative work, e.g. certain jobs within public services as well as certain jobs within the financial sector. Analysis of the following chapters will show that the creative class in Sweden only consists of 40% of people with a formal university degree equal to or above bachelor level. Hence, Glaeser (2005) might focus

³ In chapter 3 a talent index is introduced. The index is measured by educational level and hence equal to Glaeser's human capital concept.

too much on education and too little on other influencing variables such as job functions. It is important, however, to state that the majority, 80%, of the highly educated workforce is occupied in the creative occupations as defined by Florida.

In his formalised critique, Glaeser (2005) makes strong arguments based on data material. He points to black holes in Florida's creative class thesis. According to Glaeser's statistical findings, population growth has a stronger influence on talent than indicators of tolerance, creativity and innovation. On the other hand, Glaeser only discusses creative people as the creative core⁴, which to a large extent equals the majority of human capital. Accordingly, he does not discuss the creative class in regard to the overall creative class as Florida does. While Florida's creative class population counts for approximately 35% of the workforce in most western countries, Glaeser's population for his analysis is considerably smaller as he only includes the creative core of Florida's definition. This is one of the key differences between the two.

By running regressions with the same data that Florida & Knudson (2004) do, Glaeser finds a positive correlation between cities with growing populations and concentrations of highly educated people, which indicates that expanding cities are more capable of creating conditions for economic growth. On the other hand, Glaeser finds no important correlations between population growth and the Patent Index, the Gay Index and the Bohemian Index – some of Florida's indicators of creativity, innovation and tolerance. These indexes all have a small impact on population growth compared to talent.

One argument that favours Florida's creative class population is that creativity is not something that can only be learned in school. Especially the group of creative professionals counts people that are not necessarily highly educated but may have worked their way up or are gifted with a talented or creative mindset. Therefore, when Glaeser chooses only to look at the creative core in his analytical critique of Florida, he might only get half the story. Glaeser's critique must be taken very seriously. When analysing the influence of technology, talent and tolerance on regional economic growth, it is important to control for human capital and the influence of human capital. We, however, also wish to point to the fact that population growth, which Glaeser uses as a proxy of economic growth in his analytical critique, is only one of several proxies on economic growth. Hence, we find that Glaeser's critique would benefit from taking a broader theoretical perspective by including more than only human capital.

⁴ The creative class is by Florida divided into two sub-groups: the creative core and the creative professionals, where the creative core is considered the most creative one. The relation between the two groups will be discussed in chapter 3, see also table 1, appendix 1.

All this said, the Swedish data shows a strong correlation of 0.935 when educational level is correlated with the creative class. Consequently, creative class and talent can substitute each other in Sweden – as will be the case later on in this report. This high correlation can be seen as supporting Glaeser’s argument – that human capital is the driver of economic growth in a Swedish context. On the other hand, this is only the findings of Sweden. In Finland we get a higher correlation (0.96), but in Denmark and Norway the correlations are respectively 0.84 and 0.85 (Andersen et.al., 2007), and there is no reason not to expect that the correlations are even lower in other countries. Accordingly, while the difference in the correlation between the creative class and human capital in Sweden is only 0.065 point, the difference is 0.16 points in Denmark – a notable difference that legitimate openness towards a possible effect of a creative class that differs from the effect that human capital can have on regional development. If we take a regional view, there is a good reason to believe that significant differences can be found here. Pooling data from Denmark, Finland, Norway and Sweden actually show a correlation between talent and the creative class of 0.34, an indication of notably differences across national borders.

The Fuzzy Concept of the Creative Class

Markusen (2005) raises a critique of Florida and his creative class thesis. Besides sympathising with Glaeser (2005), Markusen’s main critique is that Florida’s creative class concept reduces creativity to certain occupational groups. Markusen states that creativity is a fuzzy concept – a statement with which we can hardly disagree. Markusen also claims that Florida – possibly unwillingly – conflates creativity and educational level by using census data on occupation uncritically. To Markusen, home care workers, criminals and repair people and technicians etc. are creative as well. Therefore, it is problematic to restrict creativity to statistical nomenclatures, and, consequently, Florida ends up doing regressions on a population that is far less creative than Florida believes them to be.

We agree with Markusen that it is difficult to place creativity in occupational categories. Likewise, education is not a guarantee for a creative mindset. Repairmen, carpenters, criminals etc. can be just as creative as highly educated people. However, to base theoretical arguments on statistical findings will always result in generalisations and loss of details. This is sometimes necessary to make a strong case – as long as it is academically honest. To us, this is what Florida does. We are also sceptical of some of his choices of statistical codes and maybe more critical of some of the occupational groups that are not included as creative. On the other hand, we recognise the need to reduce and simplify complexity in order to make a statement.

Lastly, Markusen (2005) points to the correlations between educational level and the occupational groups that Florida defines as creative. This might very well be the case in the USA, and if so, it is a problem. Data from Sweden – which will be presented below – shows that though most persons with university degrees in Sweden are included in the creative class, they only count for 40% of the total creative class. This leaves 60% of the creative class people with an educational degree lower than bachelor level or of non- or semi-academic origin. Therefore, the close correlation between education and the creative class, which may apply to the USA and Sweden, can show to be less influential in the other cases⁵.

The Problem of Policy Making

Thirdly, we turn to the critique of Florida's creative class which is raised by Peck (2005). Peck points to three problems that public policy makers will face if they try to implement strategies based on the creative class approach. First of all, cities will compete for the same hyper mobile talented workforce and will probably end up implementing the same political initiatives. Successful strategies have been and always will be subjects to imitation and adoption. Cities cannot be expected to invent the wheel every time new political actions have to be taken. Obviously, it is a problem that many cities implement the same type of strategies. Hopefully, many of the cities manage to give city strategies a local touch, but strategies are often implemented as a respond to a contemporary mismatch between the present strategies and the economic reality. Hence, strategic answers to potential crises will often reflect the current economic flows.

Secondly, Peck (2005) notes that competition for creative people will bring focus on creating attractive neighbourhoods for the individuals who constitute the creative class. Additionally, focus will be removed from local challenges such as large and growing socioeconomic inequalities.⁶ This is a major concern, and to us, it is highly relevant to question whether focus on creativity can have consequences for segmented and non-creative groups in society. One scenario is that the gentrification of urban areas, which many cities are facilitating, pushes away socially and economically marginalised groups without providing alternative housing. This has two consequences. Firstly, the marginalised group becomes a group that nobody wants to take co-responsibility for, and, in extremes, they become refugees in their own regions. Secondly, by pushing away the marginalised groups and gentrify large urban areas, cities can lose some of the originality that makes them special and attractive to the creative class. This is an important problem

⁵ Here it has to be stated that the system of education is organized and structured in considerably different ways around the world. This often results in problems of measuring differences and similarities when results are compared across countries.

⁶ The potential social segregation and inequality that the knowledge based economy can bring along is shortly addressed by Florida in his preface of the paperback edition of *The Rise of the Creative Class* (2002 [2004]).

in Florida's theorising. Creating attractive physical space for the creative class can easily result in a destruction of one of the crucial elements in the approach – the presence of diversity. Therefore, planning policy has to be double-sided: On the one side, attention must be paid to attracting and retaining the creative class; on the other side focus must be given to retaining some of the authentic urban milieus.

Thirdly, Peck (2005) argues that street-level culture and renewed buildings might be just as much a consequence of economic growth as a cause of it. This is essential for the validity of the creative class approach if the approach should be seen as a development strategy instead of a survival strategy for already creative cities. Which came first – the chicken or the egg? Indications of this may be obtained from checking data for controlling variables or run long time series. Other indicators may emerge from interviewing creative class people, and investigate their moving patterns and their preferences. All put together, this can help clarify the picture of contingencies and necessities in regional development. In the end, however, what to assign the cause or the effect can be reduced to a matter of belief by the investigating part.

The Knowledge Base Approach

Lastly, we turn to the critique raised by Hansen et.al. (2005). Hansen et.al. points to the problem of bundling up 35% of the population and claim that they have uniform interests and preferences, a problem that Markusen (2005) addresses. To approximate a more diverse understanding of the creative class and its role in regional planning, we need to unpack, reflect on and re-theorise parts of the approach. In many cities, suburban areas are densely populated with engineers, teachers, civil servants etc. while down town areas attract artists, people in advertising and in general apply to a younger segment. Hence, several groups of creative class people with very different preferences can be detected both in regard to occupation and age.

To come to a better understanding of the diversity of preferences that different groups of the creative class represent, Hansen et.al. (2005) argues that the creative class thesis can gain from adding a knowledge base framework (Asheim & Gertler 2005, Asheim et al 2007). In its most simple form, the knowledge base approach divides knowledge into three categories. Each category is an ideal type and each covers an area of knowledge that is drawn upon in production of goods and services. The analytic knowledge base refers to industries where scientific knowledge is highly important and where knowledge creation is based on cognitive and rational processes. Typical industries that draw on the analytic knowledge base are biotech and nanotech. The core of the workforce needs research training or university training, and, hence, the industries are often located close to universities. The synthetic knowledge bases refer to activities where innovation mainly takes place through application of existing knowledge or by new combinations of existing

knowledge. Typical industries are plant engineering, specialised advanced industrial machinery and production systems etc. The synthetic knowledge workers need know-how, craft and practical skills, and, hence, these industries are often co-located with polytechnic schools. However also a large share of on-the-job training and path dependency have an impact. The symbolic knowledge base is related to the aesthetic attributes of a product addressing design, image etc. Activities are design and innovation intensive, and a change from use-value to sign-value can be seen in capitalist consumption (Asheim et.al., 2007; Lash & Urry, 1994). Industries drawing upon the symbolic knowledge base tend to be situated in larger city regions where multi cultural impressions are often concentrated.

Hansen et.al. (2005) argues that each of the three knowledge bases asks for different combinations of business climate and people climate. People drawing upon the synthetic knowledge base are less in need of people climate elements than people drawing on the symbolic knowledge base. Symbolic knowledge base workers often need e.g. cultural, political diversity for inspiration – synthetic knowledge base workers are less dependent on an urban rhythm. Consequently, regions that face significantly higher concentrations of symbolic knowledge base workers should focus more on people climate parameters than regions that are more dependent upon the synthetic knowledge base. The latter group should put more interest on business climate parameters.

Adding this perspective to the creative class thesis provides analysts and policy makers with a more diversified tool when discussing the creative class and regional development – especially when planning authorities add a people climate perspective to the regional planning. The approach still needs to be developed thoroughly, but diversifying the creative class gives a promising analytical tool and makes the creative class thesis more adequate for the diverse nature of the economic and regional landscape.

Summing Up

Summing up, this chapter has examined some of the central facets of the creative class approach and pointed to some of the critical aspects of it as well. The creative class thesis argues that technology, talent and tolerance are three interrelated parameters which in combination provide a promising base for economic growth. The existence of a business climate and especially a people climate is necessary to propel the three T's and thereby regional development, see figure 1.2.

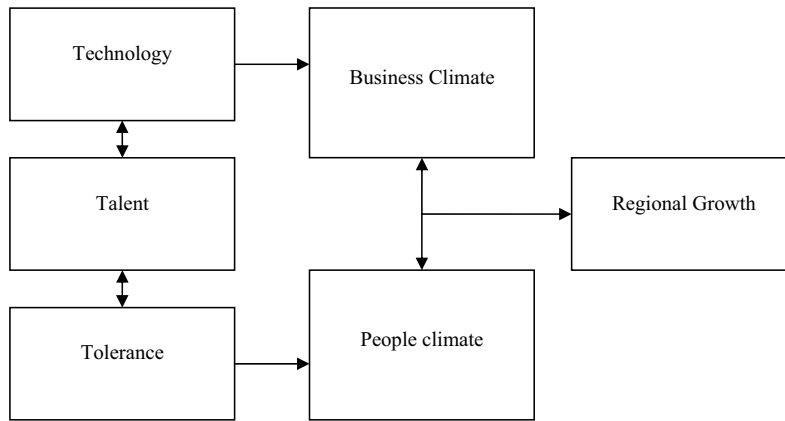


Figure 1.2: The relationship between different variables and regional growth according to the creative class thesis.

Now we will move on to analysing the relationship between the factors presented in figure 1.2 in a Swedish context. First, we will present the central research questions and the methodological approach which have structured how we address these questions. Next, we will give a statistical characteristic of the creative class. Subsequently, a presentation follows of the geography of technology, talent and tolerance, quality of place and entrepreneurship in Sweden. These findings allow us to rank the Swedish regions in regard to these indicators. Finally, we will exploit a multivariate model, which analyses the correlation between the above-mentioned variables and regional growth in Sweden.

2. Research Questions and Method

This report is an outcome of the research performed in a European comparative study. Eight different countries are represented in the project, and, hence, at least eight different statistical bureaus are applied as data sources. Different ways of gathering data, different definitions and different nomenclatures are all elements that must be taken into account when data is selected.

This analysis will be the Swedish contribution to a trans-European research project, and therefore the prime goal is to present findings that are comparable with findings of the other research teams.

The aim of the analysis is to identify possible relations between the creative class and regional growth. To do so, we have formed three central research questions:

- Where is the creative class located in Sweden?
- What types of variables influence the location of the creative class?
- To what degree does the presence of a creative class influence regional growth?

To answer these questions, we use register based statistical material. Indicators of technology, talent and tolerance as well as indicators of quality of place and entrepreneurship will be discussed when data is presented.

We are well aware of the limitations of using register based statistics. Applying this type of statistics is an excellent tool to give characteristics of certain phenomena and to show linkages between different variables. It is an important help in identifying areas of particular interest – areas that could easily have been unnoticed without the ‘big picture’ provided by the register based statistics. However, to identify causality by using register based statistics alone is very difficult. Statistics do not give any final answers to causalities. Why does A lead to B, and could A possibly also lead to C? These types of questions are difficult to answer by using quantitative sources alone. Instead, this information has to be gathered through qualitative methods such as interviews. Subsequently, the combination of qualitative and quantitative methods gives a promising framework for an in-depth analysis of different phenomena.

The ongoing research project ‘Technology, Talent and Tolerance in European Cities: A comparative Analysis’ aims to combine these two methods of collecting data. This report is the quantitative part, which will give a general picture of the creative class and the parameters that are said to influence its location. Besides providing us with a general

picture, this report will help to identify areas that will be addressed in an interview survey, which has been carried out throughout 2006.

A central aspect of the following analysis is the selection of indicators of technology, talent, tolerance, quality of place and entrepreneurship. In some cases, e.g. in regard to technology and talent, we have adopted Florida's (2002) considerations. We have, however, adapted the definitions in order to adjust them to the European context. For example we have added knowledge intensive business services to the High Tech Index. Especially indicators of tolerance have given us many headaches. The Gay Index, one of Florida's tolerance measures, is a poor measure in Europe because being gay is not as controversial as in the USA. Furthermore, the data is poor. Instead we have developed new indexes such as the Integration Index, which can be seen as a kind of integration measure investigating the relation between foreign and Swedish employment rates.

In general, the central consideration has concerned the differences between an American and a European/Swedish context. The creative class thesis was developed within the United States. The USA contains a far higher share of large cities and city regions than Sweden. Moreover, the American population is more mobile than the European. All together, this results in much more competition between cities. Sweden only consists of three cities that are fair to count as large cities – namely Stockholm, Gothenburg and Malmö. Hence, we decided to include all the Swedish labour market regions in the analysis. However, to reduce specificity, we only present data for the 25 labour market regions that counted more than 100,000 people in 2002. Table 2.1 shows the population of the 25 largest regions in 1993, 1997 and 2002, and the growth in population from 1993 to 2002.

Table 2.1: Population and percentage changes in the city regions in Sweden 1993, 1997 and 2002

City region	1993	1997	2002	Absolute change 1993-2002	Percentage growth 1993-2002
<i>Sweden</i>	<i>8,745,109</i>	<i>8,847,623</i>	<i>8,940,788</i>	<i>195,679</i>	<i>2.24</i>
Stockholm/Södertälje	1,636,828	1,711,657	1,796,765	159,937	9.77
Gothenburg	794,274	824,068	856,367	62,093	7.82
Malmö/Lund/Trelleborg	490,340	510,085	532,674	42,334	8.63
Helsingborg/Landskrona	227,733	231,319	235,945	8,212	3.61
Uppsala	200,602	208,091	214,086	13,484	6.72
Borås	193,475	192,525	193,298	-177	-0.09
Örebro	179,357	182,699	185,223	5,866	3.27
Gävle/Sandviken	177,133	175,293	173,572	-3,561	-2.01
Karlstad	176,602	174,995	172,709	-3,893	-2.20
Norrköping	166,996	167,804	166,750	-150,321	-0.15
Linköping	151,846	154,779	156,967	5,121	3.37
Borlänge/Falun	159,405	158,624	156,375	-3,030	-1.90
Västerås	149,472	150,595	154,095	4,623	3.09
Jönköping	143,025	144,761	147,892	4,867	3.40
Växjö	141,356	141,220	140,420	-127,314	-0.66
Umeå	131,393	136,413	138,313	6,920	5.27
Uddevalla	130,621	130,016	129,865	-756	-0.58
Östersund	136,073	133,143	127,947	-8,126	-5.97
Sundsvall	125,784	124,434	121,984	-3,800	-3.02
Kalmar/Nybro	122,491	122,294	121,512	-979	-0.80
Eskilstuna	118,274	117,230	120,104	1,830	1.55
Halmstad	116,175	117,560	119,736	3,561	3.07
Trollhättan/Vänersborg	118,162	118,156	118,627	465	0.39
Luleå/Boden	106,958	107,318	106,189	-769	-0.72
Kristianstad	100,762	100,762	101,060	-90,656	0.30

After this short introduction to the central research questions and some of the methodological considerations that structure this report, we will now turn to the analytical part.

3. Location of Talent and the Creative Class

In political debates, in the media etc. the creative class is often characterised as faceless café latte drinking hipsters, riding mountain bikes and running on rollerblades in their spare time. Consequently, planning authorities often discuss development of cultural amenities as a crucial element for attracting the creative class. Florida's study, however, shows that the creative class counts approximately 30% of the occupied population in North America. Hence, to believe that such a large group can be satisfied by drinking café latte while riding the mountain bike to work and by having access to an opera house on the waterfront is somehow naive. Being such a large group of people includes a diversity that cannot be boiled down to such a poor essence. Therefore, before going into an analysis of the location of talent and of the creative class in Sweden, we will present a brief description of the Swedish creative class based solely on register based data – being aware of the limitations that this brings.

To Florida and his supporters the creative class is seen as the backbone of economic growth. Creative workers are a broad range of people, not categorised by their level of education or what industries they are employed in but by their occupational functions. Following the creative class approach, the ability to attract and retain creative class people is crucial in the interregional competition.

Alongside, talent is important for understanding the potential development in a region. If the workforce is not matching the needs of a highly profiled knowledge based production, then, strategically, focusing on developing the production would be meaningless. Hence, geographical concentration of talent and creative class people becomes extremely interesting when analysing future economic growth.

In general the creative class is approached as one group. However, to reinforce the concept, it is sometimes meaningful to distinguish between different subgroups within the larger group. A distinction can be helpful when detailed analysis is necessary to get to an understanding of specific dynamics in a bounded area. Hence, in this report in addition to using the term creative class, we also divide the creative class into the two subgroups creative core and creative professionals, in order to get a more nuanced understanding of the geography of the creative class and its influence on regional development.

Creative core people can be understood as people who are 'fully engaged in the creative process' (Florida 2002, p. 69). They produce new forms or designs that are readily transferable and widely useful on a regular basis. The other group of creative people is called creative professionals. They work in a large range of knowledge intensive

industries. Creative professional people ‘engage in creative problem solving, drawing on complex bodies of knowledge to solve specific problems’ (Florida 2002, p. 69).

The creative core counts the most creative and innovative occupations. It consist of architects, researchers etc. and is believed to be a group of persons that create new ideas and new knowledge in their everyday work life. In contrast, the creative professionals, counting management occupations, legal occupations etc, are believed to be only partly dependent on their own creation of new ideas and new knowledge because a large part of their work also consists of more routine based practices. The occupational functions that divide the two groups are listed in the appendix 1, table 1, based on the Swedish nomenclature for occupational functions – SSYK.

We also decided to differ between the creative class people and non-creative people. As argued in chapter 1, we do not totally agree on Florida’s distinction between occupational groups that are creative and groups that are not. Therefore the term non-creative might be inappropriate and misleading. It does, however, refer to what the category holds – a group of people not occupied within Florida’s definition of the creative class. Accordingly, we use the label of the category, underpinning that we do not want to offend anyone by categorising them as notorious uncreative.

Table 3.1: Creative class vs. non-creative class - age groups⁷ (2002)

	Creative class (%)	Non-creative class (%)
19-29	11.9	24.6
30-49	53.7	47.2
50-64	34.4	28.1
Total	100	100

The creative class member is older than the average of the non-creative occupied person in Sweden, table 3.1. The explanation for this shall be found in the educational data in table 3.2. Here it is clear that the creative class counts for a higher share of persons with especially an academic degree. Obviously, this increases the average age as the highly educated people enter the labour market at a later stage than people with a lower level of education. Based on the discussion earlier in this chapter, it is important to point to the fact that the average educational level for the creative class is actually significantly higher than for the non-creative people; therefore the rollerblade image of the class is most likely inappropriate – especially when it comes to city planning actions.

⁷ To be able to compare the data between the different partners in the research project, we have limited the population to only counting people of the age of 18 or older when we look at employment (NACE/SNI) and 18-64 when looking at occupation (ISCO/SSYK).

The higher educational level of the creative class members can be explained by the definitions of the creative occupation. However, the data below shows that the creative class does not solely consist of highly educated people. On the contrary, table 3.2 shows that 58.8% of the people that are occupationally defined as members of the creative class do not have a university degree below bachelor level.

Table 3.2: Creative class vs. non-creative class - educational levels (2002)

ISCED 97	Creative class	Non-creative class
Primary level of education	1.5	7.4
Lower secondary level of education (2A, 2B and 2C)	3.0	13.9
Upper secondary level of education (3C)	14.6	38.3
Upper secondary level of education (3A)	15.4	24.5
Post-secondary, non-tertiary education (4)	9.5	3.9
First stage of tertiary education (5B) (practical and theoretical mix)	13.7	5.6
First stage of tertiary education (5A) (totally theoretical)	38.4	5.9
Second stage of tertiary education (leading to an advanced research qualification) (6)	2.6	0.1
Unknown	0.2	0.3
Total	100	100

This leads back to the critique by Glaeser (2005) who basically argues that human capital rather than creative capital is propelling regional growth. The Swedish data shows that though the creative class holds a larger share of human capital than the non-creative class (about 7 times as high), it is still ‘only’ 41% of the total group that have a formal university degree equal to or above bachelor level – 59% do not.

The next table, table 3.3, addresses the ethnic diversity of the creative class. The creative class consists of a large percentage of Swedish born persons. Actually the creative class consists of a larger share of ethnic Swedes than the non-creative population in occupations. Further, the most noteworthy difference between members of the creative class and the non-creative occupied population is that the creative class consists of a smaller share of persons with Nordic origin. This is a little surprising as the creative class is often considered more mobile than the rest of the population – especially in an international perspective. Non-Westerns tend to be less well educated and less hired due to their educational skills. Therefore the higher share of these ethnic groups within the ‘non-creative people’ is expected. The Scandinavian market can, however, be seen as a labour market where language, culture and education have limited effect on stickiness of the individual worker. This data shows that while similarities between the Scandinavian countries might be obvious, they have little effect on the cosmopolitanism of the creative class compared to the ‘non-creative’ class. Still, a higher share of non-creative people comes from the Scandinavian countries.

Table 3.3: Creative class vs. non-creative class - nation of origin (2002)

	Creative class	Non-creative class
Africa	0.3	0.8
Asia	1.4	2.8
EU25 without Denmark and Finland	1.9	1.7
Europe without EU25 and the Nordic countries	0.7	2.2
Nordic Countries without Sweden	2.7	3.5
North America (incl. Mexico)	0.3	0.2
Oceania	0.0	0.1
Unknown	0.0	0.0
South America	0.3	0.8
Russia etc. (incl. all former USSR republics)	0.1	0.1
Sweden	92.2	87.9
Total	100	100

From tables 3.1, 3.2 and 3.3 we already have a better idea of what the creative class is. The class consists of a higher percentage of persons in the age group 29-49 and 50-64 than the average population in occupation. Moreover, the creative class has a higher average educational level, but it also consists of a considerable share of persons with a more modest education – in terms of years in school. Further, and surprisingly, data shows that the creative class in Sweden has a lower share of people with foreign origin than the non-creative population. This is indeed surprising because the creative class in the literature is considered more mobile, cosmopolitan and tolerant than the remaining population.

Further, as table 3.4 will show, the creative class tends to locate in the largest urban areas. The table also shows that not all regions have the same ability to attract creative people. Regions like Borås, Gävle/Sandviken and Helsingborg/Landskrona are high ranking in terms of populations but relatively low on the creative class LQ. Contradictory regions like Linköping, Umeå, Luleå/Boden and Sundsvall all have relatively high ranking on the creative class LQ compared to the population ranking. These phenomena will, among other things, be looked into later in the report.

The geographical distribution of the creative class in Sweden is apparent from figure 3.1. The map shows that the highest creative class LQ is primarily found in the southern parts of Sweden. In the northern Sweden, only Umeå and Luleå/boden have LQs above 1, which is equal to the Swedish national average. The creative class is widely represented in Sweden; though 6 out of 8 regions with LQ above 1 are in the southern Sweden. However, the map does not offer a clear indication of a non-creative rural north and a creative densely populated south. Hence, a division in creative/non-creative domination between south and north Sweden is not possible to make - an uncreative north does not appear on the map.

Table 3.4: The creative class' share of the workforce in the Swedish regions (2002)

A-Region	Population rank	Creative class (%)	Creative core (%)	Creative professionals (%)	Location quotient of the creative class (LQ)
<i>Sweden</i>		<i>35.68</i>	<i>11.43</i>	<i>24.25</i>	<i>1.00</i>
Stockholm/Södertälje	1	45.98	14.95	31.03	1.29
Uppsala	5	44.69	19.16	25.52	1.25
Linköping	11	42.29	17.58	24.71	1.19
Malmö/Lund/Trelleborg	3	41.40	14.67	26.73	1.16
Gothenburg	2	40.19	13.02	27.17	1.13
Västerås	13	37.38	12.06	25.32	1.05
Umeå	16	36.28	14.56	21.72	1.02
Luleå/Boden	24	36.04	12.60	23.44	1.01
Sundsvall	19	34.88	10.69	24.19	0.98
Karlstad	9	33.09	10.60	22.49	0.93
Örebro	7	33.01	11.10	21.90	0.92
Eskilstuna	21	32.87	10.14	22.73	0.92
Jönköping	14	32.69	9.51	23.18	0.92
Helsingborg/Landskrona	4	31.69	8.60	23.09	0.89
Östersund	18	31.62	9.57	22.05	0.89
Växjö	15	31.59	9.07	22.52	0.89
Norrköping	10	31.37	9.61	21.76	0.88
Borlänge/Falun	12	31.12	10.38	20.74	0.87
Trollhättan/Vänersborg	23	30.71	8.37	22.34	0.86
Halmstad	22	29.92	8.33	21.59	0.84
Kalmar/Nybro	20	29.88	9.25	20.62	0.84
Kristianstad	25	29.81	9.13	20.68	0.84
Borås	6	29.48	7.65	21.82	0.83
Gävle/Sandviken	8	28.92	9.17	19.75	0.81
Uddevalla	17	28.80	8.41	20.39	0.81

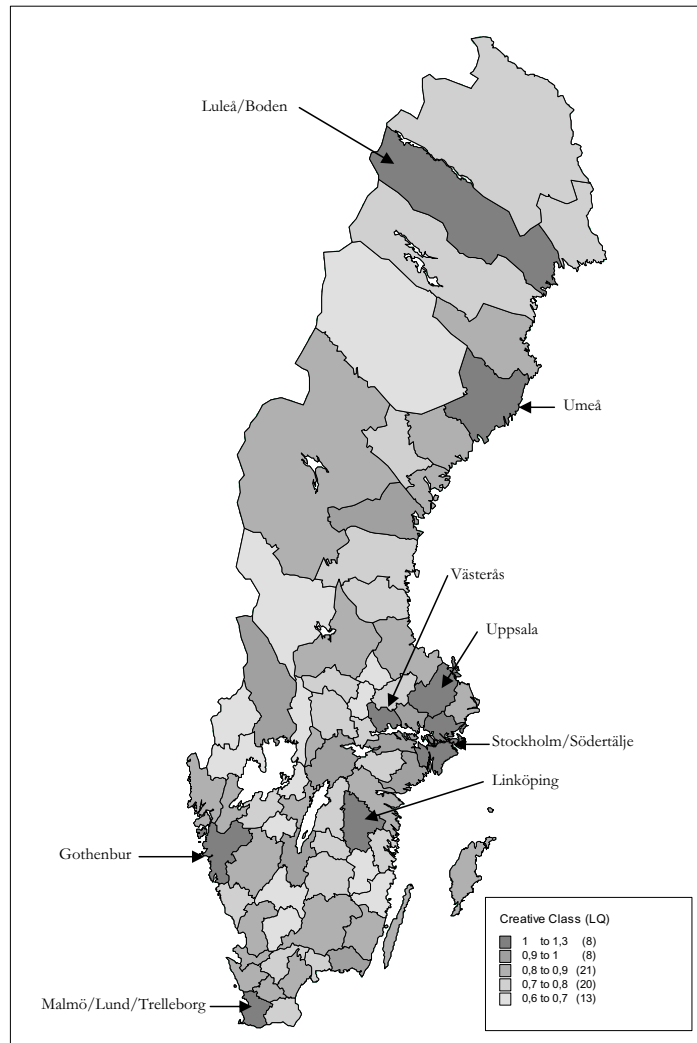


Figure 3.1: Map of the location of the Creative Class in Sweden in 2002

In many ways, the geography of human capital is similar to the geography of the creative class because the talent variable (equal to human capital) represents 41% of the occupation variable. Treating talent as an independent variable is however important for understanding the potential development in a region. If the workforce is not matching the needs of a highly profiled knowledge based production, then to strategically focus on

breathing such a regional structure would be meaningless. Though step-by-step changes and adjustments in the regional development policies are always welcome, most research also indicates that regional growth is most successful when assets of the local workforce are taken into account in the strategic planning.

The Talent Index used by Florida (2002) and also presented here is measuring human capital as a supplement to the other indexes that in the end constitute a creativity indication. The Talent Index is a simple indication of the share of persons with a bachelor degree or above. In the Swedish case we are not able to distinguish between bachelor degree and master degree because of the Swedish occupational system. Therefore, only a distinction between bachelor/master degree and PhD is possible in figure 3.2.

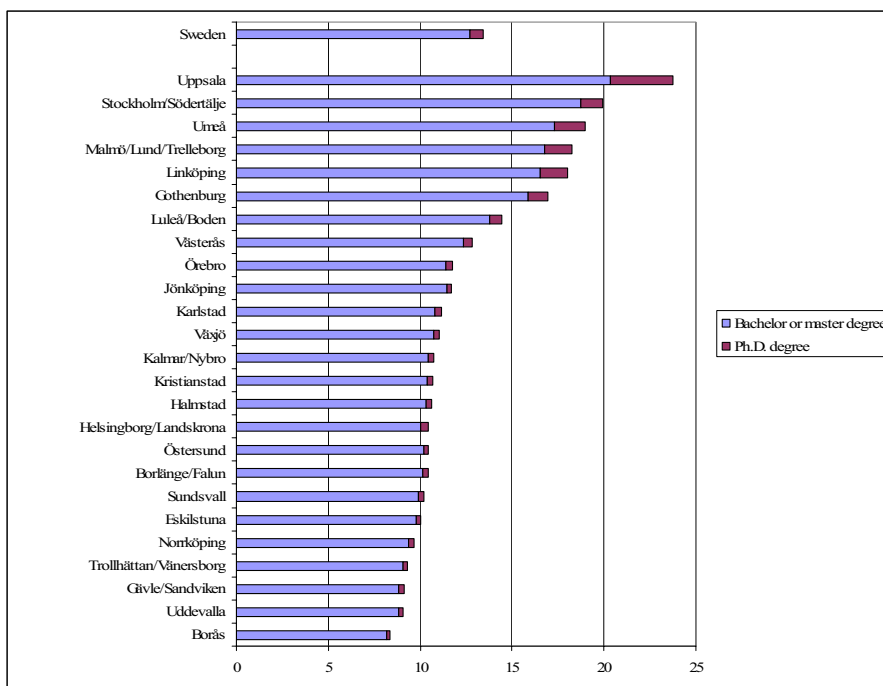


Figure 3.2: The share of the population 18+ with a bachelor degree or above (2002)

Figure 3.2 makes the tendencies clear: regions with large universities have the highest share of people with high formal education. Uppsala, Stockholm/Södertälje, Umeå, Malmö/Lund/Trelleborg, Linköping and Gothenburg all have well-known and large universities. This is also apparent from the share of people with PhD degrees. Uppsala and Umeå have the largest shares of PhD candidates. Most possibly, this can be explained by the particular importance the university plays in these two regions.

Stockholm/Södertälje, Malmö/Lund/Trelleborg, Linköping and Gothenburg all play important roles as centres of different types of production within a broad variety of industries, whereas Uppsala and Umeå are relatively more dependent on the university and university activities when factors of impact on growth are analysed.

Table 3.5: Educational level data for the employed workforce 1993-2002 in different sectors*

City region	Share of workforce with a bachelor degree or above 2002			Percentage changes 1993-2002	
	All	High-tech	Non-high-tech	High-tech	Non-high-tech
<i>Sweden</i>	<i>17.99</i>	<i>29.38</i>	<i>16.82</i>	<i>106.10</i>	<i>53.86</i>
Uppsala	27.48	55.08	22.46	55.97	54.25
Stockholm/Södertälje	24.83	37.65	22.87	108.43	62.62
Umeå	23.77	23.05	23.84	95.55	56.56
Linköping	23.23	33.85	21.04	113.73	55.37
Malmö/Lund/Trelleborg	22.99	41.81	21.10	137.22	61.37
Gothenburg	21.31	34.23	19.04	127.96	60.13
Luleå/Boden	19.31	26.17	18.72	95.87	40.92
Västerås	17.27	22.35	16.90	10.71	63.84
Örebro	15.59	12.34	15.80	145.98	58.06
Karlstad	15.45	25.46	14.80	83.70	45.38
Jönköping	15.37	22.87	14.85	161.44	70.27
Östersund	14.78	16.59	14.68	159.70	36.55
Kristianstad	14.67	12.02	14.81	123.58	38.34
Helsingborg/Landskrona	14.54	20.43	14.21	44.97	52.15
Växjö	14.53	20.55	14.03	194.44	54.03
Borlänge/Falun	14.48	19.18	14.23	76.58	45.29
Sundsvall	14.28	24.30	13.58	162.82	50.52
Eskilstuna	14.09	14.18	14.08	135.53	51.43
Norrköping	14.02	24.23	13.55	51.29	50.29
Halmstad	13.92	16.45	13.85	171.13	58.49
Kalmar/Nybro	13.87	13.46	13.90	123.16	57.49
Trollhättan/Vänersborg	13.71	12.55	14.04	91.70	49.48
Gävle/Sandviken	13.36	16.34	13.18	122.46	50.67
Borås	12.29	12.61	12.27	119.18	57.13
Uddevalla	11.94	7.15	12.27	80.43	41.85

*A list of high-tech industries can be seen in table 2 in Appendix 1

Though the share of highly educated people varies from almost 24% in Uppsala to 5.5% in Hultsfred/Vimmerby, political actions have been taken to avoid a concentration of highly educated people. Expansion of university and colleges into less urban areas has helped to maintain some of the highly educated people within these areas. Additionally, the number of students has increased, Wikhall (2001). Wikhall does, however, point to an important problem. In general, the less urban universities end up as exporters of highly

educated people – people move when they have finished their education, partly because they want to move to more urban settings, partly because the job opportunities are few in the less urban regions. Having said this, we would, however, expect the decentralising policies to have some kind of effect on the educational level of the labour force. Consequently, without political initiatives we could expect a more significant difference in level of education between urban and less urbanised regions.

Table 3.5 shows the level of education for the employed workforce – in opposition to figure 3.2 which shows the educational level of the total population.

Not surprisingly, the regions with major universities are topping this list. Obviously, this is due to the university activities and the related industries. The regions with the major universities also top the list if only the level of education within high-tech industries is considered. This suggests that the most knowledge intensive productions are located within the regions that also have the major universities. Analysing on the impact of the decentralisation of universities and colleges in Sweden, Lundquist (2000) finds no relationship between the location of universities and the start-up of new firms.

A considerable change in the level of education within both high-tech and non-high-tech production has taken place in Sweden since 1993: this is one important finding of table 3.5. This refers back to Wikhall (2001) who pointed to the growing number of people with universities or college degrees as one important outcome of the decentralisation of educational and research institutions. A prompt conclusion would therefore be that Sweden is manifesting its status as a knowledge intensive country. The massive changes in the high-tech column have to be seen in relation to the rather limited number of employed in these industries. Consequently, even small variations result in large changes in value, but in general the picture is clear – the share of employed people with a higher level of education is increasing in general; but particularly in the high-tech industries.

Table 3.6 goes further and illustrates the level of education within creative and non-creative groups

Table 3.6: The share of people (aged 18-64) with a bachelor degree or above within the creative class, the creative core, the creative professionals and the non-creative people in Sweden 2002

City region	Creative class (All)	Creative core	Creative professionals	Non-creative people
<i>Sweden</i>	41.0	68.5	28.0	5.9
Uppsala	53.9	79.3	34.8	10.4
Umeå	52.4	80.8	33.4	8.5
Linköping	50.2	76.7	31.5	6.5
Malmö/Lund/Trelleborg	47.9	76.3	32.3	9.4
Luleå/Boden	46.2	72.3	32.1	5.3
Gothenburg	44.1	72.3	30.6	8.4
Stockholm/Södertälje	43.8	65.8	33.3	10.5
Västerås	40.0	67.9	26.7	5.1
Kristianstad	39.8	71.7	25.8	4.3
Karlstad	39.5	70.8	24.8	4.6
Örebro	39.3	65.7	25.9	5.5
Kalmar/Nybro	39.3	72.5	24.4	4.7
Halmstad	39.2	71.0	26.9	4.3
Borlänge/Falun	39.2	67.6	24.9	3.6
Jönköping	39.1	71.6	25.8	4.9
Östersund	38.6	64.1	27.5	4.4
Växjö	37.2	71.4	23.4	4.7
Helsingborg/Landskrona	36.4	66.4	25.2	4.6
Gävle/Sandviken	35.4	63.3	22.5	3.9
Uddevalla	35.2	67.9	21.7	3.6
Norrköping	35.0	63.2	22.6	4.2
Trollhättan/Vänersborg	34.6	60.6	24.8	3.6
Eskilstuna	34.5	58.3	23.9	4.1

Not surprisingly, data shows that the largest shares of highly educated people are found in the creative core. It is, however, noteworthy that a relatively high share of the creative core, going from 20% up to 40%, does not have a university degree equal to or above bachelor level. This has to be interpreted as a combination of small errors in two different variables (education and occupation), combined with the fact that architects, engineers etc. can achieve their title through practise orientated programmes and not only through theoretical programs. This again brings us back to the critique by Glaeser (2004). He argued that talent and the creative class are the same to a large extent. This, however, shows that a large share of the assumed most creative people do not have the formal education that Glaeser uses as his key variable. Talent might be dominating when regressions are made, this is in fact the case in Sweden, but still up to 40% of the creative core cannot be explained by a talent variable only. Therefore, adding additional variables

– like occupation or a broader concept of educational level – is presumably important when explaining regional growth and creative potential. Having said this, we once again have to state that the creative class and educational level correlate with 0.9 in Sweden, indicating that the two variables in a Swedish context to a large extent can be used as proxies for each other.

Concluding on the location of talent and the creative class in Sweden, two essentials have to be stressed. First, the creative class consists of a large share of the highly educated people in Sweden but it does not only count people with high degrees. On the contrary, the creative class counts a majority of people with educational levels below bachelor. Also within the creative core, which is understood as the most innovative, a considerable share does not have formal education equal to bachelor level. This is an important finding because the creative class is often referred to as equivalent to human capital. Secondly, the locations of the creative class and talents are concentrated around the large cities and are in general higher where universities and colleges are located.

Having stated the location patterns of talent and the creative class in Sweden, we turn to an analysis on the indicators of people climate and business climate. By analysing these two factors, we will hopefully obtain a better understanding of the relationship between growth of technology, talent and tolerance. First, we present indicators of people climate. Next, indicators of business climate, and, finally, we test the relationship between these and regional growth in Sweden.

4. People Climate

To Richard Florida and the creative class approach, people climate is very important for future growth. In the international project that this study is a part of, we have decided to look at two fundamental indications of people climate. The first is *tolerance*, indicating the openness toward differentness; the second is indications of quality of place.

Indicators of Tolerance

In the creative class approach, tolerance is used as a measure for regions' open-mindedness toward people looking different, thinking or acting differently. This is important because diversity is seen as an important factor in facilitating the dynamics that spin off innovation. Tolerance is thus important for creating an attractive people climate.

Here tolerance is measured by several variables. First, a bohemian index will be introduced; next, two openness indexes are presented measuring the share of non-Western and the total number of the foreign born population within the regions. Finally, an integration index illustrating the relation between people of foreign origin and people with Swedish origin in employment is applied.

The Bohemian Index

In England in the 1800th century, canaries were taken deep into the coal mines. The canaries were used to determine the gas level of the air that the miners were breathing. If the gas level was too high, the canary would die and the coal miners would hurry up to the surface. The Bohemian Index should be understood in the same way. If openness and tolerance toward differentness are absent in a region, bohemian people will flight. This is the argument used by advocates of the creative class thesis, legitimising the Bohemian Index as a proxy for tolerance.

Bohemian occupations count authors, artistes etc., and the Bohemian Index is measured both as bohemians pr. 1000 employed and as a location quotient. As with the review of the location of the creative class, LQs above 1 indicate an above national average concentration whereas a value below 1 indicates the opposite.

Table 4.1 underpins the earlier statement of the tendencies of oligopoly in the urban hierarchy in Sweden. With respect to concentrations of the bohemian people, only three cities, Stockholm, Malmö and Gothenburg, have an LQ above 1. This is a localised

concentration which is not seen in any of the other indexes. The main reason can probably be found in the position of the regions. They are all large cities providing large city atmospheres with many sources of inspiration, which is often pointed to as essential for young hopeful artists in developing style and image. The three regions also have important music scenes, museums and a young population (ranking 1, 2 and 3 in the age group 30-49 and 4, 5 and 6 in age group 18-29), which results in a lively community.

It can, however, also be other things that influence the location pattern of bohemians in Sweden. Such influencing parameters can be a critical mass interested in buying artistic products, schools that teach art and cheap housing suitable as studios. Answers to this have to be found through more qualitative methods. The presence of bohemians is, however, only one of four indexes that we use as indicators of tolerance. Openness toward foreigners and integration of foreigners into the labour market are other possible indicators of tolerance.

Tabel 4.1: Bohemian occupation 2002*

A-Region	Bohemian occupation (LQ)	Bohemian pr. 1000 employed
<i>Sweden</i>	<i>1.00</i>	<i>11.71</i>
Stockholm/Södertälje	1.95	22.89
Malmö/Lund/Trelleborg	1.24	14.56
Gothenburg	1.13	13.19
Växjö	0.95	11.09
Uppsala	0.91	10.70
Luleå/Boden	0.91	10.67
Umeå	0.85	9.91
Helsingborg/Landskrona	0.84	9.88
Borlänge/Falun	0.82	9.58
Borås	0.77	9.06
Östersund	0.75	8.77
Halmstad	0.75	8.76
Karlstad	0.72	8.38
Sundsvall	0.71	8.37
Västerås	0.70	8.25
Norrköping	0.68	8.00
Örebro	0.67	7.87
Jönköping	0.67	7.84
Eskilstuna	0.66	7.72
Kalmar/Nybro	0.64	7.53
Linköping	0.64	7.47
Gävle/Sandviken	0.60	7.03
Kristianstad	0.54	6.30
Uddevalla	0.46	5.41
Trollhättan/Vänersborg	0.45	5.29

* A list of occupations defined as bohemian is found in table 3 in Appendix I

It is noteworthy that some of the regions that score high on some of the coming indexes get low scores on this index. Regions dominated by traditional industrial production such as Trollhättan and Linköping have a significant lower concentration of bohemians than the regions with which they shared similar values in earlier indexes. This might suggest that city regions dominated by a classic industrial structure like automobile, mining, aircraft, steel production etc. have little attractive effect on bohemians (Cederlund 2004).

To control for the dominance that the Stockholm/Södertälje region has on the Bohemian Index, we have calculated the index without Stockholm/Södertälje. As a result nine regions are entering the list of regions with an LQ above 1; this group already counts Malmö/Lund/Trelleborg and Gothenburg. They are Växjö, Uppsala, Luleå/Boden, Umeå, Helsingborg/Landskrona, Borlänge/Falun, Borås, Östersund and Halmstad. This gives a good indication of the dominating character that Stockholm has in regard to bohemian activities.

Openness

Openness towards different people living by different norms etc. is difficult to measure quantitatively. We try, however, by looking at the foreign born population as a proxy of tolerance toward differentness. We use two different indexes: Openness 1 indicates only non-Western foreign born persons as a share of the total population. Openness 2 indicates all foreign born people as a share of the total population – a categorisation of Western and non-Western ethnical groups can be seen in table 4 in Appendix 1. In the Openness 1 and Openness 2 Indexes a high score, equal to a high rate of foreign born people, is seen as a positive indication of a tolerant environment. This is of course not unproblematic. It does not say anything about tolerance in terms of integration, acceptance etc. High concentrations of foreign ethnic groups can lead to conflicts, and to collapse of city districts. Therefore critical comments on Openness 1 and Openness 2 and an attempt to come closer to a nuanced indication of tolerance and openness will follow after the Openness 1 and Openness 2 indexes have been presented.

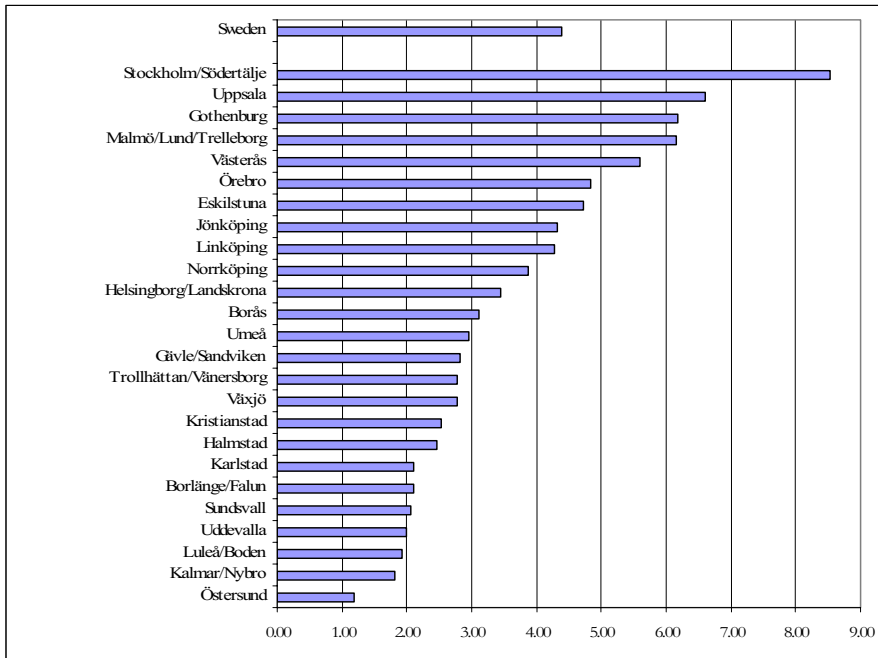


Figure 4.1: Openness 1 (2002) share of people of non-Western origin

Figure 4.1 is the Openness 1 Index measured as the share of the population that origin from a non-Western country. The Swedish average is close to 4.5%, and the figure reveals that Stockholm has almost the double share of the average. Uppsala, Gothenburg and Malmö/Lund/Trelleborg follow but with shares that are almost 2 percentage points lower. Västerås, number five on the list, has a non-Western population share closer to Malmö/Lund/Trelleborg than Örebro which comes in six. The high rankings of Stockholm, Uppsala, Gothenburg and Malmö are most likely related to the attractive effect urban areas have on foreign people. The high ranking of Västerås can most likely be explained by immigration of foreigners assigned for jobs at AAB – a large Swedish industrial corporation. The figure also shows that with some exceptions the ranking comes close to the ranking of the population. The most significant exceptions are Helsingborg/Landskrona, Borås and Karlstad with a lower share than expected from the ranking according to population, and Västerås and Eskilstuna which have a higher share than expected.

The Openness 1 Index is introduced because we expect that the non-Western born population is more culturally different from the Swedish born population than the

Western born population. A high share of non-Westerns should therefore indicate a high level of tolerance. To avoid only looking for non-Westerns, we have also made an Openness 2 Index measuring the share of all foreign born people, including people with Western as well as non-Western origin. One particular reason for looking at all foreign born populations is that refugees given asylum and residence permit are often located due to political actions rather than own choices. Thereby, the Openness 1 Index may be influenced by placement of the foreign born persons at the time of entering the country rather than their own original choice.

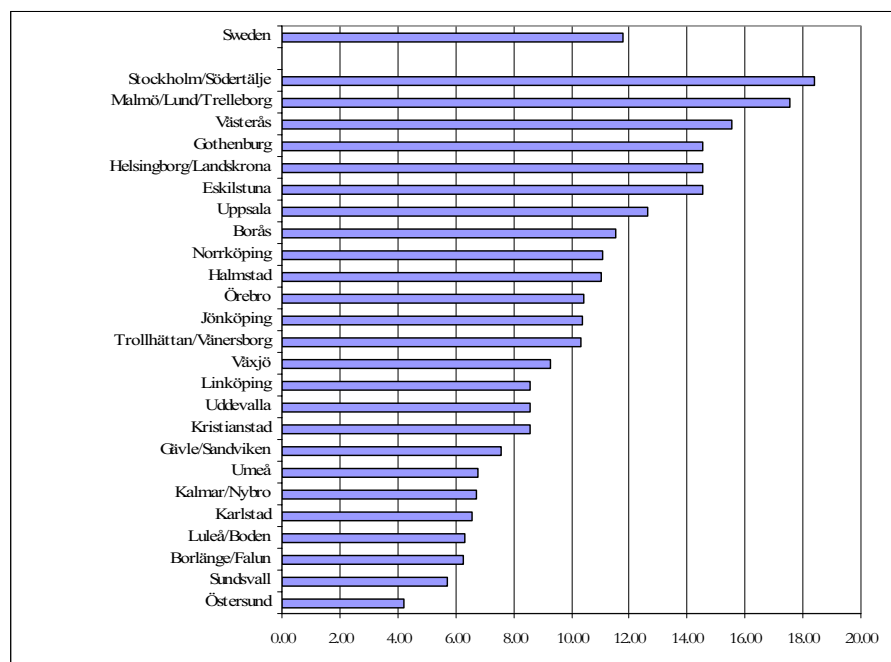


Figure 4.2: Openness 2 (2002) share of people of non-Swedish origin

Looking at figure 4.2 the same picture appears as in figure 4.1. The large city regions are in top together with a few of the smaller regions that have a relatively large foreign born population due to e.g. factories that experienced shortage on labour and therefore engaged guest workers in the 1960s and 1970s. One of the notable differences is that Helsingborg/Landskrona, the fourth largest region in population, has come out relatively low in many indexes; it ranks as 11 in the Openness 1, but comes out 5th in the Openness 2. Consequently, the Helsingborg/Landskrona region has a high share of Western foreign born population – presumably Danish. The Helsingborg/Landskrona region will appear

intolerant when only the Openness 1 Index is examined, but when the Openness 2 is examined, it stands out as tolerant.

There is, however, more to tolerance than a high share of foreign born population. Measuring tolerance as the share of foreign born population is fairly problematic. High concentrations of a foreign born population can lead to segregation. Therefore, we have created a third index, Integration Index⁸, based on the relation between the share of foreign born people in the population and the share of employed foreign born people of all employed people. By putting the two variables in relation to each other, we obtain an indication of the degree to which the foreign born population is integrated into the labour market. This helps to present a nuanced picture of the interaction between the foreign and the domestic born population, and, hence, an indication of integration. To us, such a measure is an important input and supplement to Florida's creative class indexes.

The two following figures investigate tolerance understood as integration on the labour market. We believe that tolerant regions are successful in integrating foreign people into the labour market, while a less tolerant environment will have a lower employment rate among foreigners.

⁸ This index is developed by Høgni Kalsø Hansen and Karl-Johan Lundquist, Department of Social and Economic Geography, Lund University.

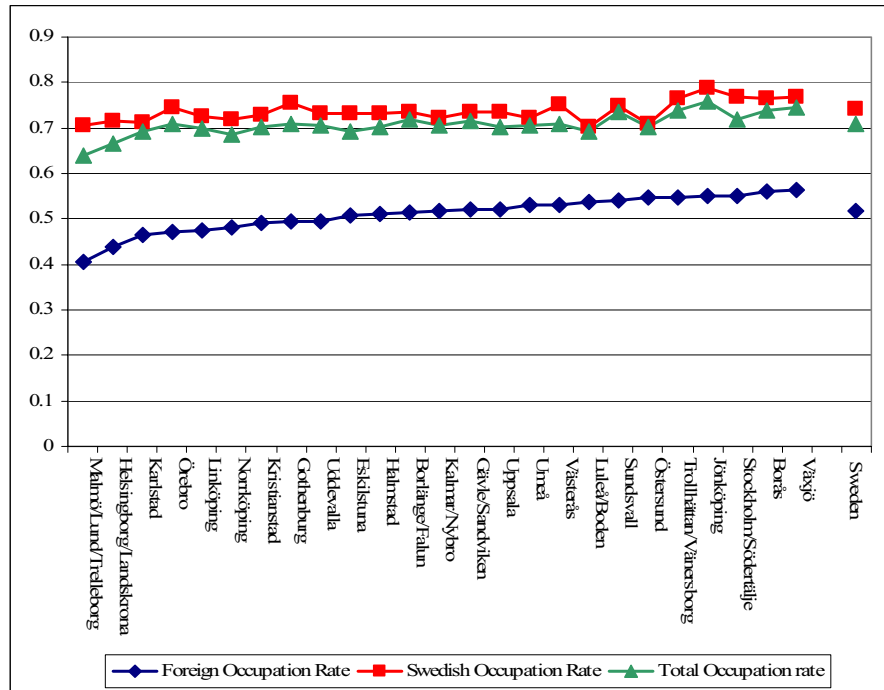


Figure 4.3: Occupation rate for Swedish born and foreign born populations (aged 18-64) 2002

Three curves are plotted in figure 4.3. The upper curve illustrates the occupation rate among the Swedish born population. The curve in the middle indicates the occupation rate in total, and, finally, the lower curve represents the occupation rate among the foreign born population. In a perfect world, the upper and the lower curves should lie on the same values – the middle curve. This is, however, not a perfect world, and as in many other European countries, differences between the occupation rates for the two ‘ethnic’ groups are evident in Sweden. The ethnic Swedes have a higher rate of participation on the labour market in all the regions, and the gap between the foreign occupation curve and the Swedish population curve is significant in all regions.

