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CENTRE-PERIPHERAL REGIONAL DEVELOPMENT AND HUMAN CAPITAL
DISTRIBUTION: PERIPHERAL EXPERIENCE WITHIN FUNCTIONAL REGION OF
STOCKHOLM

*“The city is dependent on the countryside and the countryside is
dependent on the city, the issue is to illustrate it in different ways”*

- Interview 2: Table 5.

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Abstract

Studying knowledge-intensive regional development from the perspective of classified periphery fills an identified gap in analysis and practice. It illustrates challenges, possibilities, and nuances current trajectory of centre-peripheral development. Exploring role and perspective of peripheral areas within regions, and thus marginalized places, can help increase cohesive, instead of fragmented, regional development. It can also, partly, explain the rift between city and countryside as centre-peripheral segregation. Therefore, it is an important part of re-linking interconnected territorial, social and economic inequality. Which, more than once, has been linked to discontent and called a “ticking bomb”. Thus, the aim of this thesis is to explore regional centre-peripheral structures and spatial sorting of human capital and its effects on local and regional development from a peripheral perspective. The design is a mixed research where secondary demographical data is visualized via ArcMap. The processing through ArcMap also inspires the purposive qualitative sample selection and complements the qualitative data by investigating spatial pattern of human capital and centre-peripheral structures in the functional region of Stockholm. The primary data is qualitative, semi-structured interviews were conducted with key informants within local and regional development at municipal public administration.

The research questions are answered separately and in a synthesizing discussion. Human capital is a resource and underlying variable for institutional development capacity. Found to work selectively in a centre-peripheral hierarchy during regional enlargement and structural change. Which sometimes hinder institutional learning, stability, and capacity at one side and concentrate, secure, and maintains advanced knowledge at the other. The concentration process of knowledge, human capital and structural advantages has increased during the last 20 years and is expected to further grow. The enlargement process, adaptation towards functional collaborations and increased regional leadership do however signify possibilities for increased participation and inclusion in regional development. Simultaneously a challenge as peripheral areas sometimes experience serving as ‘nursery’ for high human capital centre labour migration and identifies a negligence of disparities within regional development. Regional development is in this thesis understood and described as a participatory process of local and regional synergetic development. This conceptualizes growth as one subcomponent, but development was found to be richer in application. Furthermore, functional regional development was deemed increasingly important. Leading to institutional issues in governing and stimulating collaboration. Centre-peripheral development is described as an active process in and by regional development. Rather than a natural and necessary pre-condition. This is tied to a gradual disconnection from centre-periphery as one system to centre and periphery as disjoint. Being classified as peripheral can serve as a lock-in and explain continuous negligence of peripheral economic opportunity. Concludingly, the findings and theoretical discussion is tied to geography of discontent and continuous uneven development as expected outcomes rather than place-specific anomalies.

Key words: centre-periphery, regional development, knowledge economy, spatial sorting human capital

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Introduction

This thesis studies intraregional spatial processes, organization, and trajectory. Contemporary regional development is rich in addressing place-specific production facilitated by learning, knowledge, and innovation (Gertler et al, 2018). Less so from a perspective of the peripheral, at intraregional scale and in an interconnected understanding of different places. A research and policy bias in regional development analysis and practice is found that seemingly affects knowledge and development of peripheral areas. In turn, hindering economic opportunity, institutional capacity, and regional cohesion. Growing regional inequality (Massey, 1979) has been linked to spatial disequilibrium, uneven distribution of human capital (Martin, 2015) and geography of discontent (Dijkstra, Poelman & Rodríguez-Pose, 2020). This correlates with regional development encountering a “theoretical crisis” (Hadjimichalis & Hudson, 2014). In current knowledge-intense economic development paradigm, human capital, as the embodiment of knowledge (Becker, 1993), is a conflict-filled resource in a spatial struggle for place-specific gain. This has revitalized critique of how previously ignored aspects and areas must be included in regional development. This thesis therefore attempts to study how by applying and integrating what is generally classified as peripheral. Thus, the aim of this thesis is to explore regional centre-peripheral structures and spatial sorting of human capital and its effects on local and regional development from a peripheral perspective.