In general, the figure indicates a weak trend between the total occupation rate and the foreign occupation trend. The higher the occupation rate is, the higher the foreign occupation rate gets. Malmö/Lund/Trelleborg, Helsingborg, Karlstad and Örebro all have low scores on the foreign occupation rate indicating difficulties in getting the foreign population to participate on the labour market.

It is noteworthy that both the Malmö/Lund/Trelleborg and Helsingborg/Landskrona regions have significantly low occupational rates for the foreign born population. These two regions are located in Scandia and both serve as entry points to Denmark and Europe. Hence, we controlled for trans-border commuting. Adding Swedish born and non-Swedish born people living in the two regions but working in Denmark only brings limited changes. Malmö/Lund/Trelleborg still come out last with a notably low occupational rate for the foreign born population. Only Helsingborg/Landskrona marginally climbs one position up, switching position with Karlstad. Accordingly, while adding the cross-border commuters help Helsingborg/Landskrona one position up, it does not hide the fact that the two largest Scandia urban areas have low participation rates for the foreign born population⁹.

In the other end of the figure, Sundsvall, Östersund, Trollhättan/Vänersborg, Jönköping, Stockholm/Södertälje, Borås and Växjö all have occupational rates for foreign born on a similar level. With the exception of Östersund, all the seven regions have high occupation rates in general, and this may of cause be an important factor in explaining the higher foreign occupational rates in these regions. A high occupational rate in general typically results in a higher participation rate on the labour market by weaker social groups. Hence, regions that experience strong economic development will be more tolerant, or simply put: demand for all types of labour increases with the economic performance of a region.

Östersund, however, had a low employment rate in general and still a high rate of foreign participation on the labour market. This is one reason why employment rates have to be seen in relation to each other. This is done in the Integration Index, figure 4.4. If a total match between the Swedish born and the foreign born occupation rate was present, the Integration Index would have had a value of 100. Consequently, the smaller the gap is between the two occupation rates, the higher the score becomes in the index.

⁹ We are only in possession of trans-border commuter data from Scandia to Sealand in Denmark. Trans-border commuting can also be relevant for some of the regions located along the Norwegian and the Finish border as well as for the Stockholm/Södertälje region. Therefore, we have decided not to add the commuting data from Malmö/Lund/Trelleborg and Helsingborg/Landskrona into the graphic figures.

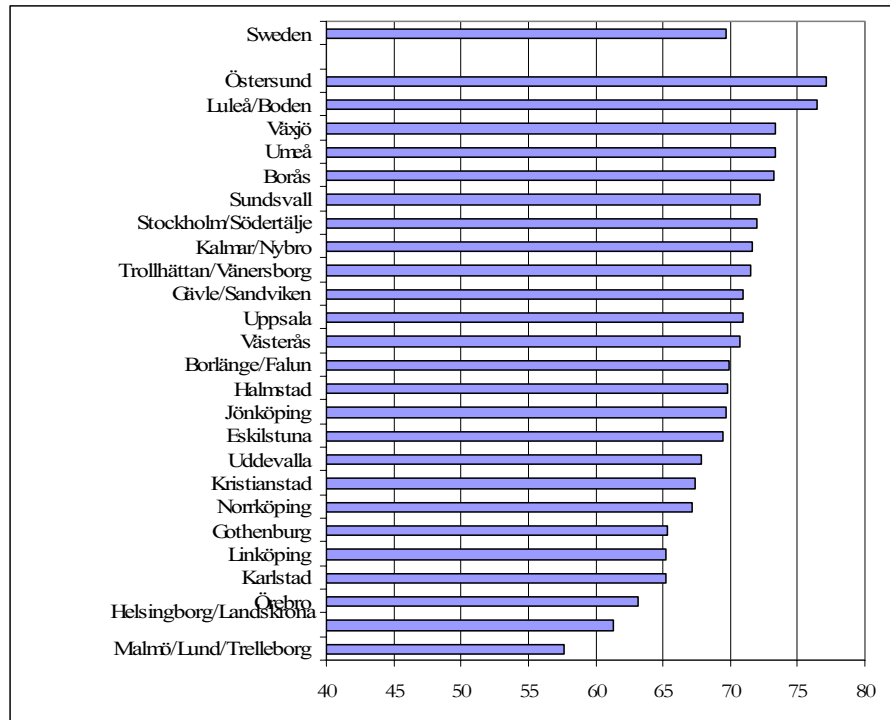


Figure 4.4: Integration Index 2002

The index shows that Malmö/Lund/Trelleborg and Helsingborg/Landskrona still obtain the least favourable scores and that Karlstad and Örebro have switched places compared to figure 4.4. Again Malmö/Lund/Trelleborg and Helsingborg/Landskrona have been controlled for cross border commuting. Malmö/Lund/Trelleborg still come out last while Helsingborg/Landskrona again climb up one position switching with Örebro, but with a value closer to Karlstad, Linköping and Gothenburg than to Örebro. The top of the list shows the regions that, relatively, are best at integrating the foreign born labour force into the labour market. Östersund and Luleå/Boden come out with good scores. Relating these findings to the findings in figure 4.3, it is evident that both Östersund and Luleå/Boden have noteworthy lower occupation rates than many of the other regions. Figure 4.3 showed a tendency towards a higher integration of foreign born people into the labour market as the employment rate rose. Östersund and Luleå/Boden reflect a different image. Östersund and Luleå/Boden only have the 18th and the 22nd, respectively, best employment rates among the 25 regions presented here. Four out of the ten best performing regions on the Integration Index are ranking below the ten best performing regions on employment rates. This might imply that parameters different from

employment rates play an important role in the integration of foreign born population into the labour market.

However, there is one striking feature; 7 out of the 10 regions with best integration scores perform poorly on the Openness 2 Index, which indicates that higher shares of foreign born population in most cases lead to a tendency to lower scores on the Integration Index. Stockholm is an outstanding exception. The combination of a high level of foreign born population and a high level of integration on the labour market, seen in Stockholm, proves that successful integration on the labour market cannot be narrowed down to a discussion on share of foreign born only.

If analysing some of the regions that get high and low scores, it turns out that Östersund has a high level of education among Western born foreigners and that Luleå/Boden has a good educational level among foreign born in general. Naturally, this can be one of the explanations why the two regions experience such a high score on the Integration Index; but the educational level may also be a result of better integration of foreigners into the labour market. Linköping, however, also has a relatively high educational level among the foreign Western born population in occupation, but Linköping achieves a low score on the Integration Index. Therefore the educational level among the foreign born population does not result in a high integration score alone. Stockholm/Södertälje, Gothenburg, Malmö/Lund/Trelleborg and Helsingborg/Landskrona all reflect relatively small differences between the educational level among the Swedish and the foreign born population in occupation. Additionally, looking at the relative difference between the educational level of the Swedish born and the foreign born population shows that no systematic patterns of better integration are evident where the educational level is higher. In general the non-Western foreign born population has a lower level of education, whereas the Western foreign born population in general has a slightly higher level of education. This does, however, not really influence the employment rate in general. Actually Stockholm comes out good on the Integration Index but has the largest gap in percentage points between the non-Western foreign born population and the Swedish population. Again this brings a very muddy picture of possible patterns between the origin, employment rate and educational level. Hence, explanations of the participation level of the foreign born population in the labour market can be linked to some kind of tolerance indication - stating that the higher score a region obtains on the Integration Index, the more tolerant the region is.

The Integration Index seems sensitive to share of foreigners in the population. This can be an argument for using both the Openness Indexes and the Integration Index – and the Bohemian Index – to indicate tolerance. Östersund and Luleå/Boden and Malmö/Lund/Trelleborg are extremes by being on top of one and last in another index.

However, in addition to these regions when combining Openness and Integration, it is notable that Stockholm being first on the Openness 1 and 2 comes out 7th in the Integration Index with a significantly better score than Malmö/Lund/Trelleborg or Gothenburg. The same holds for e.g. Växjö, Borås and Västerås that all obtain good scores in all three indexes. To us, this indicates a higher tolerance level in these regions compared to Malmö/Lund/Trelleborg, Gothenburg and Helsingborg/Landskrona.

Summing up on the tolerance indicators, the Bohemian Index reveals a concentration of Bohemian activities in the three largest regions. Stockholm, however, has a massive impact on the Bohemian Index and excluding Stockholm from the calculations provides enough space for 11 instead of 3 regions with an above average concentration. When the Openness parameter is examined, primarily the large regions achieve good scores. To get a more nuanced view on the tolerance parameter, we also introduced an Integration Index. This index shows a more differentiated picture, where the connection between population and rank on the index is less evident – the large regions are no longer in the top, and the small regions are no longer in the bottom.

Indicators of Quality of Place

Besides tolerance, quality of place also has an impact on the people climate and, hence, the attractiveness of a region. In his new book, Florida (2005a) points to the mobility of the creative class and thereby stresses the importance of having something that attracts and retains talents from all over the world. Along with tolerance, intellectual colleagues and a variety of jobs, two things are believed to have an impact on the location of creative people and talents: a well functioning welfare state and a broad variety of cultural supply.

In the following, two indicators will be introduced as proxies for quality of place. The Public Provision Index (PPI) grew out of a desire to be able to give an indication of the welfare state, and the Cultural Opportunity Index (COI) is constructed to measure the cultural supply within a region.

Public Provision

The Public Provision Index (PPI) is developed to analyse the public service level that the population is offered. The underlying argument for this is that talented and creative people are believed to be drawn toward regions that can offer a high public service level. The index primarily includes people employed within education and health care. It is measured as the number of employed people in public service industries by every 100 inhabitants in a region. For welfare states like Denmark, Sweden and Norway many of the welfare functions are centrally decided and therefore regional differences are small

and often politically influenced. Naturally, this brings along some difficulties in the direct interpretation of the results. On the other hand, if creative and talented people are attracted toward places with a high public service level, they probably do not care whether this level is a function of local, regional or national governments. Further, it has to be stressed that the PPI does not address the quality or productivity of the service that is provided in a region.

Table 4.2: Public Provision Index^{*) **)}

Region	PPI 1993	PPI 1997	PPI 2002	Change in PPI 1993-2002 (%)
<i>Sweden</i>	<i>12.24</i>	<i>11.00</i>	<i>12.23</i>	<i>2.18</i>
Umeå	17.48	16.18	17.41	4.84
Luleå/Boden	14.95	13.39	14.74	-2.13
Östersund	13.63	12.56	14.09	-2.76
Borlänge/Falun	12.70	12.01	13.74	6.13
Örebro	14.06	11.99	13.73	0.86
Linköping	14.27	12.12	13.70	-0.74
Uppsala	12.97	12.37	13.67	12.45
Kristianstad	14.25	13.22	13.60	-4.30
Karlstad	13.25	12.30	13.16	-2.91
Jönköping	12.50	11.46	13.15	8.74
Trollhättan/Vänersborg	12.47	11.61	13.14	5.81
Kalmar/Nybro	12.57	11.50	13.10	3.36
Växjö	12.36	11.54	13.04	4.77
Sundsvall	12.79	11.49	13.03	-1.21
Borås	11.88	11.41	12.68	6.69
Halmstad	12.37	11.53	12.68	5.60
Malmö/Lund/Trelleborg	12.69	11.30	12.51	7.09
Uddevalla	12.37	11.47	12.49	0.43
Gothenburg	11.60	10.55	12.01	11.62
Västerås	11.71	10.34	11.65	2.57
Gävle/Sandviken	11.63	10.74	11.65	-1.81
Eskilstuna	11.97	10.62	11.65	-1.19
Norrköping	11.59	10.04	11.62	0.06
Stockholm/Södertälje	11.62	9.69	10.68	0.91
Helsingborg/Landskrona	9.83	8.92	10.09	6.26

*Table 5 in Appendix 1 provides an overview of the industries included in the Public Provision Index

**Data shall be taken with some caution because a shift in the Swedish classification nomenclature (SNI) in 2002 can cause some differences in the classification of the industries.

The first noticeable thing in table 4.2 is that more than 7 percentage points are dividing Umeå and Helsingborg/Landskrona. This gap equals 41%. The difference between Umeå and Luleå/Boden, being number two in the list, is 11%, which is a considerable discrepancy. Accordingly, on the one side the first impression tells us something about a

relative lack of public services in Helsingborg/Landskrona, and on the other side it also stresses the high level that Umeå has reached. When examining the PPI, it seems that Umeå appears outstanding because a steady decreasing score can be identified between the remaining regions while the largest gap can be found between Umeå and Luleå/Boden which is second in the index. Investigating the composition of the public services, it becomes evident that Umeå has a higher share of employment within college activities. For a region like Umeå, a large university will have a considerable impact on the employment level within the industries that the PPI represents.

This brings us to one of the important biases that the PPI meets. In a welfare society like the Swedish, the welfare supply is to a large degree based on decisions taken by the national government. Central decisions and laws determine a minimum supply of welfare goods. Therefore the differences on basics like schools, kindergartens and homes for the elder population are minimal. Regions can, however, differ when it comes to activities like colleges, universities or hospitals because these are not located in every region and because they are located based on politics on a larger scale. Finally, it has to be stressed that a high PPI also indicates that the region is less dominated by the private business sector.

Another problem that has to be taken into account is that the index is not sensitive to economies of scale. Basic public activities have to be fulfilled regardless of the number of citizens in a region or a municipality. The larger a population is, the easier it is to improve the efficiency in for example administration. The more densely populated an area is, the easier it will be to raise efficiency in the public sector. Consequently, the index will cause densely populated regions to score low while sparsely populated regions will have better chances of scoring high. Finally, the PPI indicates nothing about the scope, quality and efficiency of the services provided.

Examining the development within the PPI, table 4.2 tells of large differences in the development within the last 9 years. Here it is important to stress that the regions with a modest number of employed in the public sector in 1993 will more easily obtain large percentage changes within the period. If this is taken into account, especially Uppsala and Gothenburg have witnessed considerable changes in the employment in the public provision industries. In general, primary education (SNI 801) has witnessed a considerable increase, but it has almost doubled in both Uppsala and Gothenburg. Meanwhile, human health activities (SNI 851) and social work activities (SNI 853) have decreased – though not to the same degree. This is a weak indication of relocation of governmental founding from healthcare into education - and especially primary educations. Again this can be seen as a weak indication of Sweden's desire to develop into a knowledge intensive society.

This asks for a short remark: Aiming toward building a knowledge intensive society and alongside cutting down on some of the fundamentals in the welfare system such as healthcare can have fatal consequences if public provision is important. The attractiveness on creative people and talents can easily decrease.

Cultural Opportunity

While the Public Provision Index is a proxy for the public service level of a particular region, the Cultural Opportunity Index (COI) should be seen as an attempt to measure the cultural supply within a region. The COI is developed to indicate the differences in the level of cultural opportunities between regions, and is measured as people employed in the cultural industries by every 100 inhabitants. This index includes the cultural economy, that is film and video production, museums, libraries, theatres etc., but also amenities that make a city life more attractive and cosy. Therefore employment in bars, restaurants, sports activities etc. are included too.

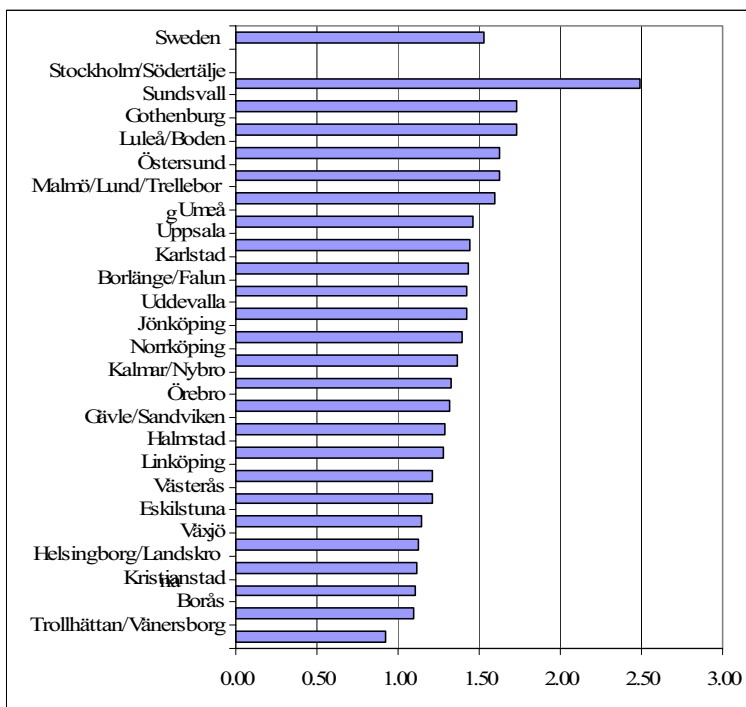


Figure 4.5: Cultural Opportunity Index 2002*

*Table 6 in Appendix 1 provides an overview of the industries included in the Cultural Opportunity Index

Figure 4.5 shows that Stockholm has the far highest share of people employed within cultural industries. This is expected as metropolitan areas are often the leading cultural centres of a country. At the same time, capital cities are often the most visited by tourists and therefore also the biggest market for suppliers of amenities.

Looking at the rest of the regions, Gothenburg, Malmö/Lund/Trelleborg are still coming out high on the list but Sundsvall, Luleå/Boden and Östersund rank high on the list as well. These three regions all have a relatively higher share of the cultural opportunity employment in sporting activities (SNI 926) than Stockholm, Gothenburg and Malmö/Lund/Trelleborg, which indicates that the population here is either more engaged in sporting activities or – which probably is the case – that active holidays like fishing, hiking, skiing or the like are important for the regions' economies.

Table 4.3: Cultural Industries. Percentage changes in employment 1993-2002

Region	Changes 1993-2002*
<i>Sweden</i>	35.47
Uddevalla	56.89
Sundsvall	51.18
Örebro	47.76
Trollhättan/Vänersborg	45.43
Linköping	44.94
Umeå	40.66
Malmö/Lund/Trelleborg	39.43
Gothenburg	39.24
Stockholm/Södertälje	38.48
Kalmar/Nybro	37.59
Östersund	36.45
Borlänge/Falun	33.73
Uppsala	32.57
Gävle/Sandviken	31.09
Jönköping	28.95
Luleå/Boden	27.63
Borås	26.94
Karlstad	26.90
Kristianstad	26.36
Eskilstuna	25.34
Halmstad	25.27
Helsingborg/Landskrona	25.08
Norrköping	22.96
Växjö	19.20
Västerås	14.24

*Data shall be taken with some caution due to a shift in the Swedish classification nomenclature (SNI) in 2002 that can cause some differences in the classification of the industries between years 1993 and 2002.

Addressing the development within the cultural industries, table 4.3 shows that Uddevalla, Sundsvall and Örebro have had the most significant changes in employment in the cultural industries within the period that we are analysing. In general the increase in jobs has been notable. Even large urban areas as Stockholm, Gothenburg and Malmö/Lund/Trelleborg have witnessed an increase of approximately 40%. This is one of several indications of Sweden slowly approaching a cultural consuming economy – like many other western countries.

Additionally, the increasing economic conjunctures of Sweden of course play a role as well. The cultural consumption industries are among the first that are affected by increasing or decreasing economic structures as the industries sell goods and services that are dispensable.

Figure 4.6 shows that besides the six city regions topping the list, Mora, which is not one of the 25 largest regions and only has approximately 45.000 inhabitants, also appears in the top. Mora has the highest ranking on the Cultural Opportunity Index (3.17). This can most likely be explained by the ski sport activities that are important for the region.

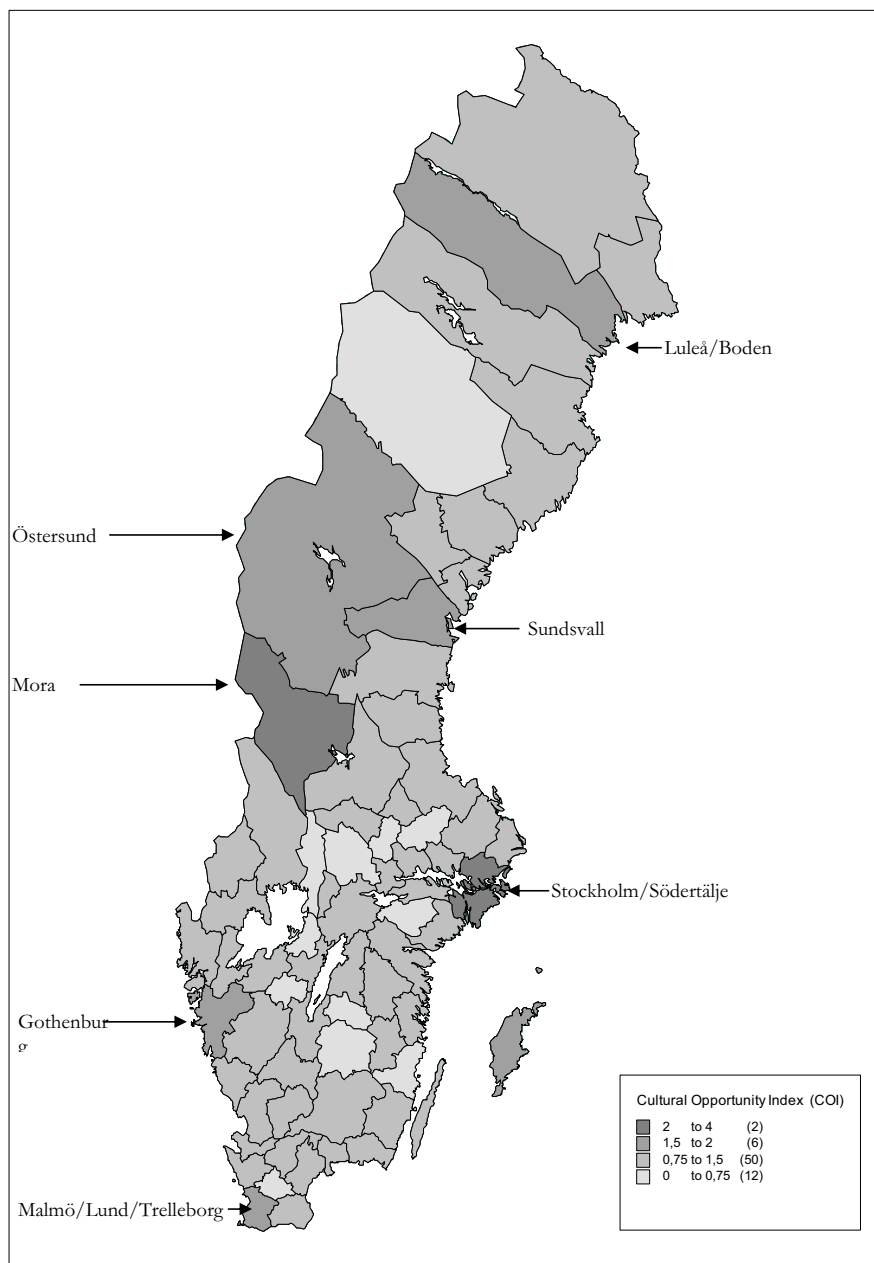


Figure 4.6: Cultural Opportunity Index. The geographical pattern in Sweden 2002

People Climate in the Nordic Countries

In a Nordic perspective, the people climate indicators tell somewhat the same story – regions that have a high share of creative class persons also have fairly good people climate indicators. It is, however, not only large urbanised areas that come out with good scores. Both in Sweden and in Denmark small regions interfere. Enköping and Marstal do not qualify among the largest and most urbanised regions. They do, however, come out with the best creative class scores – relatively. Enköping is located close to Stockholm and Uppsala, which is why we can expect the region to serve as a residence area for creative class people working in Stockholm or Uppsala. Contrastingly, the explanation for the high creative class score in Marstal is beyond the scope of this report, but we can verify that the creative class variable is the only variable where these two regions get good scores. In all other indexes the regions score below the large regions.

Besides the interfering Enköping and Marstal regions, table 4.4 tells a story that has strong parallels to the Swedish. The large urban areas tend to have good scores in the Talent, Bohemian, Openness 2 and COI indexes whereas the PPI tend to have higher values in regions that are less densely populated. The general findings of the Nordic data – when the scores are not sorted by creative class – have to be that the large regions, and in particular the capital regions, are dominating the People Climate Index. It is the densely populated regions that attract bohemians; that attract people originating from abroad; that attract talent, and that have the highest shares of people employed in cultural related jobs.

The table, however, also witnesses considerable variations across countries – even within Scandinavia. Some of the variations have to be found in different ways of gathering data. In Norway for example, the public sector is not included in the occupational data, which causes a significantly lower share of creative people. Other explanations shall be found in different industrial structures, e.g. Danish industry is closely linked to service and is dominated by small and medium sized enterprises whereas the Swedish industry is more dominated by capital intensive or R&D intensive production and dominated by medium and large size enterprises. This results in a need of different labour qualifications across the countries and when a different pattern of urbanisation can be identified between the countries as well due to differences in the physical landscape then variations occurs.

Table 4.4 People climate indicators in the Nordic regions sorted by creative class

	Creative class (%)	Talent (%)	Bohemian (LQ)	Openness 2	PPI	COI
SWEDEN						
Enköping	46.74	9.50	0.87	9.73	9.49	0.87
Uppsala	45.59	23.73	1.00	12.65	13.67	1.47
Stockholm/Södertälje	40.04	19.92	1.82	18.40	10.68	2.53
Linköping	38.09	18.01	0.61	8.59	13.70	1.23
Gothenburg	36.78	16.95	1.10	14.55	12.01	1.76
DENMARK						
Marstal Region	53.31	1.42	0.43	2.28	11.71	2.01
Copenhagen Region	52.51	8.27	1.43	6.77	12.69	2.34
Aarhus Region	48.58	7.91	1.25	4.77	14.83	1.86
Svendborg Region	47.21	2.79	0.90	3.71	14.42	1.43
Sønderborg Region	42.65	3.44	0.59	4.77	11.79	1.16
NORWAY						
Bærum/Asker	26.32	29.76	1.30	8.47	13.27	1.21
Kongsberg	20.58	20.40	0.75	4.31	13.48	1.06
Oslo	18.74	39.28	2.18	15.42	14.23	3.69
Arendal	15.35	14.55	0.42	4.26	12.15	1.13
Stavanger/Sandnes	15.10	20.34	1.04	6.67	11.62	1.63
FINLAND						
Helsinki	46.10	20.26	1.75	4.03	9.96	2.50
Oulu	41.32	16.91	0.82	1.12	11.46	1.42
Jyväskylä	40.01	15.59	0.91	1.72	10.88	1.55
Kuopio	39.11	13.02	0.86	1.06	12.02	1.22
Tampere	39.34	15.30	1.26	2.04	10.09	1.82

Source: The Nordic Database

Summing Up on People Climate

Summing up, chapter 4 has provided a descriptive analysis of the geography of people climate in contemporary Sweden. By using different variables as proxies for tolerance and quality of place the people climate concept has been challenged in an attempt to get as nuanced a result as possible. Many different proxies especially for the tolerance part are applied to secure that big city phenomena, like ethnic ghettos, do not have too much effect on the entire evaluation.

Having taken all these precautions, we believe that we have provided a fair picture of the geography of factors that influence people climate, and, hence, the attractiveness of regions. But a people climate cannot force economic growth by itself. An entrepreneurial and dynamic business climate needs to be present too. Therefore the business climate is

explored in the following to be able to provide a more complete portrait of the creative state of the Swedish regions.

5. Business Climate

To become a successful region, a broad variety of elements have to interact in a successful way. Contemporary research points towards a positive impact on economic growth if active support is given to bridge businesses, government institutions and institutions of education. Especially in the knowledge intensive industries, effects of this seem powerful when examples like Silicon Valley are mentioned.

In chapter 3 we mapped the geography of the creative class and the talented workforce. These are essential for understanding the qualifications of the workforce within a region. Further, the general skills of the workforce and the traditions of production within a region are important for developing, planning and branding a region. The qualifications of the workforce have to meet the needs of businesses, and the job offers of businesses have to meet the qualifications of the workforce.

In chapter 4 we explored indicators of people climate based on a belief that certain elements have an attractive effect on creative and talented people. In the following, indications of business climate in the Swedish labour market regions will be analysed. By combining business climate with people climate and the location of talent and creative people, we aim to point towards a multi-levelled analysis of the possibilities and competitiveness of the Swedish regions in a knowledge based economy.

Only two indicators are found suitable for indicating the state of the business climate. The first is the Tech Pole Index which indexes the location of high-tech production in a national perspective. The other is the firm formation rate which indicates the entrepreneurial spirit in a region as a proxy for the business climate.

The Tech-Pole Index - Knowledge Based Production

Florida refers to the importance of high-tech industries in building a competitive region. An indicator of the importance of a region's high-tech production is measured by the Tech-Pole Index. Here we also use the Tech-Pole Index as a measure of the importance of high-tech production, but contrary to Florida we add knowledge intensive business services and the automotive industry¹⁰ to the original list made by DeVol (1999). These additions include consultancy services and research and development. We do, however, still use the term the Tech-Pole Index. By regulating DeVol's original index, we believe that we have transformed the index into a measure that is better fit for a European context

¹⁰ Automotive industries can be considered very knowledge intensive and innovative in Sweden. Business services also consist of a high degree of knowledge intensity in Europe.

as the high-tech production in Europe is not as dominating and as widely spread as in the USA.

Statistically, knowledge intensive production is illustrated by the number of employees within the defined categories. A list of the included categories can be seen in Appendix 1 in table 2. Comparing employment in the high-tech industries is not unproblematic. The ten-year period that we are covering represents a change in the industrial nomenclature in Sweden. 1993 and 1997 are categorised by SNI92 (Swedish Nomenclature for Industries) whereas 2002 is categorised by SNI2002. This shift in nomenclatures causes some problems when comparing 1993 and 1997 with 2002; especially if changes in single industries are investigated. However, though being aware that the changes from 1993 to 2002 result in somewhat uncertain data, data can easily be used to illustrate the growth in the high-tech and knowledge intensive businesses as an indication of the regional development within these industries. Further, it has to be stressed that the adjusted high-tech/knowledge intensive production in Sweden only counts 10% of the total employment, thus 90% is not addressed with this index.

Table 5.1 shows the shares and LQ of employment in high-tech industries in Sweden. Trollhättan/Vänersborg are in a clear lead with an LQ of 2.33, more than 0.5 points higher than number two on the list - Linköping. Trollhättan/Vänersborg have a very high share of the employed population employed in manufacturing of motor vehicles (13.6%) and also a considerable share of employment in manufacturing of aircrafts and spacecrafts (4.6%). Linköping, Uppsala, Gothenburg, Stockholm/Södertälje, Umeå and Malmö/Lund/Trelleborg are the only other regions that have an LQ higher than 1. All have the highest concentrations of employment within public service and administration and none of them have LQs close to Trollhättan/Vänersborgs in terms of non-public sectors.

Table 5.1 also reveals that the growth in high-tech employment takes place in regions that already have high concentrations of high-tech industries. This correlates with the vast literature in contemporary economic geography on clusters, path dependency, regional systems of innovation, localised learning etc., see Malmberg and Maskell (2002), Maskell & Malmberg (1999), Asheim (1996), Storper 1997, Storper and Vennables (2004), Cooke & Morgan (1998).

Tabel 5.1: Hightech employment. Shares of total employment and LQs in Swedish regions

City Region	1993*	1997*	2002*	Percentage change 1993-2002	Location quotient 2002
<i>Sweden</i>	<i>7.70</i>	<i>9.22</i>	<i>9.49</i>	<i>8.49</i>	<i>1.00</i>
Trollhättan/Vänersborg	20.53	22.60	22.09	21.09	2.33
Linköping	15.77	19.49	17.17	16.17	1.81
Uppsala	13.15	14.96	15.76	14.76	1.66
Gothenburg	11.74	14.22	15.24	14.24	1.61
Stockholm/Södertälje	11.22	12.85	13.56	12.56	1.43
Umeå	6.92	9.31	10.36	9.36	1.09
Malmö/Lund/Trelleborg	6.80	7.89	9.73	8.73	1.03
Luleå/Boden	6.02	7.88	8.19	7.19	0.86
Växjö	5.71	7.87	7.81	6.81	0.82
Västerås	8.03	12.45	6.88	5.88	0.73
Eskilstuna	4.85	6.86	6.74	5.74	0.71
Uddevalla	5.58	6.85	6.61	5.61	0.70
Borås	4.97	6.57	6.60	5.60	0.70
Jönköping	5.64	6.91	6.52	5.52	0.69
Sundsvall	5.97	8.66	6.50	5.50	0.68
Karlstad	4.70	5.74	6.16	5.16	0.65
Örebro	5.11	7.88	6.05	5.05	0.64
Helsingborg/Landskrona	5.69	6.18	5.85	4.85	0.62
Kalmar/Nybro	6.19	5.40	5.83	4.83	0.61
Gävle/Sandviken	4.82	6.23	5.78	4.78	0.61
Östersund	4.11	5.08	5.59	4.59	0.59
Kristianstad	3.44	4.17	5.24	4.24	0.55
Borlänge/Falun	4.36	4.89	5.07	4.07	0.53
Norrköping	6.90	6.98	4.38	3.38	0.46
Halmstad	2.96	3.76	3.86	2.86	0.41

*A change in the industrial nomenclature in 2002 (from SNI92 to SNI2002) is causing some comparable difficulties between data from 1993 and 1997 on the one side and 2002 on the other. The differences between the two nomenclatures are, however, not more influential than data can be compared in general terms as is the case here.

The LQ provides an indication of the relative importance of a variable for the region compared to other regions (in this case the variable is high-tech/knowledge intensive employment). However, it has the weakness of not really showing the region's importance to the total national production. To be able to do so, DeVol (1999) has developed the Tech Pole Index. According to him, multiplying the region's share of the national high-tech employment with the region's LQ results gives a more accurate measure of the region's national importance.

The Tech-Pole Index is graphically shown in figure 5.1. Linköping, Uppsala and Gothenburg all have a larger share of their labour force employed in high-tech industries than Stockholm; but the Tech-Pole Index shows that the most important national share of the high-tech employment is located in Stockholm representing almost twice the value of Gothenburg. Gothenburg, Trollhättan/Vänersborg, Uppsala, Malmö/Lund/Trelleborg and Linköping follow Stockholm as the most important high-tech regions in terms of employment.

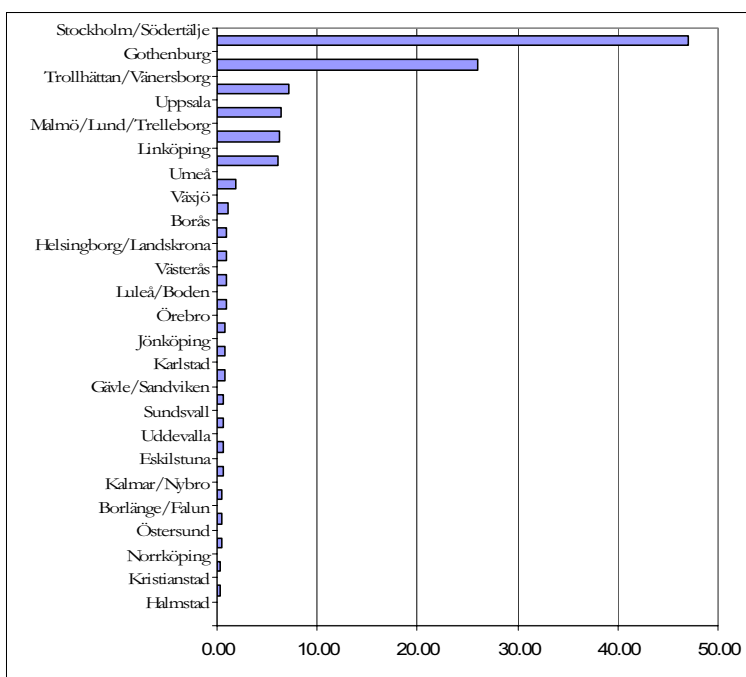


Figure 5.1: Tech-Pole Index for 2002

Umeå is represented with an LQ above 1 and ranks above Malmö/Lund/Trelleborg. In the Tech-Pole Index, Umeå is not a part of the six dominating regions and is more close to Växjö and Borås than to any of the other six regions that have an LQ above 1. This is a good example of a region that obtains good scores on the LQ but on a national level is less important. Hence, it would be fair to say that though high-tech industries are important for the Umeå region, the Tech-Pole Index indicates that *ceteris paribus* the high-tech industries in Umeå are less important for the overall Swedish high-tech sector.

The Tech-Pole Index demonstrates the same overall picture as the majority of the former indexes. The largest regions: Stockholm, Gothenburg, Malmö/Lund/Trelleborg and

Uppsala achieve high scores. Helsingborg/Landskrona is not performing as well as the size of the region leads to expect – but this has also been the case in many of the former indexes. Further, some regions that have not performed outstanding on the prior indexes are getting high scores on this index – this is especially Trollhättan/Vänersborg and to some extent Linköping.

The findings of the Tech-Pole Index are plotted into a map of Sweden in figure 5.2. The figure clearly indicates that very few regions in Sweden have major importance in a national perspective – in terms of employment – a large majority have very low Tech-Pole scores.

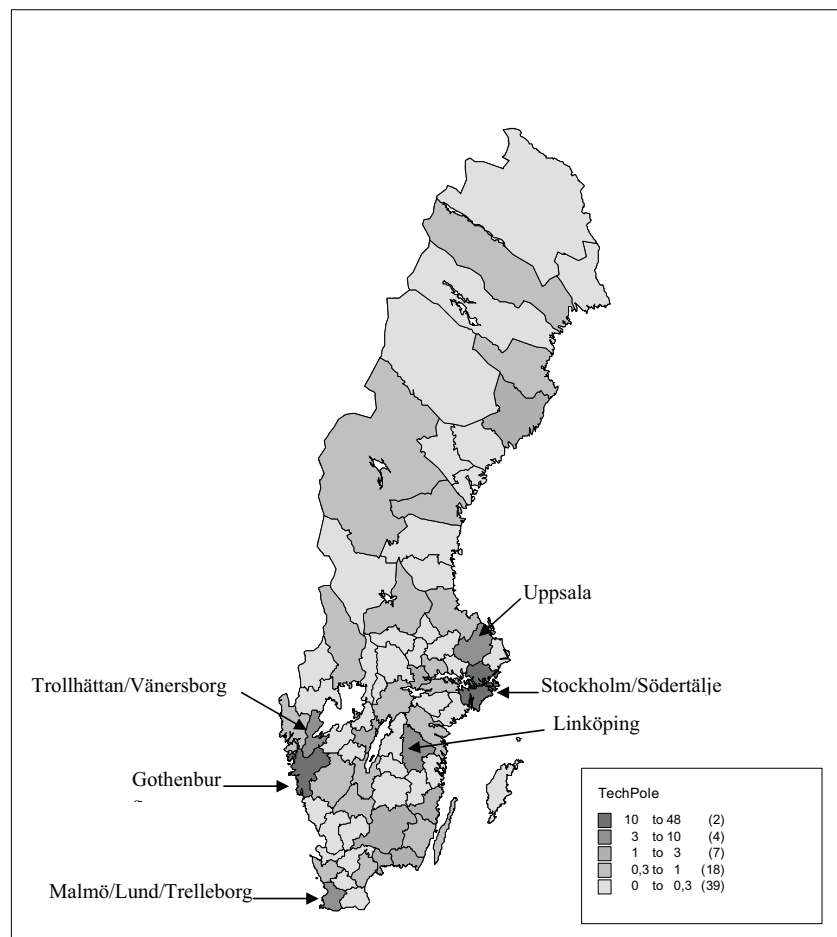


Figure 5.2: The geographical pattern of the Tech-Pole Index in Sweden 2002

Analysis of figure 5.2 gives the impression that high-tech production is concentrated in the southern parts of Sweden. The two darkest tones of grey are only found in this area whereas the middle grey tone is represented once in the northern Sweden – by Umeå. In general, the map shows what could be expected: that it is the largest city areas that dominate the high-tech production; that the high-tech production in general is located in areas that have a high population density; and that national centres of high-tech/knowledge based production are in the southern parts of Sweden – the regions below Uppsala.

A business climate shall, however, not only be an indication of the high-tech level in the region. Therefore we have added a second variable to play up against the Tech-Pole Index.

Formation of New Firms

The future economic perspective of a region is naturally very difficult to predict. One of the aims for this report is to look for possible relations between the geography of the creative class in Sweden and economic dynamics. Investigating the new firm formation rate brings along a proxy for the entrepreneurial spirit within a region, and this can be used as a proxy for the economic climate. This is based on the assumption that a positive business climate will result in a growing entrepreneurial spirit, which again produces a growing formation of new firms. The New Firm Formation Index is measured as new firms per 1000 inhabitants.

Table 5.2 shows that the usual suspects have top rankings in this area too. Östersund has, however, managed to climb the list, capturing a second price. Östersund has been listed in the bottom of the list in many of the prior indicators but came out third on the Public Provision Index and fifth on the Cultural Opportunity Index. However, in general it seems that firm start-ups are more frequent in regions that already have stable economic conditions. Table 5.2 also gives information on the new firm formation within high-tech firms. Though the regions are not sorted ascending or descending according to the high-tech firm formation, it soon becomes clear that only the Stockholm/Södertälje region has a value well above the remaining regions and that only Malmö/Lund/Trelleborg, Gothenburg and Uppsala have a firm formation rate above the national average.

Looking at the LQ for high-tech employment on a national level, Stockholm, Gothenburg, Malmö and Uppsala do not appear as the highest ranking. They do, however, all have an LQ above 1. When this is combined with the high-tech firm formation rate, it indicates that high-tech growth – at least in terms of new firm formation

– seems to gravitate towards the four largest regions in Sweden and, consequently, centralise more than is already the case.

Table 5.2: The New Firm Formation Index 2002

Region	New firms per 1000 inhabitants	New high-tech firms per 1000 inhabitants
<i>Sweden</i>	<i>6.96</i>	<i>0.56</i>
Stockholm/Södertälje	9.33	1.04
Östersund	9.07	0.40
Malmö/Lund/Trelleborg	7.53	0.69
Uddevalla	7.27	0.29
Gothenburg	7.14	0.69
Uppsala	6.97	0.59
Helsingborg/Landskrona	6.66	0.48
Kristianstad	6.50	0.30
Borlänge/Falun	6.35	0.43
Sundsvall	6.19	0.52
Luleå/Boden	6.17	0.47
Örebro	6.15	0.42
Halmstad	6.13	0.39
Kalmar/Nybro	6.08	0.40
Karlstad	6.00	0.38
Västerås	5.93	0.55
Borås	5.72	0.29
Växjö	5.70	0.46
Eskilstuna	5.70	0.46
Gävle/Sandviken	5.48	0.42
Linköping	5.48	0.50
Umeå	5.39	0.40
Norrköping	5.39	0.33
Jönköping	5.20	0.39
Trollhättan/Vänersborg	5.01	0.29

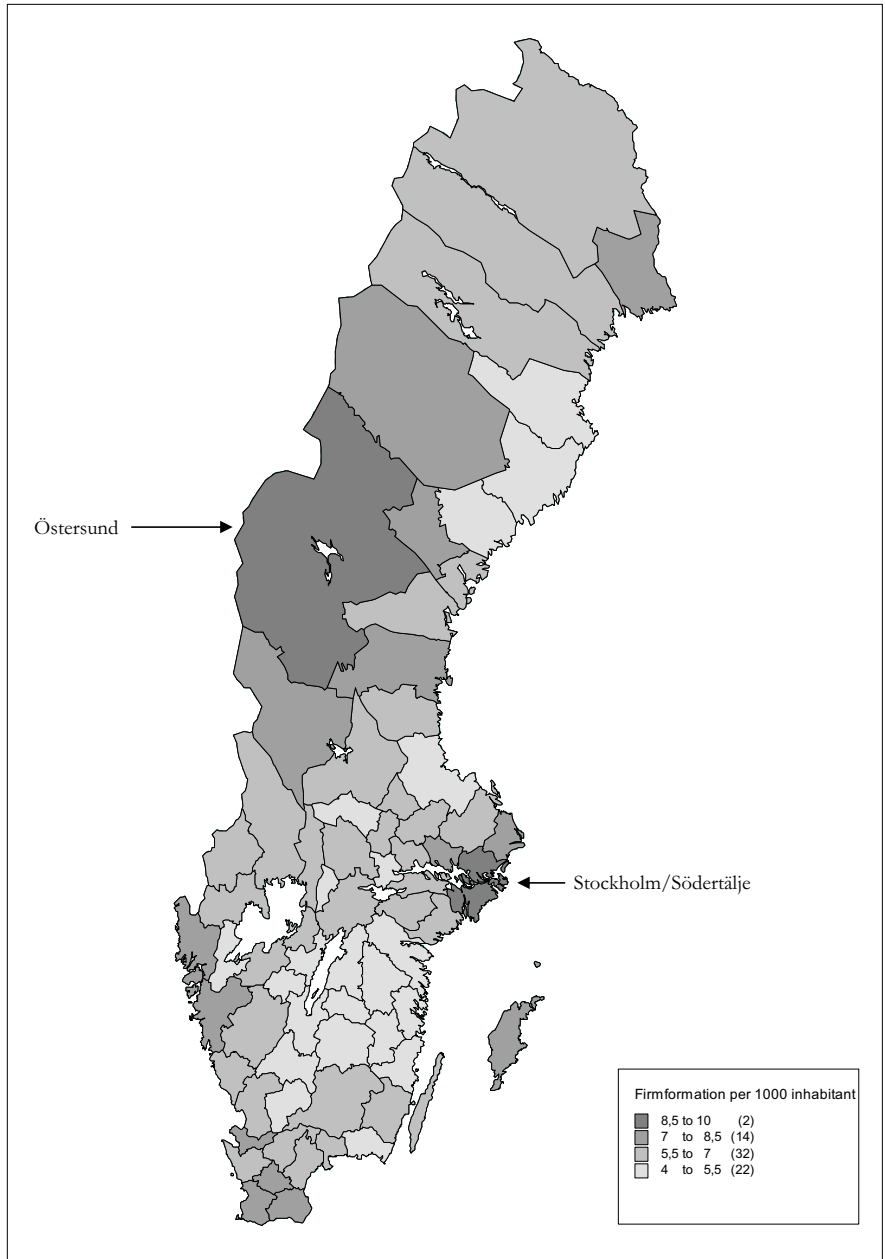


Figure 5.3: The geographical pattern of the New Firm Formation in Sweden 2002

Figure 5.3 provides a geographical expression of the new firm formation activities in Sweden. The map differs from the prior maps by the rather high ratings of the more peripheral regions in especially northern Sweden. The map provides us with a different impression than if only the 25 largest regions were investigated. If we look more into the types of industries that emerge in the northern parts of Sweden, farming of different kinds, forestry, hotel and restaurant activities and letting of own properties are dominating. Only Östersund has considerable growth in an industry that reflects the knowledge based economy – namely business service (SNI 741). This brings us to conclude that even though the northern parts of Sweden have good ratings in the New Firm Formation Index, the firms that emerge in the peripheral regions are not firms that create a large number of new jobs and do not have considerable potential of growth within the near future years. Hence, even though the peripheral regions appear high in the New Firm Formation Index, they do not bring any competitive aspects to the general picture presented in the indexes discussed earlier.

Business Climate in the Nordic Countries

In the Nordic countries the regional structure is very similar. The capital is the economic leader and the largest urban areas follow. Exposing the Tech Pole Index to the four Nordic countries that participate in the project displays this pattern. Though for example Bærum/Asker in Norway comes out best and Tronhättan/Vänern comes in third in Sweden, it is the largest agglomerations that are represented. Further Bærum/Asker is located close to Oslo and is included in the greater Oslo area. The result is, however, clear – high-tech employment is located in the city or city near regions.

The data in table 5.3 shows that one (in the case of Norway two) regions has by far the highest score on the Tech Pole Index, and it is very clear that a large gap can be identified between the leading region(s) and the followers. This is an indication of an explicit dominance by very few regions and a tendency to agglomeration among high-tech producers. The scores are not directly comparable across nations. They can, however, be used to show a very similar national hierarchy in all the Nordic countries where the capital cities, Stockholm, Copenhagen, Helsinki and the Oslo regions, are dominating in this context.

Table 5.3: Tech Pole 2002 for the Nordic Countries

Sweden		Denmark		Norway		Finland	
Stockholm/Södertälje	47.11	Copenhagen Region	87.42	Bærum/Asker	53.04	Helsinki	62.82
Gothenburg	26.02	Aarhus Region	13.87	Oslo	50.94	Oulu	13.98
Trollhättan/Vänersborg	7.23	Vejle Region	2.32	Trondheim	9.64	Tampere	11.74
Uppsala	6.34	Kolding Region	2.11	Stavanger/Sandnes	9.41	Turku	7.30
Malmö/Lund/Trelleborg	6.18	Odense Region	1.98	Bergen	8.51	Salo	5.30

Source: Nordic Database

The firm formation variable is not available for all the Nordic countries and, hence, the only indicator of business climate is the above presented Tech Pole Index. But it can be concluded that the picture that Sweden provides is also the tendency that characterises the Nordic countries in general in regard to business climate.

Summing Up on the Business Climate

Summing up on the findings of the indicators of the business climate, the general impression does not differ considerably from the results of the people climate. Though regions like Trollhättan/Vänersborg, Linköping and Östersund are performing well, the four largest Swedish regions – Stockholm/Södertälje, Gothenburg, Malmö/Lund/Trelleborg and Uppsala – also get high ratings. This brings us to conclude that based on this descriptive analysis, the cities performing best in the people climate also perform best in the business climate. Based on the analysis of business climate and people climate, we next turn to an overall ranking of the best performing regions in Sweden based on the indexes investigated above.

6. Ranking the Swedish regions: Technology, Talent and Tolerance

Based on the results so far, we can rank the Swedish regions in relation to their respective scores on the people climate and the business climate indicators. Doing so, we can give a very quantitative impression of the interregional performance of the Swedish labour market regions without weighting the indexes, except the Openness 1 and 2 and Integration indexes. The scores on each index is added up to a sum and next given an indexed score based on the score of the top scoring region.

Table 6.1 is based on the ranking by indicators on all 70 Swedish labour market regions. The table shows that based on the above indicators, Uppsala comes out as the most creative region closely followed by Stockholm, Malmö and Gothenburg. Though Stockholm has performed best on most of the indicators, it only comes out second. This solely results from the rather poor rating that Stockholm obtains in the PPI. Consequently, Uppsala comes out first. Uppsala has a stable high score in most of the indexes and has a relative good performance in the PPI in opposition to Stockholm, Malmö and Gothenburg – which basically settles the ranking.

As discussed in chapter 4, the PPI might be affected by some kind of economies of scale in the public services. The welfare system can cause rather high rates of public servants within rural or less urbanised areas because the welfare system secures an equal supply of public services, no matter whether you are located in a densely or dispersal populated area. Hence, this indicator is highly sensitive to politics and is evenly spread due to this. Accordingly, some might argue that the indicator is meaningless to add to an analysis like this. We find the index relevant in the sense that a high public service level can have an attractive effect on creative people who want good schools for their children and good elder service when they reach the level where this is necessary. However, leaving the PPI out of the ranking brings Stockholm to the first position with a significant gap down to Uppsala, Gothenburg and Malmö in the following positions.

Whether this creative class model is adaptable to the Swedish context or not and to what degree the model can explain current economic development in Sweden will be the focus of the following two chapters. However, it should be underlined that the above ranking according to the creative class approach only explains some of the many influencing elements that have an impact on regional growth. Therefore, the above list is not a deterministic list of regions that may or may not perform well in the near future. The list is an estimated picture on favoured and less favoured regions based on the current state of the Swedish regions. It indicates to which degree regions are geared for the more innovative and knowledge intensive dynamics of the emerging mode of production. Hence, new technological breakthroughs, crises in the world economy or even a locally

founded firm with a brilliant idea can change the ranking that is presented above – especially for the regions that are listed below the four leading regions.

Table 6.1: Ranking the Swedish labour market regions by total creativity score*

A-Region	Creative Class LQ	Bohemian LQ	Tech-Pole	Talent	Openness 1	Openness 2	Integration	PPI	COI	Firms per 1000 inhabitants	Aggregated Competitive Index
Uppsala	66	66	67	70	69	61	36	64	61	54	100
Stockholm/Södertälje	70	70	70	69	70	70	43	13	69	70	98
Malmö/Lund/Trelleborg	68	69	66	67	67	68	2	52	63	64	97
Gothenburg	69	68	69	65	68	65	11	33	67	57	94
Luleå/Boden	60	65	54	64	36	18	59	67	65	39	89
Umeå	51	64	61	68	56	24	49	70	62	16	86
Östersund	52	58	45	52	6	9	63	57	64	69	82
Västerås	65	53	55	63	66	67	34	34	46	31	81
Linköping	64	45	65	66	62	43	10	62	47	21	81
Örebro	48	49	53	61	65	55	5	63	53	37	80
Växjö	55	67	59	58	53	46	50	45	36	27	79
Sundsvall	63	54	49	48	41	12	45	38	68	40	77
Jönköping	58	48	52	60	63	54	30	49	56	11	77
Borlänge/Falun	45	61	44	51	43	17	32	59	59	42	77
Halmstad	47	57	36	54	47	56	31	50	50	36	75
Nyköping	59	52	34	45	51	48	62	27	49	48	74
Borås	50	59	57	31	57	60	47	51	33	28	74
Karlstad	54	56	51	59	44	22	8	40	60	33	73
Helsingborg/Landskrona	57	63	56	53	59	64	3	3	34	49	71
Skövde	44	37	62	49	54	38	46	68	42	7	71
Eskilstuna	56	47	47	47	64	63	29	32	38	26	70
Kristianstad	40	35	40	55	50	41	21	61	35	45	69
Ängelholm	61	55	20	57	12	34	41	21	48	58	68
Kalmar/Nybro	43	44	46	56	29	23	40	41	52	35	68
Visby	34	62	24	50	7	5	17	36	66	68	67

*Openness 1 and Openness 2 each counts ¼ and Integration Index counts ½, which adds up to a total weight of 1 on the Openness variables.