Studying the geography of contemporary regional development from this perspective fills an identified gap. The findings illustrate a partly one-dimensional trajectory and nuances centre-peripheral development as an active hierarchical process of power, not pre-given order. An increased understanding of role and perspective of peripheral areas within regions, and thus people at the margin, can help increase cohesive, instead of fragmented, regional development. It can also, partly, explain the rift between success stories and places “left-behind” (Pike, Rodríguez-Pose & Tomaney, 2007; 2017), linked to populism (The economist, 2017) and called “a ticking bomb” by the European commission (2017). This thesis also reflects upon an ontological and epistemological bias in regional development and some centres growing sphere of influence. Most previous research leans towards quantifiably measurable monetary indicators in relation to growth. There is however a common thread throughout the literature in; neglection of peripheral areas, a need to capture qualitative experience in a one-size-fits-all study and policy approach. All key parts in designing this thesis mixed research approach.

The specific region of Stockholm, Sweden, is often considered ideal in contemporary vibrant, innovative, and knowledge-intense development. Stockholm is at the forefront of economic concentration and development, facilitated by ever-increasing human capital. However, digging deeper illustrates a more complex system and concentrating resources requires extracting them from somewhere. In Sweden, interregional, intraregional, and interpersonal inequalities are continuously growing. Stockholm can therefore serve as a magnifying glass in studying tensions and relationships within advanced intraregional centre-peripheral development.

The following research questions was developed to inform the research aim:

- *How are centre-peripheral structures affecting regional and local development from a peripheral perspective?*
 - *What is regional development from a peripheral perspective in the functional region of Stockholm?*
 - *How is human capital distributed in centre-peripheral regional development and how is human capital related to local and regional development?*

The research questions intersect each other but are separately articulated for analytical purposes. The different sections follow this separation. The thesis is concluded by synthesizing the subparts and the research design is integrated in the whole process. The theoretical framework inspires the

methodology, while being formed around the aim. The framework ties previous studies of human capital spatial sorting with centre-peripheral regional development and contemporary knowledge-intense trajectory. Regional multi-scale divergence is explained and situated as an active process of spatial competition to attract human capital. The outcome is a separation of actors benefitting from contemporary trajectory and development, and those left-behind, marginalized, in regional inclusion and exclusion. To answer the research questions, spatial sorting of human capital in the functional region of Stockholm was mapped by collecting, processing, and analysing secondary data via ArcMap. ArcMap is also used to systematically identify actors with knowledge of the identified research gap which enables the qualitative approach. Primary data was collected in semi-structured interviews with informants representing peripheral municipalities within the functional region of Stockholm. The result is discussed and integrated with the theoretical framework, encouraging both practical and research recommendations.

Background

Centre-peripheral theory has been part of dichotomizing regional development. In Sweden, the centre is represented by *Tätort* - “town”/city” and periphery by “countryside” - *Landsbygd*. However, both are relative concepts and ‘statistical constructions’ (Forsberg, 2013: 211). The city became *the* centre unit of analysis, as that was where *it* happened. The countryside became and still is officially defined as “*everything that is not the city*” (Ibid). Christallers central-place theory forms the basis of contemporary geographical administrative structure in Sweden by the 1970s reform (Hermelin, 2013). Creating identity and meaning, but also separation. Since then, state intervention has largely been replaced by regional competition favouring urban agglomerations in southern Sweden (Ibid). The withdrawal of state was formalized in 2019 and regional development is outsourced to 21 former counties, relabelling them *regions*.

- *Region* – In the empirical research defined and addressed as public administrative region, formerly county councils. Each responsible for regional development and publicly elected. (SKR, 2020). Three in the Functional Region of Stockholm.

The regions are responsible for developing a regional development strategy in collaboration with regional public and private actors.

- Regional development strategy - *Regional utvecklingsstrategi*, In the empirical research addressed as RDS.

The strategy has soft form of legislative power in regional coordination, cohesion and determining trajectory (Sveriges Riksdag, N.D). Planning in Sweden is strongly regulated as a municipal concern. Other direct regional development tools are infrastructure-planning and the European structure funds, distributed and managed by the regions and *Tillväxtverket* - The Swedish Agency for Economic and Regional Growth. Regional development and cohesion are main EU policy concerns and Stockholm stands out as a Very High Economic Club (GDP 150 % above European average) (Report, 2017). Stockholm is a lead performer in innovation and knowledge-driven growth (Ibid). A go-to example as ideal type, embodying knowledge economy, innovation, and learning (Grillitsch & Asheim, 2016: 1645). Stockholm as the centre of Sweden has been and is the representation of “the urban” while rural Sweden often is depicted as deprived or backwards.

The particularity of Stockholm therefore enables investigating spatial characteristics, tensions, and dynamics within knowledge-intense regional development. Stockholm has concentrated human and physical capital towards it for centuries but population growth in urban Sweden is currently mainly explained by international migration and increasing fertility rates. In Sweden, internal urbanization as absolute migration has already happened. The majority now lives in cities, what changes are the flows and characteristics (Forsberg, 2014; Lindblad et al, 2015). Urbanization as centre-peripheral power dynamic in regional development is still occurring.

Theoretical framework

The literature review is based on the research key words and themes and constructed by each section building on the former while deepening in application to the research questions. The first section engages with centre-peripheral theory and ties it to conceptualizations of region and critically examines regional development. Thereafter, contemporary dominant application of regional development is identified. This leads the framework onto discussing spatial sorting of human capital, how it has and has not been studied, and in relation to increasing regional inequality. The framework is rounded up in a discussion that frames the necessity of the research and describes how centre-periphery, region, development and spatial sorting of human capital is understood and operationalized.

Centre-peripheral regional development

“world, city, nation, and continent – the phenomenon of a center-periphery structure appears to occur at all scales relevant to public policy, simultaneously a cause and an effect of economic transformation” – John Friedmann, 1963: 44

The introductory quote encapsulates *centre-peripheral* theory of spatial organization and distribution of people and activities. The structure first appeared in development stage of industrialism and became increasingly prominent alongside measures to stimulate place-specific growth. The theorized structure was initially problematized as “colonial”, that one side gives more than it gets in return (Ibid). Which makes centre-peripheral development a dualistic active process of concentration, or *“simultaneously a cause and an effect of economic transformation.”*

Furthermore, Friedmann argued that centre-periphery is applicable at all scales, the smallest being city and adjacent areas. The determining centrist factor is attractiveness to dominant economic interest. Which later was elaborated in defining regional inequality as *“variations in attractiveness to the dominant form of economic activity and organization of production, labour and transportation (Massey, 1979).* This also illustrates one of many sophistications and re-working towards contemporary regional development thought. Furthermore, centre-peripheral development also brought the first notions of increased pressure from regional inequality. Or what to do about regionalization (Friedmann, 1963), act or let it be. Partly influenced by Hirschmanns “growth poles” (1958), past and present thought has suggested that regions *“must and will first develop within itself one or several regional centras”* (Ibid: 139). To increase overall productivity by first extracting resources from somewhere and accumulating them somewhere else. Explaining why regional inequality as defined above often is thought of as a necessary condition for regional and local growth. Thus, what do to about it, regional policy, developed via Christhaller’s “Central-place-theory” into two dominant traditions in regional development both related to continuous uneven development (Hermelin, 2013).

Alonso (1968) used Hirschmanns growth poles together with empirical observations and concluded that regional inequality, or primacy, indeed is a natural stage of *early* development. Also, hypothesizing “over-urbanization” as subsequent state of development by trickle-down and movement of human and physical capital (Ibid: 630). This has become the strand of thought regarding self-solving regional convergence by spreading possibility and prosperity through expected relocation of capital due to increased place-specific competition. The other tradition, dating back to Myrdal, is critical against an inherent inertia of spreading growth. Instead arguing that the cumulative process increases the momentum of dominant agglomerations, leading to further regional divergence, or polarization (Hermelin, 2013) and active policy is therefore necessary. There appears to be a scientific consensus that uneven centre-peripheral development is a necessary step in early stages of development, to facilitate growth. The question that still lingers is what comes after and to what end. Centre-peripheral theory has seemingly developed from an active process to a pre-determined and ‘natural’ state. Today constituting regional development theory, practice, and policy discourse. Visible at maps, in what culture is produced or in how regional development is conceptualized and exercised.