7. People Climate and Location of the Creative Class

According to Florida's (2002) work on US economic development, the creative class is important for generating growth. In theory indicators of people climate – proxies of tolerance and quality of place – have a significant influence on the locational patterns of the creative class. In figure 7.1 the relationship between the creative class and a set of variables is exposed in a schematic form.

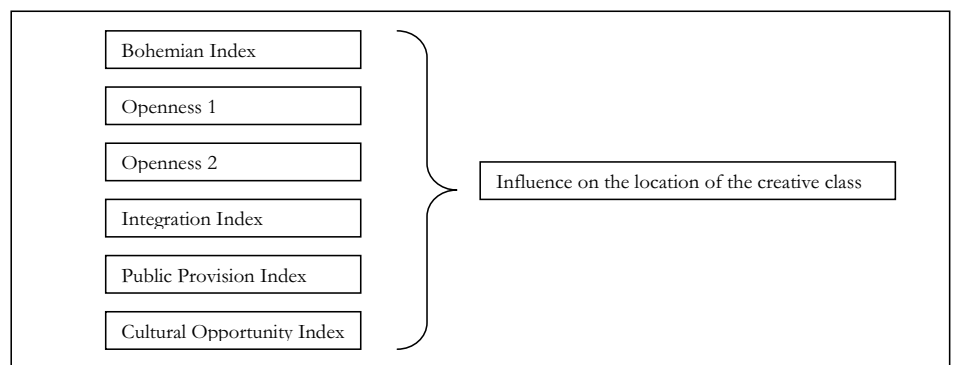


Figure 7.1: Model 1 - The relation between location of the creative class and tolerance, Public Provision and Cultural Opportunity

If this model is correct, the locational patterns of the creative class are dependent on tolerance and quality of place. In chapter 4, the geography of the tolerance indicators was touched upon. It showed that primarily the largest urban areas had a high share of people working in bohemian occupations, and primarily the large cities had high shares of foreign born population - Openness 1 and Openness 2 Indexes. In contrast, the scores of the large cities in the Integration Index, which indicates the differences in occupation rates between foreign born and Swedish born people, were almost disproportional with the findings in the first two Openness Indexes.

Additionally, proxies for quality of place were investigated in chapter 4. While regional differences were relatively small in relation to the PPI, differences were considerable in regard to the COI which showed dense concentration in a small number of regions.

Table 7.1: Correlations between the creative class and indicators of people climate

	Creative Class (%)	Creative Core (%)	Creative Professionals (%)
Bohemia1000	.803(**)	.659(**)	.819(**)
Openness 1	.768(**)	.681(**)	.740(**)
Openness 2	.420(**)	.313(**)	.456(**)
Integration	-.132	-.200	-.057
PPI	.130	.333(**)	-.058
COI	.493(**)	.448(**)	.466(**)

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Table 7.1 shows that the Bohemian as well as the Openness1 and Openness 2 Indexes have significant correlations – the Integration Index does, however, not correlate. Moreover, the table shows that a stronger correlation can be found between the three first variables and the creative professionals and the creative core, respectively, than between the same variables and the creative class in total.

Correlations between the creative core and PPI and COI are all significant whereas only correlations between the creative professionals and the creative class and COI are significant. Differences between the creative core and the creative professionals as groups are only possible to analyse with respect to the COI as the PPI does not provide significant answers. Again, however, differences between the two groups are small. Insignificance in the correlations between PPI and the creative class data can be caused by the little variance in the very evenly distributed index.

The correlations illustrate positive relations between high concentrations of creative class people and indicators of quality of place except from the insignificant integration variable. One by one the remaining variables tell a story of mutual positive relationships. Unfortunately, the variable used as proxies for people climate contains a considerable multicollinearity. Therefore it is not possible to make a multiple regression model by use of all 6 variables. Instead the model below is introduced; here only 3 of the 6 variables are included.

Obviously, the use of only 3 out of 6 variables elicit a more imprecise interpretation of the linkages between people climate, as measured here, and the location of the creative class. On the other hand, the exclusion of three variables allows us to make a statistical model and analysis of the linkage between some of the variables that reach beyond shares, LQ's and simple correlations.

To obtain the best match between variables, significance and multicollinearity, we ended up with the model below.

Table 7.2: Model 1 – creative class by variables of people climate*Bivariate correlations of the independent variables*

	Bohemia1000	Openness 1	PPI
Bohemia1000	1	.701(**)	.028
Openness 1	.701(**)	1	-.046
PPI	.028	-.046	1

** Correlation is significant at the 0.01 level (2-tailed).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.864(a)	.746	.735	2.58936

a Predictors: (Constant), PPI, Bohemia1000, Openness 1

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1300.154	3	433.385	64.638	.000(a)
	Residual	442.515	66	6.705		
	Total	1742.669	69			

a Predictors: (Constant), PPI, Bohemia1000, Openness 1

b Dependent Variable: Creative Class (%)

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	14.324	2.887		4.961	.000		
	Bohemia1000	.838	.145	.505	5.785	.000	.505	1.979
	Openness1	1.410	.293	.421	4.816	.000	.505	1.982
	PPI	48.166	22.139	.136	2.176	.033	.991	1.009

a Dependent Variable: Creative Class (%)

The overall result of model 1 is that it is significant, and R^2 shows that the model explains 74.6% of the variation. Collinearity statistics reveal some multicollinearity with respect to the Bohemian per 1000 inhabitants and the Openness 1 variables. Though multicollinearity is present, it is not alarming, and, hence, the model is acceptable.

In addition, the bivariate correlation shows a relatively high correlation between Bohemia 1000 and Openness 1 (0.701). However, the variables used in the model altogether result in the best fit. Hence, the variables are included in the model even though the relatively high correlation may result in insecurity when interpreting the result.

Unfortunately, the Openness 2 and 3 and COI variables cannot be included in the model, as their presence causes either high multicollinearity or insignificance. Therefore, valuable knowledge is omitted, but the data leaves us no immediate alternative. The

model includes two different proxies for tolerance and one proxy for quality of place. Accordingly, both elements constituting a people climate indicator are present.

Put into an equation, the relationship between this narrow conception of people climate and the location of the creative class in Sweden will be:

$$Y=14.324 + 0.838 X_1 + 1.410 X_2 + 48.166 X_3$$

Y: the concentration of the creative class; X_1 : Bohemians per 1000 inhabitants; X_2 : share of population with a non-western origin; and X_3 : share of population employed in public services.

To what degree then does people climate influence on the location of the creative class? Restrictions based on multicollinearity and lack of significance have resulted in a less nuanced indicator of people climate than we had hoped for. Naturally, this can be explained by the high level of cohesion that the variables represent, and, hence, also a strong implicit link between several of the variables used as proxies for people climate. Taking this into account, we can conclude that a strong relation between the creative class and some of the indicators of people climate can be identified. According to model 1, the largest impact is caused by Bohemians, and secondly by Openness measured as foreign born non-Westerns. Data does not, however, allow us to evaluate on the impact that the remaining three variables have – whether they are more or less influential than the three variables in the model.

One assumption that could easily come into mind is whether the result is driven by urbanisation in itself. To meet the problem of differences in size, we constructed variables of relative values. To ascertain that population density or large populations do not interfere with the result, we tested for the impact that such two variables will have on the model. Adding population density to the model caused insignificance for the variable itself and PPI while Bohemia 1000 and Openness 1 retained its explaining effect. When adding the population variable, the variable becomes significant, but changes from correlating positively with the creative class to having a negative influence in the model. Further, the PPI comes out insignificant and Bohemia 1000 and Openness 1 retained their value of explanation. This strongly indicates that size of population and urbanisation density cannot explain why people climate parameters tend to co-locate with the creative class.

Having concluded that the variables and the location and concentration of a creative class are somehow closely interrelated, it is important to stress that the model does not exclude that other factors may be of equal importance or of more importance. Additionally, the

model does not provide any final answer as to whether changes in the people climate result in changes in the location of the creative class. Historical data on occupation is unfortunately lacking in Sweden. Solid trustworthy data cannot be tracked further back than 2002. Occupational data is the bedrock of the Creative Class Index, the Bohemian Index and the Integration Index. Talent can be applied as a good proxy for the creative class in Sweden. The correlation between the two variables is very high (0.935), and, hence, the two variables can be expected to behave similarly (see table 7.3 and figure 7.2).

Table 7.3: Correlations between creative class and talent

	Creative Class (%)	Talent (2002)
Creative Class (%)	1	.935(**)
Talent_2002	.935(**)	1

** Correlation is significant at the 0.01 level (2-tailed).

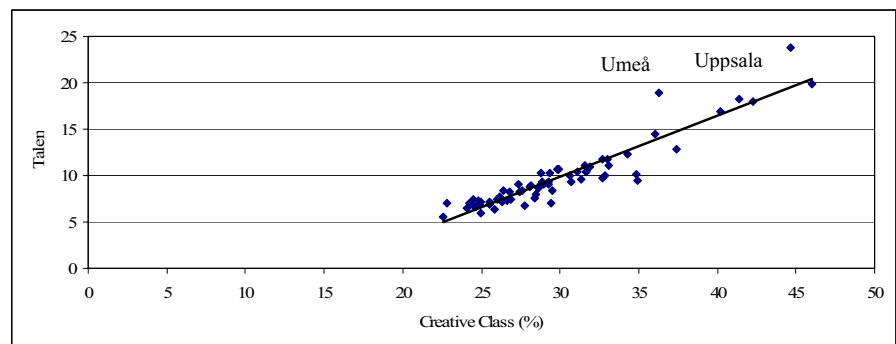


Figure 7.2: The relationship between creative class and talent

The high correlation is a result of the high share of talents that are included in the Creative Class Index. Using changes in talent as a proxy for changes in the concentration of the creative class provides a possibility to study the relationship between the creative class and people climate in a historical perspective. However, the lack of historical occupational data causes another problem – changes in the Bohemian Index and in the Integration Index are impossible to generate and no meaningful proxies can substitute the two indexes. Alongside, lack of significance in relation to changes in the Cultural Opportunity Index and too high correlations between changes in Openness 1 and Openness 2 Indexes leave only two independent variables to include in a model based on changes in a ten- year period from 1993-2002. Hence, the model below should be taken with considerable caution.

Table 7.4: Model 1B – changes in talent by changes in people climate*Bivariate correlations of the independent variables*

	Changes Openness 1 (1993-2002)	Change PPI
Changes Openness 1 (1993-2002)	1	.560(**)
Change PPI	.560(**)	1

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.727(a)	.528	.514	9.68770

a Predictors: (Constant), Change PPI, Changes Openness 1 (1993-2002)

ANOVA(b)

Model		Sum of Squares	df	Mean Square	F	Sig.
1B	Regression	7045.606	2	3522.803	37.536	.000(a)
	Residual	6288.048	67	93.851		
	Total	13333.654	69			

a Predictors: (Constant), Change PPI, Changes Openness 1 (1993-2002)

b Dependent Variable: Talent change (1993-2002)

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1B	(Constant)	51.067	1.770		28.853	.000		
	Changes Openness 1 (1993-2002)	.479	.096	.503	4.971	.000	.686	1.457
	Change PPI	.666	.215	.313	3.096	.003	.686	1.457

a Dependent Variable: Talent change (1993-2002)

Model 1B in table 7.4 shows the best possible fit between low multicollinearity, low bivariate correlations and significance. Put together, it results in a model with an R² of 0.528 which is fairly good; it shows the relationship between changes in the regional concentration of talent, one proxy for changes in tolerance and one proxy for changes in the quality of place. Put into an equation the result will be:

$$Y = 51.067 + 0.479 X_1 + 0.66 X_2, X_1: \text{changes in Openness 1}; X_2: \text{change in PPI}$$

Obviously, the model only has a moderate value in explaining the desired relationship between changes in concentration of the creative class and changes in people climate, due to the exclusion of several of the presented indicators. Taking that into account, the model shows a positive link between changes in the people climate variables and an agglomeration of creative class people based on data covering a ten-year period from

1993-2002. Once again it is important to stress that the analysis does not exclude that other factors may be of influence. Especially in this model, it is important to underline that the model only includes two proxies for people climate.

However, having stated a positive relationship between the creative class and people climate, the next chapter will look into the changing geography of the creative class and how this is linked to changes in the business climate and further to regional growth.

8. The Creative Class, Business Climate and Regional Growth

Having investigated the conditions that have an impact on the localisation of the creative class, we now move on to an investigation of the relation between regional development and the presence of a creative class. Regional growth will be measured as employment per inhabitants. The creative class is believed to have significant impact on regional economic performance. However, its importance is believed to be primarily indirect through its impact on high-tech employment, innovation and entrepreneurship. A model (model 2) illustrating this relationship can be seen in figure 8.1a

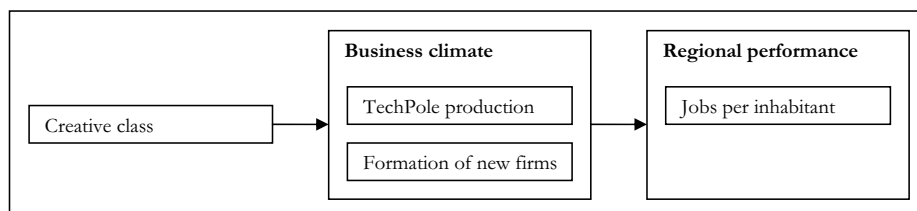


Figure 8.1a: Model 2 - The theoretical relation between location of the creative class, business climate and regional growth

The analysis of the relationship starts by identifying the relation between the location of the creative class and TechPole production on the one hand, and formation of firms on the other. This relationship can be demonstrated by two linear regressions.

The first regression concerns Tech Pole (Y_1) by the creative class (X_1); the second regression concerns firm formation per 1000 inhabitants (Y_2) by creative class (X_1).

$$Y_1 = 0.7546 X_1 - 20.597, R^2 = 0.3461; P = 8.52 \cdot 10^{-8}$$

$$Y_2 = 0.0511 X_1 + 4.702, R^2 = 0.0654; P = 0.0325$$

The two single regressions are both significant. The R^2 value of Y_1 reveals an acceptable level whereas R^2 for Y_2 is so low that the equation is of very little use. Compared to the former equations – which express the relationship between people climate and the creative class, chapter 7 – it is fair to conclude that the relationship between indicators of people climate and the creative class are more evident than the relationship between creative class and business climate. One reason can be found in an actual strong relation between people climate and creative class people; another reason can be imprecise proxies for business climate. It might also be a combination of the two. While the modified Tech Pole Index that we use in this report matches the intuition of economic

activities in Sweden, the Firm Formation Index is a poorer proxy based on the problems pointed to in chapter 5 – that activities within agriculture and within the services sector provide a more blurred picture in regard to economic activities that spin off jobs.

Moving further, the relation between the two indicators of business climate and the indicator of regional growth or performance shall be analysed and put into a multiple regression model.

Table 8.1: Model 2: Business climate and regional performance

Correlations

	Tech Pole 2002	Firm Formation per 1000 inhabitants	Jobs_per_inhabitants_18_64
Tech Pole 2002	1	.354(**)	.262(*)
Firm Formation per 1000 inhabitants	.354(**)	1	-.327(**)
Jobs_per_inhabitants_18_64	.262(*)	-.327(**)	1

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
2	.520(a)	.271	.249	4.93843

a Predictors: (Constant), Firm Formation per 1000 inhabitants, Tech Pole 2002

ANOVA(b)

Model		Sum of Squares	Df	Mean Square	F	Sig.
2	Regression	605.899	2	302.950	12.422	.000(a)
	Residual	1634.000	67	24.388		
	Total	2239.899	69			

a Predictors: (Constant), Firm Formation per 1000 inhabitants, Tech Pole 2002

b Dependent Variable: Jobs_per_inhabitants_18_64

Coefficients(a)

Model		Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.	Collinearity Statistics	
		B	Std. Error				Tolerance	VIF
2	(Constant)	84.469	3.924		21.525	.000		
	Tech Pole 2002	.382	.099	.432	3.875	.000	.875	1.143
	Firm Formation per 1000 inhabitants	-2.726	.633	-.480	-4.304	.000	.875	1.143

a Dependent Variable: Jobs_per_inhabitants_18_64

Model 2 in table 8.1 expresses the relationship between business indicators and regional growth or performance measured as jobs per inhabitant between 18 and 64 years, all for 2002. Mutual correlations between the independent variables as well as multicollinearity are not an issue in this model. While problems of multicollinearity are not an issue in model 2, the R² value is low, and, hence the value of model 2 is limited to explain only

27% of the variation in data. However, put into an equation, the relationship will be as follows:

$$Y = 0.382 X_1 - 2.726 X_2 + 84.469, X_1: \text{tech pole}; X_2: \text{firm formation}$$

The most notable indication above is the negative and significant correlation between the firm formation per 1000 inhabitants variable and the job per inhabitant variable. This relationship also results in a negative β coefficient in the equation. A few comments have to be attached to this result. Firstly, all new firms are included in the data, regardless of them being inactive or not. Turnovers, employment etc. are not criteria for this register, and, hence, it does not really imply anything about a region's future potential. Secondly, entrepreneurial activities in terms of start-ups of firms tend to be linked to tradition. Some places have traditions of many small firms, other of fewer but larger firms. Differences in this type of tradition will have a serious effect in this type of data. Thirdly, and related to the latter, regions with many large firms will have a low number of start-ups while regions with few large firms will have a relatively higher number of start-ups. Finally, the variable does not regulate for shutdowns. Consequently, the firm formation per 1000 inhabitants can be misleading or incorrect as an indicator of business climate. Why is it included then? As mentioned initially in this report, this work is based on a European research project counting 8 countries, and compromises have been one of the tasks for this project. Hence, some of the indicators are inappropriate or imprecise in some contexts while adequate in others.

Like Model 1, Model 2 only explains the relation between the variables at a certain time – in this case 2002. It does not express the relationship in time. To create a model that expresses the relationship in time and hence points to the effect that a growing creative class has on the development of business climate variables and further on indicators of regional growth, we need to analyse the changes that the parameters undergo within a certain period. As mentioned in the former chapter, historical data on the creative class is not accessible in Sweden. Hence, the creative class will be substituted by the development in talent in a ten-year period from 1993-2002. Further, the TechPole Index is constructed in a way that makes calculations of changes within a certain period meaningless. Instead the changes in employment within the high-tech industries from 1993-2002 will be used as a proxy for development in business climate. Firm formation will be calculated based on the changes from 2000-2002 as these years are the only available in our database. Alongside looking at changes over time, this allows us to come up with two proxies on regional growth or performance. The one is the changes in population and the other is changes in employment or job growth.

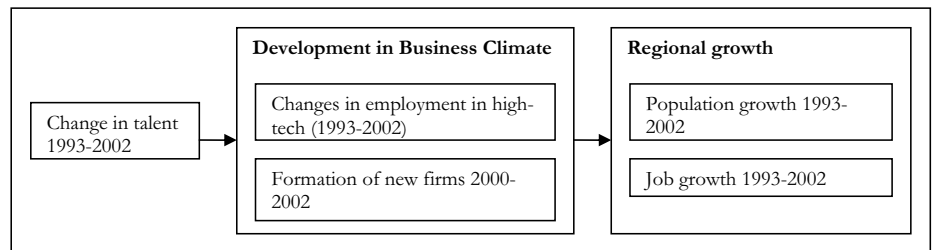


Figure 8.2: Model 2B the theoretical relation between the creative development in talent (as proxy for creative class) and business climate and further its impact on regional growth

In figure 8.2 the theoretical relationship between the variables is pictured. Two single equations can be expressed based on the part of the model. Regression between change in talent (X_1), change in employment in high-tech industries (Y_1), changes in talent (X_1) and changes in firm formation (Y_2) result in the two following equations:

$$Y_1 = 0.0835 X_1 + 54.815, R^2 = 0.0521; P = 0.0573$$

$$Y_2 = -0.4568 X_1 + 55.814, R^2 = 0.0651; P = 0.0329$$

As the former relationships, the relationship between change in talent and firm formation displays a negative relationship. Two comments have to be attached to this relationship. First of all, firm formation data only covers a three-year period whereas the talent variable covers ten years. Secondly, the firm formation variable includes all industries; consequently, small positive changes in e.g. agriculture in a remote region can cause the region to score high on changes in the period.

The equations both have acceptable significance levels, but likewise they both have very low R^2 values, which results in a limited value of explanation. Consequently we cannot show a positive link an increasing creative class and an improved business climate. The lack of a statistical relation can find at least two possible explanations; the variables used as indicators of business climate are imprecise, or the relationship talent and an improved business climate might not be as straightforward as Florida suggests. Due to the limited value of explanation that the models provide, we can expect that other variables not listed here also play an important role for changes in business climate.

The next step in Model 2B is to study the relation between the two indicators of business climate and regional growth. As two indicators of regional growth are provided, we end up with two multiple regression models. The first plots the relationship between business climate and population growth.

Table 8.2: Model 2B regional growth by changes in business climate

Bivariate correlations of dependent and independent variables

	Change in High tech Employment (1993- 2002) %	Change in new firm formation (2000-2002)	Job growth total (1993-2002) (%)	Population growth
Change in High Tech Employment (1993- 2002) %	1	.004	.232	.325(**)
Change in new firm formation (2000-2002)	.004	1	-.334(**)	-.312(**)
Job growth total (1993- 2002) (%)	.232	-.334(**)	1	.846(**)
Population growth	.325(**)	-.312(**)	.846(**)	1

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Growth in population by business climate – Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
2B	.451(a)	.204	.180	4.88380

a Predictors: (Constant), Change in new firm formation (2000-2002), Change in High Tech Employment (1993-2002) %

ANOVA(b) – Growth in population by business climate

Model		Sum of Squares	Df	Mean Square	F	Sig.
2B	Regression	409.031	2	204.516	8.575	.000(a)
	Residual	1598.052	67	23.852		
	Total	2007.083	69			

a Predictors: (Constant), Change in new firm formation (2000-2002), Change in High Tech Employment (1993-2002) %

b Dependent Variable: Population growth

Coefficients(a) – Growth in population by business climate

Model		Unstandardized Coefficients		Standardized Coefficients Beta	T	Sig.	Collinearity Statistics	
		B	Std. Error				Tolerance	VIF
2B	(Constant)	-4.339	.777		-5.587	.000		
	Change in High Tech Employment (1993- 2002) %	.046	.015	.326	2.995	.004	1.000	1.000
	Change in new firm formation (2000-2002)	-.217	.076	-.313	-2.872	.005	1.000	1.000

a Dependent Variable: Population growth

Job growth by business climate – Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
2B	.408(a)	.166	.141	6.24190

a Predictors: (Constant), Change in new firm formation (2000-2002), Change in High Tech Employment (1993-2002) %

ANOVA(b) – Job growth by business climate

Model		Sum of Squares	df	Mean Square	F	Sig.
2B	Regression	519.801	2	259.900	6.671	.002(a)
	Residual	2610.409	67	38.961		
	Total	3130.210	69			

a Predictors: (Constant), Change in new firm formation (2000-2002), Change in High Tech Employment (1993-2002) %

b Dependent Variable: Job growth all (1993-2002) (%)

Coefficients(a) – Job growth by business climate

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
2B	(Constant)	2.624	.993		2.643	.010		
	Change in High Tech Employment (1993-2002) %	.041	.020	.234	2.095	.040	1.000	1.000
	Change in new firm formation (2000-2002)	-.290	.097	-.335	-3.000	.004	1.000	1.000

a Dependent Variable: Job growth all (1993-2002) (%)

Narrowed down to equations, the relation can be expressed as follows:

$$Y_1 = 0.046 X_1 - 0.217 X_2 - 4.339$$

$$Y_2 = 0.041 X_1 - 0.290 X_2 + 2.624$$

Y_1 reflects growth in population, Y_2 reflects job growth, X_1 equals change in high-tech employment, and X_2 equals change in firm formation. The two steps in Model 2B show significance and behave nicely in regard to multicollinearity. The R^2 values of 0.204 and 0.166, respectively, reflect models that only explain a limited part of the data. Moreover, they suggest that population growth is marginally closer linked to development in business climate than job growth is. Based on this result, it is tempting to suggest that parameters that differ from the business climate parameters used in this report might have an important impact on regional growth as well. Again it has to be stressed that the firm formation variable – here representing change - is negative. Explanations for this are the same as in the static model above.

Testing the Direct Effect of Talent

In order to test for the business climate parameter, we also test the direct relation between the creative class and regional performance and talent and regional growth. Here, more statistical valid equations arise. If the static picture is investigated, the relationship between employment per inhabitant and the creative class can be expressed as below:

$$Y = 0.1407 X + 64.03, R^2: 0.015,$$

The R^2 value shows that the value of this expression is rather limited, which is in line with the former finding. However, if we move further on to the dynamic model where the creative class is substituted by talent and two measures of regional growth are present, the two equations below emerge:

$$Y_1 = 0.3499 X_1 - 15.282, R^2: 0.5214, Y_1: \text{population growth}, X_1 \text{ change in talent}$$

$$Y_2 = 0.3197 X_1 - 20,606, R^2: 0.6794, Y_2: \text{job growth}, X_1 \text{ change in talent}$$

The two models have much more validity in terms of R^2 and, hence, are more interesting in terms of regional planning. Therefore, the presence of creative and talented people might have an effect on regional growth, independent of the state of the region's business climate. This suggests that in a Swedish context the link between growth and Florida's three T's can be narrowed down to two T's; talent and tolerance. Tolerance increases the concentration of talents and talents increase growth.

In the following chapter we will discuss the result of the analysis of the relationship between people climate, the presence of a creative and talented workforce and business climate and how the business climate influences on regional performance.

9. Conclusion

In the above chapters, a description of a quantitative analysis of the geography of the creative class in Sweden has been presented. Additionally, the relationship between geography and different indicators of economic growth and economic potential has been investigated.

We have presented the most central arguments in the emerging critique of the creative class thesis. We have discussed the critique addressed by Glaeser (2005), Markussen (2005) and Peck (2005), and, further, we have presented the critique and the attempt to unpack Florida's creative class thesis by Hansen et. al. (2005) by introducing the knowledge base perspective on the creative class. By pointing to these critiques, we believe that we have touched upon the most obvious attempts to put the creative class thesis into a less consultancy-like perspective. We have argued that a more diverse understanding of the creative class is preferable, though this is not the aim of this report. Adapted indicators of technology, talent and tolerance have been introduced to move the creative class thesis away from an American based set of indicators into a set of indicators better fitted for a European context.

The analysis has been restricted by a lack of quantitative data on the historical development of the creative class. Consequently, the investigation has not been able to point to firm statistical evidence on connections between the increase in creative class and increase in economic growth. To compensate for this, development of the talent variable (equal to human capital) has been introduced as a nearby proxy – based on the 0.935 correlation between creative class and talents (equal to human capital) in 2002. In the light of the ongoing discussion of the similarities and differences between using the creative class and using talent as proxies for human capital, we have used a rather compromising method. This is solely due to lack of historical data on the creative class and a desire from our side to investigate the relation between creative and talented people and people climate, business climate and regional growth. The compromising method which uses the creative class for the static description and talent for the dynamic description has been adaptable due to the high correlation between talent and the creative class. In chapter 3 we provided a statistical description of the creative class in Sweden. An analysis revealed that only 40% of the creative class in Sweden is categorised as people having a university degree equal to or above bachelor level. This finding can easily be pointed at as a conflicting parameter later on when we apply talent as a proxy for the creative class. It is, however, important to stress that talent is a suitable proxy because the correlations between the two are extremely high and because seven times as many talents are included in the creative class category than in the 'non-creative' category.

The findings of this report have provided a picture of a creative class that is well educated, is more ethnical Swedish than the 'non-creative' population, and working within many different types of occupation. Further, different measures of regional levels of technology, talent and tolerance have been addressed. The analysis has shown that with few exceptions major university cities have proven best in the Florida inspired ranking.

Besides the indexes used by Florida and his colleagues, we have added indexes of Integration, Public Provision, Cultural Opportunity, and New Firm Formation. This has been done to test for the effect that quality of place and entrepreneurship can have on regional development aside from the well-known technology, talent and tolerance indexes. By adding the new indexes to the ones developed in an American context, we have pointed to variables that are more adequate if the creative class thesis is to be put into a European context. Especially the PPI index is a factor that, among many, is said to be important for the international competition within Europe.

Concluding on the results, the most important findings of this report are as follows: When measuring the location of the creative class, technology, talent and tolerance, Uppsala, Stockholm, Gothenburg and Malmö appear as the most competitive Swedish regions. Though historical data on the creative class is absent, it seems that a clear connection can be identified between places that attract talent and creative class people and places that experience regional growth, without taking business climate into account. Surprisingly, Uppsala comes out better than Stockholm, but the answer can be reduced to a single variable – Uppsala performs better on the PPI, partly due to the dominance of university activities, partly due to the economies of scale in the public sector; the larger a region is, the more difficulties it will have in performing well on the PPI variable.

Overall Uppsala, followed by Stockholm, Malmö and Gothenburg, is significantly more competitive than the rest of the Swedish regions with respect to the indicators applied here. Many of the medium sized Swedish labour market regions perform well in some indexes but have rather limited success in others. The four large and leading regions perform well in all the indexes, except from the Integration Index in which only Stockholm performs well.

Looking at the indexes one by one, it seems that Stockholm has a more dominating nature than the impression provided by the sum of the total ranking. Stockholm is very dominating in the Tech Pole and the Cultural Opportunity Indexes and comes out with better scores than Uppsala in all Indexes but PPI and Talent. Obviously, this implies that the adding-up of performance in the indexes can be misleading. However, though the

adding-up performance list can be argued to be slightly misleading in the case of Stockholm and Uppsala, the list is generally trustworthy with respect to the indication of the overall creative level between the Swedish labour market regions.

Moving from the top of the list to the bottom, Helsingborg/Landskrona are noticeable by surprisingly only qualifying as number 19 out of the 25 largest regions. Helsingborg/Landskrona have problems in many of the indexes but actually stand out with indications of being a fairly tolerant region. High scores in the Bohemian as well as the Openness 1 and Openness 2 indexes are, however, contrasted by a low score on the Integration Index which results in an overall less favourable tolerance score. Helsingborg/Landskrona suffers from structural difficulties in regard to industries. Naturally, this has implications for the labour force. Accordingly, combining these two factors place Helsingborg/Landskrona in a position where the region has to face the challenges of redeveloping itself into a competitive knowledge based region by supporting the sectors that fit the present labour market.

To broaden the perspective, the study has presented comparable findings from Denmark, Finland and Norway – though these have not been analysed to the same extent. What these data show is roughly the same as the Swedish study shows – the overall creativity index (creative people, talents, people climate and business climate) favours large urbanised regions (Andersen et.al., 2007).

To address the statistical impact the variables have on each other, models have been presented. The first model – Model 1 and Model 1B – proved a strong positive connection between people climate and the creative class (and increase in talent). Unfortunately, multicollinearity forced us to only include some of the variables that have been presented as proxies for people climate. However, we believe that the variables that could be included in the models reflect crucial elements of the people climate.

The next step has been to model the extent to which the presence of a creative class can be linked to business climate and next to regional growth or regional performance. Here, we have fitted two models as well – Model 2 and Model 2B. The models have shown little multicollinearity on the one hand, and low R^2 values on the other. Especially the R^2 in the dynamic model (2B) is low. This raises some uncertainty in regard to the relationship between talent, business climate and regional growth. If a direct linkage between a positive increase change in talent and regional growth is present, a stronger regression appears. This leads us to believe that the creative class over time has a positive impact on regional development, but that the business climate part of Florida's theoretical model does not prove very important in a Swedish context. The most obvious explanation for this lack of statistical cohesion is very likely that the proxies used within this analysis

are imprecise or far more complex than suggested by Florida. Hence, a re-examination of the relationship between the creative class, business climate and regional performance and growth is desirable to introduce new and better measures of business climate. Secondly, the theoretical importance that Florida's theoretical approach assigns to business climate might be exaggerated. The knowledge based economy might be far less dependent on traditional business climate parameters. As competitiveness increasingly depends on labour as carriers of knowledge, business climate might have lost its importance in contemporary regional development. Further, the analysis lead us to state that the 3T model, arguing that growth is an outcome of co-presence of technology, talent and tolerance, is not the case in Sweden. Growth is rather linked to tolerance and talent. Thus in Sweden, the three T's are narrowed down to two – based on the variables used in this analysis.

Consequently, we can argue that the US tendency to find co-locations between business climate, people climate, creative people as well as talents and regional growth is not a Swedish phenomenon to the same degree; although linkages between the different variables can be detected within the Nordic countries including Sweden. The tendency to find positive correlations between the majorities of the variables within more than one country makes the creative class approach a stronger argument, but the Swedish case raises an important question of the impact of business climate. It is fair to conclude that the creative class has some positive impact on regional growth but that the line of argument that Florida presents is more complicated and complex than Florida states. Therefore future research should focus on the impact that differences exist between varieties of capitalism in Europe and USA.

This is in line with the finding of Mellander & Florida (2006), who with a creative class inspired research on the parameters for regional development, investigate some linkages between universities, tolerance, the creative class and regional growth in Sweden. The study by Mellander & Florida uses other proxies than we do. Furthermore, the models that they come up with are static as they only use data for 2003, and, hence, do not address the time perspective. Subsequently, the comparison is not straightforward. The two studies do, however, end up with the same tendencies; in spite of the differences, parameters on tolerance and quality of place tend to co-locate with the creative class and the creative class tend to be located in areas where parameters of regional performance are high.

But what implications do the findings of this report have on regional development in Sweden? Sweden as well as the other Nordic countries has a long tradition of equalizing regional development by allocation of economic resources and government investments. For a long time this has secured a more equal development nationwide than in other

European countries and North America. The transition towards a knowledge based economy has to some extent been favouring the “Nordic model” because the general high educational level has been a contributing factor in rating the Nordic countries high in the many lists of the most competitive economies in the world.

Sweden is, however, on a crossroad – should regional development focus on equalizing regional differences or should effort be put into developing the regions that have the necessary conditions favourable to the new economy? Both can of course be the pragmatic answer. Less favoured and peripheral regions still need nursing and supply of economic resources, but the allocation of goods and services may need to change focus. Effort should be put into education, re-education and competence building of the workforce to make them fit the actual industrial structure of the region on the one hand. On the other hand, however, it may prove successful to be able to up-grade the level of knowledge within the applied knowledge base in the region. This can be understood as a two-folded way to develop regions by using the embedded knowledge within the region, and, simultaneously, by up-grading the knowledge level within the actual knowledge level and thereby prepare the workforce for the coming of an increasingly knowledge intensive and innovation dependent economy.

Alongside regions with a competitive advantage with regard to creative milieus, achieving good people and business climates require encouragement and help to continually renew and improve the conditions that have an impact on the ever changing people climate and business climate indicators. Growth in large and urbanised regions will have a trickle down effect on nearby regions. This has been documented by Lundquist et. al. (2006) who have shown that the developments in Stockholm can be identified in most other urbanised regions with approximately 10 years’ delay. The findings of Lundquist et.al. point to a central element in future development – that the development of large regions can bring development to other regions. Hence, one can conclude that regional development must be a combination of distribution of economic resources from favoured to less favoured regions. But simultaneously supporting factors that have an impact on business and people climate in the successful regions have to be present in order to keep up the cadence of growth.

Summarising, the learning of this report is that a link between the creative class, people climate and regional growth tends to be present in Sweden. The statistical impact of business climate is almost absent. This indicates that if people climate is supported, many of the large urbanised regions in Sweden will tend to have good conditions in an ever globalising economy. This will, however, ask for conditions that allow the large urbanised regions to grow, not at the expense of the less favoured regions, but in combination with the less urbanised regions. The analysis of the report also indicates that

education and/or creative and innovative mindsets tend to have an impact on regional growth. Therefore, to maintain a good educational system as well as a welfare system that gives the opportunity of free education may turn out to be extremely important for the future competitiveness of Sweden.

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Appendix 1

The categorisation of the creative class is listed below. Data is based on SSYK data from Statistics Sweden and is a Swedish interpretation of the international ISCO 88 nomenclature.

Data is based on place of residence and only counts the working population from 18 to 65 years.

Table 1: Creative class (SSYK)

Creative Core	
<i>SSYK</i>	<i>Text</i>
211	Physicists, chemists and related professionals
212	Mathematicians and statisticians
213	Computing professionals
214	Architects, engineers and related professionals
221	Life science professionals
222	Health professionals (except nursing)
231	College, university and higher education teaching professionals
232	Secondary education teaching professionals
233	Primary education teaching professionals
234	Special education teaching professionals
235	Other teaching professionals
243	Archivists, librarians and related information professionals
244	Social science and linguistics professionals (except social work professionals)
247	Public service administrative professionals

Creative Professionals	
<i>SSYK</i>	<i>Text</i>
1	Legislators, senior officials and managers
223	Nursing and midwifery professionals
241	Business professionals
242	Legal professionals
31	Physical and engineering science associate professionals
32	Life science and health associate professionals
341	Finance and sales associate professionals
342	Business services agents and trade brokers
343	Administrative associate professionals
345	Police officers and detectives
346	Social work associate professionals

Table 2: High-tech industries

SNI	Industry
244	Manufacture of pharmaceuticals, medicinal chemicals and botanical products
300	Manufacture of office machinery and computers
321	Manufacture of electronic valves and tubes and other electronic components
322	Manufacture of television and radio transmitters and apparatus for line telephony and line telegraphy
323	Manufacture of television and radio receivers, sound or video recording or reproducing apparatus and associated goods
331	Manufacture of medical and surgical equipment and orthopaedic appliances
332	Manufacture of instruments and appliances for measuring, checking, testing, navigating and other purposes, except industrial process control equipment
333	Manufacture of industrial process control equipment
334	Manufacture of optical instruments and photographic equipment
335	Manufacture of watches and clocks
341	Manufacture of motor vehicles
342	Manufacture of bodies (coachwork) for motor vehicles; manufacture of trailers and semi-trailers
343	Manufacture of parts and accessories for motor vehicles and their engines
353	Manufacture of aircraft and spacecraft
642	Telecommunications
721	Hardware consultancy
722	Software consultancy and supply
723	Data processing
724	Data base activities
725	Maintenance and repair of office, accounting and computing machinery
726	Other computer related activities
731	Research and experimental development on natural sciences and engineering
732	Research and experimental development on social sciences and humanities
742	Architectural and engineering activities and related technical consultancy
743	Technical testing and analysis
921	Motion picture and video activities

Table 3: Bohemian occupation

Bohemian occupation	
<i>SSYK</i>	<i>Text</i>
245	Writers and creative or performing artists
347	Artistic, entertainment and sports associate professionals
521	Fashion and other models

Table 4: Western/Non-Western population

Area	Categorisation
Africa	Non-Western
Asia	Non-Western
EU25 without Denmark and Finland	Western
Europe without EU25 and the Nordic countries	Western
Nordic Countries without Sweden	Western
North America (incl. Mexico)	Western
Oceania	Western
Unknown	-
South America	Non-Western
Soviet Union (incl. the former USSR republics)	Western
Stateless	-
Sweden	Western

Table 5: PPI

SNI	Industry
801	Primary education
802	Secondary education
803	Higher education
804	Adult and other education
851	Human health activities
852	Veterinary activities
853	Social work activities

Table 6: COI

SNI	Industry
553	Restaurants
554	Bars
921	Motion picture and video activities
922	Radio and television activities
923	Other entertainment activities
925	Library, archives, museums and other cultural activities
926	Sporting activities

II

Nordic City Regions in the Creative Class Debate

- Putting the Creative Class Thesis to a Test

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ABSTRACT

This paper uses the Nordic countries of Denmark, Finland, Norway and Sweden as a critical case for testing basic assumptions put forward in Richard Florida's theorizing on the creative class (Florida 2002). Nordic cities and the Nordic social systems are quite different from those in the US in many respects and therefore constitute a critical test for the empirical reach of the creative class thesis beyond North America. The paper employs comparative statistics to examine the importance of the quality of place in attracting members of the creative class to Nordic city regions and analyses the role of the creative class in the economic development of the city regions. These analyses support some of the conclusions from Florida's creative class thesis as regards positive correlations between particular aspects of qualities of place and high shares of creative class members in the large Nordic city regions as well as a positive correlation between a high share of the creative class in the regions and favourable high-tech performance. Thus the paper contributes to the creative class debate by presenting a confirmation of the relevance of the creative class thesis in the Nordic context; although the thesis only seems valid for larger Nordic city regions and not for the smaller ones.

Keywords: Regional growth, Creative Class, Nordic Countries

1. A critical test of the creative class thesis – the Nordic countries

The creative class thesis popularised by Florida (2002) has achieved large interest from politicians, policy makers and academics. Two aspects of the thesis have in particular been in focus. First, the view that creative people, such as artists and young software consultants, have become important motors in the increasingly knowledge intensive and competitive economy as persons holding specific qualities that may stimulate creativity and innovation. Second, the importance placed on specific qualities of place being essential for a city in order to recruit and maintain creative persons, which in turn attracts firms in need of creative employees.

The thesis put forward by Florida (2002) has in addition to interest and acknowledgement also met much critique. The critique relates to the use of concepts and indicators, to the proposed causal relations and the main policy prescriptions following from the creative class thesis (see below). One issue seldom discussed, however, is the empirical reach of the creative class thesis beyond a North American context. The empirical reach of any theory should be of interest and is especially relevant for a theory that has made politicians talk and act in the same way in countries outside of the realm of its origin. A variety of ‘creativity strategies’ is also being introduced at regional and national levels in the Nordic countries. The strategies are most often not based on empirical knowledge of the creative class, qualities of place etc. in specific national or regional contexts. They are rather based on vague assumptions that the US-based arguments put forward by Florida (2002) are applicable in each environment and regional level around the world.

The creative class thesis has gained large interest in the Nordic countries despite the fact that the scale of the Nordic city regions and the Nordic social systems are quite different from those found in the US (e.g. Castelles and Himanen 2001). The Nordic countries of Denmark, Finland, Sweden and Norway have *comparatively small city regions*. Their capital regions dominate largely concerning number of inhabitants and economic development in the respective countries. The *capitals are the only metropolitan regions* in the Nordic countries with more than one million inhabitants. The USA has, on the other hand, more than 50 metropolitan city regions with a population over one million. The national labour markets, and also the common Nordic one, are substantially smaller than in the USA. The *mobility* of the Nordic labour force between firms and regions is deemed to be lower for several reasons. The small regional labour markets make it more difficult to find (high qualified) jobs for both in a couple in many regions. The Nordic countries have different languages, strong labour unions and government restrictions that result in more rigid hire and fire elasticity, and a welfare system that includes a social security system that does not force people to move in the hunt for jobs to the same degree as in

the US. Among other things, the welfare model has emphasised a fairly equal distribution of welfare services and economic activities across each country, and regional policy has consequently been an important policy area. Lastly, the level of *immigration*, and thus a potential melting pot function, is very low in Finland and quite low in Norway and Denmark while Sweden traditionally has been more open for foreigners. The Nordic countries can therefore be seen as a critical test for the creative class thesis: If the dynamics found by Florida (2002) and Gertler et al. (2002) in North America also hold in this very different context, this might indicate that the thesis has a somewhat general nature; if not, the dynamics might be a special feature of the North American context. Testing the creative class thesis on the Nordic countries is of course not sufficient to determine whether it has an empirical reach beyond the North American context in which it is developed. Other regions should also be analysed¹.

The Nordic countries are a particularly interesting case also in relation to the new global competition for talent because of their acclaimed ability to perform well on standard measures on innovation and economic competitiveness (Florida 2005). Thus, Sweden is in the top of Florida's own Global Creativity Index (op. cit. p. 156). Finland follows on the third place, while Denmark is number six and Norway number nine among 45 countries. Other international competitiveness measures also rank the Nordic countries amongst the most competitive ones, often along with the US. For example, the World Competitiveness Scoreboard 2006 (IMD, 2006) lists Denmark as number five, Finland as number ten, Norway 12 and Sweden 14 among 61 countries. The Global Competitiveness Report 2005 - 2006 (World Economic Forum, 2006) ranks Finland first, Sweden as number three, Denmark four and Norway nine. The US is number one and two in these rankings. The high rank of the Nordic countries is mainly due to their high educational level, as well as productivity and training of the labour force. The methods and measures may have their well deserved critics, but the rankings indicate that the Nordic countries constitute rather well-functioning and competitive economies, though they are much smaller than the US.

The paper has five main parts. The next section shortly describes the main arguments in the theory of the creative class as presented by Florida, which gives the background for the three research questions for the empirical analyses of the creative class in the Nordic city regions. Section three compares some basic economic performance indicators of the US and the Nordic countries as a background for the discussion of the relevance of the US centred theory of the creative class in a Nordic

¹ The Nordic study is part of a larger European project also involving UK, Germany, The Netherlands, and Switzerland.

context. Section four then examines the three research questions to estimate the relevance of the creative class thesis in interpreting important aspects of the economic development of Nordic city regions. Section five presents the main critique of the theory of the creative class and discusses the contribution of our analysis to the wider creative class debate. Finally, section six shortly sums up the analyses.

2. The essence of the creative class thesis

The key arguments in the creative class thesis put forward by Florida (2002) is that to be economic successful in the knowledge based economy, regions must have a critical mass of the three T's: Technology (relatively large shares of high-tech employment), talent (a large number of workers in creative occupations), and tolerance (a heterogeneous composition of people which increases the areas' capability to include and utilize very different persons in economic and social development). The talented workers - labelled the creative class - have a key role as a source of success in the creative age, indicating that the more creative class members found, the more successful the city region will be. The essence of the argument is that specific qualities of place attract the creative class to and retain them in cities; accordingly, jobs will follow this talented labour force rather than people moving to available jobs.

The concept of 'the creative class' is defined by Florida (2002) as those persons who identify problems, figure out new solutions or combine existing knowledge in new ways. Florida charts the growth in the number of people who are paid principally to do creative work for a living. These are people such as scientists, engineers, artists, musicians, designers and knowledge based professionals. The idea is that the creative class is inspired to innovate both through skills, inner urge, and external stimuli. In this way, diversity and different impressions in the working and living environment of people stimulate innovation, and, in turn, economic growth. Creative class workers are thus paid for their mental presence in opposition to those who are primarily paid to do physical tasks and paid for their physical presence. Florida characterises these creative people as a social class, due to their relation to the production process: They have ownership and control of important means of production, namely their brains, knowledge, and talent. Florida uses this Marxist inspired distinction to define creative employees as a class separate from the service class and the working class (Florida 2002: 8, 33, 37, 69 and 186.) The argument is that the creative class has great economic power because they may take the innovative means of production (themselves) with them if they move and shift workplace.

Jobs have always followed people at least to some extent, as well as people have moved to find jobs. Several research results (Breheny 2000) conclude that the labour force, cheap or highly skilled, is one of the most important location factors for firms. Gillespie (1999:19), for example, states that *"...in addition to following their customers and clients, service companies will also have experienced a centrifugal pressure exerted by the decentralisation of their labour forces. For firms seeking to recruit professional and managerial labour, the urban exodus of the middle classes will have negated much of the long-standing agglomeration advantage associated with big city labour pools, whilst the decentralisation of back offices to suburbs and smaller towns can also be seen as in part a response to the decentralisation"*.

Florida's (2002) claim is that the technological and economic development increases the need for talented people (the creative class) by many companies, and companies are therefore now more willing than ever to locate where such people are to be found. In turn these talented people are mainly attracted to open and tolerant places. These are seen as places with a diversity of people and an environment open to new people and ideas. A tolerant environment is attractive to the creative class first of all because of its intrinsic values of being perceived as 'cool'. Tolerance also allows for a diversity of the local population and culture, offering new and odd impressions, which often serve as an inspiration in the innovative process of the creative class. Besides tolerance, Florida emphasises the value of cultural and recreational opportunities, authenticity and an active street life for attracting the creative class.

The argument then goes that the talented potential employees who are attracted to inspirational diversity are a crucial factor for success of firms. This leads firms to locate wherever the creative class is concentrated in order to hire the best employees and gain from the effect of stimulation and inspiring environments on these employees. The 'right type of' employees are believed to have become so critical a competitive parameter that companies are willing to relocate to places where such talented people are found. This is especially the case for high-tech companies and other types of companies with urgent need for highly skilled developers (Florida 2002). The creative class thesis is thus based on the assumption that talented, creative class members choose to live in tolerant places where they contribute to the growth of the high-tech industry. Successful city regions should then be able to attract creative class people who are the crucial source of competitiveness for regional economies. In essence, the creative class thesis proposes a particular relationship between the indicators listed in Figure 1: An appealing people's climate is seen to stimulate a good business climate by attracting and retaining creative and talented people. Next, a good business climate boosts economic growth and thereby makes the region competitive.

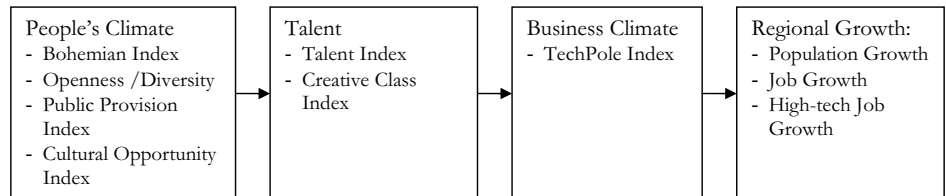


Figure 1: The relationship between the indicators of people's climate, business climate and regional growth

The main research question in the paper is the relevance of the creative class thesis in the Nordic countries. More precisely, the research questions for the subsequent empirical analyses of Nordic city regions are:

- 1) To what extent does quality of place as described by Florida (2002) attract the creative class to Nordic city regions?
- 2) To what extent does presence of the creative class support high-tech and overall job growth in Nordic city regions?
- 3) Does the location behaviour and dynamics of the Nordic creative class differ from the North American creative class, and how might these (potential) differences contribute to the wider creative class debate?

Questions 1 and 2 will be the main focus of section 4 in which we will also touch upon question 3. However, question 3 will be more elaborated in section 5.

3. The Nordic context

In order to put the creative class discussion into the Nordic context, we start by highlighting a few characteristics of Nordic city regions and economic and social conditions. The Nordic countries have a much smaller population than the US (Table 1). The GPD per capita is significantly higher in the US than in the Nordic countries (except for the 'oil economy' of Norway). Additionally, the US has a somewhat higher share of highly educated people than the Nordic countries². Structural indicators for the

² The same picture is indicated on pages 144-145 in Florida (2005) where the US leads in the percentage of population holding a bachelor's degree or above. The high share for the US *may* reflect different definitions of the bachelor level, for example fewer total school years to achieve a bachelor degree in the US than in the Nordic countries.

‘knowledge society’, such as R&D expenditures, are higher in two of the Nordic countries than in the US. At the most basic level, both the Nordic countries and the US are in almost the same phase of being ‘service economies’. Table 1 indicates, however, that the micro level penetration of the knowledge based society is higher (in terms of technology) in the Nordic countries than in the US. Access to mobile phones and internet connections are clearly higher than in the US. This *may* reflect a more equal distribution of welfare and purchasing power in the Nordic coordinated market economies compared with the free market model of the US (Soskice 1999).

Table 1: Key characteristics of Nordic countries compared with the USA

<i>Country</i>	<i>Population (in 1000s) 2002</i>	<i>Share of population living in urban regions % 2003</i>	<i>GDP/inhabitant* USD 2002</i>	<i>Share of highly educated people of 25 – 64 years % 1999</i>	<i>Research and development expenditures of NGP % 2002</i>	<i>People employed in services % 2003</i>	<i>Internet connections per 1000 inhabitants 2003</i>	<i>Mobile phones per 1000 inhabitants 2003</i>
Denmark	5,368	85	29,450	26.5	2.5	73	231	887
Finland	5,206	62	25,440	31.3	3.5	69	244	901
Norway	4,524	79	35,840	27.4	1.7	75	125	889
Sweden	8,940	83	25,080	28.7	4.3	75	105	909
USA	281,422	80	35,060	35.8	2.7	76	6	543

Source: Statistic Finland 2005

* Purchase power adjusted

The focus on a relatively equal distribution of welfare in general in the Nordic countries may be reflected in the traditionally strong regional policy aimed to reduce regional inequalities. The main strategy of the policy up to the 1980’s was to generate and attract above all manufacturing companies to less favoured regions. Since the 1990’s the focus has mainly shifted to support innovation based development of growth regions, for example support for ‘Centres of Expertise’ in Finland, and subsequently similar support programs in the other Nordic countries. In general the policy has aimed at fostering knowledge intensive industries and at supporting the working of regional innovation systems through increased cooperation between local firms and local universities and research institutions. In short, the policy is to create a favourable business climate for knowledge based industries in many large and small cities throughout the countries, which *may* lead to a more equal regional distribution of these industries than would be the case only through marked forces.

In terms of the city structure, each of the Nordic countries has one dominating capital city region and clearly smaller second largest city regions (Table 2). Finland and

Norway are almost twins as regards their structure of city regions. Both have dominating capital cities with just over one million inhabitants, and also second largest city regions of almost the same size. Denmark and Sweden have a bit larger city regions, and especially Sweden has clearly larger second city regions with 850,000 and 500,000 people (Table 3). In total, the Nordic countries have four metropolitan regions with over one million people and about ten second cities with populations ranging from 850,000 to 200,000.

Table 2: Major city regions and their populations 2002

	<i>Capital city region</i>	<i>Second city region</i>	<i>Third city region</i>	<i>Fourth city region</i>
Denmark	2,128,992 Copenhagen	501,322 Aarhus	367,502 Odense	359,962 Aalborg
Finland	1,207,737 Helsinki	306,131 Tampere	287,708 Turku	196,096 Oulu
Norway	1,062,537 Oslo	354,380 Bergen	264,201 Stavanger	225,700 Trondheim
Sweden	1,796,765 Stockholm	856,367 Gothenburg	532,674 Malmö/Lund	235,945 Helsingborg/Landskrona

4. Data and method

The paper analyses aspects of business climate and people's climate in Nordic city regions by use of statistical data. To ensure comparability of methods, the unit of analysis is the city region, which is the unit most comparable with the North American metropolitan region. The definition of city regions differs slightly between the countries. In Finland and Norway city regions are mainly defined according to Eurostat's NUTS 4 regions. Danish and Swedish regions are larger commuting areas. Commuting is also a criterion in constructing Finnish and Norwegian NUTS 4 regions; thus, the difference is small. The four Nordic countries have 53 city regions with more than 100,000 inhabitants, which are the main study objects in the paper. As much as 25 of these city regions are Swedish, 11 Danish, 9 Norwegian and 8 Finnish.