Economic activities breathe life into conflict and cooperation, and *region* has become the most common unit of analysis in geographies of economies (Henry & Pinch, 2000). Region is however an ambiguous concept. Intricate to conceptualize, discuss, and operationalize. Especially in this research relying on extracting data via audio-visual communication. The original meaning is to govern over administrative units (Cooke & Leydesdorf, 2009) which relates to the administrative region (See Background), but today “region” differs based on context. It can simultaneously be a specific spatial unit or multiple units within. A product and a process, functional or administrative. For instance, labour and housing region where administrative borders are secondary (Hermelin, 2013) or the spatiality of identity markers e.g., minority language. Making *region*, and thus *regional* development, a contested and slippery concept. “Spatial organization” was deemed a more valid term by Friedmann (1963), but “regional” has persisted. In this thesis it is understood as a matter of scale in interconnected centre-peripheral development. Addressed in research questions as *local* and *regional*. Apart from directly and formal (See: Background) regional development practice also occurs indirectly via local, municipal, developments interconnectivity to regional scale and other locales within the region.

So, *region* is a slippery concept and so is the intangible *development*. In reviewing the field, growth was often found as being tantamount to development. However, there are also suggestions that a tendency to use “development” interchangeably with “growth” is misleading (Feldman & Storper, 2018). Lucas explains it by addressing how growth is easy to quantify, therefore, to analyse and understand (1988). Pike, Rodriguez & Tomaney (2007: 2017) critically asks who produces regional development and calls for a holistic approach that address development as an institutional issue, justice, democracy etc. Another illustration of the two introduced strands of thought in regional development. Development is in this thesis thought of as enabling institutional capacity improvement at all scales and distinguished from growth as concerning macro monetary processes (Feldman & Storper, 2018).

Contemporary *regional development* is seemingly a cumulative and incremental place-specific process. Centre-peripheral theory recognizes cumulative economic development characterized by external demand and regional preconditions in providing a unique trajectory for each context interconnected to other contexts (Friedmann, 1963), i.e., *region*. Which is relatable to contemporary research interest of evolutionary economic geographies (EEG) notions of path dependency of temporal and social context (Kogler, 2015, Grabher, 1993; Grillitsch & Hansen, 2019 etc). The third, and last, explicit illustration of how early thought and debate still lingers and re-emerges.

Contemporary literature suggest that successful regional development is tied to capability of facilitating knowledge, learning and innovation (Grillitsch & Hansen, 2019; Grillitsch & Nilsson, 2015; Shearmur & Doloreux, 2016). This is in turn embedded in contextual social fabric of collaboration in regional formal and informal institutions (Boschma, 2005; Grillitsch, Asheim & Trippel, 2018; Grillitsch, 2016; Iammarino, Rodriguez-Pose & Storper, 2017; 2019 etc). Which can provide stability and predictability that helps economic development via cross-sectional learning and innovation (Gertler, 1997; Grillitsch Rodriguez-Pose, 2012). This has been neatly studied as a balancing act of adaptation towards current economic landscape, system and regime, and adaptability towards future internal and external transitions (Gertler, 1997; Grabher, 1993; Scott, 1988; Grillitsch & Hansen, 2019, Morgan, 2016). Which de facto is distribution of human capital and interconnectivity.

Accordingly, the currently dominant knowledge paradigm has led to a rejuvenation of cultural and social aspects of production (Gertler, 1997). The success of the knowledge paradigm is solving of the growth trap of stagnation by scientific and technical innovations cumulative nature (Feldman & Storper, 2018; Becker, 1993). Knowledge economy has also, apart from increasing interest for cultural and social aspects of production, cemented an era of dynamic innovative regions (European Commission, 2017; Iammarino, Rodriguez-Pose & Storper, 2017; 2019). Regions with integrated and

diversified institutions (Grillitsch, 2016) where related and unrelated knowledge can create economic opportunity (Grillitsch, Asheim & Trippl: 2018; Grillitsch & Hansen, 2019). Or knowledge as realized human capital generated by cognitive, social, institutional, and geographical proximity (Boschma, 2005).