The data is constructed with the indicators developed and employed by Florida (2002) as the point of departure. The data selection and analyses have aimed to replicate the North American indicators to as high a degree as possible. The paper uses the following indicators (specifications can be seen in Appendix 1):

- Tech Pole Index: Concentration of high-tech jobs in the regions (including automobile industry and knowledge intensive business services to get a better fit for a European context)
- Creative Class Index: Includes creative core, creative professionals and bohemians
- Bohemian Index: Artist etc. per 1000 inhabitants (18-64 years)
- Talent: Highly educated people as share of total population (older than 17 years)
- Openness/Diversity Index: Foreign born population as share of total population
- Cultural Opportunity Index (COI): Share of people occupied in cultural industries
- Public Provision Index (PPI): People working within education and social services pr. 1000 inhabitants

Data is based on the registers of the national statistical bureaus of each of the four countries and represents the total population in the regions – urban as well as rural. The focus on the same type of geographical units and indicators should ensure optimal conditions for testing the creative class thesis as well as for comparing and qualifying the results.

It is clear that North America and Europe including the Nordic countries are competing in the same game in which standardised production is increasingly outsourced and off-shored, while competitiveness relies more and more on the building of unique competence and innovation activity (Lundvall and Borras 1997; Storper 1995). The paper then analyses whether the creative class constitutes the spearhead of the innovative economy in the Nordic countries as well as in the US as claimed by Florida. Or has the egalitarian policies of the social democratic regimes (Esping-Andersen 2000) in the Nordic countries steered the process in another direction, focusing less on some particular occupational groups?

5. Regional development in Nordic city regions and the role of the creative class

In this section we test the claims of the creative class thesis in the Nordic countries by conducting analyses similar to those of Florida (2002). However, we start out with a short overview by ranking the Nordic city regions according to the variables central to the creative class thesis. Then we present the main correlations. To take the

analysis one step further, we introduce city size as a variable to investigate whether the creative class thesis fits large and small city regions equally well.

5.1 An overview – the ten top scoring Nordic city regions

The analyses of the Nordic city regions start by ranking the regions according to their combined scores on six indicators central to the creative class thesis (Table 3). The first five indicators in Table 3 correspond to those used by Florida (2002). In the paper we have added a cultural opportunity index and a measure for the level of public provision (PPI) in order to assess any possible effects of the Nordic welfare states. The regions receive a score corresponding to their rank on each indicator. These are summed up and the lower the total score, the higher the region ranks in the overall picture. The PPI is excluded from Table 3 since it is clearly distinct from Florida's original indicators. However, it reflects the key qualities of Nordic welfare states and thus the PPI is important to measure, but not at this stage of the analyses.

The tech-pole index refers to both the share of high-tech employees within the region and the region's share of all Nordic high-tech employees. Thus, it reflects both the absolute numbers of employees, the size of the high-tech employment in the region, and its relative importance on a Nordic level. Tech-pole is the only index in Table 3 that relates to the business climate. Results from the index show that the size of the regions clearly impacts this indicator as it is topped by the five largest Nordic regions. It should be noticed that the *share* of the high-tech employees is highest in two Swedish car and aerospace producing regions (Trollhättan/Vänersborg and Linköping, not on the list of the ten top regions) and in one Finnish cell phone producing region (Oulu). The growth of high-tech jobs has been fastest in the Danish region Holbæk³ (not on the list) and the Finnish city regions of Oulu and Tampere.

The talent indicator is also dominated by large city regions and areas that have important universities and similar types of educational organisations. The other indicators demonstrate different aspects of the regions' level of talent and people climate – attractiveness of place and level of tolerance. In terms of the creative class theory, they point to aspects that assume to make the region more attractive in the eyes of the creative class. The total score and the individual indicators are strongly dominated by large regions, although not exclusively. All four capital regions are represented among the eight highest ranking ones, underlining their dominant position in the Nordic city

³ Holbæk is located close to Copenhagen, and the fast growth probably reflects relocation of jobs from the capital region as well as an initial low number of high-tech jobs in the region.

hierarchy. Furthermore, all seven Nordic city regions with more than 500,000 inhabitants are in the top ten list. Thus, in the following analyses the impact of size cannot be ignored. Of the remaining three regions Tampere is the second biggest city region in Finland. Only the two Swedish regions of Uppsala and Umeå are among the smaller regions between the 53 Nordic regions with more than 100,000 inhabitants. The inclusion of these two Swedish regions in the top ten is partly explained by the scores on the diversity index, in which all the highest ranks go to Sweden due to a traditionally very open immigration policy in Sweden.

Table 3: The ten highest ranking Nordic regions based on selected indicators of a creative city amongst city regions of over 100,000 inhabitants

City region	Nordic Tech-pole index 2000	Bohemia n index 2000 %	Creative class 2000 %	Diversity index 2002 %	Talent index 2002 %	Cultural opportunity index 2002 %	Total score
Stockholm (Sweden)	1	2	1	1	6	2	13
Oslo (Norway)	5	11	11	11	1	4	43
Gothenburg (Sweden)	3	7	7	4	13	9	43
Malmö/Lund (Sweden)	8	6	4	2	11	17	48
Helsinki (Finland)	2	1	2	39	4	1	49
Copenhagen (Denmark)	4	3	12	20	8	3	50
Uppsala (Sweden)	7	17	3	7	2	26	62
Aarhus (Denmark)	12	5	17	31	5	6	76
Tampere (Finland)	11	4	9	48	18	7	97
Umeå (Sweden)	14	18	15	21	9	25	102

5.2 Testing the creative class thesis for the Nordic countries

In testing the creative class thesis, we first analyse the relation between the indicators of people's climate and creative class in the 53 Nordic city regions (cf. Figure 1). The correlations are also compared with the talent index in order to examine differences in explanatory power between employees with higher education and in creative occupations. Table 4 shows that only half of the correlations between the indicators are significant. A strong correlation exists between the creative class (except bohemians) and the bohemians, which means that city regions with relatively many artists also tend to have many other creative class members. Positive correlation is also found between the creative class index and the Cultural Opportunity Index (COI).

On the other hand, there is no significant correlation between the share of the creative class and diversity or public provision. The public provision was added to this

specific analysis to control for possible effects of the Nordic welfare model and is not an index used by Florida (2002). One of Florida's indicators of people's climate, diversity, seems to have no highly significant effect on the distribution of the creative class in the Nordic countries. A main difference between the North American and the Nordic creative class thus seems to be that the Nordic creative class is not (in statistical sense) significantly attracted by diversity. One reason for this difference may be the fact that the degree of diversity is lower in the Nordic countries (except Sweden), and hence the level of diversity also differs less between most Nordic regions. A strong attraction to culture and artistic people is, however, common for both contexts. The creative class correlates more strongly than talents as regards bohemian occupations and diversity. More traditional amenities measured with public provision and cultural opportunities have stronger correlation with highly educated people. (Table 4)

Table 4: Correlations between the creative class, talents and indicators of people's climate in 53 Nordic city regions (with more than 100,000 inhabitants)

	Creative Class 2000(%)	Talent 2002 (%)	Bohemian Index 2000 (%)	Diversity 2002 (%)	Public Provision 2002 (%)	Cultural Opportunity 2002 (%)
Creative Class 2000 (%)	1	.491(***)	.726(***)	.341(*)	-.0039	.445(***)
Talent 2002 (%)	.491 (***)	1	.441(***)	.077	.201	.662(***)

*** Correlation is significant at the 0.001 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

In order to control for the interaction of the indicators and for country specific effects, the correlations in Table 4 are supplemented by a multiple analysis. Without country dummies, a multiple model has little explanatory power for both the distribution of the creative class and talent. When including the country dummies in the models, all four indicators of people's climate have a significant and positive effect on the distribution of the creative class and talent. (see Appendix 3)

The reason why both diversity and public provision have a significant impact on the distribution of the creative class when analysed in a multiple model including country dummies though not significant in separate correlations on the Nordic level might be that these two indicators on people's climate are both very sensitive to historical and political decisions.

The relationship between indicators on people's climate and distribution of the creative class is similar in all four Nordic countries, and similar to that of North America. However, historical and political differences do have an effect too.

Adding country specific effects, made all parameters in the multiple models linking the distribution of the creative class and talent to indicators of people's climate significant. In spite of the common features and tendencies among the Nordic countries, the model of attracting the creative class and talent varies from country to country. In country level analyses of people's climate⁴ (see appendix 3, table 1) correlations are parallel, but frequently stronger than on the Nordic level and thus confirm the results of the correlations on Nordic level and the multiple model. However, in the case of diversity the difference is quite remarkable, most likely due to a high share of a foreign-born population in Sweden compared to other countries⁵. In addition, the biased picture in case of PPI suggests that this index is not working very well as a measure and should maybe be ignored from the analyses.⁶

The next supposed link in Figure 1 is that talented and creative people stimulate the growth of technology based companies, and further contributes to new jobs and population growth. Table 5 reveals a positive correlation between the Tech Pole Index (measuring the absolute size and relative specialisation of knowledge based industries in a region) and the share of creative class members and higher educated people (Talent Index) in the regions. This indicates that regions with relatively many creative and higher educated persons also tend to have many jobs in the knowledge based industries. Turning to the indicators of regional growth, it is evident that the creative class is significantly (but weakly) correlating with the job growth in high-tech industries. The Talent Index, however, demonstrates a strong and positive correlation with high-tech job growth, overall job growth and population growth.

The creative class and talent indicators are significantly correlated, which implies that the indicators are merely measures of different aspects of the same phenomenon. In the Nordic countries, regional growth in general is more strongly connected to talent than creative class, especially as regards the growing high-tech sector. Analyses concerning the business climate on the national level are parallel with Nordic level

⁴ Country level analyses include all regions due to a small number of big regions with more than 100,000 inhabitants in each single country. See appendix 4

⁵ Sweden has historically conducted a much more liberal immigration policy than other Nordic countries.

⁶ In the case of PPI, the country level analyses that included *all* region correlations were strong and highly significant. When regions were reduced to those with more than 100,000 inhabitants, the positive but weaker relation remained in Sweden and Denmark but not in Finland and Norway.

results, although in case of fast and rather random high-tech growth, aggregated Nordic level dilutes some national differences⁷ (see appendix 4, table 2).

Table 5: Correlations between indicators of business climate and regional growth in 53 Nordic city regions (with more than 100,000 inhabitants)

	Creative Class 2000 %	Talent 2002 (%)	TechPole 2002	Job Growth 1996-2002 %	Job Growth in High-tech 1996 – 2002 %	Population Growth 1993-2002 %
Creative Class 2000 (%)	1	.491(***)	0.406(**)	.418(**)	.145	.355(**)
Talent 2002 (%)	.491(***)	1	0.332(*)	0.492(***)	.436(**)	.689(***)

*** Correlation is significant at the 0.001 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Together the correlations in Tables 4 and 5 point to a connection between indicators of people’s climate, the location of talented and creative people and regional growth.

5.3 Size matters

The Nordic city regions are predominantly small, in particular compared with those in the US. The regional policy in the Nordic countries has traditionally aimed to reducing the differences in economic development and welfare between the often lagging small regions and the few larger growth poles. An interesting question is whether the creative class correlations are found among smaller city regions as well. If that is the case, do the correlations support a more equal level of job growth between small and large regions?

Figure 2 shows, however, a clear tendency towards larger shares of creative class members in the larger regions. In particular the capital regions have high shares of creative class members. According to the creative class thesis, a high number of creative class people and higher educated people stimulate regional growth (as shown in Figure 1), and thus the skewed distribution of the creative class may support the growth of the

⁷ In the fast growing Finnish economy, high-tech growth correlates significantly with talent and creative class; in Denmark and Sweden a few outliers distort the pattern (3 regions in Denmark, 8 in Sweden) and significant correlations do not occur. In Norway the significant correlations do not emerge since the growth industries are not so high-tech oriented.

large city regions rather than smaller ones. The overall job growth and creative class are clearly correlating amongst regions with populations over 100,000 as indicated earlier. However, in the case of small Nordic regions (with populations below 50,000) the correlation between job growth and creative class is negative ($r = -0.178$). This is illustrated in Figure 2 where the small diamonds representing regions with less than 50,000 inhabitants reveal a clearly higher job growth in those regions where the share of the creative class is lowest. Regions with populations from 100,000 to 500,000, on the other hand, have a positive correlation between share of creative class and high-tech job growth ($r = 0.328$). The same applies for the largest regions (over 500,000) with an even stronger correlation ($r = 0.540$). Regions with populations from 50,000 to 100,000 reveal no significant correlations, and the picture is more blurred ($r = 0.031$).

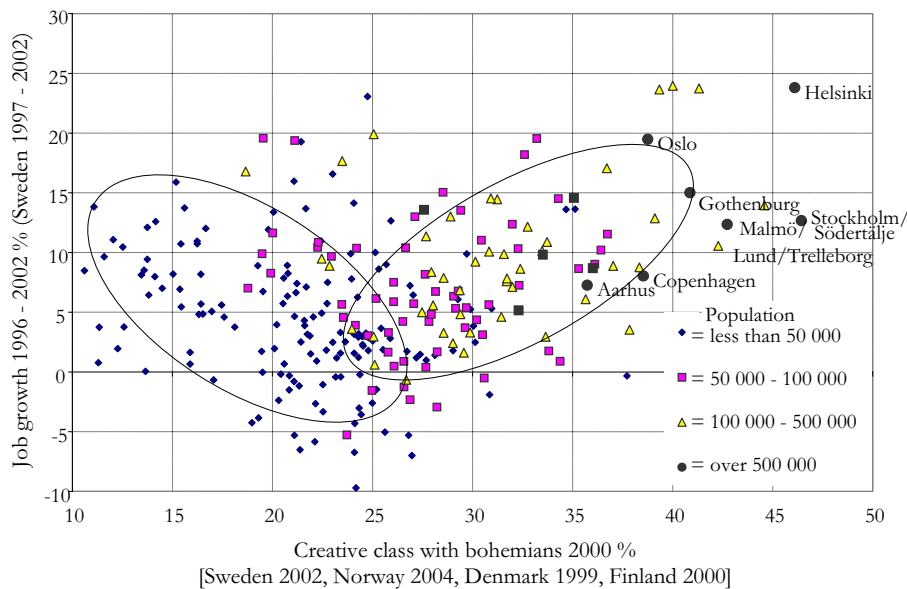


Figure 2: Correlation between size of the city region and the share of the creative class members.

If we take the analysis a step further and compare the correlations in the small regions (Tables 6 and 7) with those of the 53 large regions with more than 100,000 inhabitants (Tables 4 and 5 above), the difference is evident. Here small regions are those with 10,000 to 50,000 inhabitants. The correlation between creative class and bohemians is also quite strong (0.64) in the case of small regions, though lower than in

case of larger regions (0.80). Furthermore, the smaller regions have lower correlations between the creative class and openness (0.176) and cultural opportunity (0.203) than the larger city regions (0.30 and 0.425, respectively).

Table 6: Correlations between creative class and indicators of people’s climate in small regions (10,000 – 50,000 inhabitants)

	<i>Bohemian index 2000 (%)</i>	<i>Creative class 2000 (%)</i>	<i>Public Provision Index 2002 %</i>	<i>Openness index 2002 %</i>	<i>Cultural Opportunity Index 2002 %</i>
Creative class 2000 (%)	0.644(***)	1	-0.192(*)	0.119 (*)	0.079

Looking at correlations between creative class, growth of knowledge based industries (as measured by the Tech Pole Index), overall job growth and population growth, the picture is even clearer. There are no highly significant correlations between the creative class and the growth indicators for the small regions; the significant correlations are negative. (Table 7) This point to the fact that the creative class approach is not a relevant possible explanation for the overall growth or high-tech job growth in small Nordic city regions as is the case in large ones. However, the Talent Index (higher educated) correlates significantly with population growth and overall job growth and has also clearly positive correlation with high-tech job growth (Table 7).

Table 7: Correlations between indicators of creative class and regional growth in small regions (10,000 – 50,000 inhabitants)

	<i>Population growth 1993-2002 (%)</i>	<i>Job growth 1996 - 2002 (%)</i>	<i>Job growth in high-tech 1996-2002 (%)</i>
Creative class 2000 (%)	-0.216 (*)	-0.109	-0.173(*)
Talent 2002 (%)	0.694(***)	0.397(***)	0.217(*)

The empirical analyses above demonstrate that many of the relations put forward by Florida (2002) are evident in the Nordic city regions as well. The analyses at least find statistical correlations between main indicators, such as between the share of creative class people in large Nordic city regions and the presence of bohemians and cultural opportunities in the regions. Furthermore, the creative class correlates with the Techpole Index and high-tech job growth in the regions. However, the analyses demonstrate that these statistical relations first of all are valid in large city regions (with more than 100,000 inhabitants) and less so in smaller regions (with between 10,000 and 50,000 inhabitants).

We will now relate the empirical findings from the Nordic city regions to the wider academic debate of the creative class thesis.

6. The discussion of the creative class thesis

The creative class approach to industrial and regional development put forward by Florida (2002) has met serious critique, mostly from other US scholars. The critique and the debate can be summarised in three main groups. One debate regards the use of the concepts and indicators to measure these, in particular the fuzzy concept of the creative class and its applicability compared to human capital. Another related debate concerns the causal relations proposed in the creative class thesis, in particular that the creative class is attracted by specific qualities of place and that jobs follow the creative class. A last debate concerns the main policy prescription following from the thesis, i.e. that cities should strive to attract creative people and the bohemians in order to trigger high-tech industrial development. The paper shortly reviews these three debates and discusses in what way empirical analyses of Nordic city regions can contribute to the debate.

6.1 *The fuzziness of the creative class concept*

Creativity is understood extremely broadly by Florida. The creative class concept refers to people who get paid to utilise professional skills and knowledge in a creative way. *“I also agree that human capital/ skills/ creativity (or however one chooses to phrase this generally agreed-upon trait) is the primary driver of economic growth at both the regional and the national levels. And I say this as someone who comes from a technology and economic growth background, and who only relatively recently has come to see human capital as far more important.”* (Florida, 2004b, 3) Thus, creative class refers broadly to *skilled or highly skilled people* who are paid to utilize their skills and knowledge in various ways. This sums up to a very large and very broad group of people, and Markusen (2005) points to exactly this problem of bundling up 35 % of the labour force as creative class members and then claiming that they have uniform interests and preferences concerning qualities of place. Data from Denmark indicates that different groups of creative class people (with regard to occupations) certainly have different preferences concerning places to live. While the centre of the city region has an over-representation of bohemians, the creative core is over-represented in expensive, high reputation suburbs, and the creative professionals are over-represented in less expensive, less high reputation but still well located suburbs (Andersen and Lorenzen 2005). Also Asheim et al. (forthcoming) point to the problem of the perception of uniform preferences for 35 % of the working population; suburbs and smaller cities are

for example most likely more appealing to engineers than to e.g. people working in advertising. In spite of these internal variations, the subgroups are correlated to the same indicators of quality of place. Accordingly, though some internal variations exist within the creative class, the factors attracting this huge group of people is seen as universal. For all the Nordic countries, the analyses reveal a strong concentration of particularly bohemians in the central parts of the capital regions, indicating a quite universal preference among this subgroup of the creative class. The total creative class is also concentrated in the inner parts of the capital regions, though to a less degree than the bohemians.

Markusen (2005) criticises Florida's use of the creativity concept to reduce creativity to certain occupational groups. According to Markusen a quite uncritical use of census data on occupations to measure creativity also leads to the mixing up of creativity and occupational groups. To Markusen home care workers, criminals, repairers and technicians etc. are creative too. Therefore, to restrict creativity to statistical nomenclatures is problematic, and, consequently, Markusen claims that Florida ends up doing regressions on a population that is far less creative than it is believed to be.

Obviously, it is difficult to place creativity into occupational categories. A certain occupation is not a guarantee for a creative mindset. However, basing theoretical arguments on statistical findings always result in generalisations and loss of details. Florida's choice of applying statistical codes to define the creative class and excluding some occupational groups from this class can be discussed. However, we recognize the need to reduce and simplify complexity in order to make a statement. It must also be mentioned that Florida does not argue that his occupational groups are more creative *as such*, but only that they are paid to be creative. The argument is further that the creativity of these groups is likely to increase the economic outcome more than the creativity of people who are paid to make more routine jobs. Thus, the claim that creativity is restricted to some individuals in certain occupations is wrong, but this is not the main point here. The main argument is that some occupations exist where creativity most likely could stimulate innovation activities and competitiveness. In this sense an occupational division makes sense.

This debate about creativity and occupations relates to the discussion about whether education is a better indicator for human creativity than occupational groups. Glaeser (2004) is a strong advocate of using education level based on the human capital thesis. Glaeser's basic argument is that Florida gives the creative class credit for causing regional growth although in reality it is the highly educated work force that generates growth. Thus, Glaeser finds strong correlations between the location of higher educated people and regional growth. Basically the important difference between Glaeser's human

capital thesis and Florida's creative class thesis is that the creative class thesis assigns equally importance to other variables than education level in explaining regional growth. Hence, Glaeser most likely includes people who are highly educated but are occupied within non-basic jobs, e.g. waitresses. On the other hand, Florida most likely includes people who statistically are within a creative occupation but do not necessarily perform creative work, e.g. certain jobs within public services and the financial sector. Our analyses of the Nordic city regions suggest that talent and creative class are two different measures of human capital which are in some parts overlapping. According to our results, talent seems to be a better measure for small regions in demonstrating higher statistical correlations with growth indicators than the creative class.

However, one argument that favours Florida's creative class approach is that creativity is not something that can only be learned in school. Especially the group of creative professionals (cf. definition in the Appendix 1) counts people that do not necessarily have a higher education, but possibly have worked their way up or are gifted with a talent. Analyses of the creative class in Sweden demonstrate that only approximately 40 % of the creative class people have a bachelor degree or more (Hansen 2006). On the other hand, the Swedish data shows a correlation of 0.934 between talent and the creative class location quotients, a correlation of 0.936 for the creative core but 'only' a correlation of 0.810 between talent and creative professionals. This indicates that talent can be used as a proxy for the creative class and the creative core and vice versa, but is less accurate when discussing the creative professionals. Consequently, to make any definite statement on the lack of difference between talent and the creative class is very difficult, except that they tend to be well correlated in Sweden.

6.2 The causal relations

A second debate concerns the causal relations in the creative class thesis. From an empirical point of departure, Malanga (2004) argues that the basic logics behind Florida's thesis do not work. Far from being economic powerhouses, a number of the cities Florida (2002) identified as creative age winners have chronically under-performed in the American economy. According to Malanga, the most creative US cities in Florida's categorisation experienced a lower job growth between 1993 and 2003 than Florida's least creative cities. Additionally, although Florida claims that 'place matters' in attracting workers and companies, some of his top creative cities are not even particularly successful in attracting - or keeping - their residents. Another critique regards the fact that Florida only focuses on a very small part of the economy when focusing on high-tech industries. These industries only account for maybe 8 % of the

total economy, and, hence, 92 % still needs to be addressed. The consequence is that Florida most likely misses out some very important dynamics of the economy that are not included in high-tech business activities. This is for example evident in Norway where much of the regional economic dynamic is driven by the location of the petroleum and related sectors.

Another empirically based critique is put forward by Glaeser (2004). By running regressions with the same data that Florida & Knudson (2004) use, Glaser finds a positive correlation between cities with population growth and concentrations of highly educated people. On the other hand, Glaeser finds no important correlation between population growth and the Patent Index, the Gay Index and the Bohemian Index – some of Florida's indicators of creativity, innovation and tolerance. These indexes all show little effect on population growth compared to the share of higher educated people. This corresponds to the analyses of the large Nordic city regions, in which the Talent Index is more positively and significantly correlated with high-tech job growth, overall job growth and population growth than the Creative Class Index (cf. Table 5).

In other respects, however, the empirical analyses of the large Nordic city regions demonstrate some similar results to Florida's findings from the USA. Thus, a significant and positive correlation exists between the presence of creative class people and cultural opportunities in the regions (cf. Table 4). However, if we take a closer look at specific regions, the picture is much more blurred. For example in the city regions of Holbaek (Denmark) and Stockholm, the share of the creative class is about 40 per cent of all employed people (Figure 3). However, in Holbaek the share of people working in the 'cultural opportunities industries' is about one percent of the total population, while it is about 2.5 times higher in Stockholm. The same pattern appears when comparing Uppsala in Sweden (with a low share of 'cultural opportunity jobs') and Helsinki, or Linköping in Sweden (again with a low level of jobs in the 'cultural opportunity industries') and Oslo. The other way around, in Oulu in Finland more than 40 per cent of all employees are members of the creative class and less than 23 percent are so in Grenland in Norway. In both city regions, however, a fairly similar share of people work in the 'cultural opportunity industries'.

These important divergences from the general rule based on correlations make it impossible to claim that cultural amenities gravitate the creative class toward particular city regions without further qualifications. The policy interpretation of building cultural facilities to attract the creative class also seems to be far too straightforward. At least the interpretation has to be qualified to some specific type of cultural amenities. This also relates to the critique raised against the mixing of statistical correlations and causal relations. Peck (2005), for example, criticises what he denotes as Florida's celebration of

the creative class as the main drivers in the new economy, which are mainly based on correlations between the spatial distribution of bohemians, gays etc. and technology-intensive growth, rather than on causality.

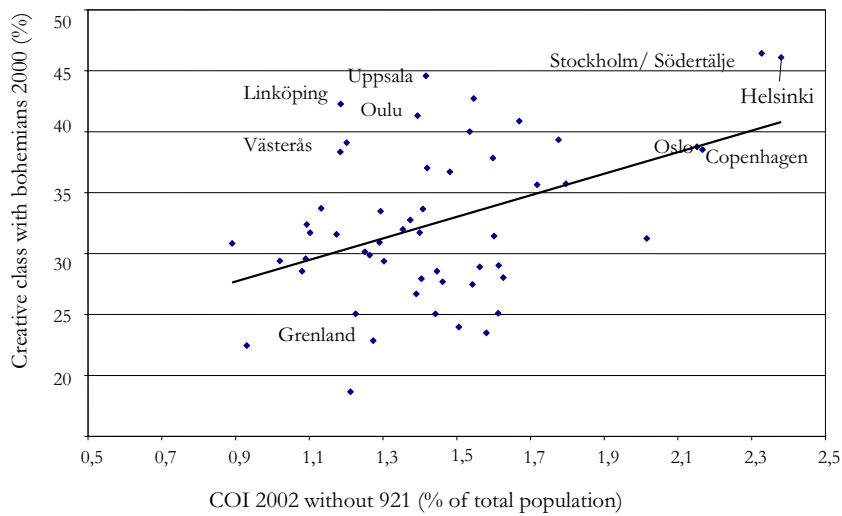


Figure 3: Relation between Cultural Opportunity Index (COI) and creative class

6.3 The policy implications

The last of the three dominating debates concerns the rather simple policy prescriptions drawn from the theory. Peck (2005), for example, criticises the tendency to put Florida's ideas into practice as supply-side policy to merely satisfy the creative. In spite of large structural differences, cities are believed to be able to transform into creative places by creating the right type of people's climate and attracting as many creative individuals as possible into their jurisdictions. Thus, the idea is that companies in strong need of the initiatives and ideas of this group of people are seen to flow into the regions. The possibility that some cities necessarily become losers in the competition for creative individuals and high-tech firms is not raised by Florida. Florida notes that some cities have not been able to initiate the development to become creative places, but this is considered to reflect the fact that they are trapped by their past and have not identified the need for new policy initiatives adapted to the new creative age. According to Florida, to become a creative city requires only fairly reasonable investment in 'soft

infrastructure' of small-scale arts subsidies, support for grassroots cultural activities, street-level spectacles and 'hard infrastructure', such as bike paths, improved urban façade, which is supposed to lead to gentrification.

While Peck (2005) sees a presentational benefit of linking art and culture to economic development efforts, he points to three main problems from a public-policy standpoint. Firstly, the race to attract mobile, talented workers may remove focus from important local challenges, such as large socio-economic inequalities. It is also a fact that many cities focus on the same type of policy initiatives in order to be attractive to young, highly educated people, and, thus, try to attract the same creative people. The urban competition is organised around attracting creative individuals and creating favoured neighbourhoods for these individuals. The creative people are, however, celebrated solely due to the lack of commitment to place, which is an important motive for publicly subsidising their consumption habits. Thirdly, the increase in street-level cultural events and renewed buildings may, however, be the consequences of economic growth as well as the causes of it. Peck suggests that the loose correlation between economic development and some cultural traits may be contingent.

Scott (2006) raises a similar type of critique. He maintains that Florida has not expressed the necessary and sufficient conditions that make creative individuals come together and remain in a particular place over a reasonable long period of time. Scott (2006) finds these conditions in the production system. Cities need to have job opportunities to provide the creative people with appropriate and durable means of earning a living. Thus, creativity cannot simply be imported into a city on the back of mobile creative individuals, but must, according to Scott, be organically developed.

The empirical analyses of Nordic city regions also indicate that the regions' shares of creative class members are important, but not a sufficient precondition for economic growth. This is further elaborated in Figure 4, which demonstrates that some places with high shares of creative class occupations (the 'stars' in the figure) may perform quite poorly on high-tech job growth. The connection between the regions' share of the creative class, on the one hand, and high-tech job growth and share of high-tech jobs, on the other hand, is thus questionable as well. For example, Randers in Denmark, Västerås in Sweden and Tampere in Finland have nearly the same share of creative class members (between 35 and 40 per cent). Tampere is the Nordic city region with the fastest high-tech job growth between 1993 and 2002, and it also has a comparatively high share of high-tech jobs in 2002. Randers and Västerås, on the other hand, are among the Nordic regions with the lowest high-tech job growth, and they also have comparatively few high-tech jobs. This may reflect that these two regions have many engineers (i.e. creative class members) in manufacturing industries which are not classified as high-tech.

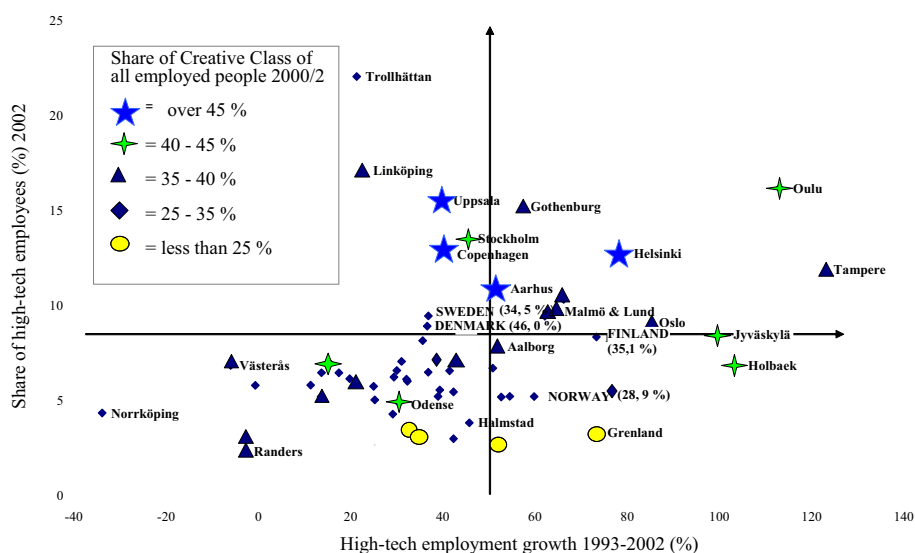


Figure 4: Growth and level of high-tech jobs in groups of Nordic city regions with different shares of creative class members

In the case of individual city regions, policy makers should acknowledge that the creative class approach includes too many ambiguities to be a solid base for policy formulation. This is not to deny that highly skilled workers defined by participation in the creative occupations are important for the performance of the city region; however, they are important only to a certain point as demonstrated by our Nordic data. Figure 4 also reveals that there is no real difference in the performance of city regions when comparing regions with more than 35 per cent of the labour force in the creative class occupations. That is, cities with over 40 or 45 per cent creative class members are not the clear leaders among the Nordic city regions. Of the ten Nordic city regions with more than 40 percent of its labour force in the creative occupations, only four (Tampere, Oulu, Helsinki and Aarhus) are clearly amongst the top performers in terms of growth and share of high-tech jobs (i.e. are found in the upper left quadrant in Figure 4). Two of the regions with a high share of the creative class are below the Nordic average in terms of growth two of them are below in terms of share of high-tech jobs and two in terms of both indicators.

Another anomaly to the creative class approach can be found in the role of the small city regions with rather low share of creative class members. For example, the best performers amongst Finnish regions in terms of unemployment rate, total job growth, high-tech job growth and share of high-tech jobs are found amongst regions with less than 100,000 inhabitants. Two of these regions (Lohja and Porvoo) are located close to the Helsinki region, while a third best performing region (Salo) is located close to Turku, the third largest city region in Finland. Thus, short distance to a large city region seems to be a success factor, but cannot guarantee good performance. In sum, the creative class approach may be a relevant policy prescription in some large urban regions, but there is no real empirical evidence from the Nordic empirical analyses that this approach will provide growth in all regions. The analyses in particular suggest that the creative class thesis does not provide tools to development policies in small regions without considerable readjusting. In addition, the occupation based creative class approach does not seem to offer better tools to analyse or predict regional growth than more traditional education based human capital approach.

7. Conclusion

The aim of this paper has been to examine the empirical reach of the creative class thesis and the relevance of the creative class approach in the Nordic context. In that respect, the paper has raised two main empirical research questions: To what extent does quality of place attract creative class members to specific regions, and to what extent does the presence of creative class members in Nordic city regions support favourable high-tech performance. The questions are followed up by a question on how the empirical analyses of Nordic city regions may contribute to the wider creative class debate. The main answers to these questions are firstly that in general the large Nordic city regions are performing best among all Nordic regions on indicators related to the quality of place, the share of creative class and the performance of high-tech industries. Secondly, the Bohemian Index and the Cultural Opportunity Index reveal correlations with the share of the creative class in the Nordic city regions, indicating that some aspects of the quality of place may attract creative class members. We also found a positive correlation between the location of the creative class and the regions' performance in high-tech industries in large Nordic regions. However, positive correlations are stronger between highly educated people and the performance of high-tech industries.

The empirical analyses of the Nordic city regions thus confirm some of the basic correlations presented by Florida (2002) based on his US empirical data. Accordingly,

the creative class thesis seems relevant when analysing industrial development also in the Nordic countries. However, some of the correlations are quite weak, and, additionally, some important anomalies are pointing to the fact that we cannot conclude on causal relations and draw strong policy recommendations. The fact is that the correlations between qualities of place, creative class and high-tech performance are stronger in large city regions (with more than 100,000 inhabitants) than in small regions (with 10,000 to 50,000 inhabitants). Actually, there is no correlation between the share of creative class people and high-tech growth in smaller regions, or the relation is even negative. This indicates that the creative class approach is of no or small relevance when explaining industrial development in small Nordic regions, but may be an appropriate analytical framework in studying larger regions. Thus, some smaller city regions perform quite well without having a high share of creative class members. Other factors are obviously important, such as distance to large, dynamic cities, and the fact that growth sectors are also found outside the high-tech industries. Again, the share of highly educated people indicated positive correlations with growth indicators also in the small regions.

Based on our empirical analyses, we conclude that the creative class approach may be a relevant policy prescription in the large Nordic city regions. However, no evidence exists that quality of place (measured by the Bohemian and the Cultural Opportunity Indexes) always relates to high share of creative class members, and further that a high share of creative class members correlates with a favourable high-tech performance. Particularly smaller regions display examples of the opposite relations, indicating that the creative class approach is not a policy prescription applicable in all types of Nordic regions, and neither the only one relevant for larger regions.

The contribution to the creative class debate from the empirical analyses of Nordic city regions is thus a confirmation of the relevance of the creative class thesis in the Nordic context, although with some modifications. The creative class approach summarizes some useful insights into regional industrial development and regional development policies of particular relevance for the large Nordic city regions. Nevertheless, much work remains to clear off the ambiguities of the approach and the relevance of the approach for the Nordic countries. For example, the Nordic welfare state model and coordinated market economy based development policies might have smoothed regional disparities more than is the case in the US, which may also lead to the fact that the role of the creative class and its correlation with regional growth is more difficult to perceive in Nordic city regions.

In our critical test we found that the creative class approach has to be considerably refined if used in the Nordic context, either as an analytical approach in investigating regional growth or as a policy approach to regional development. The

creative class thesis offers one approach and interesting insights to the debate of knowledge-based regional development, but it does not substitute more traditional human capital approaches.

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Appendix 1: Definition of statistical indicators

The indicators used for statistical analyses are defined as follows:

The *Tech Pole* Index: The index is calculated by multiplying a region's share of all the jobs in the knowledge based industries in the country by the location quotient of the knowledge based industries in the region. The knowledge based industries are defined as follows:

- 244 Manufacture of pharmaceuticals, medicinal chemicals and botanical products
- 300 Manufacture of office machinery and computers
- 321 Manufacture of electronic valves and tubes and other electronic components
- 322 Manufacture of television and radio transmitters and apparatus for line telephony and line telegraphy
- 323 Manufacture of television and radio receivers, sound or video recording or reproducing apparatus and associated goods
- 331 Manufacture of medical and surgical equipment and orthopedic appliances
- 332 Manufacture of instruments and appliances for measuring, checking, testing, navigating and other purposes, except industrial process control equipment
- 333 Manufacture of industrial process control equipment
- 334 Manufacture of optical instruments and photographic equipment
- 335 Manufacture of watches and clocks
- 341 Manufacture of motor vehicles
- 342 Manufacture of bodies (coachwork) for motor vehicles; manufacture of trailers and semi-trailers
- 343 Manufacture of parts and accessories for motor vehicles and their engines
- 353 Manufacture of aircraft and spacecraft
- 642 Telecommunications
- 721 Hardware consultancy
- 722 Software consultancy and supply
- 723 Data processing
- 724 Data base activities
- 725 Maintenance and repair of office, accounting and computing machinery
- 726 Other computer related activities
- 731 Research and experimental development on natural sciences and engineering
- 732 Research and experimental development on social sciences and humanities
- 742 Architectural and engineering activities and related technical consultancy
- 743 Technical testing and analysis
- 921 Motion picture and video activities

The *Creative class* is defined according to occupational data (ISCO 97) and the following occupations are included:

Creative Core:

- 211 Physicists, chemists and related professionals
- 212 Mathematicians, statisticians and related professionals
- 213 Computing professionals
- 214 Architects and engineering science professionals
- 221 Life science professionals
- 222 Health professionals (except nursing)
- 231 College, university and higher education teaching professionals
- 232 Secondary education teaching professionals
- 233 Primary and pre-primary education teaching professionals
- 234 Special education teaching professionals
- 235 Other teaching professionals
- 243 Archivists, librarians and related information professionals
- 244 Social science and related professionals
- 247 Public service administrative professionals

Creative Professionals:

- 1 Legislators, senior officials and managers
- 223 Matrons and ward sisters
- 241 Business professionals
- 242 Legal professionals
- 31 Physical and engineering science associate professionals
- 32 Life science and health associate professionals
- 341 Finance and sales associate professionals
- 342 Business services agents and trade brokers
- 343 Administrative associate professionals
- 345 Police inspectors and detectives
- 346 Social instructors and related associate professionals

Bohemians:

- 245 Writers and creative or performing artists
- 3131 Photographers and image and sound recording equipment operators
- 347 Artistic, entertainment and sports associate professionals
- 521 Fashion and other models

Bohemians also constitute a separate *Bohemian* Index which is a measure of the proportion of people with artistic occupation

- 245 Writers and creative or performing artists
- 347 Artistic, entertainment and sports associate professionals
- 521 Fashion and other models

The *Talent* Index is measured as a region's share of persons in the labour force with a bachelor degree or more

The *Openness* Index is the proportion of the population which is foreign born.

The *Cultural Opportunity* Index measures employment in cultural and recreational industries in the area (employment as a share of the population).

Cultural Opportunity (*NACE*):

- 553 Restaurants
- 554 Bars
- 921 Motion picture and video activities (also included in the tech-pole index, and should therefore be excluded either here or there),
- 922 Radio and television activities
- 923 Other entertainment activities
- 925 Library, archives, museums and other cultural activities
- 926 Sporting activities

The *Public Provision* Index measures the employed people within public welfare services as share of the total population.

- 801 Primary education
- 802 Secondary education
- 803 Higher education
- 804 Adult and other education
- 851 Human health activities
- 852 Veterinary activities
- 853 Social work activities

Appendix 2: PPI-top ten

City region	Country	PPI 2002 (%) (of total population)
Umeå	Sweden	1
Luleå/Boden	Sweden	2
Aarhus	Denmark	3
Trondheim	Norway	4
Östersund	Sweden	5
Borlänge/Falun	Sweden	6
Örebro	Sweden	7
Linköping	Sweden	8
Uppsala	Sweden	9
Tønsberg/Horten	Norway	10

Appendix 3. Multiple models

Model A: Dependent variable: creative class (excluding bohemians), not including country dummy variables

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	15.912	.586		27.175	.000
	Openness index (%) 2002	.605	.081	.320	7.504	.000
	Bohemian index of all employed (%) 2000 [Sweden 2002, Finland 2001, Norway 2004, Denmark 1999]	9.628	.674	.610	14.290	.000

a Dependent Variable: Creative class 2000 of all employed (%) [Sweden 2002, UK 2001, Norway 2004, Denmark 1999]

Model B: Dependent variable: talent, not including country dummy variables

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1.039	.836		-1.242	.215
	PPI 2002 (%) (of total population)	.710	.076	.471	9.345	.000
	COI 2002 (% of total population)	2.522	.467	.302	5.405	.000
	Bohemian index of all employed (%) 2000 [Sweden 2002, Finland 2001, Norway 2004, Denmark 1999]	1.279	.478	.139	2.675	.008

a Dependent Variable: Talent index 2002 % (bachelor or higher)

Model C: Dependent variable: creative class (excluding bohemians), country dummy variables included

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.076	1.817		2.243	.026
	PPI 2002 (%) (of total population)	.966	.144	.372	6.703	.000
	Openness index (%) 2002	.804	.087	.425	9.257	.000
	COI 2002 (% of total population)	2.555	.598	.178	4.270	.000
	Bohemian index of all employed (%) 2000 [Sweden 2002, Finland 2001, Norway 2004, Denmark 1999]	4.084	.711	.259	5.747	.000
	value 1 if NO	-5.122	.656	-.346	-7.809	.000
	value 1 if FIN	7.582	.953	.521	7.957	.000

a Dependent Variable: Creative class 2000 of all employed (%) [Sweden 2002, UK 2001, Norway 2004, Denmark 1999]

Model D: Dependent variable: talent, country dummy variables included

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-2.559	.691		-3.703	.000
	PPI 2002 (%) (of total population)	.868	.068	.575	12.829	.000
	Openness index (%) 2002	.486	.063	.442	7.713	.000
	COI 2002 (% of total population)	1.825	.393	.219	4.650	.000
	Bohemian index of all employed (%) 2000 [Sweden 2002, Finland 2001, Norway 2004, Denmark 1999]	2.084	.387	.227	5.387	.000
	value 1 if DK	-2.167	.468	-.187	-4.634	.000
	value 1 if SWE	-6.379	.501	-.719	-12.741	.000

a Dependent Variable: Talent index 2002 % (bachelor or higher)

Appendix 4: Country correlations

Table 1: Country correlations – include all regions. People's climate.

	Talent 2002 %	Bohemian Index 2000 %	Diversity 2002 %	PPI 2002 %	COI 2002 %
CC (Denmark)	.84***	.54**(1)	.49**	.60***	.44*(2)
Talent (Denmark)	-	.54** (1)	.47**	.69***	.52**(2)
CC (Finland)	.96***	.84***	.51***	.71***	.73***
Talent (Finland)	-	.85***	.58***	.70***	.74**
CC (Norway)	.85***	.76***	.55***	.31**	.51***
Talent (Norway)	-	.70***	.51***	.51***	.58***
CC (Sweden)	.92 ***	.80***	.42***	.13	.49***
Talent (Sweden)	-	.79***	.36**	.06	.50***

(1) Two outliers (Samsø, Læsø) are deleted from Danish data, since small absolute numbers of bohemians cause bias in extremely small regions. With outliers there are no significant correlations

(2) Two outliers (Skagen, Læsø) are deleted from Danish data. With outliers there are no significant correlations

Table 2: Country correlations – include all regions. Business climate.

	Nordic Tech-pole index 2000 %	Job growth 1996-2002 %	Job growth in high-tech 1996-2002 %	Population growth 1996-2002
CC (Denmark)	.53**	.40*(4)	.41*	.30(5)
Talent (Denmark)	.48**	.52**(4)	.52**(3)	.52**
CC (Finland)	.42***	.71***	.30**	.79***
Talent (Finland)	.46***	.73***	.34**	.85**
CC (Norway)	.48***	.33***	.02(6)	.60***
Talent (Norway)	.57***	.37***	.02	.50***
CC (Sweden)	.58***	.63***	.32*(7)	.65***
Talent (Sweden)	.56***	.65***	.34**(7)	.63***

(3) Outliers (Marstal, Samsø & Tønder) deleted from Danish data. With outliers there were no significant correlations

(4) Outliers (Marstal & Læsø) deleted from Danish data. With outliers there were no significant correlations

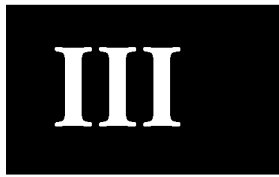
(5) Without outliers (Marstal, Læsø & Ærøskøbing) .63***

(6) In case of Norway, deleting outliers does not make the correlation significant, since the basic pattern is different

(7) Eight outliers were deleted from Swedish data (Eslöv, Karlskoga, Mora, Lindköping, Avesta/Hedemora, Ängelholm, & Norrtälje. With outliers there were no significant correlations.

CC= Creative Class 2000, share of employed people

Talent = Bachelors' or higher 2002, share of population over 18



Regional Development in Nordic Regions: The Impact of People Climate and Business Climate

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Abstract

This paper analyses the creative class thesis put forward by Florida (2002) by use of qualitative data from 14 regions across Denmark, Finland, Norway and Sweden. The 14 regions include capital city regions, regional centres and semi-peripheral regions. The paper analyses the role of people climate and business climate for the location of the creative class and firms in different kinds of regions and for policy formulation. The paper demonstrates quite different results as regards the importance of people and business climate from those reported by Florida. Hence, the creative class in the Nordic countries cannot choose freely between several more or less 'equal' regions as regards the possibilities of urban lifestyles and job opportunities, meaning that the people climate tends to be of secondary importance to the business climate in explaining the location of the creative class and businesses. The notion of people climate has also different meanings in various places, and what attracts or repels the creative class differs between city regions

Keywords: economic geography, creative class, quality of place, people climate, business climate, regional development

1. Introduction

The creative class thesis put forward by Florida (2002) has aroused much interest as well as debate. An important analytical pair of concept in this thesis is *people climate* and *business climate*. Business climate refers to the traditional production and location dynamics for industries, such as labour, knowledge resources, capital, infrastructure and physical resources (e.g. Porter, 1990). People climate refers to specific qualities of place that attract and retain people to particular places. Florida argues that people climate has become a crucial factor for explaining the location pattern of knowledge intensive firms. Central to his approach is the claim that *jobs follow people* rather than *people follow jobs*. He underlines the impact of people climate for regional growth and argues that city regions with an attractive people climate are better geared in the knowledge economy. In accordance with Florida's findings, Statistical analysis by Andersen *et al.* (2007) shows that the correlations between people climate and the creative class and further the creative class and economic growth - found by Florida - exist in the Nordic countries. However, significance is only found for the largest city regions. This implies that Florida's holy trinity of technology, talent and tolerance may have different impacts in various settings. This may have important implications for the strategy and policy of city regions. Consequently, this paper focuses on the importance of people climate compared to business climate.

Parallel to the concept of people climate, Florida still acknowledges the importance of business climate. For example, he maintains that creative workers are attracted to exciting firms and to jobs with autonomy, responsibility and challenges (Florida, 2002). However, Florida intends to extend the prevailing understanding of economic growth as being promoted by regional clusters. The growth of clusters is traditionally largely explained by the competitive advantages of firms that are located close to other similar firms, for example the possibility for firms to pick up ideas and knowledge simply by being in an industrial milieu rich of information (Marshall, 1890; Asheim, 1996; Malmberg and Maskell, 1997; Maskell and Malmberg, 1999; Bathelt *et al.*, 2004). But according to Florida (2002, p. 220) these are 'only partial answers...the real force behind this clustering is people. Companies cluster in order to draw from concentrations of talented people who power innovation and economic growth'. In this way Florida highlights the importance of creative persons and how their choice of place to live triggers regional industrial growth. Then, 'the bottom line is that cities need a *people climate* even more than they need a business climate' (Florida 2002, p. 283, original italics).

Creative people are assumed to have similar priorities and are thus attracted to places holding specific qualities. The qualities in question are openness, tolerance and heterogeneity, which are valued by people living by their creativity and craving many types of impressions and ideas. The multiculturalism of these places is seen as an indication of low entry barriers which enables many kinds of people to settle down and become part of the local community. Besides multiculturalism, a variety of sporting and leisure opportunities, authentic places and vibrant street life are also seen as elements of an attractive people climate for the creative class.

Florida (2002) demonstrates correlations between indicators of people climate and high-tech jobs in US city regions. Similar correlations are found in empirical data from Canada (Gertler *et al.*, 2002), European countries (Bochma and Fritsh, 2007) and the Nordic countries (Andersen *et al.*, 2007). Thus, larger Nordic cities with a relatively high share of artists (bohemians) and cultural jobs also have a relatively large creative class and a relatively high share of high-tech jobs. These correlations are, however, not found for all types of regions. The correlations are positive and significant as regards large Nordic city regions (with more than 100,000 inhabitants), but not in small and medium sized regions (with 10,000 to 49,999; 50,000 to 99,999 inhabitants)¹.

This paper examines the causality of the statistical patterns that Andersen *et al.* (2007) identified for the Nordic city regions. The empirical foundation of this paper is interviews with 110 informants from 14 regions in Denmark, Finland, Norway and Sweden. Data includes capital regions, regional centres and semi-peripheral city regions. The focus for this paper is the relation between people climate and business climate in regard to location dynamics of the creative class and firms. Further, the paper addresses how policy formulation in these three quite different types of regions match the priorities of the creative class.

The remainder of the paper is divided into four parts. First we review the main arguments behind the creative class thesis. Secondly, we describe the method, information sources and the regions under study. Thirdly, an empirical analysis compares the importance of people climate and business climate for creative class people. Next follows a discussion of how people climate and business climate are used in policy formulation in the explored regions. Finally, the last section

¹ In the Nordic countries, correlations between the share of creative workers and high-tech growth are negative for city regions with 10,000 to 49,999 and insignificant for regions with 50,000 to 99,999 inhabitants. (Andersen *et al.*, 2007).

concludes on how the empirical evidence deepens the theoretical understanding of regional growth and in particular evaluates the relevance of the notion of people climate and business climate in different spatial settings.

2. The Rise of the Creative Class and Its Critics

Since the publication of the book of the creative class Florida (2002), the thesis has gained significant impact both within economic geography and beyond. Peck (2005) suggests that the reason why Florida's theory has become so popular is not that it is revolutionary, but on the contrary because it is modest. Here Peck refers to Florida's political belonging as social-liberal and to his policy recipe that does not seek to challenge the present order of market flexibility, and this calls for modest public sector interventions. Lehmann (2003) describes the notion of the creative class as a rather impressionistic compound of Peter Drucker's knowledge workers.

Florida redefines Marx' conceptualisation of classes into a creative class, a working class, a service class and an agricultural class. The four classes all comprise a fixed set of occupations. As opposed to the three other classes, the creative class is categorised as occupations where people are paid for their mental presence in contrast to those who are primarily paid to do physical tasks and paid for their physical presence. Though creative class people are not categorised by their level of education, the majority of the highly skilled people are included in the creative class. In this sense the theory of the creative class to some extent represents yet another perspective on the knowledge economy, although it is in a new wrapping. On the other hand, Florida's theory also represents novelty in terms of his rather holistic approach and integrates lifestyle preferences, occupations and place characteristics in order to analyse the mechanisms behind economic performance of city regions. Glaeser (2004) questions the categorisation of the creative class by arguing that human capital have almost the exact same effect on regional growth as the creative class. Thus Glaeser stresses that the creative class category only reproduces the old and well-established concept of human capital which consists of highly skilled people. However, Swedish data (Hansen, 2007) and Danish research show that less than half of the creative class holds a higher education.

According to Florida, most theorizing within economic geography and beyond has until now been preoccupied with the notion of business climate. Without rejecting the role of the business climate as irrelevant, Florida stresses the notion of people climate as a complementary viewpoint to the business climate

perspective. According to Florida, one should also take place characteristics into account which may influence the ability to attract and retain knowledge workers.

Parallel to the public acclaim and policy implementation of the creative class thesis, the theory has also been widely criticized for a vast range of aspects. First, it has been criticized for its method and inability to address the causal relations between presence of the creative class in a city region and the city's economic performance. Peck (2005) criticizes Florida for implicitly suggesting that there is a causal relationship between the presence of the creative class and economic growth, whereas his quantitative method only suggests a statistical correlation between the two. Markusen (2006) criticizes Florida's method of using occupational groups as an indicator for measuring creativity. However, occupational groups or educational level are the most suitable and international comparable indicators of job creativity when using census and registered data.

Second, the theory has been criticized for its notion of the creative class. Markusen (2006) discusses the fact that the creative class constitutes one third of the American population and therefore it is problematic to group all their values and preferences under one heading. Asheim and Hansen (2007) have elaborated on this by introducing the knowledge base approach to point to the diversity of priorities of the creative class according to the knowledge bases that they draw upon. Kotkin (2003) and Malanga (2004) reject the belief that the creative class seeks towards urban areas and state that instead the middle class wants affordable and safe suburban lives.

Third, the theory has been criticized for its policy implications. Interestingly, this criticism comes from both left-wing and right-wing academics, and the theory similarly seems to be implemented by both right-wing and left-wing political parties in different places. Lehmann (2003) criticizes Florida for not evaluating the inequality generated by the economic importance of the creative class, and Markusen (2006) criticizes the creative class for not playing any political role. Peck (2005) condemns Florida's theory for ignoring the class polarization that exists between those that are included in the creative class and those that are not, for glorifying the creative class and for lacking a critical attitude towards the class perspective he presents. Peck (2005) also points to the problems associated with the 'one size fits all' policy recipe for all cities which Florida prescribes. Most of these leftist critics point to the lack of class perspective, a lack of solutions for the ordinary region and a tendency to blame the victim when the approach does not pay off. On the other hand, conservatives and market liberals such as Glaeser (2004) as well as Kotkin and Malanga (2004) criticize Florida for using the people

climate perspective as an excuse to legitimise an active state and public policy interventions.