That was the usual approach to centre-peripheral regional and human capital development. An approach that also explains why urban agglomerations as centres thrive by enabling learning in integrating people and ideas. However, centre-peripheral matters here as well. The benefits of knowledge-intensive regional development have been proven highly skewed (Feldman & Storper, 2018), in this research tested via the research questions. It is also important to point out that not all urban agglomerations thrive in relation to others. What is often meant are some, often western, “success stories” and a focus on increasing centre-specific growth has perhaps compromised other aspects of development, as has been suggested in recent literature. Growth relies on uneven centre-peripheral development. The problem has been, and is, transforming it towards development. Which relates to the issue of continuous uneven centre-peripheral development and unprecedented regional inequalities (Glasmeier, 2018). In recent years accentuated and labelled a “theoretical crisis of regional development” by Hadjimichalis & Hudson (2014) in calling for a paradigm shift that asks questions of who benefits and who falls short. Which inspired the research aim, and thus the analysis and discussion.

Pike, Rodríguez-Pose & Tomaney (2007; 2017) conceptualize regional and local development as interrelated in a relational understanding of place and space and growth as place-specific accumulation. In their articles they critique the field for neglecting that and how “geography matters as a causal factor in local and regional development” (Ibid: 1265). Further arguing that regional development has become a fragmented field lacking framework regarding accumulation of resources, among them *concentration of talent* (Ibid). Another recent study suggests that key towards development is quality of local and regional institutions in a normative approach of how to “lift” declining regions (Rodríguez-Pose & Ketterer, 2020). That it now is labelled a “crisis” relates to how increasing centre-peripheral divergence, typically labelled “winners and losers”, has started to show in ballot boxes in a “geography of discontent” (Dijkstra, Poelman & Rodríguez-Pose, 2020; McCann, 2020). In these studies, interregional inequalities are tied to interpersonal inequality (Ibid) and economic production is argued as not the only explanatory variable but *experience in relation to other places* matters (McCann, 2020). Education is the one consistent factor and weak human resources, and low employment opportunities are at the source of EU discontent (Dijkstra, L, Poelman, H & Rodríguez-Pose, A 2020: 751).

The necessity to debate how to counter uneven resource accumulation has, according to Martin (2015), become more acute than ever by the growth boom between 1990 and 2007. An important passage here is the inherent centrist perspective, many a region would call that a period of decline. Hadjimichalis and Hudson (2014) critiques the neoclassical narrative that “all cities can become winners” (Ibid: 212) and regional development for predominantly concerning success stories of regional growth. Eriksson & Hansen (2013) also makes two important observations. The larger the region, the better it fits dominant theories of economic development. Secondly, only metropolitan regions show a positive relationship between knowledge-intensive industries and employment growth. This bias has been tied to continuous uneven development, territorial imbalances in Europe and rural areas left dependent on transfer of welfare and growing right-wing populism (Rodríguez-Pose, 2018). Martin (2015) argues that the bias has caused an analytical understanding limited to one ideal region and a one-size-fits-all policy approach.

However, this is not a new phenomenon. Arguably it is part of an inherent centre-peripheral research positionality; we tend to be blind to our own biases. Friedmann in 1963 (52) argued that unrestrained forces of a dynamic market economy appeared to increase centre-peripheral divergence. Not only by physical capital accumulation but also due to the centre-bias of mind. In his words, research fails to

perceive peripheral opportunity and knowledge as the research bias coincides with the city as centre for national markets. In a Swedish context Forsberg (2013) argues that the peripheral is in past and present almost exclusively observed from the perspective and agenda of the centre, “which have made “the countryside” equivalent to the “problemside”, as it deviates from the norm of [urban] economic and social development” (Ibid: 204).

Centre-peripheral regional development is increasingly imbalanced. The success of one region is often seen as tantamount to facilitate place-specific growth. In a paradigm of knowledge economy this, more than ever, is facilitated by human capital. The next section therefore arrives at the intersection of human capital, spatial sorting, and regional inequality. First, spatial sorting of human capital is situated as an active centre-peripheral spatial struggle for resources in regional development. Secondly, previous studies of the phenomena are mapped.

Centre-peripheral spatial sorting of human capital and regional inequality

“The selective nature of internal migration tends to deprive the periphery of its youngest, most enterprising and most educated populations.” - John Friedmann, 1963: 51.

Securing competitive advantage in the knowledge economy increases pressure on all locales to attract and being associated with high capital, creativity, and innovation. This abstraction is made tangible in concentrating people with certain demographical attributions. Human capital, in this thesis defined as the embodiment of knowledge and capacity to increase productivity tied to a person (Becker, 1993). Geography of labour, skill, and knowledge traces far back, (Marx, Schumpeter, Marshall) but the transition to knowledge economy catalysed an impetus of human capital (Florida & Mellander, 2018). Becker presented individual causation between education, income, and productivity (1993: 17). Causation of education, human capital, growth, and development within regions has been proven times over (Florida & Mellander, 2018).

In reviewing the intersection of human capital and regional development two dominant voices echo throughout the literature, Lucas and Gleaser. Lucas (1988) called human capital ‘the motor of economic development’. An intangible creative force facilitated in and by the (urban) centre tied to neoclassical theory. The (urban) centre was already touched upon in the previous section as a melting-pot and catalyst by increasing density between firms, people, different knowledge, culture etc. Enabling learning, spurring innovation, providing growth and development (Gleaser, 1999; Grillitsch, 2016; shearmur & Doloeux, 2016). Consequently, most studies regarding human capital and regional development seems to focus on place-specific clustering of ‘talent’ as source of innovation, positive externalities and explanation of why urban agglomerations, as representation of centres, thrive. Glaeser argues that “cities exist in part to facilitate learning between individuals who come into contact with one another” (1999: 274). This notion is not disputed, but in this centre learning is re-linked to other centre-peripheral human capital flows and migration.

The notion of the creative class (Florida, 2002) as driving economic growth (Florida, Mellander & Stolarick, 2008) is well-rooted in academia and policy. Creative class is, however, somewhat different from human capital. The former is occupation, the latter knowledge, but the concepts are intertwined. Work directly impacts wages. Education impacts regional wealth (Florida, Mellander & Stolarick, 2008). Furthermore Florida & Mellander (2018) suggests that “skilled” people learn more from other “skilled” people, leading to ‘segregation by skill’. An important notion but it also raises questions of what kind of ‘talent’ or ‘skill’ is usually meant, as what hides behind ‘high or low’ skill or talent are different skills. A matter of what specific skill is rewarded. It seems unlikely that “unskilled” has decided on this dualism which illustrates positionality, perspective of knowledge creation (Mason, 2018) and valuation. So, what segregation by skill means is de facto segregation by formal education or other means of attaining high human capital. Therefore, I disagree and do not apply “creative” or “skill and unskilled” dualism in the empirical research. Instead, formal education is applied as proxy indicator in investigating spatial patterns of human capital distribution. Drawing inspiration from

previous analyses in selective transformation in demographical composition and spatial formation (Pregi & Novotny, 2019).

Furthermore, the accumulative momentum of human capital is highly skewed to some centres and not all inclusive (Shearmur & Doloreux, 2016). Innovation is not bounded to centre but frequency and reward is higher (Ibid) as it is the integration of *different* human capital that generates friction (Eriksson & Hansen, 2013: 596). This tends to force peripheral innovation to urbanize and a one-size-fits-all policy and centre-biased knowledge base (Shearmur & Doloreux, 2016). Other mappings of the phenomena are Fu & Gabriels (2012) findings how education increases place-specific selective migration with physical and human capital used as a barrier to steer it. From a database covering 1 569 subnational regions and 97 per cent of the worlds GDP, Gennaioli and colleagues proves that “regional education is a critical determinant of regional development, and the only such determinant that explains a substantial share of regional variation” (2013: 152).