Much of the critique directed at Florida's theorizing is legitimate and opportune, and many of the points raised highlight important weaknesses of the approach. There are many aspects of the creative class thesis that surely need further debate and refinement. Yet, Florida's conceptualisation of the creative class and people climate is highly interesting and deserves to be treated as a serious contribution to our understanding of the dynamics of the knowledge economy. Florida's theorizing can be understood as a schematic description of greater societal trends and tendencies in the knowledge economy. When trying to pin down the present overall socio-economic picture in a highly accessible jargon and format, which may be Florida's principal achievement, there will always be elements that can be further nuanced and developed. As in any broad assertion and overarching theory, there is an imminent risk of oversimplification and unfortunate generalisation. We see Florida's contribution to the analysis of regional growth as an approach in making. The following sections unpack the approach towards a less rigid and more sophisticated conceptual framework. In that effort we discuss the relevance of Florida's theory on the relatively small job markets in different types of Nordic city regions. The central research question is to what degree the impact of people climate and business climate vary across different types of city regions. This main question is further specified by the following sub questions:

- Does the creative class follow jobs or particular qualities of place?
- Do firms locate in proximity with talents or in proximity with good industrial facilities and infrastructure?
- To what extent and how do the roles of people climate and business climate vary as attractive forces in different types of city regions?
- How are people climate and business climate implemented in strategy and policies in different types of city regions?

3. Design and Method

Florida focuses on metropolitan areas, particularly the largest ones. Due to a quite different Nordic urban structure, this paper examines the impact of people climate and business climate on a wider sample of city regions (see also McGranahan and Wojan, 2007). While North America and especially the US is

characterised by several metropolitan areas, each of the four Nordic countries has only one region with more than one million inhabitants. Consequently, the urban hierarchy is fundamentally different from the one constituting the empirical basis for Florida's development of the creative class approach. Like in North America, the Nordic countries witness inter-regional competition but at a much smaller scale. The capitals of the Nordic countries – Copenhagen, Helsinki, Oslo and Stockholm – may compete with each other (and to some degree with Berlin and Hamburg), while the national level of competition is less explicit due to their dominating position within the national economy and urban hierarchy. Further, each of the Nordic countries has only three to four city regions that can be termed regional centres, but which are considerably smaller than the capital regions. Except for Gothenburg, which has half the population of Stockholm, these secondary cities typically have from one third to one fifth of the population of the capital regions.

This paper divides the studied regions into three groups, based on a combination of geography, scale and power: 1) capital cities, 2) regional centres and 3) semi-peripheral regions (cf. Table 1). All *capital regions* have a very central position in the urban hierarchy and are centres of economic and political power in their countries. The *regional centres* have a secondary position in the urban hierarchy. The four regional centres studied in this paper house universities and knowledge based industries, and they also have a vibrant cultural supply. The *semi-peripheral regions* are located on the fringe of more dominating regions. These regions often hold a combination of traditional production mixed with more knowledge intensive industries.

The difference in population size between the various types of regions may affect the significance of people climate and business climate in different ways. We understand people climate as factors related to quality of place, e.g. cultural amenities, attractive public spaces and public provision such as schools, health care, public transport. People climate is a common denominator of elements that affect the attractiveness of a certain location. Though people climate differs between a dynamic capital region and a quiet, semi-peripheral city, both deviations might still attract the creative class, but probably different parts and age groups (McGranahan and Wojan, 2007).

Business climate involves factors that more directly influence the competitiveness of businesses, such as infrastructure, government support, surrounding businesses and educational institutions. A vital business climate will stimulate existing business and attract businesses to a region and hopefully pay off

by an increasing number of jobs. Consequently, a good and thick job market² becomes an indicator of an attractive and well functioning business climate. The business climate and its resulting job opportunities are thus more clearly affected by the population size: differences in population size result in different opportunities and attractions on a quantitative level. There are more career opportunities in big cities, which is important for the dual career families of the Nordic countries. Thus, a main contribution of this paper is an evaluation of whether and to what extent the people climate and business climate attract creative class people to different types of city regions with different labour and job markets.

4. Interviews and Informants

The empirical material consists of individual and group interviews with 110 informants in 14 city regions in the Nordic countries of Denmark, Finland, Norway, and Sweden as seen in table 1. The informants include government officials, business leaders, civic leaders, representatives of marginalized and minority groups, supplemented with focus group interviews with creative class people. The data collection was carried out by the five authors of the paper in the different countries and city regions. By bringing together perspectives from different groups of informants across city regions and countries and the observations of different investigators, a degree of triangulation is achieved (Hammersley and Atkinson, 1995; Berg, 2007). This approach contributes to obtaining reliable data for people climate and business climate in different types of regions.

Perspectives on the preferences of the creative class have been gathered through 19 group interviews with creative class people. In each region two groups consisting of four to six persons with occupations defined as being within the creative class have been interviewed. The creative class respondents represented a broad variety of professions stretching from artists to ICT-professionals and from librarians to university researchers.

Perspectives on if and how the creative class influences upon the local business climate have been achieved through interviews with at least two local business leaders in each region. The companies from which representatives have

² Job market is purposefully used to emphasise the importance of the perspective of the highly skilled labour force

been interviewed have included at least one knowledge-intensive company and when possible at least one company with a recent history of relocation.

Table 1: Overview of the studied regions and number of interviews conducted

	Capital city regions (>1 000 000 inhabitants)	Regional centres (250 000-1 000 000 inhabitants)	Semi -peripheral regions (<250 000 inhabitants)
Denmark	Copenhagen (10 informants + 2 group interviews)	Aarhus (9 informants + 2 group interviews)	Svendborg (11 informants + 2 group interviews) Sønderborg ³ (8 informants) Esbjerg (12 informants + 2 group interviews)
Finland⁴	Helsinki (5 informants)	Tampere (13 informants)	Oulu (5 informants)
Norway	Oslo (6 informants + 2 group interviews)	Trondheim (8 informants + 1 group interview) ⁵	Grenland (8 informants + 2 group interviews)
Sweden	Stockholm (6 informants + 2 group interviews)	Malmö/Lund (6 informants + 2 group interviews)	Karlskrona (7 informants + 2 group interviews)

Views on strategies to attract the creative class have been gathered through interviews with at least one key person in the local government in each city region, and through interviews with at least two civic leaders, e.g. local politicians. The perspectives of marginalized or minority groups on the local level of tolerance have been gathered through interviews with at least one representative of community

³ No group interviews were conducted in Sønderborg.

⁴ Finnish data is based on three preceding studies concerning the same questions and the same target group as this paper. These studies, conducted between 2001 and 2004, include hundreds of personal interviews and thousands of responses to questionnaires in the same city regions as are subjects to this analysis. To control for the usability of those previously conducted interviews, 5 new interviews were made in both Helsinki and Oulu. When no systematic deviations between these new and the previously conducted interviews were found, 10 interviews from the previous study were used for detailed analyses.

⁵ One planned group interview in Trondheim was cancelled.

and aid groups. Representatives of these groups have been selected based on the dominating political issues of each region⁶.

5. The Impact of People Climate and Business Climate on Regional Growth?

The preceding sections outlined the framework for the contribution of this paper. The remaining part will analyse the impact of people climate and business climate on regional growth through analyses of the priorities of the creative class and firms in three types of Nordic regions: the capital city regions, the regional centres and semi-peripheral regions.

5.1 Capital Regions: 'Reinforcing Attractiveness' due to Spatial Structure of Job and Educational Markets

The key feature that differentiates the Nordic capital city regions from the remaining regions is their size; simultaneously, they serve as political and administrative centres. Related to size are thick job markets, educational opportunities, congestion and comparatively high housing prices. The attractive factors that pull people to the capital regions are most often related to work or studies. In the case of Finland, for example, 50% of all jobs in the information sector are found in Helsinki and less than 9% in the second biggest city region of Tampere. The same applies in the case of university students: 36% are in Helsinki and less than 15% in Tampere (Finnish Ministry of the Interior, 2006). The biographies of respondents reveal that especially for newcomers starting their job careers, the best opportunities are generally found in the thick job markets of the Nordic capital city regions. This applies especially to dual career couples. The attraction of the capital city regions as places to study and find a first job is also related to early life phases when people are frequently most mobile; not just because they rarely have families but also due to more "mobile mind-sets". However, it seems that the attractiveness of the capital city regions is also related to a lack of job opportunities in less urban areas. Thus, moves are not always *volunteer*

⁶ To counter the risk of our informants highlighting the creative class logic without reference to what is actually happening in their region, we made an effort to change our language away from the popular creative class rhetoric. Instead of using the concept of the creative class we used labels such as 'knowledge workers', 'artists', 'engineers', and 'professionals'.

but rather *forced* solutions when people want to start or proceed with their careers. (see also Raunio, 2001; Raunio and Linnamaa, 2000).

The importance of the large job market in capital regions is related to general changes in the labour market, in particular as regards 'creative jobs'. In the Fordist economy until the 1970s job security was rather high, or was at least an aim in economic policy (Piore and Sabel, 1984). Employers often offered long-term vertical career paths, which are less usual in the 'new knowledge economy'. Now the job circulation is higher, careers are more horizontal than vertical, and advancement demands increased expertise rather than promotions based on seniority (Snow and Miles, 1996). Thus, due to this altered dynamics of the labour market, people with high-expertise careers tend to seek thick local job markets in large cities in which they may accumulate knowledge and experience from specialized niches or across various firms, industries and sectors.

Respondents frequently report that the capital city regions are regarded as modern cities with vibrant cultural supply and a rich selection of restaurants and cafés. According to creative class respondents in the Nordic capital cities, one does not necessarily make much use of the cultural offer, but there is a value in the awareness of access to a variety of cultural activities. The high living standards and public services like kindergarten, public transport system and educational facilities, in particular cultural amenities, are highlighted as strengths. However, not all of these qualities provide strong competitive advantages for the capital regions at a national level due to a rather uniform quality of services amongst all city regions. Nordic respondents assume that basic services like schools and health care work rather well also in more peripheral regions. A comment from a representative of the creative class in Sweden seems to capture the general view: 'Maybe you would think about the public service level if you have children, but it is not a big issue'. In the case of physical environment, even the Nordic capital cities are more 'small town like', 'close to nature' and less urban than many of their European counterparts. In short, Nordic capital city regions are clearly different from other Nordic city regions as regards their job markets, but less so in terms of public services.

This situation constitutes a rather different starting point in competition of talent than in the US. The US has a thick job market for the creative class in several places with more than fifty metropolitan areas with more than one million inhabitants. These agglomerations differ remarkably from each other in terms of their people climate i.e. by their natural climate, social atmosphere, cultural offerings, physical appearance, diversity and social cohesion. In contrast, each

Nordic country has only one city region with more than one million people, i.e. the capital city region, and three or four second sized cities or regional centres with notably smaller populations and thinner job markets. Further, an intentional policy aiming to decrease regional differences in welfare and economic growth dominates at the national policy level in the Nordic countries. These policies have succeeded in producing comparatively small regional differences compared to e.g. USA.

The factors that push creative class people away from capital regions or prevent them from moving there are mostly either housing prices, congestion or an 'alienated atmosphere'. A common problem is that adequate housing at a reasonable price and in reasonable distance from the work place is not available. Within the last decade all four Nordic countries have experienced an explosive increase in real estate prices in the capital regions. For example in Finland the average price of an apartment is 2634 €/sqm² in the capital region whereas it is 1599 €/sqm² in the second largest and fastest growing city region of Tampere (Finnish Ministry of Interior, 2006). This pattern is concurrent throughout the Nordic countries. Further, wage disparities in the Nordic countries are the lowest in the world (OECD, 2002). Thus, the level of income is not notably higher for highly educated people compare to blue collar workers or craftsmen.

Commuting distances and the number of commuters have grown substantially in the capital city regions from the 1960s and onwards. For example more than 150,000 employees commute to central Helsinki every day; more than 36,000 of them come from outside the Helsinki region, and the commuting area is continuously expanding. This is also a general trend in Finland. In 1960 10% of the labour force were commuting, in 1980 23% and in 2003 33% (Myrskylä, 2005). In Denmark the number of commuters into the greater metropolitan area of Copenhagen has increased by 33% from 1995 to 2005 from app. 100,000 to 133,000 (Statistics Denmark, 2007).

Consequently, people do not seem to be pulled away from the capital regions by the good quality of housing in other regions; rather the expensive housing in the capital city regions pushes people to establish in other regions. Also congestion and an 'alienated atmosphere' are often mentioned as reasons for not moving into the capital city regions or as reasons for moving out. These factors are thus channelling people to regional centres or other regions.

Diversity and tolerance are also often mentioned and discussed by the interviewees, but these factors do not seem to have a strong impact on actual moving decisions. The capital city regions are clearly the most diverse locations in the Nordic countries. However, even though tolerance towards diversity and

differences seems to be an important value amongst many creative class people, it is not often related to moving decisions (if the persons in question do not belong to minority groups themselves). The Nordic countries are rather ethnic homogenous (perhaps with the exception of Sweden⁷), and diversity is not an important pull factor in moving decisions. Florida states that diversity and tolerance are crucial factors of attractiveness, but in the Nordic case diversity and tolerance seems to be appreciated values when they are present but they are not factors of attractiveness as such. Thus diversity in cultural offers seems to be more important to the creative class than tolerance.

Knowledge based companies primarily argue that capital cities are the place to be due to the number of knowledge creating institutions, a constant flow of talent and not least because the capital cities are centres of power. A recently established Stockholm office of a Danish company in the consultancy business argued that it is important to be in the heart of where political decisions are taken to win projects. A saying in some local government offices in Southern Sweden is that: 'what does not happen in Stockholm does not happen at all!' The same is the case of Copenhagen, Helsinki and Oslo. If international businesses do not look for highly specialised competences located in specific regions then the capital region often provides the best mix of talent, infrastructure and especially power – according to the businesses. However, start-up firms, especially outside the central city areas, often base locations on social relations rather than straight economic rationalities; something that also has been identified by Winther and Hansen (2006) in a study of the outer city area of Copenhagen.

5.2 Regional Centres: Attractive and Affordable Alternatives to Capital City Regions

The attractiveness of the regional centres is to a large extent based on the qualities that push people away from capital city regions or prevent them from moving there, i.e. more affordable housing, a less alienated social environment and a local authenticity.

Though thinner job markets may prevent these regions from being attractive alternatives to capital regions, the four regional centres studied have both large universities and a considerable pool of jobs for people with higher educations.

⁷ Sweden has traditionally the most gentle policy towards immigration, people seeking asylum and refugees among the Nordic countries. Especially within the last decade refugee and asylum policy in Sweden have been significantly less strict compared to Denmark, Finland and Norway.

Nevertheless, regional centres have a more specialised job markets compared to the capital city regions, for example Trondheim houses the national technical university and Tampere are specialised within jobs for engineers.

The term *right size*, often used by respondents, refers to the regional centres. Especially, it refers to their social atmosphere which is still rather small-town like where people 'are not too alienated from each other', but still 'everybody does not know everybody's business'. Certain groups of people tend to avoid the 'hectic and alienated' capital regions and instead prefer the smaller regional centres, especially if these are close to their region of origin. Regional centres do not actually have to offer more high-quality living environments than the capital city regions since their key attractive factors are given due to their smaller size: namely, low congestion, local social cohesion and affordable housing prices. If reasonable job opportunities are available, regional centres offer attractive alternatives for the creative class.

An attractive people climate is, however, also of importance. Interviews indicate that creative class people often look for qualities of place that may provide other inputs and inspirations than those related to their jobs. These may be found in a diverse cultural life (concerts, exhibitions, theatre, sport), urbanity (street life, public spaces, meeting places) and professional communities outside the place of work. A creative environment, in terms of a place where one can meet many people in different professions is regarded as important. Regional centres with their educational opportunities and relatively large job markets often include such creative milieus while simultaneously they are less hectic and more affordable.

The regional centres are preferred by people in certain life phases, in particular by families that may experience that apartments or houses are too expensive in the capital city regions. Such a life phase pattern corresponds with recent results from studies in the US where 'the rural creative class is older and more likely to be married than the urban creative class' (McGranahan and Wojan 2007, p. 205). It should be noticed that generally people with children of school age are quite immobile, whereas students and young single people (in their 20s and early 30s) are the most mobile ones. Thus, as regards the number of 'stable inhabitants', the typical life phase of creative class people settling in certain regions is of importance.

Firms that have relocated from other regions to regional centres often want proximity to universities or other knowledge creating institutions. However, personal networks also play a central role in location decisions – small scale entrepreneurs tend to start up businesses where they live and thus pay more attention to social relations than to more objective location factors.

5.3 Semi-Peripheral Regions: Entrepreneurship and Place Identity

Many smaller Nordic towns make efforts to strengthen their people climate; the town centres are being revitalised and they arrange festivals etc. At the same time an increasing number of cafés has emerged and many cities experience growing cultural supply. Still, many smaller towns lack the urban qualities to attract people who look for urbanity and a vibrant city life. Thus, they experience problems in retaining or attracting the young creative class people looking for a greater variety of leisure opportunities and a larger professional community. This is strengthened by the fact that smaller towns in more peripheral areas also have a comparatively thin job market.

People climate factors have, however, played an important role for the economic growth of some semi-peripheral regions. The Danish region of Svendborg exemplifies how an exceptionally high quality of living environment may support job growth. Svendborg has lost many jobs in traditional industries, but local entrepreneurship and commitment have prevented an economic recession. Svendborg is known for its natural beauty, cultural amenities and tolerance due to its history as a port city. Comments like ‘you can’t discharge the beauty of the nature – this region is so beautiful’ or ‘that might be the trademark of our town – broad and rich music life’ are not rare in Svendborg and reflect a strong local pride. People are commuting to surrounding city regions or are self employed in order to stay. However, Svendborg experiences difficulties in attracting people with highly specialized skills. Thus, it is the *retaining* effect rather than the attracting effect that has ensured Svendborg the position as the Danish town with the third largest share of creative class people.

A parallel example is found in the case of Oulu in Finland. Parts of Oulu’s success as a high-tech town seem to derive from its people climate, or more precisely from its social environment and local place identity. Oulu has gained a substantial net migration compared to the rest of Northern Finland due to its relatively thick job market and a social environment which is more ‘Northern’ than other alternative regions in southern Finland. This quality cannot be replicated since it is based on the authenticity of the city. Consequently, Oulu is also known for its entrepreneurial spirit building on historical roots.

The two examples illustrate that the ‘right’ people climate combined with an entrepreneurial milieu may benefit the economic growth of semi-peripheral regions. Local identity helps to retain people in these regions. Alongside, long-term commitment to a particular region ensures social capital. Contrary to ‘transient

people' who come to a place merely due to careers and jobs and move further if other interesting possibilities arise, people committed to a community will be more motivated to seek or create jobs in order to be able to stay in a place they appreciate (see Martin and Sunley, 2006).

Semi-peripheral regions generally have a thinner industrial milieu than more central parts of the countries. However, being small brings along advantages different from the larger city regions. An ICT entrepreneur in a semi-peripheral town in Sweden stressed that 'Karlskrona is small, so there are not many jobs here. On the other hand, it is easier for firms to help each other. This is not possible to the same degree in larger cities'. This view resembles the role attributed to social capital in stimulating the competitiveness of Italian industrial districts as described by e.g. Brusco (1982), Piore and Sable (1984), Asheim (1996) and Markusen (1996). Florida actually maintains that social capital restrains innovation and progress as entry barriers rise. Putnam (1993), on the other hand, emphasises that social capital stimulates collaboration and economic development. The role of social capital may in fact be an important division between small, semi-peripheral regions and larger regions. Large regions have a large number of companies, knowledge organisations and 'meeting places'. Here weak ties between economic actors may stimulate the generation and diffusion of new ideas and quasi-anonymity which will help propel innovative mindsets. In contrast economic development in semi-peripheral regions may rely more on joint action among a smaller number of relevant actors stimulated by socially embedded networks. This illustrates the need to unpack and diversify the creative class approach, as the approach is rarely directly applicable to all types of regions (Asheim & Hansen, 2007).

In each of the four Nordic countries, the capital city region stands out in the national context due to the combination of an appealing business climate and an attractive people climate. However, the creative class primarily locates in these capital city regions because of the thick job market with promising career opportunities and not due to the abundance of cultural variety. In contrast, the main appeal of the regional centres is the *combination* of a somewhat thick job market, rich cultural opportunities and a small-town feeling which the capital regions lack. People are drawn to the peripheral regions especially because of this small town feeling of community and local identity in spite of thin or narrow job markets and limited cultural opportunities.

While some people are attracted to the vibrant life of the Nordic capitals, others feel forced to locate in the capital regions because of jobs and career opportunities. Besides from the capital city regions, the regional centres offer the

best career opportunities and the creative class is much attracted to the combination of people climate and business climate. Though the peripheral regions can attract the creative class with especially focused business climates, their main appeal is the local identity and community, i.e. people climate.

Table 2: Main characteristics of the three types of regions

	Capital city regions	Regional centres	Semi-peripheral regions
Business climate	Thick job markets and promising career opportunities	Somewhat thick job markets but limited career opportunities	Narrow job markets
People climate	Abundance and variety of cultural opportunities	Variety of cultural opportunities	Community activities and local identity
Dynamic	People are ‘forced’ to the city regions because of jobs and careers	People are attracted to both jobs and people climate	People are attracted to people climate and local focus/clusters

6. Policy Formulation: In Line with the Key Drivers of Regional Development?

In the following we will examine to what extent people climate and business climate are employed in regional growth policies in the three types of regions studied. Further, we address the importance assigned to people climate and business climate in policy strategies and whether this corresponds to the importance experienced by firms.

The Nordic capital city regions lead the transition towards more knowledge based economies in their countries. Related to this is the fact that the capital regions in general have changed the focus in industrial policy from attracting and retaining businesses towards developing appealing public spaces and other attractions for human capital. All capital cities are aware of the growing competition for talent and try to approach this by planning for attractive housing areas and a rich and multifaceted cultural supply, which seems to be the new mantra of industrial policy in the Nordic capital cities.

One example is the Danish focus on creative industries and on the significance of creativity for the attractiveness and economic future of cities. The municipality of Copenhagen has thus initiated an analysis of how to improve the

conditions for the creative industries (Mathiasen *et al.*, 2006). Another example is the vivid debate concerning the ‘international innovation university’ in Finland, which would consist of three existing universities in Helsinki: the University of Technology, Helsinki Business School and the University of Industrial Design and Art.

All capital city regions have an international focus. This concerns both recruitment of highly skilled workers and attraction of firms in knowledge intensive industries. In contrast, regional centres and semi-peripheral regions primarily have a national focus. Deviation in foci may partly be explained by the dominating role of the capital city regions in the national context. To some extent Stockholm, Copenhagen, Helsinki and Oslo see each other as competitors. Meanwhile, regional centres like Aarhus, Malmö, Trondheim and Tampere are less focused on the potential competition among one another. Instead they primarily focus on poorly defined competitors within the national arena.

To some degree the regional centres and the semi-peripheral regions have changed their focus from traditional industrial policies of strengthening the business climate towards issues that are related to people climate. However, regional centres like Aarhus and Malmö also address the issue of a well-equipped infrastructure that will enable the cities to tap into international pipelines of knowledge flows. Improvement of infrastructure and active participation in international networks tend to be an explicit strategy in regions below the capital level whereas it is more implicit in the capital regions.

The semi-peripheral regions tend to struggle more than the larger regions in the quest for highly skilled labour and knowledge intensive firms. Thus a more hands-on policy is needed to attract highly skilled labour and knowledge intensive firms in semi-peripheral regions compared to more urbanised regions. Consequently, the business policy perspective of attracting and retaining businesses is more explicit in the semi-peripheral regions, including actively establishing networks between businesses and strengthening education, research and government on a local level.

In conclusion, both people climate and business climate are implemented in strategies of regional growth in the studied regions, but to a varying degree. Attracting and retaining creative and talented people is emphasised in all types of regions, but the traditional strategies of strengthening the business climate are increasingly employed the less densely populated the region is. Whereas capital cities, and to some extent also regional centres, mainly focus on attracting creative

class people, semi-peripheral regions try to attract qualified labour *as well as* provide a beneficial business climate.

There seems to be a mismatch between actual economic development strategies and the key drivers of economic development in the three different types of regions. First, capital regions may overstate the focus on people climate compared to the actual significance of this factor for the location of the creative class and businesses in this region. A more feasible strategy for semi-peripheral regions may be to strengthen their original atmosphere rather than trying to “become more global” in their people climate, as they cannot compete on that playground with larger city regions anyway. However, originality and authenticity may be an asset for semi-peripheral regions.

7. Conclusion

This paper analyses aspects of people climate and business climate of fourteen regions in four Nordic countries, including the capital city regions, regional centres and semi-peripheral regions. The main objective is to critically examine what roles people climate and business climate play for the location of the creative class, for the location of businesses and for policy formulation in the regions, and to what extent the roles of people and business climate vary among different types of regions.

A main finding is that Nordic regions will experience difficulties in creating competitive advantages by merely focusing on people climate due to three main factors: Firstly, people climate is generally considered to be important for the creative class, but it is still secondary to attractive job markets. Further, Nordic countries have an uneven spatial distribution of jobs which is attractive to the creative class. Especially for highly skilled people, job markets are strongly dominated by capital city regions and to less extent the regional centres. Secondly, welfare state policies ensure a relatively equal distribution of many aspects of what is considered to constitute people climate. Consequently, regions face difficulties in marketing themselves on such parameters. Thirdly, people climate is perceived differently in different types of regions, by different parts of the creative class and by people in different phases of life. All three issues will be elaborated on below.

First, the theoretical implications of the findings from the Nordic cases indicate that generally people climate is regarded as secondary to business climate. The opportunities of getting an attractive job and a subsequent career are vital for the location of the creative class in all regions. This is largely a consequence of the

urban hierarchy of the Nordic countries where the capital regions are the only cities that offer a really thick job market and a great variety in career opportunities. Accordingly, many creative class people cannot actually choose between several cities to live in, and consequently people climate is valued but is not decisive for location decisions. However, to the degree that the capitals compete on an international level with other capitals and large cities, a prime focus on people climate may be justified.

Second, the welfare system in all Nordic countries ensures an equal distribution of goods and services which in Florida's study of USA is considered a competitive aspect of people climate. Public schools, eldercare, kindergartens, higher education, infrastructure and public transportation are all regulated by national law. Service levels are rather equal across different regions and therefore the local governments face difficulties in marketing city regions on the level or focus of their welfare goods. This aspect of the Nordic welfare states greatly diminishes the effect of people climate as an attractive force. Further the Nordic welfare states highly subsidise the cultural industries which enables a relatively equal distribution of cultural amenities such as libraries, theatres and museums between regions with different degrees of urbanisation.

Third, what attracts or repels the creative class varies between types of regions. Thus, the notion of people climate is perceived differently in different places. The capital city regions score highest on Florida's original indicators of people climate, such as diversity, tolerance, cultural opportunities and vibrant street life. However, the capital city regions often struggle with expensive housing, congestion and an alienated atmosphere which have a push-effect on some people, especially families with children, towards the outer parts of the capital region or to other parts of the countries. Therefore people climate of capital city regions primarily appeals to young creative workers - often without children. Further, educational opportunities and thick job markets are highly important for these groups. Semi-peripheral regions, on the other hand, cannot compete on qualities like diversity and cultural offers. But social relations and local identity may attract the creative class to semi-peripheral regions. The same applies for regional centres which furthermore offer thicker job markets and educational opportunities along with larger cultural supply than the average semi-peripheral region. An additional advantage of the regional centres is that they offer both "large cities and small towns" environment at the same time – a characteristic on which they can distinct themselves from the capital city regions.

These considerations testify an analytical approach that does not suit all types of regions. Our findings point to the fact that an attractive people climate in a Nordic context to some extent differ from the one that Florida emphasises - particularly for city regions that do not enjoy the privilege of being a capital. Consequently, when comparing the Nordic findings to Florida's creative class thesis we will argue that Florida has an exaggerated focus on people climate parameters such as vibrant street life, music scenes and cultural diversity. These factors are less important to job and career opportunities for 'creative class families' in a Nordic context. In this respect the priorities that we foremost can link to young and single creative class people seem to be over-represented in Florida's (2002) research.

Alongside, regions should consider various combinations of and approaches to people climate and business climate in regional planning according to what type of city region they can be characterised as. A viable strategy for capital city regions should probably include a focus on housing prices in order to make it more possible and affordable for creative class people to live in the city region throughout different phases of life. Further this would help to attract creative workers globally. Due to an often well-developed people climate - such as a local identity and social relations - regional centres will gain from focusing on their job markets in order to offer alternatives to the capital city regions. Trying to appear as equally international and equally hectic as the capital cities will thus probably obstruct 'creative class families' moving to these regions. The same applies to semi-peripheral regions; however, here an entrepreneurial spirit should be supported and combined with a socially integrated small town environment and a hands-on policy to increase networks between firms and to nurse firms with quick and efficient bureaucracy.

How can the findings of this study help to unpack the creative class approach? First and foremost this study raises concerns about the potential for applying the creative class approach beyond large city regions which greatly limits the usability of the approach in regional planning. Further whether or not people climate tends to be of secondary nature as well as the notion of a people climate is highly subjective. Different people value different aspects of people climate, and for the creative class, this is especially evident between different types of city regions and different life phases for the individuals. Consequently, studies of perceptions of people climate for people in different phases of life would prove valuable to understanding the location patterns of highly skilled people. Alongside,

we need studies that confirm or discharge if Florida's approach has any effect at all, and in particular for regions below the largest city regions in the urban hierarchy.

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IV

The Creative Class, People Climate and Business Climate: Knowledge Bases, Varieties of Capitalism and Social Capital

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Abstract

The geography of the creative class and its impact on regional development has been debated for a few years now. Critiques have been numerous while the ideas of Florida (2002) have permeated local and regional planning strategies in most parts of the western world. The adoption of Florida's 3Ts has taken place without considering whether or not the theory fits into the settings of a specific context. This paper aims to unpack the creative class along three dimensions. Firstly, the knowledge base approach is introduced to brake down the rigid assumption that all people belonging to the creative class share common preferences. The creative class consists of approximately 35% of the employed workforce, and thus includes a very heterogeneous population. Secondly, the question of variety of capitalism is addressed in regard to Florida's thesis. Nordic countries and North America have two very different versions of capitalism. Thus, the underlying structures of the context where the creative class thesis is developed differ substantially between countries where the approach is adopted. Thirdly, social capital versus creative capital discussion is touched upon by arguing that social capital can take many forms and, thus, be productive.

1. Introduction: What's new with Florida's ideas?

More than 25 years ago, Doreen Massey published an article in *Regional Studies* 'In What Sense a Regional Problem' (Massey, 1979). In this article she introduced a new and alternative way of understanding what is a regional problem and how are regional problems caused. The traditional explanation of regional problems and uneven regional development was as geographical distributional problems rooted in the uneven resource endowments in different regions. As an alternative explanation, she argued for relating the geographical distribution to production by introducing the concepts of division of labour. This Marxist inspired, structural mode of explanation, later developed in the book 'Spatial Divisions of Labour' (Massey 1984), fundamentally changed the hegemonic understanding of regional problems, having a significant impact on research as well as policy.

Likewise, one could argue that Florida's book on 'The Rise of the Creative Class' represents a similar trend setting contribution. What could justify such a bold claim is partly his argument about the increasing importance of people climate not only as a complement to business climate but even becoming the most important factor in fostering regional economic growth. Additionally, what follows from this argument is that people, particularly working in the growing high-tech and creative industries in the new economy, do not follow jobs, but jobs in these industries follow people, i.e. talents belonging to the creative class. Thus, this runs contrary to what has been common wisdom for years: that in order to promote regional growth and development, firms creating jobs had to be attracted through fiscal or structural (cluster and innovation) policies. In contrast to this, Florida argues that in the new economy the crux is to improve people climate by creating and cater for diversity, openness and tolerance in addition to more normal factors of urban attractiveness such as a rich cultural scene, interesting architecture and well-developed recreational facilities.

However, there are at least two basic problems with Florida's writing. One problem is his tendency to launch big claims and generalizations as well as draw far reaching conclusions, mainly on the basis of statistical data on a highly aggregated level combined with narratives. The well-known problem of ecological fallacy comes easily to mind, especially when conclusions are drawn concerning peoples' motivations for acting. Secondly, the whole question of the context dependence of his conclusions within the US and particularly when used

and implemented in very different economic, social, political and cultural contexts, e.g. in Europe, is never seriously reflected upon. On the contrary, Florida has without any seemingly hesitation used and sold his ideas and policy recommendations to everyone interested in paying what is charged in the US as well as in Europe (Florida and Tinagli, 2004) in spite of the void of preconditions of various American cities to ever becoming a creative city (see Peck, 2005) or the varieties of capitalism and cultural contrasts between the US and Europe.

We have previously argued that there is a need for unpacking Florida's general claims and contextualise them with respect to the particularities of different industries (and thereby the particularities of different segments of the creative class), using the differentiated knowledge base approach, which differentiates between the knowledge bases that various industries draw upon (Hansen et al., 2005, Asheim et al., 2007, Asheim et al., forthcoming). However, in addition, the broader perspectives of varieties of capitalism (Hall and Soskice, 2001) has to be included in such an unpacking process as the way the labour market function, the type of financial regime dominating as well as the role of the public sector with respect to social security and unemployment benefits will clearly have effects on peoples' choice of place to live and their willingness to move. Finally, even deeply rooted (i.e. civil society based) cultural differences such as the presence of social capital (Putnam, 1993, 2000), which Florida has contrasted to creative capital when it comes to contributing to economic growth, will influence the behaviour of people and even firms, and, thus, has to be taken into consideration when analysing the relative importance of people's and business climate for promoting regional economic growth in various regions and countries.

However, before carrying out this unpacking process of Florida's arguments theoretically and empirically, we shall give a short presentation and elaboration of some of the above-mentioned main ideas of Florida as well as of some of the criticism being voiced of relevance for our discussion.

2. The Creative Class Approach

The basic reasoning of the creative class approach is that technology, talent and tolerance are three crucial cornerstones in facilitating regional growth in the knowledge based economy. The three T's, as they are often referred to, are

regarded as interconnected parameters which individually have a positive but limited influence on growth; however, in coexistence they have a significant synergetic effect. Florida (2002) puts it this way “Each is a necessary but by itself insufficient condition: To attract creative people, generate innovation and stimulate economic growth, a place must have all three.” (p. 249).

Florida acknowledges the numerous different explanations of regional growth, which can be found within the fields of regional economics and economic geography. Especially Glaeser (1998) is credited for his human capital perspective, which argues that a high concentration of educated people propels regional growth. However, the creative class thesis argues that not only educated people are necessary to promote regional growth – other parameters are of high importance too. “Regional economic growth is powered by creative people, who prefer places that are diverse, tolerant and open to new ideas” (Florida, 2002, p.249); accordingly, a talented workforce and a base of economic activities are important for regional growth only in combination with a tolerant, open-minded and diverse climate. Adding tolerance to well-known parameters of economic growth is perhaps the most innovative part of the creative class thesis. By doing so, the approach puts focus on aspects that has to do with inclusion and wellbeing of the labour force.

Basically the creative class approach is focusing on three related elements. First a good people climate attract and retain creative and talented people, next a concentration of creative and talented people fertilizes the ground for a competitive business climate and, finally, a good and competitive business climate brings along economic growth. In Florida’s TTT version people climate is covered by tolerance, and business climate is constituted by high-tech production. Put into a schematic form the argument can be explained as below in figure 1.

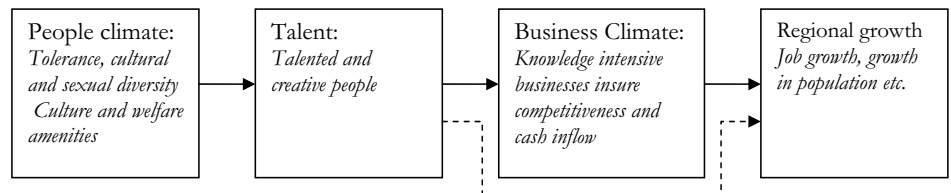


Figure 1: Schematic line of argument in the creative class approach

The presence of a tolerant environment offers diversity and quasi anonymity which are treasured by creative class people and which provide space for people who do not fit into the common norms. This again increases the opportunities for innovative thinking and further to develop new competitive knowledge. Thus, according to Florida, one of the central elements in building competitive regions is to provide a people climate that supports creative people.

Another of Florida's achievements is to print the concept of a creative class into the forehead of politicians and urban planners. The concept covers a broad variety of occupations all with the common denominator that they refer to people that create knowledge and combine already known knowledge in new ways in order to solve their job function. The creative class covers approximately 30-40% of the working population and in some regions more than 45% (Hansen, 2007). Thus Florida operates with a large group of economic actors counting around 1/3 of the economic active population. This has been one of the areas of dispute in academic circles and will be touched upon later.

The tolerance parameter covers a broad range of elements that influence the milieu and atmosphere of the city. Most importantly, tolerance has to do with low entry barriers. Low entry barriers such as openness toward newcomers and open-mindedness toward different cultures and different norms may help regions in the competition for talent. This is partly because open-mindedness makes it easier for newcomers, and partly because people deviating from the norms can be very creative and innovative. Alongside, Florida questions the effect social capital has on economic activities (Putnam 1993). According to Florida, social capital has a strangling effect on creativity and innovation. Instead of seeking places that offer social control, creative class people are attracted by places that offer cultural diversity and quasi-anonymity – this leaves space for individuality.

An important point in the creative class approach is the argument that knowledge intensive businesses move to regions with high shares of a talented and creative workforce, and that creative people tend to gravitate toward places with certain qualities. This asks for new regional policies with a people climate angle to complement the traditional focus on business climate. People climate can be seen as a set of ingredients that spice up the city and makes it attractive for the creative class. If a good people climate is not present, the creative class will move on to different places, and thereby also drain the business climate of the exit region. Indeed, the people climate is seen as basic to business climate, in

that the presence of human capital and talent is essential for attracting and developing high-tech industries and consequently for the economic growth of cities, a diversification relationship, exploiting urbanization economies, which was pointed out by Jacobs (1969) decades ago. This suggests that the attention of politicians and planners should be more directed towards people, not only towards companies, i.e. a change from business attraction to talent attraction and quality of place (Florida, 2002).

3. Critical voices of Florida

The thesis of the creative class and its impact on regional growth has been exposed to serious critique within the last years (Malanga, 2004; Törnqvist 2004; Glaeser, 2004; Gibson and Klocker, 2005; Markusen, 2005; Scott 2006, Boyle 2006; Peck, 2005; Rausch and Negray; 2006). Two strands of critique can be identified. The first critique is addressed by Glaeser (2004) and Malanga (2004). Both raise questions about the statistical findings on which Florida bases his argumentation. Glaeser argues that the creative class is no different from the human capital thesis of which he is a strong advocate and that Florida's findings would be the same if he left out the creative class people and instead used highly educated people in his analysis.¹

Further, the Tech Pole Index that Florida puts emphasis on as a proxy for technology and business climate only covers 5-10% of the employed population (mainly in high-tech industries). Thus Florida risks putting maximum impact on a variable that only portrays a small share of the economy, and, hence, there is a potential danger that the model ignores important dynamics in other industries. Malanga (2004) questions several of the variables that Florida introduces and goes as far as arguing that the regions which come out high on Florida's Creativity Index is the regions that have witnessed the lowest growth rates whereas the regions that get low scores on the index are the ones that come out with the best growth rates in the last decade.

The other strand of critique predominantly addresses the whole concept of a creative class. Markusen (2005) criticizes the narrow and elitist classification of creative people. Markusen's critique points to one of the weak aspects in the

¹ This argument can be supported by findings in Sweden where the correlation between talent and the creative class is above 0.9 (Hansen, 2007).

thesis – how to narrow down an operational classification. Are architects more innovate and creative than carpenters and bricklayers who have to make an architects drawings come true?

Peck (2005) also addresses the problem of profound empirical evidence to support the thesis. The creative class thesis is implemented in too many regional strategies around the world, even though many cities do not have the basic requirements for becoming creative cities.

Inspired by Florida (2002), indicators of technology, talent and tolerance have been scrutinized in a Swedish context (Hansen 2007). The indicators used for the study differ slightly from Florida's variables due to context specificities and differences in accessible data. However, the analysis ends up with a much stronger direct link between people climate, talent and regional growth than between people climate, talent, business climate and regional growth when investigating changes over time in a ten year perspective. Thus, the result of the Swedish study suggests that the 3 T's are narrowed down to only two in a Swedish context – talent and tolerance, which is why a dotted line is added to figure 1 in the former section. Consequently, high-tech production does not play as important a role in the Swedish economy as Florida argues it does in the US regional development.

Furthermore, Florida's (2002) indicators of technology, talent and tolerance tend to rise with a growing density of population. To a large extent the indicators are urban phenomena. Hansen (2007) shows a clear tendency towards a more urbanized region obtaining higher scores on Florida's indexes. This points to a weakness of the approach. If indexes that in theory are constructed to indicate the creative class and hence competitive state of a region are too sensitive to the degree of urbanization, then the thesis is useless as a more general development strategy.

Consequently, as Peck (2005) maintains, the creative class thesis is adapted and implemented in strategic planning in many regions around Europe and in the US without the essential conditions present. Andersen et.al. (2007) show that the thesis has very little impact in smaller regions in a Nordic context. Thus the 3T's are mainly adaptable for large sized urbanized areas rather than a fit-them-all development strategy. Hence, the creative class theses should be taken with great caution if the ideas initiated by Florida and his advocates are implemented in sparsely urbanized regions.

Our attempt to nuance the current creative class debate also departure from the last strand of argument. We believe that arguing that 35% of the employed people in the western world should have the same preferences is naïve. On the contrary, we argue that people in advertising or the film industry do not necessarily share identical preferences with a biotech researcher for a city environment and, more obviously, that the average engineer has different needs than the average artist. Thus, we shall maintain that the specific knowledge bases of the industries where the creative class work, and which is reflected in their education and work experience, will result in different preferences and trade-offs between job, occupation and place of living.

If this is empirically found to be correct, it also modifies Florida's arguments of an increased importance of city-regions in the new economy, which has led to a 'hype' about an urban turn in regional development. This has, on the one hand, been eagerly used by politicians and other stakeholders favoring such a development, but has on the other hand resulted in understandable worries about what will happen to the 'ordinary' or less favoured region. In contrast to Florida's one-dimensionally focus on large city-regions, the growth-oriented regional policy pursued in most countries during the last 10-15 years centered on clusters and regional innovation systems and emphasizing localization economies have not discriminated along an urban-rural dimension.

In what follows, we shall in addition to unpacking Florida's thesis using a differentiated knowledge base approach, discuss his theory in a variety of capitalism perspective as well as with respect to the importance of creative vs. social capital for the promotion of regional growth and development. The theoretical arguments are provided in the support for the need to undertake all three unpacking processes and are substantiated by empirical evidence based on present and former studies.

4. Unpacking Florida I: The differentiated knowledge base approach

There is a need for unpacking Florida's general claims and contextualise them to the particularities of different industries (and thereby the particularities of different segments of the creative class). Unless this activity is undertaken, causal mechanisms and hence regional policy recommendations are likely to be misleading. Thus we suggest that the creative class approach could gain from

adding a distinction between the *knowledge bases* which different industries draw upon - acknowledging that different knowledge bases ask for different political actions and depend on different types of talent in different parts of the innovation process (Asheim et al., 2007; Asheim et al., forthcoming; Hansen et al., 2005).

To make sense of the increased complexity, diversity and interdependence in the knowledge creating and innovation processes, we think it is important to start from the premise that the innovation process of firms differs substantially between various industries and sectors whose innovation activities require *specific* 'knowledge bases' (Asheim and Gertler, 2005). In this paper we distinguish between three knowledge bases: 'analytical', 'synthetic' and 'symbolic' (Asheim et al., 2007). They contain different mixes of tacit and codified knowledge, codification possibilities and limits, qualifications and skills required by organisations and institutions involved as well as specific innovation challenges and pressures. This typology encompasses and acknowledges the diversity of professional and occupational groups and competences involved in the production of various types of knowledge. As an ideal type, a synthetic knowledge base refers to the knowledge required for activities involved in the design of something that works as a solution to a practical problem. Activities that require an analytical knowledge base are geared to understanding and explaining features of the universe. Activities that draw on a symbolic knowledge base deal with the creation of cultural meaning through transmission in an affecting sensuous medium. The classification is further specified below.

4.1 Analytical knowledge base

The analytical knowledge base refers to activities where scientific knowledge is highly important, and where knowledge creation is based on cognitive and rational processes (e.g. formal models). Typical examples of this are found in biotechnology and nanotechnology. Companies usually have their own R&D departments, but they also rely on the research results of universities and other research organisations in their innovation process. University-industry links and respective networks are thus important and relatively more frequent. Such activities require specific qualifications and capabilities of the people involved. In particular analytical skills, abstraction, theory building and testing are

often needed. The core of the work-force, as a consequence, needs research experience or university training and is often involved in scientific discoveries. An important route of knowledge application is new firms and spin-off companies which are formed on the basis of radically new inventions or product innovations.

4.2 Synthetic knowledge base

The synthetic knowledge base refers to activities where innovation takes place mainly through the application of existing knowledge or through new combinations of knowledge. Often this occurs in response to the need to solve specific problems coming up in the interaction with clients and suppliers. Examples include innovation activities in plant engineering, specialised advanced industrial machinery and production systems, and shipbuilding. Products are often 'one-off' or produced in small series. R&D (more D than R) takes the form of applied research, but more often it is in the form of product or process development. The innovation process is often oriented towards the efficiency and reliability of new solutions, or the practical utility and user-friendliness of products from the perspective of the customers. This leads to a rather incremental way of innovation, dominated by the modification of existing products and processes. Since these types of innovation are less disruptive to existing routines and organisations, most of them take place in existing firms whereas spin-offs are relatively less frequent.

4.3 Symbolic knowledge base

The synthetic knowledge base is related to the aesthetic attributes of products, to the creation of designs and images, and to the economic use of various cultural artefacts. The increasing significance of these types of activities is indicated by the dynamic development of cultural industries such as media (film making, publishing, music etc), advertising, design or fashion (Scott, 1997; 1998) and the use of narratives and appeal to imagination as a way of adding value to products (i.e. branding). These activities are innovation and design-intensive since a crucial share of work is dedicated to the 'creation' of new ideas and images and less to the actual physical production process. This type of activities

is strongly tied to a deep understanding of the habits and norms and ‘everyday culture’ of specific social groupings. Due to the cultural embeddedness of interpretations, this type of activities is also characterised by a strong tacit component. The acquisition of essential creative, imaginative and interpretive skills is less tied to formal qualifications and university degrees than to practice in various stages of the creative process. The process of socialisation (rather than formal education) in the trade is not only important with regard to training ‘know-how’, but also for acquiring ‘know who’, e.g. knowledge of potential collaborators with complementary specialisation (Christopherson, 2002).

Table 1 provides a summary of the main differences between the three knowledge bases and their related activities. Since this threefold distinction refers to ideal-types, most industries are in practice comprised of two or all three types. The degree to which a certain type dominates is contingent on the characteristic innovation activities of the industry².

Table 1: Characters of the three knowledge bases

<i>Analytical</i>	<i>Synthetic</i>	<i>Symbolic</i>
Innovation by creation of new knowledge	Innovation by application or novel combination of existing knowledge	Innovation by recombination of existing knowledge in new ways.
Importance of scientific knowledge often based on deductive processes and formal models	Importance of applied, problem related knowledge (engineering) often through inductive processes	Importance of reusing or challenging existing conventions
Research collaboration between firms (R&D department) and research organizations	Interactive learning with clients and suppliers	Learning through interaction in the professional community, learning from youth/street culture or 'fine' culture and interaction with 'border' professional communities.
Dominance of codified knowledge due to documentation in patents and publications	Dominance of tacit knowledge due to more concrete know-how, craft and practical skill	Reliance on tacit knowledge, craft and practical skills and search skills

When the creative class, as defined by Florida, in most developed OECD countries contains between 30-40% of the employment, these talents are

² A more detailed elaboration of this can be found in Asheim et al (2007)

employed in industries drawing on all the three knowledge bases. These various groups of talents will clearly have different preferences and trade-offs between firms, occupations, life-styles and place. An engineer working in an industry making packaging machines or automotives based on a synthetic knowledge base will normally have different preferences than an art director in an advertisement agency (based on a symbolic knowledge base) or a researcher in a biotech firm (based on an analytical knowledge base). Preferences for an urban living among people performing activities with a symbolic knowledge base found in media, advertisement and design have been well documented by for example Gertler and Vinodrai (2004) and Grabher (2001) (figure 2). Policies for regional development must reflect the particularities of requirements of industries when promoting the business climate of regions, as well as recognising the varying preferences of the workforce when improving the people climate (Asheim et al., 2007; Asheim et al., forthcoming).

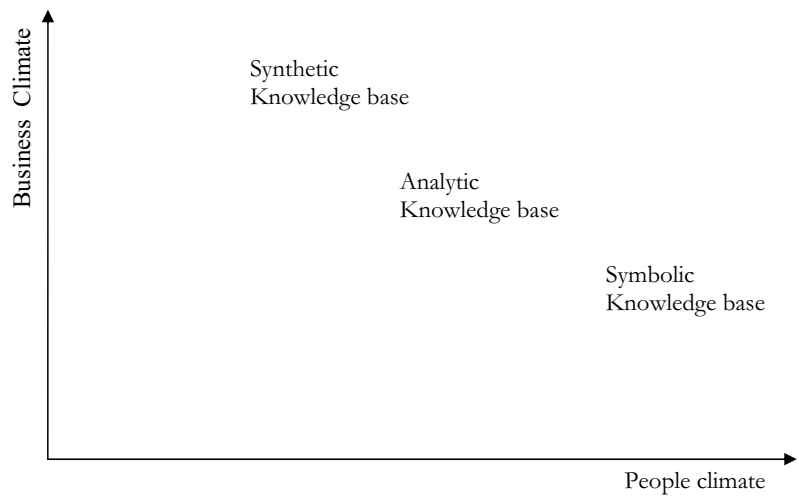


Figure 2: The assumed relation between business climate, people climate, and preferences aiming at different types of knowledge workers.

4.4 Empirical examples of business climate, people climate and differentiated knowledge bases

Above it is argued that people occupied within different knowledge bases can be assumed to have different location preferences. Hence, people climate can also be assumed to have rather different importance on the localisation of the labour force depending on the dominating knowledge base. In the following we will present the empirical findings when business and people climate scores are analysed from a knowledge base perspective. We admit that assuming that people within one knowledge base share similar preferences is still a very general and undifferentiated assumption. It can, however, be seen as a first step toward a more nuanced understanding of the geography of the creative class and the interplay between the geography of talent, people climate and business climate.

A few notions of the strengths and weaknesses of the data used in this exercise are required. We used occupation based data categorised by the Swedish SSK nomenclature based on ISCO88 to categorise occupations into synthetic, analytic or symbolic knowledge bases. While occupation data helps us to identify people within different knowledge bases, it does not allow us to select the industries that these people work within. Though this is not a fundamental problem of the data, such additional information would have helped to deselect persons that are within one of the three knowledge bases but employed in industries that are in the periphery of what can be categorised as knowledge intensive.

Thus ISCO data combined with NACE information on a detailed level (preferably 3 digit level or more) would be preferably to secure that quality of this tentative attempt to illustrate a more nuanced pattern of location for different knowledge bases linked to people climate and business climate. Such data will however easily face secrecy demands from the data supplier, as the sensitivity of the data rises significantly by adding NACE to ISCO. Only having NACE and ISCO data separately leaves us without the opportunity to upgrade the quality of the data by testing ISCO for NACE. Consequently, we can expect some interference in the data and, consequently, a less clear and less accurate picture than the theoretical relationship suggests.

It has to be stressed that the knowledge bases are ideal types and cover only a small share of the economic activities within a region. Thus, no regions can show one-sided knowledge structures extremely dominated by one of the

knowledge bases and, hence, a more scattered plot than indicated in the theoretical figure 2 can be expected.

To be able to distinguish between occupations that draw on different knowledge bases, we have identified a number of job functions and categorised them according to the knowledge base that they draw upon.

Table 2: Occupational groups within the symbolic, analytic and synthetic knowledge bases (SSYK/ISCO)

<i>Synthetic knowledge base</i>	<i>Analytic knowledge base</i>	<i>Symbolic knowledge base</i>
<ul style="list-style-type: none"> • Architects, engineers and related professionals • Physical and engineering science technicians • Computer associate professionals • Optical and electronic equipment operators • Ship and aircraft controllers and technicians • Safety and quality inspectors • Life Science technicians 	<ul style="list-style-type: none"> • Physicists, chemists and related professionals • Mathematicians and statisticians • Computing professionals • Life science professionals • College, university and higher education teaching professionals 	<ul style="list-style-type: none"> • Writers and creative or performing artists

Note: SSYK nomenclature based on ISCO

As table 2 reveals, some of the categories are overlapping and thus would influence the empirical result. As an example, the first synthetic category, *Architects, engineers and related professionals*, covers engineers that draw on synthetic knowledge and architects that draw on both synthetic but to a large extent also a symbolic knowledge base. This results in a much more blurred picture than the one presented in figure 2, and thus the relationship between business climate, people climate and synthetic, analytic and symbolic knowledge bases is not so straight forward in reality as in theory.

We illustrate the possible relationship between people climate, business climate and the three knowledge bases by plotting index scores of business climate and people climate into a coordinate system³. Further we have identified

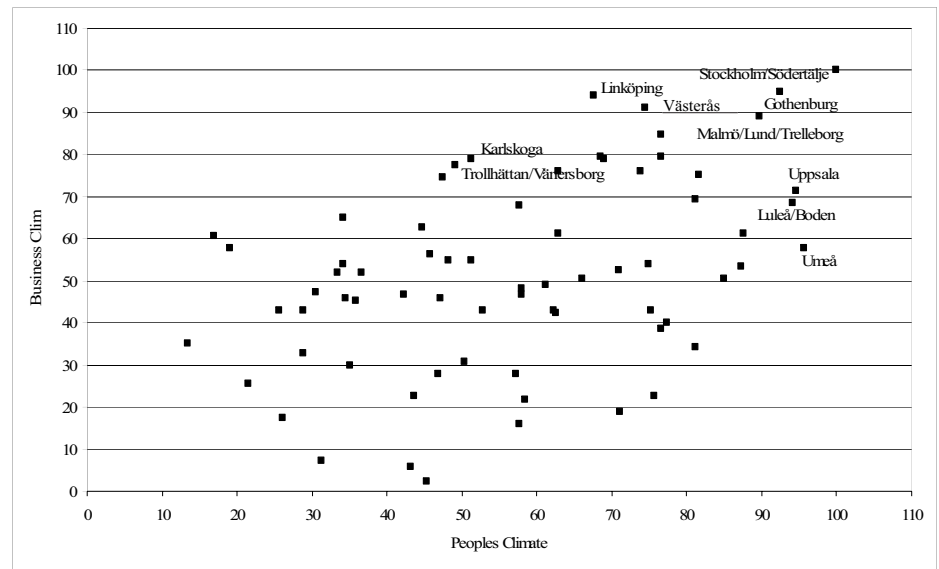
³ *Business climate indicators:* TechPole, patents per. 1000 inhabitants. *People climate indicators:* Bohemians per 1000 employed, share of foreign born population, integration (level of ethnic

the five highest scoring city regions nationally within each of the three knowledge bases. This is done by using location quotients to identify the city regions with highest concentrations in each of the knowledge bases. The top five city regions are then pointed out in the plot, allowing us to see them in relation to the other regions.

Figure 3 reveals a very different picture from what could be theoretically expected as illustrated in figure 2 and by the diagonal line in figure 3. As stated above overlapping categories on the one hand and heterogenic regions, in regard to the knowledge base structure, on the other influence the result. All that said, we can still identify patterns that underpin our claim.

Starting with the city regions dominated by the synthetic knowledge base, Linköping hosts SAAB aerospace production and high-tech production in general, alongside with a large university that includes an important technical division. Västerås is the home of AAB, a multinational engineering cooperation specializing in power technologies and automation technologies employing approximately 100,000 on a world scale. Gothenburg is the second largest region in Sweden with a large university as well as Chalmers technical university, a rich cultural and sub-cultural life, and the heart of the automobile industry in Sweden with large production sites for both Volvo automobile and Volvo trucks. They alone employ more than 15,000 people (2002). Karlskoga hosts Bofors, an important player in the Swedish military industrial complex, and fifth come Trollhättan/Vänersborg which is the home of the SAAB automobile and Volvo Aero production plants, employing close to 10,000 people, equal to 30% of the total employed labour force in Trollhättan. The above illustrates a clear tendency for the top five city regions dominated by the synthetic knowledge base to perform better on the business climate variables than the people climate variables. Only Gothenburg do not fit this picture, but Gothenburg is, as mentioned above, also a cultural centre and figures on the top 5 of the LQ of symbolic knowledge base; hence, the structure of the region is more diversified and much less one sided.

integration on the labour market), cultural opportunity index (people employed within cultural amenities), public provision index (people working in the public service industries) all for 2002.



	Synthetic LQ	Analytic LQ	Symbolic LQ
1	Linköping	Uppsala	Stockholm/Södertälje
2	Västerås	Linköping	Malmö/Lund/Trelleborg
3	Gothenburg	Stockholm/Södertälje	Göteborg
4	Karlskoga	Umeå	Uppsala
5	Trollhättan/Vänersborg	Malmö/Lund/Trelleborg	Luleå/Boden

Figure 3: Business climate index by people climate index, top five regions specified – all 70 Swedish labour market regions (2002)

Moving on to the analytical knowledge base, the top five city regions are all regions where the university has a central position and not least spin-offs from university activities. Uppsala holds one of Sweden's most important universities and has successfully spin-off businesses strongly linked to the university activities such as medical and bioscience research. Linköping has approximately 4,000 employed at the university and more than 400 employed in FOI, a large research institution governed by the Department of Defense. These activities add up to a considerable concentration of an analytically based labour force. Stockholm also represents an important concentration of people drawing on the analytical knowledge base. Like many other capital cities Stockholm hosts important national institutions and many business activities characterized by the

analytical knowledge base and, hence, typically appears on the list. Fourth is the Umeå region which is dominated by its university activities and to some degree the spin-offs in medical research that have followed. The Umeå region is an important centre of Northern Sweden and counts more than 30,000 students in a region with approximately 135,000 inhabitants. Thus the university and university related activities play a dominating role in the region. Malmö/Lund/(Trelleborg) is also strongly influenced by the university in Lund and biotech industries that have grown rapidly due to the university activities. Malmö/Lund/(Trelleborg) is also the economic centre of the southern part of Sweden. Hence, other activities are also important in Malmö/Lund/(Trelleborg), and the industrial structure and hence the knowledge base structure is far less one-sided than e.g. in Umeå.

Finally, we turn to the regions that dominate within the symbolic knowledge base. Stockholm and Malmö/Lund, Gothenburg and Uppsala are both densely populated regions and cultural centers. All four city regions are melting pots in terms of the ethnic composition and all regions house a large number of young people. All this put together characterizes city regions with a pulse and a multi cultural milieu which theoretically are said to attract people within symbolic knowledge base functions. The fifth region Luleå/Boden does not fit this picture. The region has a technical university and is harboring out iron ore and steel from the neighboring regions. Further, the region has a large steel plant. Combined, these things do not fit the typical symbolic site. Luleå has, however, a vivid music scene, and the Boden part of the region is the birthplace of the literature Nobel Prize winning author Eyvind Johnson and a few others well-known Swedish authors. This can be an indication of a milieu that offers favourable conditions to young hopeful writers, and, hence, due to traditions it conflicts with the assumption that symbolic based labour forces prefer settings that offer a well equipped people climate.

Summing up, the findings of this empirical study show two things. First it shows that the largest city regions have it all. They score high on both people's and business climate and contain important concentrations of both synthetic, analytical and symbolic knowledge base workers. Consequently Stockholm/Södertälje, Gothenburg and Malmö/Lund/Trelleborg score high on both the business and the people climate axis of figure 3.

Secondly, when focus is put on the remaining regions a pattern arises. Linköping and Uppsala both hold important concentrations of analytical knowledge base workers. Linköping also has high concentrations of synthetic knowledge base workers while Uppsala has high concentrations of symbolic knowledge base workers. The outcome of the people's and business climate scores underlines this. Linköping scores 68 on the people climate index and 94 on the business climate index. Uppsala scores respectively 95 and 71. Except from Gothenburg, all the regions ranking high on the synthetic knowledge base have notably better business climate scores than people climate scores. All the regions with high concentrations of analytical and symbolic knowledge bases score better on the people climate index than on the business climate index – except Linköping (and Gothenburg).

Accordingly, based on this empirical evidence, we can conclude that there is a tendency for city regions with high concentrations of synthetic knowledge base job functions to perform better in regard to business climate than to people climate. Less obvious is the relation between analytical and symbolic knowledge bases. Based on the theoretical arguments, symbolic knowledge base workers should show stronger preferences for people climate features than business climate features, and the same relationship should also appear in the case of analytical knowledge base workers but to a less extent. The reflection of this relationship is not as obvious as the prior. A slight tendency for regions with high concentrations of labour drawing on the analytical knowledge base to get better scores on the business climate axis and to score less on the people climate seems to be present. The tendency is, however, weak and indicates that the analytical knowledge base is more dependent upon people climate than first assumed. On the other hand, it is important to bear in mind that the analytical knowledge base to a certain extent is political influenced. The case of Sweden shows that many of the regions that have high concentrations of analytical knowledge base workers are the regions that have universities and research activities, and industries that draw on the analytical knowledge base are often located close to university activities due to e.g. spin-offs. Besides historical reasons, universities are located due to political decisions; consequently, politics can play an important role for the location of industries drawing on analytical knowledge bases.

Generally the empirical analysis documents a distinction in the importance of business climate and people climate depending on which of the three knowledge bases that are dominating. The theoretical relation between people's and business climate and the three knowledge bases is based on ideal types. Regions are much more diverse in reality. Thus, the trade-off between business climate and people climate for the three knowledge bases becomes blurred because no region only consists of one of the three knowledge bases and all regions have a large number of job functions that can be placed somewhere between the three types or are based on combinations of the various knowledge bases.

5. Unpacking Florida II: Variety of capitalism

When dealing with the notion of the creative class, it is important to bear in mind that it is developed in a North American context; therefore the number of cities to move between is much higher, the intercity competition on the national level is much more distinct, and a very large national labour market with a common language and institutional setting is present. Adding to this is also the lack of the same level of social security (e.g. unemployment benefits) in the US compared to e.g. Sweden as well as a lower level of female labour market participation. For this reason, the approach has to be modified to suit European conditions.⁴ It is of special importance to analyse if an increased focus on *talent mobility* will have negative impacts on women's labour market participation and career opportunities.

Although North America and Europe share many common values and institutions, there are aspects of their respective societal development that show strong divergence with regard to political priorities, economic growth processes and social outcomes. It is thus important to carefully reflect on the impact of the different modes of organisation of important societal institutions such as the market, the education system, the labour market, the financial system, and the role of the state in the comparisons between Europe and North America. It is reasonable to believe that these differences will have an impact on talented people's preferences for - as well as perception of - the quality of places in

⁴ Efforts in this direction have been carried out in the project "Technology, Talent and Tolerance in European Cities: A Comparative Analysis"

Europe and North America, respectively. Hall and Soskice (2001) and others⁵, applying a 'varieties of capitalism' approach, convincingly argue that different national institutional frameworks support different forms of economic activity, i.e. that coordinated market economies have their competitive advantage in diversified quality production, while liberal market economies are most competitive in industries characterised by radical innovative activities. Following Hall and Soskice (2001), the Nordic and West European welfare states can be referred to as coordinated market economies. The main determinants are the degree of non-market coordination and cooperation which exists inside the business sphere and between private and public actors, as well as the degree to which labour remains 'incorporated', and the financial system's ability to supply long term finance.

They argue that competitive strength in certain markets - 'diversified quality production' in coordinated market economies - is based on problem solving knowledge developed through interactive learning in industries with a synthetic knowledge base and accumulated collectively in the workforce (Hall and Soskice, 2001). Competitive strength in liberal market economies - characterised by a high rate of change through radical innovations in industries with an analytical knowledge base - is based on institutional freedom as well as financial incentives to continuously restructure production systems in light or search of new market opportunities typically found in liberal market economies (Gilpin, 1996). While coordinated market economies on the macro level support co-operative, long-term and consensus-based relations between private as well as public actors, liberal market economies inhibit the development of these relations but instead provide opportunities to quickly adjust the formal structure to new requirements and create strong incentives towards such strategies. Such institutional specificities, reflecting differences among national political economies, both contribute to the formation of divergent 'business systems' (Whitley, 1999) and constitute the context within which different organisational

⁵ Numerous authors have presented research emphasizing both the importance and enduring geographical divergences of incentives and constraints regulating collective action. The common characteristic is a focus on complementary mechanisms of coordination, i.e. the structure of collective action in general – for instance between individual companies, capital and labour - and to what extent different sub-systems of coordination counteract or complement each other.

forms with different logics of collective action and thus mechanisms for learning, knowledge accumulation and knowledge appropriation have evolved.

These differences make the US liberal market economy, which is Florida's main frame of reference, more individual, competitive oriented, and, consequently more mobile and dynamic (at least in a short term perspective), than a coordinated market economy. Due to a lack of a national welfare system of unemployment benefits similar to what is found in most of the coordinated market economies (e.g. the Nordic countries), the options available for people loosing their jobs, if alternative employment options are not found locally, are either to move to places which offer jobs, or to start their own business. This is one of the explanations why the level of entrepreneurship is higher in the US than in the Nordic countries. The size of the national labour market, with the presence of hundreds of large regional labour markets, and with the same culture and language, of course also facilitates a higher degree of labour market mobility. The larger focus on gender equality and equal job opportunities also reduces the level of labour market mobility in e.g. the Nordic countries compared to the US. Moreover, as Hall and Soskice (2001) underline, the industrial structure also differs between liberal and coordinated market economies. The US has a larger share of high-tech industries, based on analytical knowledge, producing radical innovations, while industries applying interacting learning as the mode of developing incremental innovations, based on synthetic knowledge, dominate the coordinated market economies. Innovation as interactive learning appreciates stability and in-house competence building (functional flexibility) more than mobility, as an efficient interactive learning requires trust and social capital, which is not easily formed and reproduced in a society characterised by high labour market mobility. In the next section we shall present empirical examples that will indicate some of the complexity resulting from a variety of capitalism perspective.

5.1 Empirical examples of variety of capitalism

Comprehensive empirical evidence of the importance of the variety of capitalism perspective is beyond the scope of this paper, but one important element for understanding the differences between Northern Europe and US will be presented.

One simple but very important example is how the labour market is regulated. Besides the question of labour market flexibility that has been addressed earlier the degree of union participation and union based activities are very different. In USA only 13% of the labour force has a membership of a union (Ugebrevet A4, 2006). In Denmark the largest umbrella organization of unions holds 39% of the workforce alone (LO, 2007). This result in a very different way of organizing the employer- employee relationship in regard to salary, employment rights etc. and consequently very different dynamics on the labour market in general.

An important part of Florida's theorizing rests upon an assumption that the creative labour force is extremely mobile. Mobility becomes central because it is the element that, according to Florida, forces cities to actively create an attractive environment. Mobility understood as moving from one place to another is, however, dependent on several things. One is the social benefit or the lack of it that can force people to move for jobs. The welfare system of the Nordic countries helps unemployed to maintain a minimum standard of level of living, while American unemployed to a larger extent is left to their own (mis)fortune, forcing people to move for new job opportunities. In this respect the Gini-coefficient⁶ can help to provide a picture of the equality in the Nordic countries compared to North America. OECD (2005) states that Denmark (22.5) followed by Sweden (24.3) is the OECD members that faces the lowest inequality in income differentiation whereas Canada and (30.1) and USA (35.5) are witnessing a significant higher inequality in income between people. The larger inequality in income distribution is a driving force for mobility. The lack of social security forces people to move in search for jobs. Neo-liberalist would argue that this result in a more flexible labour market, but while this might sometimes be the case (understood as numerical flexibility), it also brings with it a significant element of insecurity for firms and city regions as the hyper-mobility of the labour force results in less committed employees, problems of recruiting skilled labour in peripheral and semi-peripheral areas and consequently considerable difficulties for both city regions and firms to retain a stable population and work force.

⁶ The gini-coefficient is a measurement of income inequality. The lower a score the more equally is income distributed.

Another important difference between the US and Northern Europe is the share of women in the labour force. Table 3 shows differences in the participation in the labour force in general and for women in particular between Sweden and USA. At the same time these data shows that the employment rate among women on the labour market is almost equal. Therefore, lower participation of women cannot be reduced to a matter of the difficulty for women to get a job, though this might influence as well, but rather to a structural difference between the two societies. Everything equal, two rather than one wage earner in a family can be expected to lower mobility both in regard to moving from one place to another and in regard to commuting. In their study of gender, work and space in a US context, Hanson and Pratt (1995) found that men are more mobile in terms of commuting while married women tend to find jobs close to home. Hanson and Pratt (1995) also observed that ‘a household’s residential location, more likely chosen with the man’s than the woman’s job prospect in mind, not only has bigger importance on a woman’s (than a man’s) access to employment; it also can exacerbate differences among women’ (Hanson and Pratt, 1995, 223). Thus, table 3 indicates that moving from one region to another is more complicated in Sweden than in USA. Consequently, it is an example of how variety of capitalism causes a more complex labour market structure resulting in higher friction regarding mobility. This demonstrates the need to examine the specific context before uncritically adapting the ideas of regional growth based on technology, talent and tolerance.

Table 3: Swedish versus US labour market

	<i>Sweden (2005)#</i>		<i>USA (2000)*</i>	
Population 16 years and over	5,769,800		217,168,077	
In Labour force	4,533,000	78.6 %	138,820,935	63.9 %
Employed	4,262,600	94.03 %	129,721,512	93.4 %
Female population 16 years and over	2,839,500		112,185,795	
In labour force	2,160,500	76 %	64,547,732	57.5 %
Employed	2,038,000	94.3 %	60,630,069	93.9 %

Source: #Statistics Sweden, *US Census Bureau

6. Unpacking Florida III: Creative vs. social capital

Finally we turn to Florida's arguments that social capital is not conducive to promoting an innovative economy, which goes against earlier insights that linked innovative performance to social capital. Putnam (1993) is used in many of these studies to argue that social capital, understood as networks and connections, trust, common norms and rules etc., is of crucial importance for creating learning environments and transforming knowledge into product or process innovations (e.g. Maskell and Malmberg 1999). According to this string of literature, innovation understood as interactive learning will have better odds when strong ties between people are present.

Florida (2002) comes to different results when analysing the creative class. He argues that social capital as defined by Putnam (1993) is exclusive in the sense that social interaction is based on communities of likeness. The problem of Putnam's social capital is that its exclusive nature eliminates diversity and, hence, limits space for innovative thought. Simultaneously, the exclusive nature of strong ties makes it very difficult for outsiders, e.g. migrants, to enter social circles and, hence, the degree of mobility is lowered.

According to Florida (2002) the creative class favours quasi-anonymity based on weak ties rather than strong ones (Granovetter 1973, Grabher 1993). Florida argues that a new social structure is emerging. People in the creative class do not want neighbours peering over the fence. Former social structures have proven restrictive and have been substituted by new ones that are weaker and, hence, open to innovative and diverse mindsets. Alongside, weak ties allow a much faster inclusion into communities favouring rapid absorption of new ideas as well as adjustment of norms and values.

Florida's reference to Putnam's work suggests an understanding of social capital as bonding, i.e. rooted in civicness. However, social capital can also be considered as 'bridging'. As such it can co-exist with weak ties as this form of social capital is a result of organizational and institutional innovation at the societal level (e.g. labour market regulation and legislation in the Nordic countries). Furthermore, the role played by various types of social capital also has to be seen in a variety of capitalism perspective as well as in the context of the importance and size of the civic society in respective countries. This last point will also result in a differentiation between countries belonging to (the same type of) a coordinated market economy (e.g. between Sweden and Denmark).

Denmark is characterized by a civic society that continues to play an important role in the economy, politics and social life. Denmark ranks among the most innovative and competitive economies, with industries mostly depended on a synthetic knowledge base and mainly competing on the basis of non-R&D based, market or demand lead, incremental innovations. These traditional low and medium tech industries, mostly producing relative simple consumption goods, base their innovation on interactive learning, where *security* guaranteed by the welfare state, *trust* generated by the presence of social capital of both bonding and bridging types, and *adaptability* in the form of the famous *flexicurity* in the labour market (a combination of numerical flexibility and very generous unemployment benefits as well as an efficient labour market education and training), securing a sufficient level of competence building, produce impressive economic outcomes. In this system, which is distinctively different from the American, social capital plays a strategic role in making it function in such an efficient way by facilitating both intra-and inter-firm interactive learning. This learning takes form both as *reproductive* (adaptive) and *developmental* (creative) learning (Ellström, 2007). The presence of developmental learning is of key importance in increasing the innovativeness and competitiveness of such an economy, as only basing this on reproductive learning will run the risk of resulting in negative lock-in situations, while the presence of both reproductive and developmental learning will be able to continue to producing positive lock-in situations. Based on this reasoning, one could argue that the Danish economy, in contrast to Florida's argument of what is needed and of strategic importance for the high-tech based, new economy, represents a competitive model in the global economy where innovation and competitiveness is depending on a social capital generated social cohesion in local and regional communities in a very homogenous nation state.

Moreover, industries drawing on a synthetic knowledge base do not necessarily have to be located in urban areas, but in proximity to client firms or in specialized clusters exploiting localization economies, which are characterized by strong ties and a specific, local cultural understanding. In-migrating labour would have difficulties getting into the closed social circles (characterized by 'bonding' social capital) or even, if they were many, could undermine the social cohesion and by that the informal, intra- and inter-firm interactive learning

(Hansen et al., 2005).⁷ This means that Denmark represents an anti-thesis to the Floridan view of the importance of people climate characterized by tolerance, diversity, multi-ethnicity and a multi-cultural population in a global village context for securing innovativeness and competitiveness in the globalizing new economy. In support of this a reference could be made to Lundvall and Lorenz (2006), who argue that the traditional mode of non-R&D based innovation, where innovation takes place through 'doing, using, and interacting' partly has its own strengths and partly can productively be combined with a R&D-based mode of innovation, where innovation draws upon science and technology.

6.1 Empirical examples of social versus creative capital

Florida fails to view social capital as bridging and thus argues that it limits diversity and creativity. We argue that both bridging and bonding social capital can be a powerful driver for creativity with reference to the Danish example (above) as well as e.g. examples from Third Italy (Asheim, 2000).

As examples of bridging social capital that positively effect creativity and innovation the Danish trade unions' initiative of building a web of courses for re-education of its members could be mentioned. This initiative helps the labour force to be well informed of new technologies etc. Other implicitly documented examples can be found in a study of the competitiveness of the Danish agricultural machinery industry. Here Pade (1991) finds that the co-operative movement in Denmark has had a significant impact on user driven innovation by stimulating interactive learning as well as distributing information and knowledge between users and producers, and by financing the farmer's investments in new technology. Today the machine stations, which originate from the co-operative movement, provide unique test surroundings for producers of agricultural machinery to test new products before they enter the market (Hansen, 2001), and are thus crucial for the leading international position of many Danish agricultural machinery producers.

Creativity can also be linked to the more bonding type of social capital. Neergaard and Madsen (2004) focused on the impact of social capital in knowledge intensive entrepreneurship though not distinguishing between

⁷ The Danish society has often been characterised as a 'tribal society' representing some kind of organic sense of community which does not allow for too much individualism.

bridging and bonding social capital. They investigated a population of 24 ventures of newly started firms within biotechnology, medical technology and information and communication technologies and found that 75% of the firms are founded by two or more persons and that the relationships between the founding persons have a long history. A small share of the founders was related but the majority of the firms were founded by people who knew each other by being colleagues on an earlier stage or having studied together. This is an evidence of bonding social capital that promotes creativity. Further, Neergaard and Madsen found that close (bonding) networks is used for problem solving and for raising capital at certain points in the history of the young firms. However, they also found that the strong ties between the founding partners in the firms can cause inefficiency when important decisions on strategy etc. has to be taken – here strong ties can have a blocking effect for taking the right decisions.

Two empirical examples of bridging and bonding social capital in economic development have been presented above. Both shows that both bonding and bridging social capital can have very positive effects on knowledge creation, innovation and entrepreneurship. Both examples are from Denmark, but equal cases should also be possible to find elsewhere, e.g. in the Third Italy.

Florida might have a point when he addresses the problem of social capital when it is only a question of bonding and, thus, exclusive and judgemental to a certain point. He does, however, fail to see social capital in its many different forms. Neergaard and Madsen (2004) showed that strong ties can have both entrepreneurial and innovative outcomes. They do however also document that bonding social capital bring along weaknesses because the tight linkages can result in problems towards taking difficult and emotional decisions. The example of bridging social capital, which we have pointed to above, helps knowledge to diffuse on the one hand and to lower scepticism for new technologies on the other, and, thus, provides an institutional context within which farmers can acquire and co-finance new machinery and exchange information that on a later stage can bring along user-driven innovations within the agricultural machinery industry.

Hence, the two examples of the positive impact that both bridging and bonding social capital can have on innovation and creativity does not question to what extent creative capital is superior to social capital. Rather the two examples

show that social capital can take many forms and can be a driving force in economic development. We do not argue that creative capital is indifferent. What we argue is that Florida's outright rejection of the impact that social capital can have on innovation, creativity and entrepreneurship is exaggerated and a misinterpretation of both the concept of social capital and the impact of bridging and bonding social capital relations on economic activities.

7. Conclusions and further research

Above we have presented theoretical arguments followed by some empirical examples that support an unpacking of the creative class thesis. Our prime goal for this paper has been to point to areas where we find it meaningful and fruitful to unpack and re-theorise Florida's creative class thesis. Thus, we have pointed to three additional theoretical frameworks, a knowledge-base approach, a variety of capital perspective and a more nuanced understanding of social capital, which we have argued the TTT approach would benefit from using. We believe that Florida's thesis includes some new and important insights that should influence contemporary thinking about regional development. However, as the paper has demonstrated, it is important to bear in mind that the contingency of the present theory makes it only useful for a relative limited number of large city regions, especially when implemented outside the US (or North-America).

First, we problematised the bold claim that 35% of the employed labour force shares the same preferences for places to live. We have argued that three knowledge bases can be identified within which the occupations of creative and talented people can be grouped. Only a few occupations depend solely on one of the knowledge bases, rather they represent a mix of two or three bases. However, we have identified a number of occupations that primarily draw on one of the three. By combining information of the five highest ranking city regions of respectively synthetic, analytical and symbolic knowledge bases with business climate and people climate we have been able to illustrate a relationship that to some degree underpin the argument. City regions with a high concentration of synthetic knowledge base workers tend to score comparable higher on the business climate index than on the people climate index. The same tendency, but with an inverse result tend to be the outcome of city regions with concentrations

of symbolic and analytical knowledge bases. The results are not as accurate as we could wish. We believe that data combining occupation and industry would have been helpful in providing a clearer pattern, better underpinning the argument presented in the theoretical parts. Moreover, the result shows that some city regions have it all while others do not. Several of the city regions which are highlighted figures on two or more of the top five city regions. This illustrates the competitiveness of these city regions on the one hand but makes the results of the analysis more blurred on the other. Consequently, a further development of the distinction between knowledge bases of occupations as well as an increased sophistication of data on the other hand will help to obtain a clearer illustration of the trade-off between business climate and people climate and the three knowledge bases.

The second area of unpacking addressed the impact that variety of capitalism can have on Florida's 3T model. Empirical evidence of the variety of capitalism, in line with the knowledge base critique, is beyond the scope of this paper. Therefore we have focused the empirical example on one of the central elements in Florida's rhetoric - mobility. Presenting data on the participation of women on the labour market in respectively Sweden and USA illustrates the differences of how society and the labour market are structured. In Sweden the higher participation rate of women on the labour market leads to a less mobile labour force as jobs for two persons rather than one is a cause of more friction on the labour market. Several have pointed to other fundamental differences between the American model and the Nordic welfare model. Thus, we have stressed the importance of an analysis of the local Nordic context and how it differs from Florida's context, which additionally is analysed on a high level of aggregation.

Thirdly we have addressed the discussion of social versus creative capital. We have argued that Florida fails to understand social capital in other forms than bonding. Consequently, Florida sees social capital as restricting creativity as bonding social capital can be exclusive and thus result in limited openness and tolerance. Based on two examples we have argued that social capital can be of the bridging as well as the bonding type. The claim is illustrated by reference to a study of knowledge intensive entrepreneurship and the development of the Danish agricultural machinery industry. First of all, the study shows that bonding social capital can help to get firms started and thus, stimulate entrepreneurship.

Furthermore, tight relationships can help to raise capital for investments, but some of the strong ties can also have a negative effect. Secondly, with the example from agricultural machinery production, the co-operative movement has facilitated technological development by enabling interactive learning and knowledge transfer between farmers and producers of agricultural machinery on the one hand and the promotion of technology diffusion on the other hand, showing that bridging social capital can enhance technological development.

In this paper we have taken the first steps towards a more diversified and context specific understanding of the relation between business climate, people climate and the geography of the creative class. Research using more sophisticated data on the one hand and a more thoroughly re-theorising on the other will open up for an analytical framework which is more adjustable and sensitive to local contexts and less one sided and rigid in its answers to how to approach the relationships between the creative class, people and business climate and regional development.

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The Spatial Division of Talent in City Regions: Location Dynamics of Business Services in Copenhagen

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Abstract

City regions are seen as cauldrons of creativity and innovation and have become the prime object for understanding and targeting economic growth. The paper focuses on the location dynamics and spatial talent to provide evidence of the multiplicity of economic geographies of city regions. City regions are not just homogenous growth machines but complex urban landscapes. The economic growth and revitalisation of the city region and the rise of the knowledge economy, including the growth of advanced business services, have produced new location dynamics that change the spatial division of labour. The rise of the knowledge economy has led to an increasing focus on labour and labour qualification as an important location factor, including focus on the creative class and human capital. Based on an analysis of Copenhagen, we examine the spatial division of talent within industries to provide evidence that new uneven economic geographies of city regions are currently being produced as a result of the new location dynamics of the knowledge economy. Further, it is argued that the intraregional division of talent differs considerably even within knowledge intensive industries.

Keywords: Talent, Knowledge Economy, Urban Location Dynamics, Business Services

1. Introduction

The competitiveness of city regions has emphasised the importance of geography in understanding the globalising world economy. Geography matters and cities have once again become vital places of innovation and creativity making them important strong-holds in the national and global economy (Scott, 2001; 2002; Scott and Storper, 2003; Florida, 2003; Storper, 1997; Jessop, 1994; Brenner, 2004). This is an important prerequisite to understand the processes of competitiveness and knowledge production in firms and industries and to understand how cities underpin the relational economic spaces of firms and industries which increase their competitiveness. The problem is, however, that the city regions are sometimes reduced to spaceless, one-dimensional cauldrons of creativity and innovation – evident from Jacobs (1969) to Florida (2002). The rise of the knowledge economy and the related expansion of knowledge intensive business services produce new uneven geographies of city regions in Europe and elsewhere (Hutton, 2004; Harrington and Daniels, 2006; Criekeingen et al. 2007; Hansen and Winther, 2007). The paper focuses on the location dynamics and spatial division of labour and talent to provide evidence of the multiplicity of economic geographies of city regions. They are not just homogenous cauldrons of creativity and innovation but complex urban landscapes with multiple economic geographies as well as political and social geographies (Winther and Hansen, 2007, Hansen and Winther, 2007; Jonas and Ward, 2007).

The uneven industrial geographies of large city regions are well-documented in the literature, including the immense suburbanisation and restructuring processes in the 1970s and 1980s (Scott, 1988; Massey, 1984 – in Copenhagen Illeris, 1997; Winther and Hansen, 2006; Winther, 2001). The economic revitalisation of the city region which involves an industrial resurgence of the inner city and the rise of the knowledge economy, including the growth of knowledge intensive business services, has produced new location dynamics which has changed the spatial division of labour within city regions (Storper and Manville, 2006; Wood, 2006; Cook et al., 2007; Grabher, 2001; Winther, 2007). This has resulted in new economic spaces of relations and flows which transform existing (local) economic spaces and produce new economic spaces as well as a more polycentric structure (Kloosterman and

Musterd, 2001; Phelps and Parsons, 2003; Ascher, 2002; Bontje, 2004; Sieverts, 2003).

By applying data from 1982-2002, we provide evidence that the location dynamics in Copenhagen in the past decades have become more complex than the suburbanisation processes in the 1980s. The knowledge intensive business services are examined closely in the paper for two main reasons. First, because of their vital position in the knowledge economy as producers and distributors of knowledge. Second, because their immense growth in the past decades has resulted in new location patterns and shifts in the urban landscape. Bryson (2000), Bryson et al. (2004), Beyers (2003; 2005), Daniels and Bryson (2005) and Miles (2005) are good examples of analyses that link the business service economy to a more general understanding of urban economic dynamics as well as innovation and regional development. The geography and dynamics of the knowledge intensive business services provide an important insight to an understanding of the geography of talents because these industries hold a relatively large share of the talented and creative labour force (Kahin and Foray, 2006). The industrial resurgence of city regions and the rise of the knowledge economy are thus related to an increasing focus on labour and labour qualification as an important location factor (Reich, 1992; Florida, 2002; Glaeser, 1998; 2003). Even in mainstream economics, human capital is incorporated in the growth models (Lucas, 1988; Romer, 1990).

In this paper the spatial division of talent is examined within industries to provide evidence that new uneven economic geographies are currently being produced as a result of the new location dynamics of business services. The spatial division of talent that underlies the location of the knowledge economy reveals spatial concentrations and polarisation in the city region of Copenhagen - even within spatial evenly distributed industries. The main purpose of the paper is to provide evidence that the recent industrial growth of city regions tends to produce divided or fragmented cities of talent and not just a resurgence of the inner cities.

In the first section of the paper, we briefly outline the conceptual and methodological framework of location and talent and the relation between them. The second section introduces the Copenhagen city region and its different urban forms together with an overview of the data used in the

analysis of the spatial division of labour and talent. The subsequent section provides an overview of the spatial division of labour in Copenhagen and emphasises the location dynamics of business services. The fourth section examines the spatial division of talent with a focus on business services and the uneven spatial distribution and growth patterns of talent in the city region. Finally, we discuss and conclude on the findings of the previous sections.

2. Talent and Location in Place

City regions have become essential platforms of the knowledge economy, and therefore they are vital for the competitiveness of economic firms and industries (Cooke and Piccaluga, 2006). The resurgence of the large city regions happened alongside a long-term industrial transformation. In the knowledge economy, the competitiveness of firms depends on their ability to innovate, improve their productivity (process innovation, including new forms of organisation), product quality or produce new products (David and Foray, 2002). A critical aspect of the innovation process is knowledge and the understanding of knowledge production as an interactive, relational learning process (Amin and Cohendet, 2004). Therefore the present focus in urban development is on the knowledge economy, clusters, creativity and innovation (for instance Pratt, 2006, Grabher, 2001; Harrington and Daniels, 2006; Asheim et al., 2006; Florida, 2002). These studies examine how places/locations underpin the firm's networks and competitiveness. This account can contribute to understanding the production of firms' competitiveness. These studies attribute geographical proximity a vital role for the production of knowledge and hence for urban and regional competitiveness and growth which for instance has lately been visible in the discussions of the importance of local buzz (Asheim et al. 2007; Storper, 1997; Storper and Vanables, 2004, Maskell and Malmberg, 1999; Bathelt et al., 2004). It is common that the geography of culture, institutions, norms and values are decisive for local economic development. The region is conceptualised as a space in which the institutional framework of learning processes and knowledge production is produced and reproduced, for instance in the regional innovation system literature (Braczyk et al. 1998; Ashiem and Gertler, 2005).

Amin (2002; 2003), Amin and Thrift (2002) and Amin and Cohendet (2004), however, argue that locations are situated in distanced networks. They focus on the firm as the locus of knowledge production rather than the region/location/cluster. Doing so, they see different factors underpinning the knowledge producing processes. They do not exclude geography as an important factor for the shaping of firm networks, but geography must be seen as context and not be reduced to distance only. The firm's network exists of the firm's relations. This also includes translocal or even global learning networks and buzz in business services (Faulconbridge, 2007).

One of the important location factors of the knowledge economy is labour and, hence, the relation between innovation, knowledge creation and human capital. Consequently, the paper focuses on talent and industrial location in the urban landscape of Copenhagen to understand the industrial location dynamics and its spatial development. One of the main conclusions of a study of location preferences in Copenhagen was that almost all firms, in all industries, at all locations emphasised labour and labour qualification as important location preferences (Winther and Hansen, 2006; Winther, 2007). This is also documented in several other European cities, e.g. Amsterdam, Barcelona, Berlin, Brussels, Strasbourg and Vienna (Bachman et al., 2003).

Florida (2002; 2003) claims that cities are cauldrons of creativity, and that people holding a creative position have become the single most important asset for economic growth. The central aspects in Florida's approach to regional development are talents and the preferences of talents. To Florida (2002), talents are people who work in creative occupations and thereby are innovative in their everyday work. The creative class, which Florida labels this group of people, is seen to be highly mobile and, accordingly, cities have to focus on what he calls an attractive people climate. Florida thus builds on the recent decades of focus on human capital as an important category for explaining economic growth (Romer, 1990; Lucas, 1988).

While Florida put emphasis on occupation as a key to understand creativity, Glaeser (2003, 1998) points to the importance of formal labour qualifications understood as human capital which is the basis of urban economic growth. Short and square, the human capital concept of Glaeser is based on the level of education whereas Florida's talent concept covers people in creative job functions. Empirical evidence suggests, however, that the two

categories are highly correlated; in Sweden, for instance, the R^2 between creative class and human capital was 0.935 in 2002 (Hansen, 2007). Due to data constraints, we use formal education as the key variable to understand the location dynamics of the level of knowledge intensity in business services in Copenhagen. Hence, in our study the group of talents only covers employees with a higher formal education.

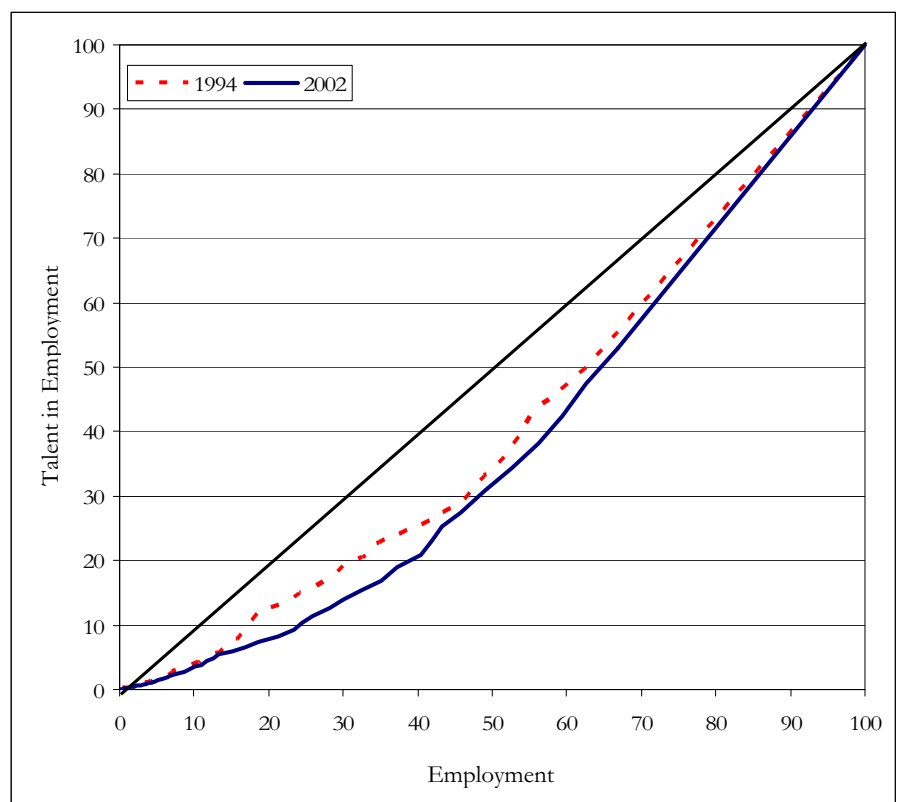


Figure 1: Lorenz diagram of employment versus employed talent for 1994 and 2002

Many recent studies of the new economy, creative and cultural industries and knowledge intensive business services have focused on the revitalisation of the inner cities, the core of large metropolitan regions or specific urban districts (Hutton, 2004, 2006; Grabher, 2001; Pratt 2006).

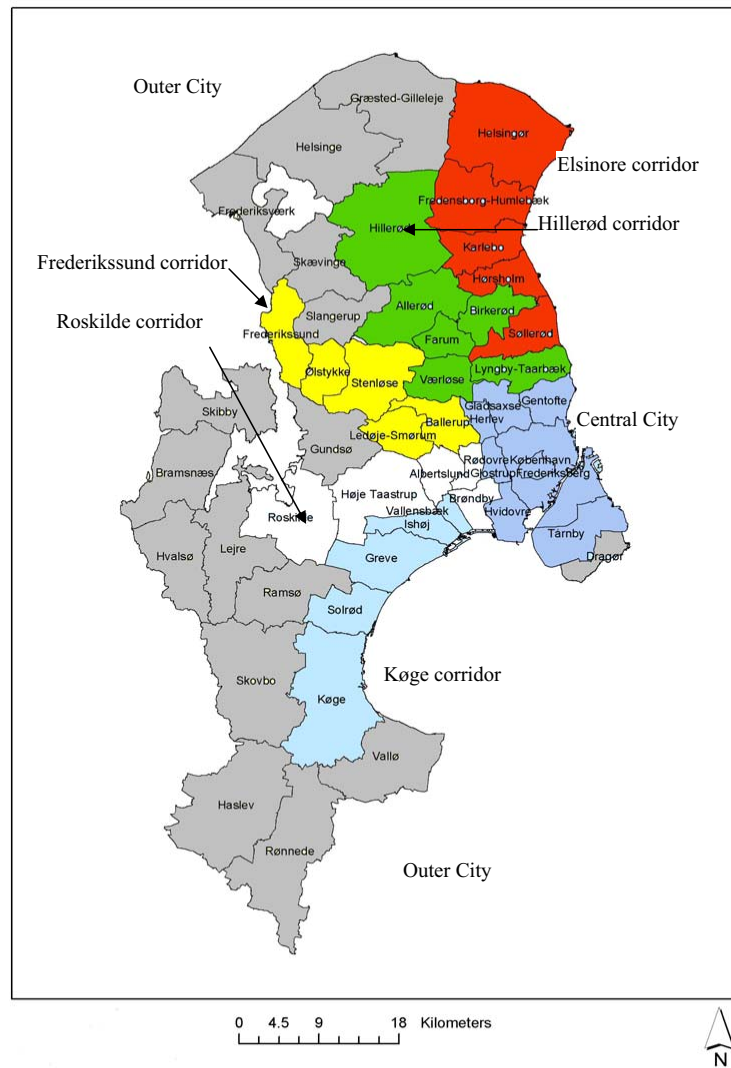
Wood's (2006) study of the knowledge intensive sectors in UK's main city regions reveals that the central cities grew faster than the surrounding regions. This paper examines the city region of Copenhagen and shows that the location dynamics of talents and business services expose a more complex urban landscape than just a resurgence of the inner city. New locations and centres in suburbia have emerged and been reinforced in the recent decade. Further, the spatial division of talent has produced an increased fragmented city region. Figure 1 supports the argument of a growing uneven distribution of talents in Copenhagen city region. Based on the 52 municipalities of the Copenhagen city region, a Lorenz diagram has been produced for 1994 and 2002 based on total employment in each municipality versus the number of talents employed in each municipality. It is evident that the area between the even, theoretical, distribution and the actual distribution is growing from 2002 to 1994. This indicates an increasing uneven distribution of employed talents between the municipalities in Copenhagen. This paper examines this development by examining the growing spatial divisions of talents.

3. The Urban Landscape of Copenhagen

The transformation of the economic landscape of Copenhagen has been dominated by two central processes. First, the past decades have been dominated by the rise of an increasingly polycentric urban structure which is evident in many urban agglomerations in Europe where new suburban centres appear highly specialised in for instance back-office functions, retail, transport or B2B activities. The transformation also includes a spatial expansion of the urban economy into the country side which has become more and more integrated. The expansion of the city has created new spaces of economic flows and relations which have then transformed the divisions of labour in the urban landscape but also made new location dynamics of the firms and industries. Secondly, there has been a transformation of the economy and industrial structure towards a service and knowledge-based economy.

In order to understand the location dynamics and division of labour in the urban landscape of Copenhagen, it is important to stress that the urban landscape is crossed by five large corridors of urban growth with green spaces in-between which reflect the *Fingerplan* that has been a guideline for urban

planning since the early post-war years (Andersen et al., 2003). The five corridors are important to understand the urban division of labour and location dynamics because they are highly specialised – see figure 2.



(C) KMS [<http://www.kms.dk>]
 (C) IGUC [<http://geogr.ku.dk>]

Figure 2 The central city, the corridors and the outer city of Copenhagen

To get an understanding of the division of labour across the city, we divide the urban landscape of Copenhagen into three different main groups¹. First, a central city is defined which is represented by the municipalities of Copenhagen and Frederiksberg. However, based on the morphology of the city, we have added the six municipalities that boarder up to the two central municipalities and thereby the central city area becomes almost identical with the tram city that enlarged in the beginning of the 20th century (Jørgensen, 2004).

Further, five corridors of the city are defined. The division is based on the morphology of the built-up area in 2002 rather than the original urban strategic master plan on regional development - the *fingerplan*. The five corridors detected are starting from north of the coastal corridor which is stretching from Copenhagen to Elsinore, the Hillerød corridor, the Frederikssund corridor, the Roskilde corridor that stretches from Copenhagen to Roskilde and finally the Køge corridor that stretches along the southern coastal bay area. Each of the five corridors is developed around major infrastructural developments, including public and private traffic on highways and by S-trains. Around these channels of infrastructure, city centres have been planned and developed and sites for industry have been demarked. Many of the towns in the corridors have a history that dates beyond the planning of the Copenhagen city region, but to some extent the towns have had comparable preconditions for regional development within the last 50 years in regard to traditional infrastructure.

Finally, we have identified a transition zone outside the corridors which is integrated in the urban economy. In Winther and Hansen (2006), we have accounted for this transition and labelled it the outer city. The basic argument is that the outer city represents an economic space different from the remaining urban areas; however, it is currently transforming and integrating in the overall urban setting.

The data applied is a set of employment data from the register based databases at Statistic Denmark and the COMET database². Data consists of employment numbers and covers full range for the day time population by workplace. We use three main variables in the paper: geography (municipalities), industries and formal education. The industry variable represents a two-digit categorisation of industry codes based on the NACE

nomenclature in 1994 and 2002. The longitude data from 1982-2002 is aggregated into 18 industries due to the changing nomenclature in 1993. As discussed above, the group of talent covers employees with a university degree (ISCED 5A, 6) and is available for both sets of industry data.

4. Location Dynamics and Spatial Divisions of Labour in Copenhagen

Table 1 shows the industrial structure in the urban landscape of Copenhagen in terms of employment by workplace divided by sector and geography. In 2002 the central city accounted for close to 53 percent of the region's employment, the corridors for 40 percent and the outer city for almost 7 percent. Between 1982 and 2002 a geographical shift in employment was evident. The central city lost employment while the corridors and the outer city gained; especially the corridors had a marked growth of more than 25 percent. The development emphasises the suburbanisation process of employment in the past decades. By examining the 1980s and the 1990s independently, a slightly different picture appears. The recession of the 1980s had a marked pattern of suburbanisation and a shift in employment from the central city. The central city lost close to 10 percent of its employment while especially the corridors grew. In the 1990s, however, the rise of the urban economy produced a considerable growth in all three regions; although a shift occurred in the corridors and the outer city, the central city had close to average growth.

Table 1 also reveals that from 1982-2002 most industries in the corridors grew, which is pointing to the expansion of the corridors and the general suburbanisation process of the industries. The only real reduction in employment was in the public administration, the primary sector (almost insignificant in terms of employment) and a minor fall in employment in the secondary sector. The remaining industries all had increasing employment - especially post and telecommunication and business services are of importance, but also finance and insurance remained substantial.

Table 1: Employment shares and growth by aggregated industry and geography in Copenhagen 1982-2002

Industry	2002 Share of Employment			Growth in Employment 1982-2002			Growth in Employment 1992-2002		
	Corridors	Central City	Outer City	Corridors	Central City	Outer City	Corridors	Central City	Outer City
Primary sector	0.85	0.21	5.07	-35.75	-16.19	-44.85	-16.63	8.63	-21.98
Secondary sector and construction	19.87	12.95	26.98	-1.21	-34.56	13.22	-3.99	-15.27	5.97
Retail and Wholesale	19.95	12.58	14.54	25.98	-22.29	18.58	14.36	-0.58	9.98
Hotel and Restaurant	1.93	3.84	2.50	49.52	60.57	43.21	14.17	37.37	15.68
Land Transport	2.41	2.43	3.79	9.28	-41.37	50.09	-13.28	-28.45	16.04
Water, air and supporting transports	1.12	4.26	0.38	170.70	20.73	-12.03	51.28	6.89	-28.89
Post and telecommunication	2.38	2.73	1.09	109.29	-28.88	-4.52	43.06	10.90	0.14
Finance and Insurance	4.41	4.48	0.90	62.10	-19.19	-30.68	-3.78	-14.98	-26.15
Real estate, Renting of machinery and equipment, Computer and other business services	12.95	16.67	8.92	147.75	117.23	191.43	54.19	79.43	64.31
Research and Development and Education	8.41	7.55	7.63	22.80	17.59	17.04	14.54	20.04	16.91
Public administration and Defence	5.92	7.88	4.47	-23.13	-29.63	-47.63	-18.47	-17.06	-33.01
Health and Social work	15.60	16.27	19.56	28.15	5.20	45.82	19.68	7.37	36.53
Sewage, disposal and Other service activities	1.58	1.47	1.95	47.82	10.30	121.74	49.32	53.46	87.82
Membership organisations not elsewhere classified	0.78	2.99	0.89	57.29	44.97	26.25	9.05	16.37	-7.62
Sport and Cultural activities	1.81	3.61	1.27	45.22	53.57	10.10	28.07	38.81	24.96
Private households and sporting activities	0.02	0.07	0.05	308.00	404.05	362.50	218.75	107.22	117.65
Extra-territorial organisation and bodies	0.00	0.01	0.00	-	-	-	-16.63	8.63	-21.98
Of total employment	40.32	52.98	6.69	25.11	-2.06	15.17	10.65	7.89	10.57

Source: Statistic Denmark and COMET databases

Table 2: Employment shares and growth by industry in the corridors of Copenhagen 1982-2002

Industry	Employment shares 2002					Growth 1982-2002				
	Køge	Roskilde	Fredetiks sund	Hillørd	Elsinore	Køge	Roskilde	Fredetiks sund	Hillørd	Elsinore
Primary sector	1.56	0.41	0.75	0.85	1.27	-27.96	-46.48	-48.85	-34.52	-25.40
Secondary sector and construction	24.21	19.04	25.81	16.37	18.09	15.76	6.58	2.09	-1.49	-28.01
Retail and Wholesale	21.14	21.04	19.23	19.04	18.65	40.03	8.84	56.74	37.91	21.22
Hotel and Restaurant	2.55	1.42	1.01	2.05	3.10	89.04	80.09	62.18	59.87	6.37
Land Transport	4.36	2.55	2.23	1.37	2.20	30.78	24.90	13.43	-18.71	-15.09
Water, air and supporting transports	0.86	2.14	0.22	0.40	1.09	220.27	827.33	1.65	77.13	-22.08
Post and telecommunication	1.01	4.13	2.52	1.54	1.02	9.92	254.56	166.67	22.12	-17.46
Finance and Insurance	1.21	5.98	8.16	3.68	1.69	-11.16	153.57	121.37	-4.05	-18.45
Real estate, Renting of machinery and equipment, Computer and other business services	10.11	12.06	12.34	14.87	14.83	198.44	215.75	136.17	122.52	96.86
Research and Development and Education	7.95	7.81	7.47	10.82	7.12	53.86	33.94	12.14	12.93	12.46
Public administration and Defence	3.92	4.65	3.91	8.85	7.50	-56.77	-32.01	-42.12	4.13	-5.12
Health and Social work	16.62	14.83	12.81	15.77	18.60	59.02	22.44	49.68	20.71	18.95
Sewage, disposal and Other service activities	1.87	1.51	1.60	1.51	1.59	130.27	30.38	25.67	54.40	47.50
Membership organisations not elsewhere classified	0.87	0.68	0.58	0.91	0.92	82.44	57.79	102.47	52.53	31.60
Sport and Cultural activities	1.74	1.74	1.34	1.93	2.27	40.74	66.60	62.28	28.89	35.32
Private households and sporting activities	0.01	0.01	0.00	0.05	0.06	100.00	-38.46	-100.00	5200.00	516.67
Extra-territorial organisation and bodies	0.00	0.00	0.00	0.00	0.00	-	-	-	-	-
Total	100.00	100.00	100.00	100.00	100.00	31.56	31.94	31.47	23.61	7.19
Of corridors total	13.43	32.96	13.74	24.41	15.44	-	-	-	-	-

Source: Statistic Denmark and COMET databases

Moving into a more detailed analysis of the division of labour between different parts of the urban landscape of Copenhagen, we zoom in on the five corridors. Today there is a clear spatial division of labour between the five corridors. Moreover, the development and restructuring of economic activities differ significantly between the southern and the northern corridors. Table 2 displays the shares of the growth in employment of the corridors from 1982-2002 by main industrial sectors. Three main developments are observable. The first observation is the clear division of labour between the corridors of secondary and construction activities with high concentrations in the Køge and Frederikssund corridors. In each of these corridors the sectors represent approximately 25% of the employment. Further, the table shows that while growth rates are limited in Frederikssund and Roskilde, especially Køge has witnessed a considerable growth in manufacturing production and construction from 1982-2002. Concurrently, the northern corridors, Hillerød and Elsinore, have witnessed a clear decrease in manufacturing production and construction. In sum, there has been a marked shift in manufacturing employment from the northern towards the southern corridors which has increased the division of labour in the city region of Copenhagen.

Secondly, while the shift from north to south has led to a concentration of more traditional economic activities in the southern corridors, other patterns of location are evident in the more knowledge intensive services. In Roskilde and Frederikssund finance and insurance have a considerable concentration of employment. Further, the growth rates show that both corridors have experienced considerable growth in these industries from 1982-2002, while the remaining three corridors have had decreasing employment. This shift in location and increasing concentration is the result of long term restructuring and suburbanization processes of business activities in finance and insurance starting in the 1980s. The shift in location can primarily be explained by a movement of back-office activities to particular localities in few of the municipalities in each of the two corridors. This process has also been addressed in Winther and Hansen (2006) and Illeris (1997). Alongside, post and telecommunication display the same tendency of concentration in the Roskilde and Frederikssund corridors. The patterns of location in these industries follow the same logics of location as the finance and insurance.

Third, the remaining industries do not differ much between the corridors – especially not if the number of employees that influence the figures are taken into account. Interestingly, real estate, renting of machinery, computer and other business services grew considerably in all corridors (in numbers, the growth in e.g. Elsinore has been higher than in Køge). This, however, reflects more complexity than meets the eye. Table 2 also reveals that the rather large and heterogeneous business services account for approximately the same share of the employment. Below we will go into a more detailed analysis and discussion of the category and show a division of talent in these industries.

5. Location Dynamics of Business Services

The recent wave of outsourcing and outplacement have manifested in a growth in business services - especially knowledge intensive business services have come to play a central position in the production networks which facilitates and produces knowledge (Bryson et al, 2000; Boden and Miles, 2000; Grabher, 2002; 2003; Harrington and Daniels, 2006). In this section we look into the location dynamics and divisions of labour in business services which have risen as one of the most important sectors in Copenhagen in the past decades, especially in the 1990s. The selected industries account for 14.7 percent of the total employment in Copenhagen. Table 3 reveals that in 2002 the most dominant industries within business service were *other business activities* (NACE code 74), which holds close to 70 percent of the employment. *Computer and data processing* (NACE 72) accounts for 19 percent while *Real estate activities* (NACE code 70) display 10 percent and *renting of machinery, equipment etc.* (NACE code 71) 2 percent.

Real estate as well as renting of machinery, equipment etc. hold similar shares of employment across the corridors as well as in the central city and the outer city. Though changes are considerable in employment within these industries in the period, the industries only count for a small share of the total employment both within the business service industries and within the regional employment in particular. Consequently, no important differences in location patterns or the division of labour within the two industries can be

identified. Contrary to this, the computer and data processing and other business services show rather differentiated geographical patterns of location.

Table 3 shows a clear concentration of computer and data processing activities in the central city while the industry is very scarce in the Køge corridor and the outer city. Further, Roskilde and Frederikssund present relatively high concentrations while Hillerød and Elsinore have more moderate shares. When comparing these results with the share of the areas, total employment within the business service computer and data processing has highest importance in the Frederikssund corridor followed by Roskilde, Elsinore, Hillerød and the central city, relatively speaking.