Johansson (2016) studied selective migration in Sweden and confirmed structural imbalances in rural-urban migration and on-going exodus of young women from peripheral rurality towards urban centres to realize human capital. Similar patterns are found in other parts of Europe. Fratesi & Percoco investigated interregional skill-selective migration as an explanation and cause of regional inequality and disequilibrium (2014). Skill-selective spatial sorting of human capital has been accused of causing a twofolded European regional development. At one side, innovation and development. At the other, stagnation, regression, “getting stuck in place“ (Boc, 2020). A Swedish study concluded that big cities, Stockholm in particular, separates high education, knowledge and human capital in favour of the centre in spatial sorting of education and valuation by labour market (Ahlin et al, 2018). Another study based on IQ-test in obligatory military service and migration patterns of 1,3 million Swedish born men found strong evidence that urban clustering explains 50 per cent of centre growth. The rest is explained by selective migration and individuals who pursued urban migration had an average of 1.8 years further education than those ‘left-behind’ (Keuschnigg, Mutgan & Hedström, 2019).

“Those who migrate differs strongly on those left behind – Big cities grow through their attraction of highly productive individuals from their hinterlands, and this mechanism is consequential for societies because selective migration has cumulative effects on local populations in both sending and receiving regions. “(Ibid: 6).

Such effects of skill-selective migration are often labelled brain drain and gain. As loss of human capital to the emigration area (Fratesi & Percoco, 2014; Grubel, 1987), and increase of human capital at the receiving area. Boc (2020) argues that the root cause of brain-drain is unequal economic development and regional inequality. This dualism of insiders and outsiders has by Florida (2019) been tied to the struggle for attaining and accumulating human capital in the knowledge economy and regional divergence. However, selective migration has also been conceptualized as a solution in regional development theory. The reasoning is that skill-selective migration processes is beneficial for the emigration region as well due to return migration with higher capacity and a growing diaspora, i.e. brain circulation. On the other hand, if people who seeks to increase human capital migrates, it decreases incentives for improving local institutions of learning and knowledge, i.e., development. These push-and-pull factors is in tandem producing self-reinforcing structural differences by accumulating physical and human capital through skill-selective migration (Grillitsch & Hansen, 2019; Keuschnigg, Mutgan & Hedström, 2019). The dynamics of brain drain, -gain and -circulation is commonly studied at international (Daugeliene & Marcinkeviciene: 2009; Beine, Docquier & Rapoport: 2001) and interregional scale (Pregi & Novotny, 2019). I would argue that the concept is applicable at lower centre-peripheral scale as well and human capital is in this research mapped at intraregional centre-peripheral development.

Discussion and application

In summary, successful regions are seemingly those who attract high skilled production and population. Or realizes high physical, human and cultural capital. Regional development is sometimes treated as equivalent to regional growth, facilitated by concentration of human capital. Regional development is dominated by macro-economic growth indicators and rich in analysis of place-specific production but is seemingly still battling with the issue of what comes next. Dominant neoclassical theories suggest that, for example, the metropolitan area of Stockholm generates enough knowledge spill-overs and labour migration to lift other regions (Iammarino, Rodriquez-Pose & Storper, 2017; 2019). A common theory is the greater the agglomeration, the greater the externalities.

However, this as a zero-sum game has previously been falsified and benefits urban agglomerations with and by dynamic, flexible and educated demographical structures. Knowledge economy tends to concentrate capability and “spur further regional inequality rather than reduce it” ((Iammarino, Rodriquez-Pose & Storper, 2017: 22; European Commission, 2017:2 Grillitsch & Hansen, 2019). Innovation is unevenly distributed, often at the expense of peripheral areas (Grillitsch & Hansen, 2019; Grillitsch & Nilsson, 2015; Isaksen & Trippl, 2016; Grillitsch & Asheim, 2018; Grabher, 1993). In this research these dynamics and tensions are explored via the research questions at an intraregional scale.