The pattern is an indication of how the location dynamics within computer and data processing differ significantly from real estate and renting of machinery and equipment etc. Here differences between the different areas are marginal. One reason for this division of labour between the corridors may be that in the 1980s effort was put into developing an area around the Frederikssund corridor with high density of ICT and data processing related firms.

The computer and data processing industry had high growth rates from 1994-2002. Employment grew with 138 percent in the region which is noticeably higher than in other business service activities and especially real estate activities as well as renting of machinery and equipment etc. The growth rates reveal a diverse pattern of location shifts which emphasises the conclusion that the location dynamics of the 1990s were generally more complex than in the suburbanisation of 1980s. The growth discloses that the central city in combination with Elsinore and Frederikssund had marked growth rates above 200 percent. This indicates a concentration in the central city and a growth in a new location, the corridor of Elsinore, as well as an expansion of an existing sub-centre, the corridor of Frederikssund. Further, the outer city had just above average growth while the corridor of Køge and especially Roskilde (the largest sub-centre) and Hillerød had relatively low growth rates.

Table 3: Business services Employment by Geography in Copenhagen 1994-2002

	Køge	Roskilde	Frederikssund	Hillerød	Elsinore	Central City	Outer City
	<i>Employment 2002</i>						
Real estate activities	752	1509	764	1277	1037	8985	765
Renting of machinery, equipment etc.	193	547	61	264	171	1818	126
Computer and related activities	418	4529	3404	2567	1913	14946	520
Other business activities	4182	9654	2698	10721	6234	63699	4639
	<i>Employment shares 2002</i>						
Real estate activities	13.56	9.29	11.03	8.61	11.08	10.04	12.64
Renting of machinery, equipment etc.	3.48	3.36	0.88	1.78	1.83	2.032	2.08
Computer and related activities	7.54	27.89	49.14	17.31	20.45	16.71	8.59
Other business activities	75.42	59.45	38.95	72.3	66.64	71.21	76.68
	<i>Employment growth 1994-2002</i>						
Real estate activities	14.46	5.23	49.22	13.21	30.6	6.68	18.06
Renting of machinery, equipment etc.	-8.96	75.88	-28.24	82.07	61.32	45.32	-4.54
Computer and related activities	110.1	36.75	205.3	31.51	257.6	229.1	144.1
Other business activities	75.71	30.51	33.23	35.73	47.48	63.73	50.47
	<i>Employment shares between areas 2002</i>						
Real estate activities	4.98	10	5.06	8.46	6.87	59.55	5.07
Renting of machinery, equipment etc.	6.06	17.20	1.92	8.30	5.37	57.17	3.96
Computer and related activities	1.47	16.01	12.03	9.07	6.76	52.82	1.84
Other business activities	4.11	9.48	2.65	10.53	6.12	62.56	4.56

Source: Statistic Denmark and COMET databases

Location dynamics of computer and data processing in the 1990s:

- Concentration/re-concentration in the central city
- Growth of existing sub-centre (Frederikssund)
- Stagnation of existing sub-centre (Roskilde)
- Emerging new sub-centre (Elsinore)
- The coming of the outer city

Similar to computer and data processing, industries' geographical differences can be identified within *other business services*. The differences are, however, less distinct, but if we disregard Frederikssund, the industry has a dominant position among the business related service industries. If we examine shares of employment across corridors, the central city and the outer city, the central city by far displays the highest shares with more than 60 percent of the employment. Accordingly, some differences can be found within the sector, although the general picture is that the sector is evenly distributed across the region. Reasons for the low representation of other service industries in the Frederikssund corridor can be several. The most obvious reason for this has to be found in the fact that the Frederikssund corridor has been appointed an ICT centre of Copenhagen. Consequently, focus has been on ICT, computer and data related areas rather than other business services. This can easily have caused agents within other business services – which are not related to data processing – to look in other directions for location.

To a large extent in 2002 other business activities are evenly distributed in the urban landscape of Copenhagen and generally follow the activities of the economy as a whole. The patterns of growth reveal that other business service activities display some location dynamics in the 1990s. The sector's employment grew with close to 55 percent in the region. The central city and the corridor of Køge had above average employment growth. The outer city and the remaining corridors had below average but still decent growth rates, especially Elsinore and the outer city.

Location dynamics of other business service activities in the 1990s:

- Concentration/re-concentration in the central city
- Emerging sub-centre and high growth in the corridor of Køge – though the regional share is low
- The coming of the outer city – though the regional share is low
- Moderate growth in the remaining four corridors

The analysis of the geography of business service, the dynamic of location and the division of labour that follows shows a tendency for suburbanisation in some areas of the region and a concentration or relocation of activities into the central city. Very different growth rates can be found in different parts of the region within the same industries, and very different densities of the employment in especially the computer and data processing industry are documented. This leads to an impression that different processes of location within the same industries are present in different parts of the same region. To gain a better understanding of some of the causes that result in these different patterns of location or growth, we will take a closer look on talent and how talent differs within the same industries.

6. Spatial Division of Talent in Business Services

This section addresses the spatial division of talent to get deeper into the fragmented city. Two categories are constructed, employed persons without a formal higher education and employed persons with a higher formal education (ISCED 5A, 6) – the group of talents. Table 4 shows the shares and the growth of talents by workplace. The table reveals that the central city has the highest share of talents whereas the outer city has the lowest.

Looking at the corridors, a distinct difference between the Køge corridor and the remaining four corridors can be observed. The Køge corridor has a striking lower share of talents in the employed labour force compared to the remaining four corridors. Obviously, this can be interpreted as a result of the concentration of manufacturing and transport activities – activities that traditionally have a low share of talents. Consequently, Køge is losing ground in regard to talent. Especially if it is compared to the Roskilde

corridor. The Roskilde corridor has also experienced a concentration in manufacturing and construction and transport, but moreover, the corridor has experienced considerably higher growth rates of employed talents.

Three corridors have very similar shares of talents – Roskilde, Frederikssund and Elsinore; but while growth rates have been strong in both the Roskilde and Frederikssund corridors, it has been more moderate and below average in Elsinore. Therefore, Elsinore is losing relative importance in terms of talents. Finally, Hillerød has a high share of talents – almost equal to the central city. This gives the Hillerød corridor a central position in the knowledge-based structure of Copenhagen.

Table 4: Talents by Geography in Copenhagen 1982-2002

	Non-talents	Talents	Non-talents	Talents
	<i>Shares of employed workforce 2002</i>		<i>Growth 1982-2002</i>	
Køge	96.4	3.6	29.4	140.2
Roskilde	93.2	6.8	26.6	205.6
Frederikssund	92.9	7.1	26.2	186.6
Hillerød	88.9	11.1	17.2	119.7
Elsinore	92.2	7.8	3.7	78.5
Central city	88.7	11.3	-8.7	131.8
Outer city	97.2	2.8	13.9	94.5

Source: Statistic Denmark and COMET databases

Summing up, a division of talent is visible from an industry perspective. Knowledge intensive industries tend to concentrate in the northern corridors whereas industries with more moderate knowledge levels tend to gravitate towards the southern corridors and in particular Køge (Illeris, 1997; Winther, 2007).

7. Location Dynamics and Talent in Business Services

Table 5 shows that the business service industries hold considerable different shares of talents. *Real estate activities* (NACE code 70) and *Renting of machinery, equipment etc.* (NACE code 71) have low shares of academics employed compared to *Computer and data processing* (NACE 72) and especially *other business activities* (NACE code 74). Real estate as well as renting of machinery employ only a limited share of talents. Though the two industries

have witnessed a general growth in talents, some of the corridors have seen a marked decline. While an incline in the share of talents can be interpreted as an increasing efficiency – IT controlling, mergers and acquisitions etc. – the decreasing rate of talents in other corridors can be interpreted as a result of outsourcing and increased efficiency in the administrative parts of the industries.

Although the increasing and decreasing shares of talents in the two sectors are notable, the spatial division of talent between the corridors are more striking. NACE 70 and 71 consist of only small shares of talents, and in actual numbers it is almost insignificant. Though cutbacks have also entered the Hillerød and Elsinore corridors and the central city area, these areas represent the highest shares of talents within both NACE 70 and 71. In the other end, Køge, Roskilde and Frederikssund represent the lowest shares of talent which indicates a clear division of talents within the same industries across corridors in the Copenhagen city region.

The two other industries, computer and data processing (NACE 72) and other business activities (NACE 74), consist of a considerable higher share of talents, have a larger volume of employees in total, and thus, they can be expected to have a deeper impact on regional development.

In the period from 1994 to 2002, computer and data processing had overrun other business activities and was the industry that hosted the largest share of talents. A general growth in the period in talents characterises the industry, but moreover, and of interest for this study, the growth is unevenly distributed. Køge and the outer city have considerable lower shares of talents compared to the rest of the city. The Roskilde and Frederikssund corridors experienced shares close to the level of Køge and the outer city in 1994; but with higher growth rates, especially the Frederikssund corridor managed to increase the level of talent to a share that is similar to Hillerød and Elsinore. The central city also displayed a notable growth – especially when volume is taken into account. In actual numbers, the central city had the largest share of the region's employment in computer and data processing in 1994; by investigating the relative concentration of computer and data processing, the central city increased its share of the region's employment in the industry from 38 to 52 percent. Additionally, the Frederikssund corridor has increased its relative concentration while the Roskilde corridor has decreased its relative

Table 5: Share of employed talent 1994-2002 in business service industries

	70		71		72		74					
	1994	2002	Growth 1994-2002	1994	2002	Growth 1994-2002	1994	2002	Growth 1994-2002			
Køge	2.4	2.1	-14.3	0	0.5	100.0	7.1	9.8	27.6	6.3	4.8	-31.3
Roskilde	2.3	3.1	25.8	1	1.3	23.1	9.3	13.5	31.1	12.8	10.5	-21.9
Frederikssund	2.1	1.6	-31.3	0	0	0.0	12.8	17.1	25.1	6.2	9	31.1
Hillerød	3.8	4.7	19.1	5.8	1.6	-262.5	19.3	19.4	0.5	22.1	23.1	4.3
Elsinore	4	4.2	4.8	7.1	2.4	-195.8	22.1	22.1	0.0	18.7	22.7	17.6
Central city	4.7	5.8	19.0	5.1	1.8	-183.3	15.6	21.5	27.4	15.6	17.7	11.9
Outer City	2.6	3.5	25.7	3.1	1.6	-93.8	7.3	9.6	24.0	6.1	6.5	6.2
Total	4	4.8	16.7	3.9	1.6	-143.8	14.2	19.1	25.7	15.2	16.7	9.0

Source: Statistic Denmark and COMET databases

concentration from 28 percent to only 16 percent of the employment in the region. These figures imply a relative concentration both in general and with regard to talent in the Frederikssund, Hillerød, Elsinore corridors and especially in the central city. In contrast, Køge and the outer city – even though high growth rates are evident – have a considerably lower level of talent.

Hence, we move on to the last of the four industries, other business activities, which consists of a very heterogeneous group of economic activities. Various types of consultancy are mixed with legal business, industrial cleaning and clerk related services. Obviously, this results in an industry that requires very different types of labour because of very diverse job functions. While the employment volume across the city region is almost unchanged within the period from 1994 to 2002, changes in the level of talent reflect notable spatial patterns. From table 5, the following patterns can be extracted. First, although low growth rates have characterised the Hillerød corridor, it is still the corridor that holds the largest share of talents within NACE 74 among the seven areas of the city region. Second, in the Frederikssund corridor the share of talents increased while the neighbouring Roskilde corridor has equally decreased. Third, going further to the south, the share of talents in the Køge corridor has been reduced. Fourth, Elsinore and the central city have also experienced a considerable growth in talents which brings them in a joint leading position along with Hillerød. Finally, the outer city has experienced a tiny growth bringing the share of talents up from 6.1 to 6.5. Other business activities show a pattern of concentration of activities within certain areas of the Copenhagen city region, but they have not witnessed any significant signs of concentration of activities in general across the seven areas of Copenhagen. Interestingly, however, a division of talent is clear. Talent intensive activities move toward a concentration in the northern parts of the region which leaves the southern areas and the outer city with a less talent intensive industries.

Having examined the patterns of location of the business service activities in Copenhagen, one clear tendency is worth drawing attention to. The industries that hold the largest volume of employees and talents – computer and data processing and other business activities – tend to concentrate knowledge intensive activities in the central and northern parts of

the city. The general picture is that the southern parts of the region are becoming less and less important in terms of economic activities which are linked to talent. Consequently, this is also evident from table 4, the geography of talent in Copenhagen is very unevenly distributed. Knowledge intensive employment is concentrated in the northern corridors and the central city while the southern corridors and the outer city are losing ground. Concurrently, this has a self-reinforcing process. The division between the outer city and the southern parts of the city region and the northern and central parts is growing. The Copenhagen region is facing a concentration of knowledge activities in certain areas of the city while other areas are weakly positioned in the knowledge economy. In the following we will discuss and conclude on the possible consequences of this development.

8. Concluding: The Location Dynamics of Business Services and Talent

New location dynamics of business services in Copenhagen have emerged with a more uneven distribution of talent as a result. The de-industrialisation of the central city and suburbanisation processes of service industries in the 1980s have been replaced by a re-concentration in the central city, an expansion of existing nodes in the suburbia and the emergence of new locations in suburbia and the outer city of the Copenhagen city region.

The above analysis identifies both a spatial division of labour and a spatial division of talent between different parts of the Copenhagen city region. Going one step further, the data revealed that even within business services (two-digit NACE codes) a spatial division of talent can be recognized. This suggests that regional strength and weaknesses cannot be narrowed down to whether or not the right constellation of industries is present. Consequently, location is not only a discussion of industries but also of the level of talent within the industries.

The paper has shown that the central city and the northern corridors are in the lead of the knowledge economy and talent intensive production, while the Køge corridor houses an economic structure that is knowledge intensive only to a very small degree. Alongside, the Roskilde corridor is losing its relative importance in this field. But these two corridors are also the corridors that have the largest hinterlands and thus most direct access to the

regions that the development in Copenhagen should trickle down on. Consequently, the corridors of Copenhagen that are most exposed to the neighbouring regions, which are supposed to benefit from its development, are also the corridors that house the least knowledge intensive industrial characteristics. This results in a rather complicated situation and highlights the problem of adapting the cities' first approach for regional development.

The case of Copenhagen has shown that business services represent an uneven distribution of talent across the city region. The spatial division of talent in Copenhagen has resulted in a relatively lower concentration of talents in the southern parts of the city region even within industries that are often said to be on the frontiers of the knowledge economy. Accordingly, we need to rethink and examine more closely the consequences of the uneven distribution of talent within the same industries. We need to understand location dynamics between but more importantly also within industries – and while doing so, we need to look at the consequences of uneven intraregional development when city regions are regarded as locomotives for economic growth. What produces these new spatial patterns? What are the main causalities of the growing uneven geography of talents?

We need to look in two directions for an answer. First, we need to examine the location dynamics of firms and industries recognising that the focus should be on the firm's networks including translocal and even global relations. Such a perspective could enable us to analyse the contemporary dynamics of the city regions and their economic geographies; and, hence, gain new knowledge about the economic resurgence and emergence in the city region. Such perspective can provide us with a deeper understanding of location preferences and behaviour, which will include the social and economic embedded characteristics of firms and its nature of knowledge creation exploitation and diffusion in the networks of production. As shown above, the complexity of location in the 1990s and 2000s cannot be explained by a single factor such as suburbanisation or the logics of cost reduction.

Second, we need to examine how talents locate. Illeris (1997) suggested that the spatial division of labour of Copenhagen was related to qualification patterns of local labour within the city. Is this also the case of talents? Is the development driven by location of industries or talents? Engelstoft et al. (2006) reveal a concentration of the residential of talent in the central and

northern part of the Copenhagen city region. This suggests a relationship between the location of knowledge intensive firms and the residence of talents. What produces these parallels?

Based on the above analysis of the spatial division of talent, we will argue that this is important to get a more nuanced understanding of the city and the city region because the city regions hold many different economic dynamics which are strongly linked to the uneven economic geographies of the city as Scott (2006) recently stressed.

The spatial outcome of the economic dynamics of Copenhagen leaves an impression of a fragmented city where the structure of the knowledge economy is very irregular. Florida (2002) and others argue that the unevenness might have an essential effect on the city's dynamics and thus make an important contribution to the knowledge structure of the city. But the unevenness also points to the fact that cities cannot be seen solely as cauldrons of creativity. Modern cities are melting pots, not only when it comes to ethnicity but also in regard to economic activities. Different economic activities tend to concentrate in different parts of the city. Thus, the assumptions of cities as creative centres are always based on average findings. In opposition to this, some areas of Copenhagen have faced development that even in some cases is considerably less knowledge intensive than in the neighbouring regions.

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VI

The Economic Geographies of the Outer City: Industrial Dynamics and Imaginary Spaces of Location in Copenhagen

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ABSTRACT *The paper focuses on the changing economic geographies of the outer city of Copenhagen. The outer city is not a well-defined place but can be understood as a set of processes transforming the urban economic landscape outside the built-up area. Several central and interrelated economic processes transform the outer city. The paper examines the changing industrial dynamics and location spaces within the framework of geographical proximity and relation propinquity in order to examine the social and cultural embeddedness of location. Imaginary spaces of location are the social constructs of the firm (of the interviewee representing the firm). They are representations of the perception, experience and interpretation of the location of the firm. The imaginary spaces of firms in the outer city are different from those of the firms in the built-up area, and a survey points to the fact that multiple rationalities are important in order to understand industrial location.*

Introduction

The cities and landscapes of Europe are changing. They are no longer unequivocal entities that are easily defined in well-known theoretical frameworks such as the morphological demarcations. New developments such as metropolization, the emergence of poly-nuclear urban regions, urban sprawl and dispersal, the rise of new outskirts, peri-urban developments, expansion of the fringe, the emergence of edge cities, the transition to post-suburbia, the growing complexity of the urban-rural continuum, networks of urban networks and the materialization of the outer city have changed urban regions and their surroundings. Accordingly, new spaces of production, distribution, consumption,

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living and working are created. The paper explores these new urban forms and the locational spaces of firms in the outer city.

The emergence of the outer city has recently been conceptualized as *Zwischenstadt* (in-between cities) (Sieverts, 2003), Post-suburbia, *Netzstadt* or urbanescapes to indicate the two elements of a new phenomena—urban and landscape (see review in Borsdorf & Zembri, 2004). This geography in making is not only a result of the intersection of social relations within the urban landscape; it is also produced in the context of social relations which stretch beyond places, for instance globalizing networks of consumption and production (Massey *et al.*, 1999; Amin, 2004). In order to get a better understanding of the economic geographies of new urban forms which are shaping the metropolitan regions, the emphasis is on the outer city. An important issue in the paper is to ask questions about the locational dynamics of firms in urban regions. Hence, we combine recent insight from economic geography on urban and regional growth with the emergence of a post-industrial, heterogeneous urban landscape. Subsequently, we are able to explore and explain the new locational spaces of the outer city.

The outer city is defined as a set of processes transforming the urban landscape. Several central and interrelated economic processes transform the outer city; first of all, the processes which are changing the industrial structure. From having an industrial structure dominated by agricultural and manufacturing production, the outer city is becoming a service economy. Secondly, the outer city has become a place of living with an increasing urban population. Hence, it has integrated into the urban labour market through commuting. Thirdly, land use has changed and new economic activities have emerged—for instance (the rise of the) leisure economy including golf courses, fishing and theme parks consumed by the large urban population. We focus exclusively on the changing industrial structure and the locational dynamics.

A central theoretical input from economic geography is the focus on the importance of geographical proximity and distanced economic networks (Peck & Yeung, 2003). One position, the localist or regionalist, attributes geographical proximity a vital importance for the production of knowledge and hence for urban and regional competitiveness and growth. In opposition, the relational position emphasizes relational propinquity in the analysis of globalization, urban and regional growth, urban change and the production of knowledge. The regionalist position has provided many new insights to the understanding of urban and regional growth and spatial clustering. It points to the importance of learning and the economic and social networks that support learning and knowledge production. This is very important if we want to explain regional and urban economic spaces in new urban forms and industrial location. However, we believe that in order to fully understand the economic geographies of new urban forms, the idea of distanced networks and relational propinquity are necessary theoretical eye openers, also examining locational spaces.

In the paper we focus on two related themes of the outer city. First, a short examination of the changing industrial dynamics of the outer city is provided. We explore changes in industrial structure and the transition toward a service economy. Secondly, the main objective of the paper is an investigation of the locational preference of service firms located in the outer city of Copenhagen. We analyse the results of a large European survey of the service firms' locational preferences (see later) and define these preferences as imaginary spaces of location. The imaginary spaces of location must not be understood as mere facts or exact locational preferences. They are socially constructed perceptions of the

preferences of location. They originate from the interviewee (representing the firm) and are based on, for instance, personal beliefs, wishful thinking or real thought-through preferences. They are, all in all, representations of the perception, experience and interpretation of the locational preferences by the firm: the firms' representation of space. The survey reveals that the firm's imaginary spaces of location between the built-up area and the outer city points to the conclusion that different firm strategies are employed.

We want to provide answers to the questions that arise from the economic geography of new urban forms. Does the industrial structure of the outer city differ from the built-up area? How is the outer city situated in the division of labour in the urban landscape? Are the driving forces of locational changes driven by proximity or propinquity? Can we identify imaginary spaces of locations? And are they different in the outer city?

To investigate these questions of the emerging economic geographies, we explore the case of Copenhagen. By use of empirical evidence from the COMET project (Competitive Metropolises), we explore the new economic geographies of the outer city, which emphasize the coming of the service economy.¹ The COMET project focused on the growing service economy in major European cities, and on how this effected the interurban competition. The research questions evolved around the economic transformation, labour markets and competition in European agglomerations. The project originally investigated the core and suburban areas of the city. However, in the Danish case we added the outer city in our investigation due to a pilot study which had indicated a different set of locational preferences in the outer city area.

The first section of the paper introduces the outer city as a set of processes and gives an empirical definition in the case of Copenhagen. The section starts with a discussion of the post-industrial urban landscape to situate the outer city in context of new urban forms. Moreover, it points to the importance of the network approach. This is followed by a theoretical and empirical definition of the outer city. Finally, the section gives a short overview of the changing industrial structure of the outer city. The second section discusses the economic geographies of the outer city and the locational strategies of the firm in the nexus between regionalist and relationalist accounts of economic geography. The section introduces imaginary spaces of location. The third section offers the results of a survey of the firms in the outer city and provides evidence of the existence of imaginary spaces of location. The final section concludes the paper.

The Outer City in the Post-industrial Urban Landscapes: The Case of Copenhagen

Urban areas have traditionally been conceived of as a well-defined space, for instance the morphological boundaries including the NUREC² (1994) definition, or as the theoretical hinterland of Christallers' and other related urban models which perceive cities as confined spaces or containers of social processes and *homo economicus* (Alonso's model of urban land use, etc.). Likewise, open rural spaces and rural landscapes have until recently been viewed as well-delineated analytical units (Halfacree & Boyle, 1999). This has changed dramatically during the twentieth century. Urban and rural areas have become more economically, functionally and culturally integrated, especially around the large urban agglomerations. Today, even in predominantly agricultural regions, villages are likely to serve other economic functions which support the primary sector. Moreover, the majority of rural citizens are not directly involved in agricultural production but often commute to nearby cities (TAPAS, 2003). Copenhagen is no exception.

The overall economic geography of Copenhagen has changed considerably in the past half century. Denmark was perceived to have a straightforward centre-periphery structure with Copenhagen being the centre of economic growth with a major concentration of manufacturing in the early post-war years (Winther, 2001; Jensen-Butler, 1992). This centre-periphery pattern was disturbed as early as the 1960s but especially in the 1970s and 1980s. Industrial jobs were moving towards the western Denmark (Maskell, 1986). In the 1960s the reason for this movement was mainly plants being relocated from Copenhagen. However, in the 1970s and 1980s the relocation was a result of the creation of new business firms and growth in existing ones in the southern and western parts of Jutland. The change was based on localized industrialization and endogenous growth either in industrial districts or in one-company-towns (Maskell, 1986). In Copenhagen, the development in manufacturing was dominated by firm closures and general downsizing of existing firms. The number of industrial jobs, industrial production and industrial firms were declining considerably in the late 1960s, 1970s and 1980s and the development continued into the 1990s (Winther, 2004).

Deindustrialization in Copenhagen has been accompanied by the coming of service and knowledge-based economy (with high-tech clusters). However, the research examining the service economy in Copenhagen has been limited and the use of recent insights from economic geography and urban and regional studies, as presented earlier, is rare; especially concerning industrial location and regional development (Hansen *et al.*, 2002; Winther, 2004).

Today, an overwhelming concentration of service activities in Copenhagen exists. The central areas of the city include the main retail and tourist areas of the city. In the suburban areas, several specialized concentrations of service activities and manufacturing are present. In the northern axes of Copenhagen, business services, retail and wholesale centres are located. Finance and insurance are concentrated in the two western axis of sub-urbanization as a result of relocation of activities in the 1980s from the central city areas. This also applies to manufacturing, retail and wholesale which are concentrated in the south-western axis. Transportation and communication services are located closer to the city centre with a concentration towards the southern axis of the city. Thus, a specialization and division of labour between the main axes of Copenhagen can be observed (Illeris, 1997; Van Criekingen, 2004). Additionally, an expansion into the peri-urban areas creating new economic spaces is present (Hansen & Winther, 2005). These new economic spaces challenge the understanding of the urban regions as confined spaces. Hence, a need to re-examine the traditional analytical categories of urban and rural exists.

Furthermore, a need to rethink the geographies of cities (Massey *et al.*, 1999), urban regions (Amin & Thrift, 2002; Amin, 2004) and the countryside (Hidding *et al.*, 2000) and a need to reassess the traditional analytical categories of urban and rural are required. This has recently been done from a variety of perspectives. Hidding *et al.* (2000) summarize and demonstrate how a number of different discourses about the relationship between town and country have replaced the former conceptual division between the two. One is closely related to the coming of the advanced service and knowledge-based economy: the network discourse. This discourse or rather a set of discourses has its general theoretical framework from the recent advances in economic geography and related fields—see later. The network approach to town and country does not separate the two but focuses on the relations and density of networks in the landscape. This is the position adopted

here. The network approach is based on the assumption that physical demarcation is insufficient for understanding the activities that take place within a city. Both social and economic relations stretch beyond the morphological boundaries of the city. Therefore, to understand the economic landscapes of the city, economic activities on various geographical scales have to be considered. The outer city is situated in networks and can only be analysed in context of the urban landscapes.

The network approach has recently had influence on the perception of urban regions (Borsdorf, 2004). This is evident in for instance Castells' (1996) idea of spaces of flows and recently Priemus and Zonneveld (2004) promoted a spatial network approach analysing poly-nuclear urban regions. Thomas Sieverts' (2003) conceptualization of the urban–rural continuum is another position related to the network discourse, and it provides new insight into the dynamics of the post-industrial urban landscape. He introduces the concept “*Zwischenstadt*” “. . . meaning the type of built-up area that is between the old historical city centres and the open countryside, between the place as living space and the non-places of movement, between small local economic cycles and the dependency on the world market” (Sieverts, 2003, p. xi). *Zwischenstadt* signifies that the modern city “. . . is in an ‘in between’ state, a state between place and world, space and time, city and country” (Sieverts, 2003, p. x). To Thomas Sieverts, *Zwischenstadt* “is neither city nor landscape, but . . . has characteristics of both . . .” (Sieverts, 2003, p. 3). Hence, the post-industrial urban landscape is constituted by patterns of interaction, networks of social relations, agents, structures, policies, regulation, movements, exchange and flows of capital, labour, goods and services, information and knowledge. Compression of time and space develops new relations and new interactions. The outer city is no isolated island in the transition zone between the urban and the rural but a part of an increasing local and global division of labour.

What is the Outer City? Copenhagen's New Economic Spaces

Andersen (2004) has recently reviewed the central literature of the outer city. He states that the outer city has often been seen as an annoyance in urban studies as its borders render it difficult to make a sensible theoretical based demarcation. This discussion of networks and relations that stretches beyond the city (Massey *et al.*'s (1999) reminder) has recently been taken a considerable step further by Amin and Thrift (2002) and Amin (2004). Amin (2004) concludes: “So, if we are to see cities and regions as spatial formations, they must be summoned up as temporary placements of ever moving material and immanent geographies, as ‘hauntings’ of things that have moved on but left their mark (as Thrift (1999) puts it), as situated moments in distanced networks, a contoured products of networks that cross a given place. *The sum is cities and regions without prescribed or proscribed boundaries*” (Amin, 2004, p. 34).

Taking the arguments mentioned earlier seriously, we do not want to describe the outer city as a spatial container—a well-defined space for universal social processes expressing *homo economicus*' actions. Space is not a neutral or objective category, and social processes (e.g. economic relations) do not take place in a neutral space divided by a well-defined hierarchical division of the physical space. The outer city cannot—as a scale and space—be derived as a physical division of the urban landscape. The outer city is a conceptual category. Therefore it is not a container for universal processes. Space is

produced and reproduced by social relations and by representations of space (Massey, 1984; Sayer, 2000).

The outer city is defined as the transition zone outside the continuously built-up area. Several central and interrelated economic processes transform, and hence define the outer city (Hansen & Winther, 2005). Firstly, a range of processes change the industrial structure. The peri-urban areas are transforming from being agro-industrial spaces to becoming service and even in some cases advanced service economies. Secondly, the outer city has become a place of living and a residential space with an increasing urban population. The newcomers are integrated in the larger urban labour market which creates new patterns of transport through commuting and consumption. Their consumption also creates increased demand for construction, retail and public services and new spaces of leisure and culture which results in new economic activities and creation of new firms. The newcomers are entrepreneurs starting up new firms ranging from small farm shops in former farm houses or IT consultants in one-family houses to small service firms in industrial sites. Thirdly, one of the results of these processes is the emergence of new forms of land use. The new economic activities are transforming the original land use patterns. An example of new land use is the coming of the leisure economy including golf courses, fishing opportunities and theme parks. These are consumed by the local population (including newcomers) but also by the large urban population on a Sunday ride in the “countryside”. Thus, the new spaces of consumption in the outer city are interrelated with the urban landscape through business, labour markets and consumption.

The spatial definition of Copenhagen used within the COMET project divides the urban landscape of Copenhagen into four main zones, see Figure 1. Zones 1, 2 and 3 make up the built-up area and are identical with the NUREC (1994) classification. Zone 4, however, is defined by other criteria listed later.

- Zone 1 is the Inner City area. The inner city refers to the centre of the city. In the case of Copenhagen Zone 1 is demarcated by the lines of the medieval city.
- Zone 2 is the Rest of the Core City. This area consists of the remaining part of the municipality of Copenhagen and the municipality of Frederiksberg situated as an enclave within the municipality of Copenhagen. Zone 2 is both an important area for businesses, retail and housing, and it is closely connected to Zone 1
- Zone 3 is suburbia. The zone provides housing, shopping, entertainment, day-care and schools on the one hand. On the other hand it has within the last 25 years provided new industrial sites for new as well as relocated service industries and back-office functions. The suburban zone consists of many sub-centres often related to former villages. Zone 3 is replaced by Zone 4 when the NUREC area stops.
- Zone 4 which is the prime object of this paper is defined as the outer city. The outer city is the area within a 10 km buffer zone starting where Zone 3 stops. Only municipalities that have the gravity of the built-up area within the buffer zone qualifies. Thereby the outer city consists of municipalities which have the main urban activities at a distance of less than 10 km from the NUREC area.

Zone 4, the transition zone is highly integrated into the urban economy of Copenhagen. Zone 4 is characterized by the three central economic processes defined earlier. First, the zone has seen a transformation of the industrial structure—see later. Secondly, Zone

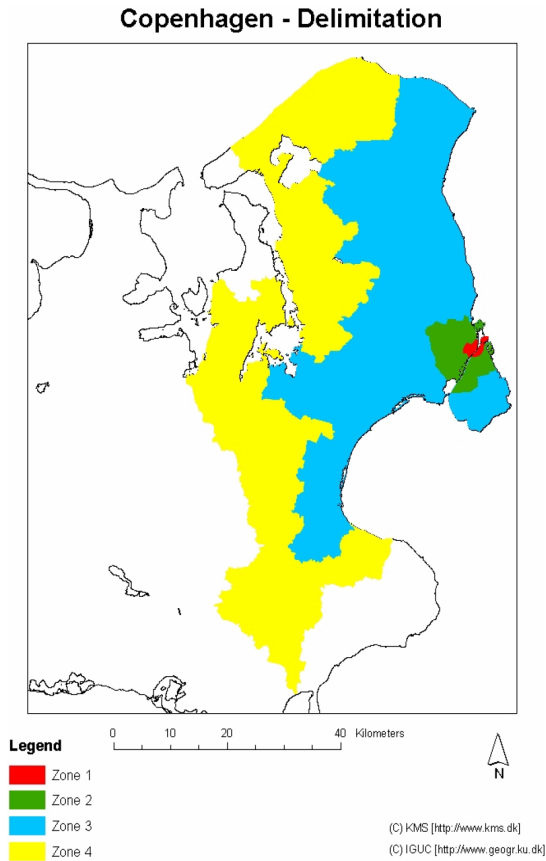


Figure 1. Zones of Copenhagen

4 has experienced a growth in its population, mainly due to newcomers from the built-up area (Christoffersen, 2002). Thirdly, the land use is changing towards new economic activities related to the urban population in general (Præstholt & Kristensen, 2004).

The Changing Industrial Structure of the Outer City

In 1971 the outer city (Zone 4) had 138,623 inhabitants. Today 222,141 (year 2002) are resident in the zone. This is an increase of 60%. In total the outer city accounts for more than 12% of the population of the four zones. Since the early 1990s the population growth in the outer city has been higher than the national growth rate but also higher than the growth rates of Zones 1–3—the built-up area. Between 1971 and 1994 a growth of 55% could be identified in Zones 1–3, whereas the outer city experienced an increase of only 49%. This has changed in the past decade. From 1994–2002 Zones 1–3 had

a growth of 4.4%, while the growth in the outer city was almost the double of the built-up area (7.5%). The growth rates indicate that the outer city has become a place to live, but the outer city has become more than this. The industrial structure has changed with high growth rates in services including high growth rates in advanced business services.

From being a place depending mainly on agricultural production and related industries and local services, the outer city today represents an industrial structure approaching the structure of the built-up area. Presenting all the figures and details would be to exaggerate beyond the point of reason. Instead we have summarized the most important features and developments in Table 1.

The outer city has been dominated by services associated with the demand of the population, including retail, banking, professionals such as dentists, lawyers and real estate agents, education, healthcare and social welfare. However, recently the outer city has

Table 1. Changes in the industrial structure, 1982–2002

Industry	1982			2002		
	Zones 1–3	Outer city	Denmark	Zones 1–3	Outer city	Denmark
Agriculture	0.7	9.7	7.7	0.5	4.6	3.7
Manufacturing and construction	21.4	27.6	25.7	15.8	27.2	23.2
Retail & wholesale	17.3	15.1	15.5	15.7	16.1	15.0
Hotels & restaurants	2.1	1.8	2.1	3.0	2.1	2.8
Surface transport	3.6	3.0	3.2	2.4	3.5	2.5
Ship & air transport and related services	2.4	0.2	1.8	2.9	0.2	2.0
Telecommunication	2.9	1.4	2.1	2.6	1.1	2.0
Banking, insurance and related industries	4.7	1.8	3.1	4.5	1.0	2.7
Real estate, renting of cars machinery & equipment, data processing and other business services	7.2	3.8	4.9	15.2	8.9	10.4
R&D and education	7.1	7.8	6.8	7.9	7.6	7.7
Public services	10.5	9.6	8.9	7.1	4.4	5.7
Health & social care	15.2	15.1	14.4	15.9	19.2	17.2
Garbage disposal, laundry services, hairdresser, etc.	1.3	1.0	1.2	1.5	2.0	1.6
Political & religious organizations	1.5	0.8	1.1	2.0	0.9	1.5
Sport & entertainment	2.0	1.3	1.4	2.9	1.2	1.9
Private households with hired help	0	0	0	0.1	0.0	0.0
International organizations	—	—	—	0.0	0.0	0.0

Source: Statistics Denmark and COMET databases.

experienced a marked growth in business services, but it still has a lower representation of advanced business services. This has increased employment in the outer city faster than in the built-up area. Zone 1 experienced a growth rate in employment of 7.3% between 1982 and 2002. That is below the national growth of 9.5%. In contrast, the outer city area of Copenhagen experienced an overall growth of 13.8%.

Although it is changing towards a service economy, an increase in employment in industrial production, especially in chemical and plastic and in construction has occurred. More interesting, traditional service industries and services associated with the population have undergone a remarkable growth and created 76.5% of the new jobs (7926 out of 10,369). The data in Table 1 shows that while industrial production and construction have lost its relative importance in Denmark and especially in central and suburban Copenhagen, no real important changes can be observed in the outer city. When looking more into the exact characteristic of the sectors which have an above average concentration, it is evident that employment in chemical and plastic production has grown from 1994 to 2002 by almost 36% while the national growth rate was a mere 11%. In Copenhagen, an important growth in real estate activities, renting of machinery and equipment, computer and related activities and other business activities can be identified from 1982–2002. The growth in these industries is almost equal to the decline in industrial production and construction.

Lastly, healthcare has become more important in terms of employment in the outer city. This refers to both doctors and nurses, but a look at the general development in healthcare in Denmark reveals that growth in employment can primarily be seen in low-educated health service workers. Further, the location of healthcare is politically resolved as it is a predominantly public sector.

The industrial structure of the outer city is changing towards a service economy with high growth rates even in central services industries. It has, however, also a marked manufacturing production but primary sector jobs are decreasing. The transformation has started, but the industrial structure points to the fact that the outer city has another functional position in the urban landscape.

The different economic development within different areas of the city asks for more attention. Especially the dynamics which reshape the economic geography of the outer city ask for analytical attention. Therefore the following sections will discuss the theoretical conceptualization of contemporary economic geography by addressing the processes that shapes the new urban forms and especially the outer city areas. The theoretical discussion will be followed by an empirical study on the outer city of Copenhagen which investigates its economic transformation. Further, based on a survey and interviews, differences in locational choices and perceptions will be analysed.

Locational Dynamics of the Urban Landscapes

The economic urban landscape can be analysed in its own right. It must, however, always be understood in relation to other aspects, as it is related by the structures, relations and processes that originate from for instance the social dynamics, political visions, governance structures, regulation and cultural identities, which is the embeddedness of social action (Granovetter, 1985; Grabher, 1993; Peck, 2005). The economic geographies of the outer city and the locational strategies of the firms are not only related to the economic spaces but also to processes such as the changing demography and the everyday

life of people. Emphasizing these relations, focus is on the dynamics of the economic landscape.

The economic landscape is constituted by a range of heterogeneous and differentiated spheres, e.g. physical and material structures in space, organizational and institutional set-ups and the geography of technology, knowledge and learning. This creates path-dependency where former processes, relations and structures influence current urban forms. The process of path-dependency points to the history of the economic landscape. An important feature of capitalism is that it produces and reproduces different geographies in different industries and sectors at different scales at the same time. Examples of these are changes in local labour markets and new housing patterns. These changes again produce new geographies of difference and interdependencies such as new relations and networks, i.e. new relational geographies and new divisions of labour.

Geographical Proximity or Relational Propinquity?: Location in Place

Recently, the focus of urban and regional studies has been knowledge-based economy, knowledge creation, learning and the location that underpin the aforementioned. According to economic network theories and economic sociology, regional studies have acknowledged regional social and cultural elements as explanatory factors which are able to analyse regional innovation, innovation potential and competitiveness. Concepts such as social capital, trust, norms and conventions have become central analytical categories explaining (uneven) regional development through “untraded interdependencies” (Storper, 1997) or other Marshallian “in the air” mechanisms—see later. It is vital for the empirical part of this paper to address these concepts. To understand the concept of imaginary spaces (which will be introduced more thoroughly later on), the assumption that economic agents are not necessarily acting rational in a strict economic way but are constrained by their social relations and cultural heritage is essential.

This new direction in urban and regional studies draws heavily on institutional and evolutionary economic theories and the innovation literature. Asheim and Mariussen (2003) have divided this vast literature into three main strands. The first strand of research emphasizes institutions, formal and informal rules, norms and legislation as prerequisites for economic development, stressing especially knowledge production and innovation. The second strand of literature has a focus on geography pointing to localized learning, geographical proximity, clusters and agglomeration economies. This literature stresses the necessity of face-to-face contact and regards socio-cultural proximity as fundamental for innovation and knowledge transfer (especially of tacit knowledge) between the economic agents. The focal points of this research are on agglomerations, clusters, industrial districts and regional systems of innovations. The latter is the basis of the third strand concerning the innovation system which underpins the innovation process (Lundvall, 1992; Edquist, 1997).

Currently two positions dominate the debate in the geographical strand: a localist/regionalist position versus a relational position (Peck & Yeung, 2003). The regionalist position attributes geographical proximity a vital role for the production of knowledge and hence for urban and regional competitiveness and growth. For instance Asheim (1996, 2002), Morgan (1997), Storper (1997), Cooke and Morgan (1998), Maskell and Malmberg (1999) and Gertler (2003) currently draw the main conclusions of the position which is theorized in the conceptualization of “learning regions”. It is common that

the geography of culture, institutions, norms and values are decisive for trust among economic actors (people and firms). The region is conceptualized as a space in which the institutional framework of learning processes and knowledge production is produced and reproduced.

The analysis of agglomeration economies and industrial and geographical clusters have spun vast amounts of empirical and theoretical literature in recent years (see recent thorough reviews (Malmberg, 1996, 1997; *Urban Studies*, 2004) and the emerging critique (Martin & Sunley, 2003; Amin, 2003). The analysis of geographical clusters focuses on the identification of local or regional competences. The theoretical framework gives emphasis to growth industries, the customer and supplier networks and the general institutional set-up which is created within clusters. It is, however, external to firm advantages. The dynamics have been theorized thoroughly but empirical evidence is needed (Malmberg & Maskell, 2002; Malmberg, 2003).

The relational position emphasizes relational propinquity and is associated with Amin's (2002, 2003, 2004), Amin and Thrift's (2002) and Amin and Cohendet's (2004) analysis of globalization, urban and regional development, urban change and production of knowledge. Location is understood as a situated distanced network. For instance, relational or organizational propinquity is more important than geographical proximity in transfer of tacit knowledge (Amin & Thrift, 2002). Amin and Cohendet's (2004) discussions of the production of knowledge in firms illustrate the relational position. They focus on the firm as the locus of knowledge production rather than the region. Doing so, they see different factors underpinning the knowledge producing processes. They do not exclude geography (the local or regional) as an important factor for the shaping of firm networks, but the space in which the firms operate cannot be reduced to a matter of geographical scales (regional or local). The firm's network is constituted by the firm's relations, and, hence, the analytical focus should be on the space which is defined by the firm relations, i.e. the spatial extension of the relations. Amin and Cohendet (2004) argue that relational or social propinquity requires more than geographical proximity. In order to get a better understanding of the processes that produce knowledge, it is necessary to study networks of interaction and how knowledge is produced and transmitted in these networks; this is the communities of the firm.

Recently, Bathelt *et al.* (2004) have promoted a theoretical sketch which discusses the local production of knowledge as a product of local buzz—including the importance of face-to-face contact (Storper & Venables, 2004)—or as a presence of actors embedded in a geographical community and knowledge stemming from channels of pipelines of communication which are linked to places outside the community. Thus, an increasing return to location of economic activity is not only restricted to local “in the air” mechanisms but also to the relational spaces of firms and to the communities that stretch beyond the territorial entities. We believe much can be learnt from understanding relational propinquity, but it is vital to the understanding of industrial dynamics and location that it is theorized how places underpin the relational and organizational spaces. It is not within the framework of the paper to examine these relational and organizational spaces and their dependency on geography. However, the analysis presented later indicates that inclusion of the relational spaces in the analysis may raise different questions of the locational dynamics.

The conclusion earlier contradicts the traditional urban hierarchic orders, rational choice, *homo economicus* rationality or proximity to customers. Moreover, the advantage

and scope of agglomeration have been the main argument in explaining logics of location. Social parameters such as family ties and environment have been adapted in these theoretical approaches and empirical studies, but the main line of reasoning has still been economic factors perceived as absolute categories.

Instead of understanding locational preferences of the firms as absolute categories and as a result of economic rationality, we introduce the concept of imaginary spaces of location in order to point to the embeddedness of economic action. Imaginary spaces of location are the expressed locational preferences of the firms. These imaginary spaces must not be understood as facts or exact preferences. They are social constructs of the interviewee (representing the firm) based on for instance personal beliefs, wishful thinking, political conviction, the discursive practice of interest groups or real thought-through locational preferences. Thus, the locational preferences can be related to a variety of discourses arising from multiple rationalities (Ettlinger, 2003), i.e. economic, social or cultural embedded rationalities. The location preference of a firm (economic rationale) may for instance be related to values of residence (social or cultural rationale), as we shall see later. The imaginary spaces of location are all in all representations of the perception, experience and interpretation of locational preferences by the firm (or the interviewee representing the firm). For example, a category such as “prestige”, which has been used extensively in studies on locational preferences, is by far an absolute category as it often appears. Different firms have different perceptions of prestige and hence ascribe different values to prestige. International law firms may find prestige in waterfront offices, while IT headquarters find greenfields prestigious. This has to do with imaginaries.

Imaginary Spaces of Location: Service Firms in the Outer City

The analysis of the locational preferences of the firms is based on a large European survey of locational preference by service firms³ (Bachmann *et al.*, 2003). The Danish part of the survey involved 10 key industries⁴ and included 182 service firms. One hundred and fifty-two were located in Zones 1–3 and 30 in the outer city. The survey reveals that significant differences between the built-up area and the outer city exist. The survey identified the following characteristics of the firms in the outer city.⁵

The Service Firms in the Outer City

The Danish economy is generally dominated by small and medium sized enterprises (SMEs), and the outer city economy does not differ from this picture. This is a feature that reappears in the survey, but notable differences in firm size between the zones can be observed. Relatively more small and medium sized firms (below 50 employees) are located in Zones 3 and 4 compared to Zones 1 and 2—see Figure 2. Compared to the built-up area, Zone 4 is relatively dominated by firms with 5–9 employees, but also firms in the category 10–19 employees have an important share. The share of very small firms (1–4 employees) is higher in Zone 4 than in Zone 1 but below the shares of Zones 2 and 3.

Secondly, the growth of the service sector in the outer city is mainly based on local development. The overall effect of relocation from other parts of the city is relatively low. One of the central issues of the COMET project was to examine the movement of

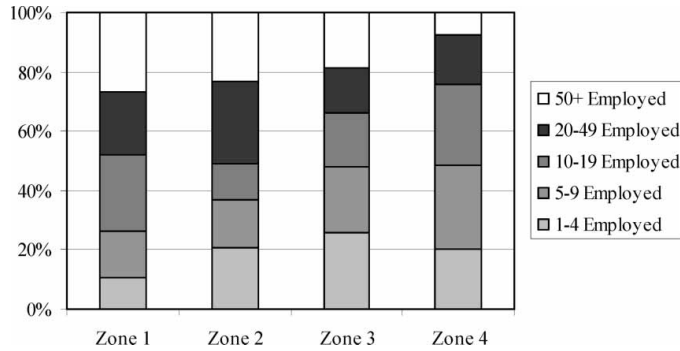


Figure 2. Size of enterprises divided by number of employees. Source: Business enquiry, January–February 2003 (Bachmann *et al.*, 2003)

firms in metropolitan regions in Europe. In Copenhagen a movement of firms from Zone 1 and outwards can be observed in the survey; it must be emphasized, however, that the relocation is to nearby locations. Only few firms relocate from for instance Zone 1 to Zone 4—see Figure 3. Many relocated within the zones and even within the original municipality. All in all, 30 of the firms in the survey were located in the outer city. Seven, i.e. 23%, had moved from other zones within the last 10 years, whereas no one of the 152 firms that participated in the survey had moved from the outer city.

Third, the qualification structure of the jobs in the outer city is different. The service jobs in Zone 4 are characterized by relatively low level of formal education compared to the built-up area (Bachmann *et al.*, 2003). The results of the survey also revealed differences in educational levels between firms located in the built-up area and the outer city.

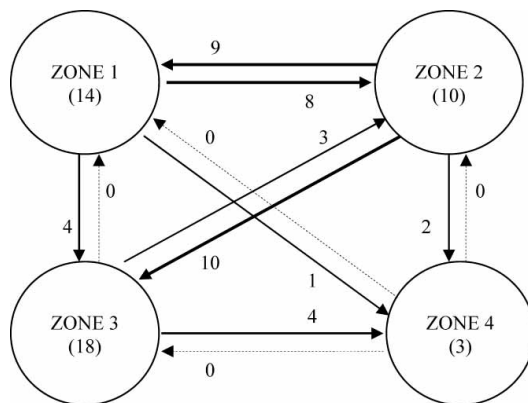


Figure 3. Relocation of firms, 1993–2003. Note: Numbers in parentheses correspond to the number of firms relocated within a zone. Source: Business enquiry, January–February 2003 (Bachmann *et al.*, 2003)

Firms in the three first zones had employees with a noteworthy higher level of education. When linking location as a response to accessibilities of skilled labour, only 10% of the firms in the outer city rated it as important, whereas 25% of the firms located in the built-up area found it important. This result implies that firms located in the outer city did not depend on a highly formally educated labour force compared to firms in the city (Hansen & Winther, 2004).

Fourth, the outer city's service firm's economic networks are more local than global but regionally interconnected to the other zones. In the survey, the firms were asked about the locational importance of proximity to customers, suppliers and other essential network partners. Table 2 reveals the location of the firms' most important customers to illustrate the local dynamics of the outer city. Fifty-two per cent of the most important customers are located in the outer city and 21% in Zone 3. The local importance of customers is contrasted especially by Zones 1 and 2 which have a more even distribution of important customers and a larger share of national located customers. Even though many important customers are local in the outer city, 20% of the most important customers are located outside Copenhagen. Three per cent even in the rest of the world which indicates that some of the firms do not depend on local markets.

At first it seems that geographical proximity matters because of the local orientation of the firms; this holds true. Many of the vital relations of the service firms are local supporting the regionalist perspective. We must remember, however, that emergence of the outer city is related to the development of the large urban agglomerations and is conditional on the dynamics of the urban landscape. The growth of local services is based on the economics of newcomers and the general population growth. Further, cross-urban and distant networks are also significant supporting the relational perspective. New business takes part of an urban and even distant division of labour. It points to the interdependency of the outer city to the urban landscape. To get further into the dynamics of the outer city, we now turn to how the firms perceive the location and importance of different aspects of location.

Imaginary Spaces of Location in Copenhagen

Another dimension is the relational spaces of the firms and the role of the social embeddedness of the locational strategies. Figure 4 summarizes the main results of the firm's locational preferences from the survey. The list of preferences was divided into five

Table 2. Location of the most important customers (%)

	Zone 1	Zone 2	Zone 3	Zone 4
Zone 1	23	0	4	0
Zone 2	15	33	6	7
Zone 3	30	25	51	21
Zone 4	3	0	3	52
Denmark	28	30	23	17
EU	3	5	6	0
Rest of the world	0	8	7	3

Source: Business enquiry, January-February 2003 (Bachmann *et al.*, 2003).

		Zone 1	Zone 2	Zone 3	Zone 4
Location	Real estate and land prices	—————			
	Availability of industrial & office areas	—————			
	Possibility of spatial expansion	—————			
Traffic	Airport connection	—————			
	Railway connection	—————			
	Road connection	—————			
	Local traffic (bus/train)	—————			
	Local traffic (roads)	—————			
	Parking space	—————			
Labor support	Qualified labour supply	—————			
	Level of wages	—————			
	Proximity to research institutions	—————			
	Proximity to universities	—————			
	Opportunities for training (education)	—————			
Market/environment	Market entry/potential	—————			
	Proximity to customers	—————			
	Proximity to suppliers	—————			
	Proximity to cooperational partners	—————			
	Cooperation with the communal administration	—————			
Soft factors	Personal reasons	—————			
	Prestige/image of the location	—————			
	Attractive housing	—————			
	Cultural and recreational facilities (e.g. theatre)	—————			
	Social facilities	—————			
	Quality of environment	—————			

Figure 4. Factors and spaces of location: very important, —; important, ... Source: Business enquiry, January–February 2003 (Bachman *et al.*, 2003)

categories: location, traffic, labour and knowledge, market and partners and soft factors. These categories are based on a rather orthodox or neo-classical understanding of firm location in economic geography. However, various new perspectives from the different network theories have been used as inspiration to explore the relational and geographical spaces of the firms. Interestingly, however, the results provide evidence of the social

embeddedness of the firm's locational preferences and point to the existence of imaginary spaces of location.

The firm's location preferences are presented in Figure 4. The lines in Figure 4 illustrate the importance of the preference and where the preference is important. A full line indicates that the preference is very important, while a dotted line indicates that the preference is important.

Differences in imaginary spaces of locational preferences are obvious between Zone 4 and the built-up area and between the zones within the built-up area. First, the possibility of physical expansion is not surprisingly perceived as important for location in the outer city, while access to land and land prices seem more important in the built-up area.

Secondly, as regards accessibility to the location, roads are a valued locational preference by the service firms in the outer city, while airport and public transport are considered as very important for firms located in the built-up area. Is this real or imagined? Is the preference shaped by the location (roads are important because we have roads and not public transport), or is the location taken for its preferences (we choose the outer city because of the roads)? As we shall discuss later, a firm's (especially SMEs) locational choice may be due to personal reasons; the firms live and die on location.

Thirdly, the questions about labour reveal something interesting. Labour qualification issues do not really matter in the outer city. The firms in the outer city did not consider access to qualified labour or proximity to knowledge creating and transporting institutions as important, while this was the case in the built-up area particularly in Zones 1 and 2. This reveals that in addition to being small and local the firms in the outer city do not perceive of themselves as knowledge intensive as the firms in the built-up area. That is not to say that they are not knowledge intensive, but their own interpretation of space suggests that they do not perceive themselves as knowledge intensive as the firms in the built-up area.

Fourthly, the local market is an important locational preference for the firms in the survey, as discussed earlier. This is emphasized in Figure 4. It is interesting that market potential and proximity to customers are important in the outer city, while proximity to suppliers and partners are important solely in the built-up area. This again emphasizes the local market oriented firms in the outer city.

Finally, the different "soft factors" are more essential in the outer city than in the built-up area. Here personal reasons, attractive housing, social and cultural facilities and nature are important or very important locational preferences of the service firms. This is interesting and points to the fact that the location of firms in the outer city is based on other rationalities than strictly economic rationales. The perceived attractive housing of the interviewees, for instance, has to do with the owner's or interviewees' personal and family values and social and cultural embeddedness. Thus, the result of the survey indicates that locational preferences in the outer city of Copenhagen are connected to personal preferences and initiated by relational affiliations beyond the economic linkages of the founder of the firm.

The results of the survey suggest that firms, which are located in different zones, have different perceptions and interpretations of the context they are embedded in. Put differently, service firms produce different imaginary spaces of location even within the same context (the urban landscape of Copenhagen). To understand these spaces, a relational approach to understand the economic activity of the outer city is needed.

The results presented here show that for instance personal reason (for instance family strategies of residence) and social and cultural conditions play a vital role in explaining location of economic activities. To fully get an understanding of the dynamics of the urban economy and industrial location, we suggest a relational approach which is coping with social aspects of affinity to place—what Massey (1994) termed “a place called home”—as well as geographical proximity to economic factors, including the institutional set-up. By developing such an approach, we will be able to get a better understanding of different geographical scales representing different imaginary spaces of location. The research questions that we need to answer are: How are the firm’s imaginary spaces of location produced? How do firms produce and reproduce their perception of space?

In order to answer these questions, we need to theorize the firm as a set of relations (Yeung, 2002). We suggest a departure point from the new promising perspectives within the recent institutional and relational turn in economic and industrial geography (Boggs & Rantisi, 2003; Yeung, 2005). These are the increased focus on the social relations of economic and industrial geography, an understanding of a dynamic and open-ended evolutionary economic system (Bathelt & Glückler, 2003), inspiration from economic sociology focussing on the social and cultural embeddedness of economic action (Granovetter, 1985; Swedberg, 2003; Peck, 2005), evolutionary economics (Nelson & Winter 1982; Dosi *et al.*, 1988; Hodgson, 1993; Saviotti, 1996) and of course the recent debate about the firm in economic geography (Asheim & Taylor, 2001; Yeung, 2000, 2002; Grabher, 2001, 2002). We need to investigate how the firm and decision-makers of the firm produce their representation of space. Additionally, we need to understand how the social and cultural embeddedness can help us analyse the firm’s imaginary spaces of location.

Conclusion

The cities and landscapes of Europe are changing toward an integration of the countryside in the urban economy. The result is complex urban landscapes in which new spaces and scales of relations and flows have emerged which creates new spatial divisions of labour. It is in this process that the outer city has appeared as a new urban form.

The paper has presented basic information about the industrial and locational dynamics of the outer city of Copenhagen. Today Copenhagen appears as a service and knowledge-based economy with ongoing deindustrialization and restructuring. The outer city materializes as geography in making. It has become a place of increasing urban living and working, creating new economic geographies. From being a place dominated by agricultural and related industries, the outer city now has an industrial structure which approaches the built-up area; it is becoming a service and even knowledge-based economy.

The service firms in the outer city are generally smaller than the firms in the built-up area. The qualification structure of the employees of the firms reveals that levels of formal education are lower than in the built-up area. Further, the growth in the outer city is not a result of relocation of firms from the built-up area. The growth is local. The networks of the firms are all in all more local than global but interconnected to the built-up area.

The locational preference of the firms was conceptualized as imaginary spaces of location. The imaginary spaces of location are social constructs based on personal

beliefs and discursive practice. The imaginary spaces of location can be related to a variety of discourses arising from multiple rationalities including social and cultural embedded rationalities. The imaginary spaces of location are different between the built-up area and the outer city. This is probably a result of differences in markets, size and knowledge intensity, etc. The imaginary spaces of location of the firms in the outer city emphasize “soft factors” such as personal reasons, attractive housing, social and cultural facilities and nature. These spaces are not likely to arise from economic rationale but from for instance family strategies of residences of the owner. An affinity to place a sense of belonging seems to have decisive influence on industrial location.

We have provided evidence from Copenhagen that a more differentiated understanding of industrial dynamics and urban planning is necessary in order to understand the complexity of urban economics. The paper has shown that the outer city is transforming towards a service economy, even an advanced service economy. Affinity to place seems to be a very strong issue for locational dynamics. The outer city is to be underpinned—and as this paper shows, the economic development of the outer city areas is becoming a more important part of the city region’s total economy. The different imaginary spaces of location call for an approach that makes room for a more differentiated perception of geography—economic rationality is accompanied by social and cultural rationales.

Notes

1. COMET is coordinated by the Institute for Urban and Regional Research, Austrian Academy of Sciences, Vienna, and financially supported by the European Commission, DG Research, 5th Framework Program, Key Action “The City of Tomorrow and Cultural Heritage” (Project No. EVK4_CT_2001_00050). Available at <http://www.comet.ac.at>
2. The NUREC definition of urban areas is based on buildings. It demarks the urban area as continuous built-up with less than 200 m between buildings, golf courses and the like. For a detailed definition see NUREC (1994).
3. The COMET project investigated the location preferences of service firms by means of a survey. Its objective was to investigate service industries location and why firms consider relocation. The study includes seven major European agglomerations (Amsterdam, Barcelona, Berlin, Brussels, Copenhagen, Strasbourg and Vienna). The case study of Copenhagen was done in January and February 2003. Interviews with representatives of the firms were conducted by telephone by students. The telephone interviews took place after appointments had been arranged with randomly selected firms. The selected and interested enterprises were sent the questionnaire in advance by email or fax before the date fixed for the interview. The interviewer filled in the questionnaire himself/herself (prevention of mistakes, gaps, etc.). The questionnaire included questions about the firm, the choice of location, future locational plans and questions about networks and cooperations (Bachmann *et al.*, 2003).
4. The 10 key industries are: R&D, Consulting services, Technical and engineering services, Blue collar business services, Finance and insurance, Real estate, Telecommunications, Computer and electronic data processing, Press and media, Culture and entertainment and Organizations.
5. The results presented are based on an unpublished working paper prepared by research assistant Anja S. Storgaard.

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Appendix A

Appendix A

Florida's indexes to measure the overall creativity developed within an American context (From Florida, 2002 p. 332-334) and the adapted indexes developed in a European context.

Index	Florida index	Adapted index
<i>Technology</i>		
High-Tech	To measure high-technology industries. Based on the TechPole Index developed by DeRoss and the Milken Institute (see paper 1)	Florida only includes high-tech industries. I/we include knowledge based service industries and automobile because this is better suited for the industrial structure of Europe
Innovation Index	Measures patents per capita.	This index is not included in the European study because of lack of data on the regional level, and because patents are only used within some industries. Patens are fx difficult to obtain for knowledge intensive service firms. The measure is however included in paper 4 to add an additional variable and thus widen the total business climate score
Firms Formation Index	-	Used to indicate the regional level of entrepreneurialism
<i>Talent</i>		
Creative Class Index	-	People within creative occupations (see paper1 appendix 1)
Talent Index	People with at least a bachelor degree.	People with at least a bachelor degree.
<i>Tolerance (and attractiveness of place)</i>		
Bohemian Index	People in artistic occupations	People in artistic occupations
Gay Index	Measures gay coupled people – people of same sex living in the same house.	- It is illegal to register people by their sexual observant in Sweden
Melting Pot Index	Share of people with foreign origin in a region	-
Openness 1	-	Measures the share of people with non-western foreign origin in a region

Openness 2	-	Measures the share of people with foreign origin in a region
Openness 3/ Integration Index	-	Measures the difference in the occupation rate between the Swedish and foreign born population
Cultural Opportunity Index	-	Measures the regional variation of people employed in cultural industries.
Public Provision Index	-	Measures the regional variation of people employed in the public sector.

Appendix B

Appendix B

Interviewed Persons:

Representatives of firms:

Stockholm:

Björn Ståhl, Ogilvy
Pär Arenö, NIRAS/SCANAGRI

Malmö/Lund/Trelleborg

Mats Lindoff, Sony-Ericsson
Inger Molin, King Edward

Karlskrona/Ronneby:

Mikael Blomkvist, Roxtec
Intervju med Christer Månsson, Aspiro

Representatives of public leaders:

Stockholm:

Roger Mogert, Stockholm City Council
Madeleine Sjöstedt, Stockholm City Council

Malmö/Lund/Trelleborg

Ilmar Reepalu, Major Malmö City
Thorbjörn Lindhquist, Malmö City Council

Karlskrona/Ronneby:

Kent Lewén, Karlskrona City Council
Ivar Wenster, Chief of Culture Karlskrona

Planning Authority:

Stockholm:

Torsten Malmberg, Stadsbyggnadsnämnden

Malmö/Lund/Trelleborg

Christer Persson, City planning

Karlskrona/Ronneby:

Claes-Åke Kindlund, stadsarkitekt

Representatives of minority groups:

Stockholm:

Jerry Adbo, Riksförbundet för sexuellt likaberättigande Stockholm

Malmö/Lund/Trelleborg

Ransom Lekunze, Chairman of the Cameroonian Society in Malmö

Karlskrona/Ronneby:

José Espinoza, Antidiskrimineringsbyrån

Creative Class:

Stockholm:

Maria Dalhed, Culture and Art

Helena Rudberg, Cultural Management

Amanda Creutzer, Art and Communication

Ylva Rosell, Communication

Pär Stolpe, Culture and Communication

Ulrika Djerw, Art and Communication

Sara Bengtzon, Librarian

Karin Alexandersson, Art and Communication

Malmö/Lund/Trelleborg

Matin Andrén, Conservator

Charlotte Larsson, Communication

Pablo Tapia, Communication

Kristina Strand Larsson, Communication

Leena Månsson, Advisor

Barbro Daniels, Advisor and Development

Lionel Rieloff, Librarian

Karlskrona/Ronneby:

Gösta Bücher, Architect

Annika Ekdahl, Artist

Barbro Ingemansson, Cultural Planner

Margareta Andersson, Librarian

Eric Markus, Ph.D. student

Sara Eriksén, Professor

Miranda Johannsson, Engineer

Henrik Ny, Ph.D. student

Carin Hamrin, Marketing

Interview guides for firms, politicians, planners, representatives of minority groups and creative class people.

Criteria and Issues to be addresses

Target	Minimum number of interviews	Issues	Criteria
Business Leaders	2	-Does job follow talent -Do talents choose to live in tolerant environment	-1 high-tech firm -1 incoming firm -Must have a relatively high share of creative workers
Creative Class	2 group interviews with 4-6 people in each	-Location history -Do talents move for quality of place -Is peoples climate crucial for location -What is an attractive and a repelling climate -Social cohesion	-Work within creative occupations
Planning authorities	1	-Is the creative class taken into account in city planning – and how -How does the city brand itself and why -To what degree are art and culture a part of this planning – and why -Creative class and economic growth -Peoples vs. business climate	A civil servant in a leading position
Civil leaders	2	-Pros and cons elements in the city. -Competitive pros and cons -How to approach pros and cons problems -Peoples vs. business climate	Mayor, politicians, public-private organisations
Grass roots	1	-Tolerance -Openness -Social cohesion -inclusion/exclusion	Leaders of grass root movements like ethnic communities leaders, social movements etc.

Guideline for interviews with politicians and planners

Policy Makers and Planners: Some initial thoughts

Within the over-arching theme of how policy relates to the 'People Climate', I guess there are actors in 3 different areas of policy that we should ideally speak to:-

1. Economic Development
2. City Region Promotion / Marketing
3. Local / Regional Arts and Culture

Each becoming more specific:

1. is key and is essentially the degree to which the 'CC agenda' is integrated or mainstreamed within Economic Development policy
2. is (a) who are they trying to appeal to, (b) how are they trying to do this, and are (a) and (b) compatible?
3. Arts & Culture specific issues- what are they trying to do, is there a coherent 'big idea' for the City or is it basically *ad hoc*?

While the focus of course is on the 'Creative Class' agenda- we need to be careful that as much as possible we get unbiased answers on economic development priorities – i.e. ones that don't 'talk up' the CC agenda purely because that is what we are interested in.

[Economic Development people – all the question groupings, Marketing – pretty much all apart from A1 and B1&2, Arts / Culture Policy- similar, but focus / expand on Es]

Questions

A1: What is the key focus of Economic Development Policy in the City? (what industries / skills etc)?

A2: How far is creative/cultural thinking 'mainstreamed' in all your city's policies?

A2a: If you don't 'mainstream' these issues, why not?

A3: Do you know what other cities are doing on this?

A4: Do you know your benchmark position on this? – who are you comparable to / competing against?

A5: Position on CC index- comment on this? Do they feel this is an accurate reflection?

A5a: Why is the City where it is on the index?

B1: What the main priorities of Planning and Land Use policy in the City?- on what criteria are decisions made?

B2: Housing policy – what are the main issues (eg City Centre living, mixed use, Families vs Singles, affordability, etc)

C1: Are there policies specifically designed to attract people to the City?

C2: Or aimed at getting existing people to stay there- eg keeping graduates from local University – do they tend to stay or leave?- why?

C3: Who (in their words) is it that they are trying to attract? (families / single people / professionals / age profile etc)

[When they answer this, are they basically talking about what they do to attract *firms* to that place, rather than *people* ?]

C4: How are they doing this? specifically, what are the policies that are in place to attract people? Eg how do they relate to:-

Quality of place

Cultural opportunities: 'High' culture vs. 'low' culture

Thoughts on openness of City to new entrants etc

C5: Public Provision- schools, health care etc- how important do you feel these are in selling the City as a good place to live? Is this in any way integrated into City marketing or economic development policies?

C6: In terms of attracting 'knowledge economy' workers, how important do you think quality of place is, as compared to access to jobs or education?

C7: Are these 'attraction / retention' policies working? - if not why not?

C8: How is future policy likely to differ from that of the past?

C9: What is unique / attractive about this city for people considering living there? (culture / infrastructure / ambiance / etc)

C10: Conversely, why might people not want to live in the city?

C11: Is there a unified branding / marketing idea or approach for the City?

D1: How do you feel the emergence of a 'creative economy' has influenced /will influence social inclusion / exclusion ?

D2: How socially cohesive do you feel the City is? Are there any problem areas?

D2a: what policies are in place address these?

Creative Capital / Creative industries etc- I guess depending on who is interviewed we need a subset of questions dealing with specific policy in these areas.

E1: Is it integrated into with economically development policy

E2: Is it internally coherent ie is there a unifying 'big idea'?

E3: Position on Boho index- comment on this? Do they feel this is an accurate reflection?

E3a: Why is the City where it is on the index?

Guidelines for interview with creative class people

Interview guide for interviews with the creative workforce		
Issues	Potential questions	Possible explanations
Quality of place		
How to choose where to live	Which factors are important in choosing where to live?	Quality of place and practical issues (economy and proximity)
Definition of quality of place	What is quality of place? What types of goods and services are treasured?	Tolerance/openness Location History
Public provision/service	Are welfare goods and services important for you? Does schools and healthcare come into consideration when relocating?	
The origin of quality of place	How did/can quality of place arise in you city?	History and people
Reasons to move – to/from the city region	Why did you choose to live here? Have you considered moving? Why? Why didn't you move? What is good about this city?	Factors of quality of place
Societal issues Remember some issues are decided upon on state level while others are under local authorities.		
Tolerance/openness	What are the advantages and disadvantages of a multicultural community <i>(Does a multi ethnical environment appeal to the creative class?)</i> Are same sex marriages acceptable in a community such as yours? What about adoption of children by same sex couples? <i>(How far does the tolerance towards same sex couples go?)</i> Should there be limits to the existing freedom of speech? <i>(Is there a moral or ethical limit to tolerance – can tolerance tolerate intolerance?)</i>	Preferences for a tolerant and open environment Are people tolerant when it effects themselves and their children?

Social cohesion/inclusion/exclusion	<p>Crime: What would you prefer: a community where crime is concentrated and hence high in isolated areas OR a community where crime is equally spread (<i>isolated crime=no solidarity, spread out crime=solidarity</i>).</p> <p>How do you feel about homeless people or drug addicts being a part of the street life of your town? Would you like the town to contribute to more places for these people to sleep though it would attract a larger number of these people and mean a tax increase? (<i>solidarity with weak groups vs. economic interests</i>)</p>	Does the creative class feel a sense of solidarity towards less privileged groups of the society?
Working life		
Factor in choosing companies to work for	<p>How did you learn about your current place of work? What made you apply for/create your current job?</p>	Image Ambitions Challenges
Working conditions	What defines good working conditions?	The value of flexibility Challenges
Working environment	What defines a good working environment?	The value of openness and tolerance in the creation of new ideas
Working ambitions	Is your work a way of life? Where do you want to go career wise?	Dedication to the job Leader ambitions or wish to be a specialist (to be triangulated with the ambitions for private life, a test of whether the to merge or are separated spheres)
Working life vs. quality of place		
Job vs. quality of place	<p>What could make you move for a job? How much time are you willing to use on transport a day?</p>	Tradeoff between jobs and quality of place – is people moving for jobs of vice versa
Working life vs. private life		
The priorities of everyday life	What is important in your free time? E.g. family, work, friends ect., activities, local, community, money/salary	The limitations of time The need to save time when possible to some degree spending money to do so

Guidelines for Interviews with Business Leaders

Business-Leaders:

individual interviews with directors or managers of firms.

Criteria of selection firms:

- selection of city regions that are well endowed with creative class
- sector: the firms should be active within industries that are included in the TechPole index?! Might be, but in the case of the Netherlands, this is not self-evident, because we found no relationship between creative class and techpole-index at the regional level
- incoming companies (meaning firms that were recently relocated: could be international, but intra-national as well)

Hypothesis1

jobs follow talent: creative class is driver of urban and regional growth

Hypothesis 2

talented people choose to live in tolerant and attractive places: urban climate of tolerance matters

Topic list

1. General Business information

Sector, number of employees, age of company, history of company, when relocated

2. Business climate: firms preferences

- Which factors are most important to choose for this specific city/ region?
- What are the major pros and cons of this place?
- Role of taxes, infrastructure, local demand, proximity of other companies (same or different sectors), cooperation with other companies (same or different sectors)
- Presence of educated people
- Presence of creative class

3. People's climate: quality of places

- Meaning of image of this particular city/ region?
- Presence of cultural facilities, clubs, restaurants, shops
- History of place
- Supply of (high-quality) houses
- Presence of a culture of tolerance: newcomers and a diverse population (social cohesion)

Guidelines for Interviews with Representatives of Minority Groups

Aim: Clear understanding of relationships between minority communities and majority/official attitude in the region should be obtained by identifying the birth of the community and its current position in the region.

The focus should be in *Tolerance*. Attractiveness, quality of life and creative class themes mentioned below may be partly combined with tolerance theme since there is only *one informant per city-region*, and respondents do not necessarily belong to creative class themselves.

Interview guide for community leaders (one interview per city-region)		
Informant: Leader of local minority group (sexual, ethnic, political, religion, sub-culture, etc)		
Aim of the interview: To have an alternative view to region's tolerance, quality of life and attractiveness		
THEME	RESEARCH QUESTIONS	POSSIBLE QUESTIONS FOR INFORMANTS
Background	What is the community?	Does community have an organised form and/or "HQ"? How many members they have? (Active/in general) Where does community locate or is it spread all over to region? Which values describes the identity of the community? What political goals do the community prioritise?
Tolerance	<p>1) How open and tolerant city-region is for minorities? / Does social inclusion/exclusion take place within the region?</p> <p>2) Does regional atmosphere support birth and activities of minor communities?</p> <p>3) How tolerance/intolerance is perceived in real life actions?</p> <p>4) Official/unofficial tolerance: Is there different layers of tolerance in city-region i.e. is there different attitude towards individual persons and community as a whole and other way around; do attitudes of civic servants and individual persons towards minorities differ from each other?</p> <p>5) What "spheres" of city-region are open and what are closed from minority groups? (spheres refers organisations, projects, public debate, discussions between decision makers, etc.)</p>	<p>How your group/community was set up and who were active agents in that process? <i>or</i> Why your group/community is not organised?(Who supported, who was against?)</p> <p>What are local people/majority's attitudes towards you/your members? <i>or</i> Is your community tolerated within this region?</p> <p>What projects or other activities you have with local decision makers/development agencies/groups? <i>and</i> What is division of labour and your role in these activities? With who you co-operate?</p> <p>Who made initiative –you or other group?</p> <p>Have you been treated equally? (for example renting premises, making service contracts, having funding, etc) – Some examples?</p> <p>Is there a difference between the level of acceptance of your</p>

		community and the level of acceptance of other communities? (Why?)
Quality of Life	<p>1) Is quality of life strongly connected to tolerance?</p> <p>2) How quality of life is experienced by minorities (do different things emerge when compared with “average” Creative class members?)</p>	<p>What are most important reasons to stay in this particular place?</p> <p>What are major pros and cons of this place as living environment for you?</p> <p>In which part of the city members of your community live or is it possible to define? (Why?)</p> <p>In what way does your community take part in giving the region an attractive profile?</p>
Attractiveness	1) Why is the city-region attractive/unattractive for minorities?	<p>Do you think your city is attractive in eyes of your community’s members? (Experiences of people moving in or out because of place has certain qualities?)</p> <p>Why there are so many/few individuals of your community here?</p>
Creative class	<p>1) Is local creative class diverse?</p> <p>2) Is the community overlapping with creative class or is it excluded?</p>	<p>What is professional profile of your community members?</p> <p>What is educational profile of your community?</p>

Appendix C

COMET – Undersøgelse af servicevirksomheder

Spørgeskema til undersøgelse af servicevirksomheders lokaliseringspræferencer og -behov i bymæssige områder

Det EU støttede forskningsprojekt, COMET, har til hensigt at undersøge servicevirksomheders præferencer for lokalisering i bymæssige områder. Formålet er at finde frem til, hvordan forskellige brancher vurderer lokaliseringsmæssige parametre samt hvad der ligger til grund for, at virksomheder eventuelt overvejer flytning.

Hovedstadsregionen vil af EU-projektet blive analyseret af Geografisk Institut, Københavns Universitet, i samarbejde med Københavns Kommune. Ud over Hovedstadsregionen vil de bymæssige regioner i Amsterdam, Barcelona, Berlin, Bruxelles, Strasbourg og Wien blive analyseret af lokale forskergrupper. Målet er at skabe grundlag for et bedre samspil mellem byplanlægning og erhvervsudvikling i EU's medlemsstater.

Yderligere information om projektet kan findes på: [http://www.comet.ac.at/...](http://www.comet.ac.at/)

Spørgeskemaets opbygning:

- Spørgsmål vedrørende virksomheden (spørgsmål 1 til 10)
- Spørgsmål vedrørende præferencer bag nuværende lokalisering (spørgsmål 11 til 16)
- Spørgsmål vedrørende eventuelle fremtidige ændringer af lokalisering (spørgsmål 17 til 21)
- Spørgsmål vedrørende erhvervmæssige samarbejder og netværk (spørgsmål 22 til 24)

Generel information:

- Spørgeskemaet er anonymt. Spørgeskemaundersøgelsen vil kun blive brugt i den forskningsmæssige del af COMET-projektet
- Vi vil kontakte jer på det aftalte tidspunkt og modtage Deres besvarelser pr. telefon. Det tager ca. 35 minutter. Vi vil i den forbindelse forklare de i spørgeskemaet formulerede spørgsmål, hvis det viser sig at være nødvendigt
- De bedes skimme spørgeskemaet igennem, inden vi kontakter dem igen, da der kan være enkelte spørgsmål som De måske ikke kan besvare på stående fod. Det drejer sig f.eks. om spørgsmål 5 og 6, der vedrører antallet af ansatte i virksomheden samt deres uddannelse
- Spørgsmål kan rettes til cand. scient. Høgni Kalsø Hansen, Geografisk Institut, Københavns Universitet på 3532 2517 og cand. scient. Anja Storgaard, Geografisk Institut, Københavns Universitet på 3532 2538
- I spørgeskemaet er anført koder ud for hver svarmulighed. De skal blot benyttes som hjælp til indtastningen af Deres svar.
- Såfremt De er interesseret, vil det endelige resultat af spørgeskemaundersøgelsen være tilgængeligt på vores website http://www.comet.ac.at/FS_current_state.htm fra juni, 2003

Løbenummer:

V1

Byens kode:

V2

Zone nr.:

V3

(Udfyldes af Geografisk Institut)

På forhånd tak



Kun til intern brug

Spørgsmål vedrørende virksomheden

(1) Hvor er virksomheden lokaliseret?

Kommune eller bydel*: V4 Postnr..... V5 V4 - V5

(2) Hvilket erhverv tilhører virksomheden? (Sæt kun ét kryds)

<input type="radio"/> 01 Forskning og udvikling V6-1 <ul style="list-style-type: none"> Forskning og udvikling inden for naturvidenskab og teknik Forskning og udvikling inden for samfundsvidenskab og humanistiske videnskaber 	<input type="radio"/> 02 Konsulentvirksomhed V6-2 V6 <ul style="list-style-type: none"> Advokat-, revisions- og bogføringsvirksomhed, meningsmålinger og markedsanalyser, virksomheds- og ledelseskonsulenter Reklame- og markedsføringsbureauer
<input type="radio"/> 03 Ingeniør- og teknisk service V6-3 <ul style="list-style-type: none"> Arkitekt- og ingeniørvirksomhed og anden teknisk rådgivning Teknisk afprøvning og analyse 	<input type="radio"/> 04 Forretningsservice V6-4 <ul style="list-style-type: none"> Formidling af arbejdskraft, vikarbureauer Overvågnings- og detektivvirksomhed Rengøringsvirksomhed Anden forretningsservice (fotografisk virksomhed, tolkning, indretningsarkitekter, industrielt design, kreditvurdering, kongres- og udstillingsaktiviteter)
<input type="radio"/> 05 Bank, finansierings- og forsikringsvirksomhed V6-5 <ul style="list-style-type: none"> Pengeinstitutter Anden finansieringsvirksomhed Servicevirksomhed i forbindelse med pengeinstitutter og finansieringsvirksomhed Servicevirksomhed i forbindelse med forsikringsvirksomhed 	<input type="radio"/> 06 Ejendomsforvaltning V6-6 <ul style="list-style-type: none"> Aktiviteter i forbindelse med egen fast ejendom Udlejning af egen fast ejendom Aktiviteter i forbindelse med fast ejendom på kontraktbasis
<input type="radio"/> 07 Telekommunikation, computer og elektronisk databehandling V6-7 <ul style="list-style-type: none"> Telekommunikation Konsulentvirksomhed vedrørende hardware eller software Databehandling Databaseværter og -formidlere Reparation og vedligeholdelse af kontormaskiner og edb-udstyr Anden virksomhed i forbindelse med databehandling 	<input type="radio"/> 08 Medier V6-8 <ul style="list-style-type: none"> Film- og videovirksomhed Radio- og tv-virksomhed Pressebureauer Udgiver og forlagsvirksomhed med/uden eget trykkeri
<input type="radio"/> 09 Kultur og underholdning V6-9 <ul style="list-style-type: none"> Forlystelsesvirksomhed (f.eks. udøvende kunstnerisk virksomhed, teater, koncerter og forlystelsesparker samt drift af disse) Aktiviteter i forbindelse med fritid (f.eks. spille- og lotterivirksomhed) 	<input type="radio"/> 010 Foreninger og organisationer V6-10 <ul style="list-style-type: none"> Branche- og arbejdsgiverorganisationer samt andre faglige organisationer Fagforeninger Andre organisationer, institutioner og foreninger (f.eks. religiøse og politiske)
<input type="radio"/> 011 Anden branche, hvilken: V6-11 V7 V7	

(3) Virksomheden kan beskrives som: (Sæt kun ét kryds)

<input type="radio"/> 01 en selvstændig virksomhed (uden yderligere afdelinger)	V8-1	V8
<input type="radio"/> 02 et hovedkontor (med andre afdelinger)	V8-2	
<input type="radio"/> 03 en filial med hovedkontoret lokaliseret i (se nedenfor):	V8-3	
Kommune eller bydel (se kort 1):	V9	V9 - 11
Land:	V11	
<input type="radio"/> 04 en anden type virksomhed, hvilken:	V12	V12

* Københavns Kommune er opdelt i bydele. Disse fremgår af kort 1.

**Kun til intern brug****(4) Hvornår blev den nuværende lokalisering taget i brug? (Sæt kun ét kryds)**

År: Virksomheden startede som (se nedenfor):	V13
<input type="radio"/> 1 en nyetablering	V14-1 V14
<input type="radio"/> 2 en etablering af virksomhedsafdeling/-filial	V14-2
<input type="radio"/> 3 en flytning af virksomheden fra (se nedenfor)	V14-3 V15 - V17
Kommune eller bydel (se kort 1):..... V15 Postnummer: V16	
Land: V17	

(5) Hvor mange ansatte har virksomheden? (Angiv det absolutte antal)

Antal ansatte i alt:	V18
• Fuldtidsansatte:	V19
• Deltidsansatte:	V20
• Freelancere:	V21

(6) Hvilken uddannelse har virksomhedens ansatte? (Angiv det absolutte antal ud for hver type uddannelse)

• Lang videregående uddannelse (kandidatgrad, ph.d.):	V22
• Kort og mellemlang uddannelse (f.eks. diplomingeniør, lærer):	V23
• Gymnasium, HTX, HF og HH:	V24
• Faglært og ufaglært arbejdskraft:	V25
• Folkeskolen:	V26

(7) Giv en vurdering af udviklingen i antallet af ansatte inden for hhv. de SENESTE og KOMMENDE tre år:
(Angiv det absolutte antal)

Udviklingen i antal ansatte	SENESTE tre år	KOMMENDE tre år
• Stigning på ca.	V27	V30
• Fald på ca.	V28	V31
• Ingen ændringer	<input type="radio"/> 1=ja, 2=nej V29	<input type="radio"/> 1=ja, 2=nej V32

(8) Hvor mange kvadratmeter målt i etagemeter udgør virksomheden? (Angiv det absolutte antal)

Hele virksomheden udgør:	m ²	V33
• Administrations- og kontorarealerne udgør:	m ²	V34
• Øvrige arealer (lager, logistik, osv.) udgør:	m ²	V35

(9) Giv en vurdering af udviklingen af virksomhedens administrations- og kontorarealer inden for hhv. de SENESTE og KOMMENDE tre år: (Angiv det absolutte antal)

Kontor- og administrationsarealernes udvikling	SENESTE tre år	KOMMENDE tre år
• Stigning på ca.	1..... V36-1	1..... V37-1
• Fald på ca.	2..... V36-2	2..... V37-2
• Ingen ændringer	3 <input type="radio"/> V36-3	3 <input type="radio"/> V37-3

(10) Angiv virksomhedens årlige lejeomkostninger?

Ejer: V38-1	<input type="radio"/> 1 Ingen leje (ejer) V38-2	<input type="radio"/> 2 Samlede faste udgifter	kr. V39	V38 - V39
Lejer:	<input type="radio"/> Lejeomkostninger	kr. V40	V40 - V42	
	<input type="radio"/> Samlede faste udgifter (eksklusive leje)	kr. V41		
ELLER	<input type="radio"/> Lejeomkostninger inklusive faste udgifter (varme, forsikring, renovation, osv.)	kr. V42		



Kun til intern brug

Spørgsmål vedrørende valg af lokalisering

Er virksomheden ikke flyttet inden for de seneste 10 år, skal De gå videre til spørgsmål nummer 14 →→→ (svar ikke på spørgsmål 11 til 13).

(11) Angiv de vigtigste årsager til valget af nuværende lokalitet: (Sæt gerne flere kryds)

<input type="radio"/> 1=ja, 2=nej Hovedsageligt pga. problemer med forrige lokalitet	V43
<input type="radio"/> 1=ja, 2=nej Hovedsageligt pga. fordele ved nuværende lokalitet	V44
<input type="radio"/> 1=ja, 2=nej Fordele ved det valgte land	V45
<input type="radio"/> 1=ja, 2=nej Ulemper ved det tidligere land	V46
<input type="radio"/> 1=ja, 2=nej Årsager som ikke vedrører selve lokaliteten	V47
<input type="radio"/> 1=ja, 2=nej Andre årsager, hvilke:	V48 V49 V48 - V49

(12) Overvejede virksomheden at lokalisere sig på andre lokaliteter end i NUREC – regionen (NUREC-kerne OG randområde)? (Se kort 2 for afgrænsningen af NUREC – regionen). (Sæt gerne flere krydser)

<input type="radio"/> 1=nej, 2=ja Nej	V50-1	V50		
<input type="radio"/> 1=ja, 2=nej Ja (hvis ja, anfør da lokaliteten)	V50-2			
Område	Storbyområder	Mellemstore byer	Mindre byer	
Danmark	<input type="radio"/> V51 1=ia. 2=nei V52	<input type="radio"/> V53 1=ia. 2=nei V54	<input type="radio"/> V55 1=ia. 2=nei V56	V51 - V68
Europa	<input type="radio"/> V57 1=ia. 2=nei V58	<input type="radio"/> V59 1=ia. 2=nei V60	<input type="radio"/> V61 1=ia. 2=nei V62	
Øvrige verden	<input type="radio"/> V63 1=ia. 2=nei V64	<input type="radio"/> V65 1=ia. 2=nei V66	<input type="radio"/> V67 1=ia. 2=nei V68	

(13) Overvejede virksomheden at lokalisere sig på andre lokaliteter inden for NUREC – regionen (se kort 1 og 2)? (Sæt gerne flere krydser)

<input type="radio"/> 1=nej, 2=ja Nej	V69-1	
<input type="radio"/> 1=ja, 2=nej Ja (hvis ja, anfør da lokaliteten)	V69-2	V69
V70 <input type="radio"/> 1=ja, 2=nej Indre by og Christianshavn (se kort 1):.....	V71	V70 - V77
V72 <input type="radio"/> 1=ja, 2=nej Andre dele af Kbh. og Frederiksberg Kommuner (se kort 1):.....	V73	
V74 <input type="radio"/> 1=ja, 2=nej NUREC – kerneområde (se kort 2):.....	V75	
V76 <input type="radio"/> 1=ja, 2=nej NUREC – randområde (se kort 2):	V77	

(14) Rangér VIGTIGHEDEN af følgende parametre for jeres lokalisering inden for NUREC – regionen (se kort 2). (Se kort 2 for afgrænsningen af NUREC – regionen). (Rangér parametrene med numrene 1, 2, 3, 4, 5 hvor 1 er vigtigst og 5 er mindst vigtigt. Hvert nummer må kun anvendes én gang!)

Lokalisering:	1-5..... V78	Infrastruktur:	1-5..... V81	V78 - V82
Adgang til arbejdskraft:	1-5..... V79	Marked/Miljø:	1-5..... V82	
Bløde faktorer:	1-5..... V80			

**Kun til intern brug**

(15) Hvor vigtige er følgende parametre for jeres lokalisering inden for NUREC-regionen (se kort 2)? (Angiv vigtigheden som følger: ++ meget vigtig, + vigtig, +/- ved ikke, - ikke så vigtig, - - slet ikke vigtig)

Lokaliseringfaktorer		Vigtighed					
		V...1	V...2	V...3	V...4	V...5	
		++	+	+/-	-	--	
Lokalitet	Priser på fast ejendom	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V83
	Adgang til kontor- og erhvervsarealer	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V84
	Mulighed for fysisk udvidelse	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V85
Infrastruktur	Lufthavnsforbindelse	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V86
	Togforbindelse	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V87
	Adgang til større vejnet	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V88
	Lokal trafik (bus/tog)	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V89
	Lokal trafik (veje)	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V90
	Parkeringsmuligheder	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V91
Arbejdsmarked	Udbud af kvalificeret arbejdskraft	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V92
	Rimeligt lønniveau	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V93
	Nærhed til forskningsinstitutioner	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V94
	Nærhed til universitet	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V95
	Muligheder for efteruddannelse	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V96
Marked/miljø	Adgang til marked/marketingspotentiale	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V97
	Nærhed til kunder	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V98
	Nærhed til leverandører	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V99
	Nærhed til samarbejdspartnere	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V100
	Administrative samarbejder	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V101
	Skatter og afgifter	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V102
	Subsidier/subventioner	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V103
Bløde faktorer	Personlige årsager (uddannet i området)	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V104
	Lokaliseringens image	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V105
	Attraktive boligforhold	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V106
	Kulturelle og rekreative faciliteter (f.eks. teatre)	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V107
	Sociale faciliteter (daginstitutioner og lign.)	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V108
	Miljøkvalitet (luftforurening)	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V109

(16) Rangér hvor TILFREDS De er med følgende parametre i henhold til jeres lokalisering inden for NUREC - regionen (se kort 2). (Rangér parametrene med numrene 1, 2, 3, 4, 5, hvor 1 er meget tilfreds og 5 er mindst tilfreds. Hvert nummer må kun anvendes én gang!)

Lokaliseringen:	...1-5... V110	Infrastruktur:	...1-5... V113	V110 - V114
Adgang til arbejdskraft:	...1-5... V111	Marked/miljø:	...1-5... V114	
Bløde faktorer:	...1-5... V112			



Kun til intern brug

Spørgsmål vedrørende fremtidige ændringer af lokalisering

(17) Overvejer virksomheden at ændre sin nuværende lokalitet? (Sæt kun ét kryds)

V115 <input type="radio"/> 4 Nej , vi forventer:	V117 V118 <input type="radio"/> 4 Ja , i år.....forventer vi	V115 - V120
V115-1 <input type="radio"/> 1 ingen ændringer	V117-1 <input type="radio"/> 1 at flytte	
V115-2 <input type="radio"/> 2 en udvidelse af nuværende lokalitet	V117-2 <input type="radio"/> 2 en udflytning af dele af virksomheden	
V115-3 <input type="radio"/> 3 at virksomheden/filialen lukker	V117-3 <input type="radio"/> 3 en åbning af en filial	
V116 <input type="radio"/> 1=ja, 2=nej stadig til diskussion	V119 <input type="radio"/> 1=ja, 2=nej andet:.....	V120

Hvis der ikke overvejes ændringer i virksomhedens lokalisering skal De gå videre til spørgsmål 22. →→→
(Svar ikke på spørgsmål 18 til 21).

(18) Hvor vil den fremtidige lokalisering (sandsynligvis) finde sted? (Sæt kun ét kryds)

V121-1 1 Bydel eller kommune (se kort 1):..... V122 Postnummer:..... V123	V121 - V123
2 I Indre by eller Christianshavn (se kort 1)	V121-2
3 I andre dele af København eller Frederiksberg Kommuner (se kort 1)	V121-3
4 I NUREC – kerneområde (se kort 2)	V121-4
5 I NUREC – randområde (se kort 2)	V121-5
6 Uden for NUREC – regionen	V121-6
7 I udlandet	V121-7
8 Stadig til diskussion	V121-8
9 Ved ikke	V121-9

(19) Har virksomheden planer om at flytte dele af sine funktioner? (Sæt gerne flere kryds)

<input type="radio"/> 1 Nej (relokalisering af hele virksomheden)	V124-1	V124
<input type="radio"/> 2 Ja (hvis ja, angiv hvilke funktioner det vil være)	V124-2	
<input type="radio"/> 1=ja, 2=nej Administration		V125
<input type="radio"/> 1=ja, 2=nej Marketing		V126
<input type="radio"/> 1=ja, 2=nej Forskning og udvikling		V127
<input type="radio"/> 1=ja, 2=nej Uddannelse/efteruddannelse		V128
<input type="radio"/> 1=ja, 2=nej Produktion		V129
<input type="radio"/> 1=ja, 2=nej Lager		V130
<input type="radio"/> 1=ja, 2=nej Indkøb og distribution		V131
V132 <input type="radio"/> 1=ja, 2=nej Andet, hvilken:.....	V133	

(20) Rangér vigtigheden af følgende parametre for en ÆNDRING af jeres lokalisering. (Rangér parametrene med numrene 1 til 5 hvor 1 er vigtigst og 5 er mindst vigtigt. Hvert nummer må kun anvendes én gang!)

Lokalisering: V134	Bløde faktorer: V136	Marked/miljø: V138
Adgang til arbejdskraft:..... V135	Infrastruktur: V137	

V134 - V138

**Kun til intern brug**

(21) Angiv vigtigheden af følgende parametre for en ændring i virksomhedens lokalisering? (Angiv vigtigheden som følger: ++ meget vigtig, + vigtig, +/- ved ikke, - ikke så vigtig, - - slet ikke vigtig)

Lokaliseringsfaktorer		Vigtighed					
		V...1	V...2	V...3	V...4	V...5	
		++	+	+/-	-	--	
Lokalitet	Ejendomspriser (bygninger og jord)	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V139
	Niveauet af øvrige faste udgifter	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V140
	Mulighed for fysisk udvidelse af virksomheden	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V141
	Udvidelse af antal ansatte	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V142
	Reduktion af det samlede antal ansatte	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V143
	Samlokalisering af virksomhedens funktioner	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V144
	Reorganisering af virksomheden	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V145
	Mere belejlig beliggenhed for de ansatte	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V146
	Kontorets og interiørets kvalitet	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V147
	Telekommunikationens infrastruktur	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V148
Infrastruktur	Lufthavnsforbindelse	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V149
	Togforbindelse	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V150
	Adgang til større vejnet	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V151
	Lokal trafik (bus / tog)	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V152
	Lokal trafik (veje)	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V153
	Parkeringsmuligheder	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V154
Arbejdsmarked	Adgang til kvalificeret arbejdskraft	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V155
	Lønniveau	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V156
	Nærhed til forskningsinstitutioner	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V157
	Nærhed til universiteter	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V158
	Muligheder for efteruddannelse	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V159
Marked/miljø	Adgang til marked/marketingspotentiale	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V160
	Nærhed til kunder	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V161
	Nærhed til leverandører	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V162
	Nærhed til samarbejtpartnere	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V163
	Administrative samarbejder	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V164
	Skatter og afgifter	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V165
	Subsidier/subventioner	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V166
Bløde faktorer	Personlige årsager (f.eks. uddannet i området)	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V167
	Lokaliseringens image	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V168
	Attraktive boligforhold	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V169
	Kulturelle og rekreative faciliteter (f.eks. teatre)	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V170
	Sociale faciliteter (daginstitutioner og lign.)	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V171
	Miljøkvalitet (luftforurening)	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	V172



Kun til intern brug

Spørgsmål vedrørende samarbejder og netværk

(22) Hvor er virksomhedens vigtigste kunder lokaliserede? (Sæt kun et kryds)

<input type="radio"/> 01 I samme kommune eller bydel som jeres virksomhed (se kort 1)	V173-1	V173
<input type="radio"/> 02 I indre by eller Christianshavn (se kort 1)	V173-2	
<input type="radio"/> 03 I andre dele af Københavns eller Frederiksberg Kommuner (se kort 1)	V173-3	
<input type="radio"/> 04 I NUREC – kerneområde (se kort 2)	V173-4	
<input type="radio"/> 05 I NUREC – randområde (se kort 2)	V173-5	
<input type="radio"/> 06 I Danmark	V173-6	
<input type="radio"/> 07 I EU	V173-7	
<input type="radio"/> 08 I øvrige verden	V173-8	

(23) Er virksomheden afhængig af samarbejder med andre virksomheder? (Sæt gerne flere kryds)

<input type="radio"/> 01= ja , 2= nej Nej (Hvis nej, hvorfor ikke?)	V174	
<input type="radio"/> 1Ja, med virksomheder i samme branche	V175-1	V175
<input type="radio"/> 2geografisk nærhed er ønskelig	V175-2	
<input type="radio"/> 3geografisk nærhed er ikke vigtig	V175-3	
<input type="radio"/> 1Ja, med virksomheder fra andre brancher	V176-1	V176
<input type="radio"/> 2geografisk nærhed er ønskelig	V176-2	
<input type="radio"/> 3geografisk nærhed er ikke vigtig	V176-3	

(24) Hvor vigtig er geografisk nærhed for at virksomheden kan bevare kontakter og skabe nye kontakter til kunder eller andre virksomheder? (Angiv vigtigheden som følger: ++ meget vigtig, + vigtig, +/- ved ikke, - lidt/ikke så vigtig, - - slet ikke vigtig)

Kontaktform	Vigtighed					
	V177-1	V177-2	V177-3	V177-4	V177-5	
	++	+	+/-	-	--	
Ansigt til ansigt	<input type="radio"/> 01	<input type="radio"/> 02	<input type="radio"/> 03	<input type="radio"/> 04	<input type="radio"/> 05	V177
Kontakt ved brug af telefon/telekommunikation	<input type="radio"/> 01	<input type="radio"/> 02	<input type="radio"/> 03	<input type="radio"/> 04	<input type="radio"/> 05	V178
Kontakt ved hjælp af email	<input type="radio"/> 01	<input type="radio"/> 02	<input type="radio"/> 03	<input type="radio"/> 04	<input type="radio"/> 05	V179
Nem adgang for kunder/partnere til os	<input type="radio"/> 01	<input type="radio"/> 02	<input type="radio"/> 03	<input type="radio"/> 04	<input type="radio"/> 05	V180
Nem adgang for os til kunder/partnere	<input type="radio"/> 01	<input type="radio"/> 02	<input type="radio"/> 03	<input type="radio"/> 04	<input type="radio"/> 05	V181
Andet.....	<input type="radio"/> 01	<input type="radio"/> 02	<input type="radio"/> 03	<input type="radio"/> 04	<input type="radio"/> 05	V182
Andet	<input type="radio"/> 01	<input type="radio"/> 02	<input type="radio"/> 03	<input type="radio"/> 04	<input type="radio"/> 05	V183
Andet	<input type="radio"/> 01	<input type="radio"/> 02	<input type="radio"/> 03	<input type="radio"/> 04	<input type="radio"/> 05	V184

Mange tak for, at De tog Dem tid
til at medvirke i undersøgelsen!!!

Appendix D

Appendix D

COMET – Expert interview – Copenhagen

Report no. 1

Date: 02110 3

Name: Torben Pries

Position: Erhvervschef

Organization: Ballerup Kommune

General

Ballerup Kommune is a municipality with a population of 46.342 (2002) located in the suburban belt (NUREC zone) to the northwest. Since the late seventies the municipality has developed into a large service location with a total of 38.716 jobs dominated by public and private services and to some extent high and medium tech manufacturing industries (<http://www.ballerup.dk/>). The municipality has a very proactive industrial policy and is a member of *Bycirklen*. *Bycirklen* is a formal network between nine municipalities and three counties established in 1992 to develop the Frederikssund radial – the northwest oriented finger in the Fingerplan (<http://www.by-cirklen.dk/>).

Summery

Ballerup Kommune represents the industrial sites of the 1980s and the municipality is dominated by back-office functions and IT services. Those activities and firms relocated from the Core and rest of Core (suburbanization of FIRE) or were new establishments (IT services). The process of relocation was facilitated by the municipality's selective sale of sites in an area which was to become known as 'Denmark's Silicon Valley'. Today the municipality has difficulties holding on to the firms, especially the firms, which products are directed to the consumer market. Recently, they have relocated toward the Core and the rest of the Core. The prime location has been the harbour front due to the visibility of the location. Firms with B2B activities continue to be located in Ballerup (and the suburban belt) due to the high accessibility and proximity to costumers. Further, the traditional manufacturing industries are relocating (towards low cost areas and countries) leaving empty physical structures and office space. Currently, the industrial policy of the municipality is under revision. The area has lost its absolute advantage and has difficulties attracting HQs and back-office functions. A new trend is small services firms that locate around the village ponds in the villages in the fringe. The future industrial policy will focus on local (economic) development. Focus is not only directed towards high tech branches but also towards wholesale trade, which holds many examples of firms that have moved in the direction of business service. This might lead to a process of specialization, where Ballerup specializes in (wholesale) trade oriented service businesses.

Report no. 2**Date:** 021303**Name:** Kurt Albæk**Position:** Senior partner, ONCOR CEO**Organization:** Sadolin & Albæk A/S**General**

Sadolin & Albæk A/S is a commercial property agent and adviser in Greater Copenhagen and Denmark (<http://www.sadolin-albaek.dk/>). Sadolin & Albæk mediate large and medium-sized investment property and commercial lease premises and provides property investment consulting, including portfolio and market analyses, valuations and asset management, as well as consulting and advisory services concerning corporate property strategies in regard to e.g. localization, sale and sale and leaseback arrangements.

Executive summary

The current crisis of the Copenhagen property market was already visible in the beginning of 2001. Today (February 2003) 6.2 percent of the office space is available compared to around 2 percent by the end of the 1990s. Further, there is a hidden empty office space. Many firms in the IT and telecommunication sector has an over capacity of space but due to long term contracts this space. The inner city has severe problems while there is still some activity on the harbour front.

Report no. 3**Date:** 021303**Name:** Niels Hovmand**Position:** Udviklingskonsulent (Development Adviser)**Organisation:** Dansk Handel & Service (Danish Commerce & Services)**General**

Danish Commerce & Services is the leading employers' and trade interest organisation for commercial and knowledge-based service enterprises in Denmark. The organisation has approximately 6,000 members and represents more than 25,000 enterprises in cooperation with a number of trade associations. Danish Commerce & Services represents enterprises in the speciality goods and grocery trades, the wholesale trade, IT, advertising and communication, business consulting, accountancy, legal services, publishing, the travel industry, temping and recruitment, the financial sector and private medical services (www.dhs.dk).

Executive summary

Focus of Danish Commerce & Service is on knowledge-intensive services including the more innovative parts of retail. The main problem expanding the business service sector in Denmark are institutional including industrial policy designed to the industrial society, the educational system and policies directed at innovation. Only ten percent of public research spending is within producer and business service.

Report no. 4

Date: 021803

Name: Poul Madsen

Position:

Organisation: HUR (Greater Copenhagen Authority)

General

The Greater Copenhagen Authority (HUR) is a politically-governed regional organisation covering the Greater Copenhagen Region. The governing HUR Council is made up of regional politicians from the five local/regional authority units: the counties of Copenhagen, Frederiksborg and Roskilde and the cities of Copenhagen and Frederiksberg. The Greater Copenhagen Authority started up in July 2000 and has since then achieved a wide range of results within the seven core areas of the organisation: public transport, regional planning, traffic planning, Øresund co-ordination and development, industrial policy, tourism and culture (www.hur.dk).

Summery

Knowledge intensive industries confront the traditional industrial taxonomy as a planning tool. In order to plan the future needs of locations HUR examined the locational preferences of the knowledge intensive firms in Copenhagen. The main result was that local proximity represented in the idea of industrial parks or other forms of local clustering was not a condition for the firms.

Report no. 5

Date: 022003

Name: Claus Frelle Petersen

Position:

Organization: Copenhagen Capacity

General

The goal of Copenhagen Capacity is to profile the Danish capital region on an international level and to attract international investors to the region. The organization is a service agency for foreign companies that are interested in locating in the region. Moreover, Copenhagen Capacity strives to support the region's commercial development – and thereby contributes to strengthening the role of Greater Copenhagen as a centre of international commerce and economic growth. Copenhagen Capacity's activities are supported by regional politicians and leading industrial persons from the largest companies in Copenhagen. The organization is an industrial and commercial fund founded in 1994 by the City of Copenhagen, Frederiksberg Municipality, and the counties of Copenhagen, Frederiksborg and Roskilde (www.copcap.com).

Executive summery

In the 1990s Copenhagen experienced a marked increased in foreign direct investments (FDI). It was a growth that continued until 2001. The main investment activity has been takeovers but recently there have been an increasing number of new green field investments. The main strategy of locating in Copenhagen is access to the Nordic markets and access to research and development activities. For these reasons Stockholm is the main competitor among the Nordic capitals. The main location factors of Copenhagen are its accessibility and the labour market.

Report no. 6**Date:** 022503**Name:** Karsten Jorgensen**Position:****Organisation:** The Spatial Planning Department**General**

The Department serves the Minister of the Environment. The Spatial Planning Department administers the Planning Act in close cooperation with Denmark's 14 counties and 275 municipalities and serves as the national authority for spatial planning. The Spatial Planning Department also advises the Minister in specific cases related to spatial planning.


Executive summary

The transformation of the industrial sites, industries is a central process restructuring the urban landscape in Denmark, for instance the conflict between manufacturing and services within specific industrial sites. Further, the new industries concentrate in a few urban areas that experience high growth rates in contrast to the periphery. Currently the development is characterized by empty office space and lack of investments. The balance in policy is also transforming. In the 1990s there was a tremendous focus on Copenhagen but recently focus is changing towards outside Copenhagen.

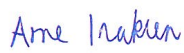
Lund, 9th October 2007


To whom it may concern,

The authors hereby certify that the paper entitled 'Nordic City Regions in the Creative Class Debate - Putting the Creative Class Thesis to a Test' is based on equal contributions by the respective authors, Andersen, Hansen, Isaksen and Raunio.

12.11.2007 
Kristina Vaarst Andersen


Hogni Kalsø Hansen


Arne Isaksen



Mika Raunio

Lund, 9th October 2007


To whom it may concern,

The authors hereby certify that the paper entitled 'Regional Development in Nordic Regions: The Impact of People Climate and Business Climate', is based on equal contributions by the respective authors, Andersen, Bugge, Hansen, Isaksen and Raunio.

12.11.2007 
Kristina Vaarst Andersen


Markus M. Bugge


Hogni Kalsø Hansen


Arne Isaksen


Mika Raunio

Lund, 9th October 2007

To whom it may concern,

The authors hereby certify that the paper entitled 'The Creative Class, People Climate and Business Climate: Knowledge Bases, Varieties of Capitalism and Social Capital', is based on equal contributions by the respective authors, Asheim and Hansen.



Bjørn T. Asheim



Høgni Kalsø Hansen

Lund, 9th October 2007

To whom it may concern,

The authors hereby confirm that the paper entitled 'The Economic Geography of the Outer City: Industrial Dynamics and Imaginary Spaces of Location in Copenhagen', published in European Planning Studies Vol. 14, No. 10, pp. 1387-1406 is based on equal contributions by the respective authors.



Lars Winther



Høgni Kalsø Hansen

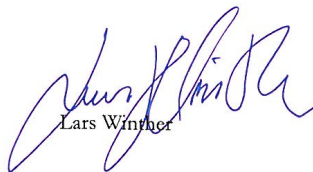
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To whom it may concern,

The authors hereby confirm that the paper entitled 'The Spatial Division of Labour and Talent in City Regions: Location Dynamics of Business Services in Copenhagen', is based on equal contributions by the respective authors.



Høgni Kalsø Hansen



Lars Winther

MEDDELANDEN FRÅN LUNDS UNIVERSITETS
GEOGRAFISKA INSTITUTION.
AVHANDLINGAR

- I. *Herman Richter*: Skånes karta från mitten av 1500-talet till omkring 1700 : bidrag till en historisk-kartografisk undersökning. (1929)
- II. *Josef Westin*: Kulturgeografiska studier inom Nätra-, Näske- och Utbyåarnas flodområden samt angränsande kusttrakter. (1930)
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- XLV. *Martin Markgren*: Geomorphological studies in Fennoscandia. II : chute slopes in northern Fennoscandia. B : systematic studies. (1964)
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