The European Commission calls regional economic, territorial and social inequality a “ticking bomb” (2017: 1). An inclination to “fix” this bomb by absolute population migration rather than redistribution of knowledge flows, production and competitive advantages has failed (The Economist, 2017). This also hints at a discourse where declining regions have themselves to blame. For instance, the Swedish royal research society, in 2017, concluded that; “urbanization is not happening at the cost of the countryside” on the basis that countryside population has stabilized in absolute numbers (Nilsson et al, 2017A; 2017B). That Swedish internal rural-urban migration has stabilized in absolute numbers is explained by urbanization itself. Living arrangements are place-specific, migration is a tool to change living standards by movement (Forsberg, 2014: 203). A one-sided redistribution of the population is not limitless as the migration pool from the emigration area decreases. It is an issue of centre-peripheral structures, power, and cohesion-by-competition paradox. The problematic of cohesion-by-competition narrative is that resources cannot be concentrated somewhere without being extracted from somewhere else. This is the exact critical approach of the thesis.

The two-folded trajectory of continuous uneven development by demographical spatial sorting seems to further increases centre-peripheral divergence at multiple scales. In rifts between nations. Between urban and rural. City and countryside. Thriving innovative core and the peripheral. Primary and lesser centres. Regions of have and have-not. The adaptable and the old industrial. Thus, it is not only a question of regional competitiveness. But also, a question of belonging and inclusion. Creating places that does not matter, generates people that doesn't matter. Increasing polarization, social inequalities and regional imbalances that hinders economic development and opportunity. Regional development and enlargement can be viewed as a tool to enhance local capability to concentrate human and physical capital, and thereby power.

At this point it seems clear that human capital distribution and regional development is typically studied from one perspective, the centre. It could be that the centre represents the most, or most important, aspects of the phenomena. It could also be, as has been argued for by prominent theorists, that there is a centre bias in research and policy. It is also, again, worth pointing out that centre-peripheral accumulation has been theorized as a necessary early stage of regional development. Therefore, it can also be argued that the centre sustain the peripheral. Which also is the usual argument, and possible for that matter. It is also important to point out that it was theorized as a necessary stage for early development, which raises questions regarding current development stage. Another point is that the view of centre *and* peripheral development as disconnected has possibly led to the discussed knowledge bias and increased regional inequality. Exposing an ontological *and* epistemological gap in *what* contemporary regional development *is from a perspective other than the*

centre and in neglecting human capital distribution flows in centre-peripheral systems. Eriksson & Hansen argued that future research would benefit from studying small-scale peripheral long-term human capital and welfare, rather than high end centre production (2013). This thesis explores the role of the peripheral within contemporary intraregional development and spatial sorting of human capital associated with local and regional development.

Application - Centre-peripheral regional development and spatial sorting of human capital

Establishing centre-peripheral theory is a fundamental part of the framework and regional development analysis. From initially introduced and understood as an active, colonial, and causal process (Friedmann, 1963), to “New Economic Geography” (NEG) (Pike, Rodríguez-Pose & Tomaney, 2017) via Krugmans (1991) refining of national industrialized core and agricultural periphery as necessary condition for growth and economies of scale. Centre-periphery has almost become an axiom in how society must be spatially organized, and the theory flows through the whole thesis. From research question, to sample selection and result. Applied in an understanding of centre-peripheral intraregional relationships and power dynamics within practical regional development. Also, an additional implication of centre-peripheral development as process of power has been observed. An impact of being peripheral in dominant cognitive understanding or discourse. As in centre-peripheral field of vision. An inherent interest for the urban and most prominently idealized success stories, representing centre, has pushed hinterlands and lesser centres to the peripheral of mind. What is usually gazed upon and from is the centre as the platform of knowledge creation. This research therefore aims to capture a peripheral perspective of regional development.

Interview guide: What is regional development from the perspective of the peripheral?

The dominant abstraction of spatial organization has been described as a centre, with surrounding areas of lesser centres and hinterlands as space in between. One such system is often understood as constituting a region. However, one systems centre can also serve as lesser centre to a system at a higher scale. Making region a matter of scale. In regional development it is typically the interplay between institutionalized national subregions. The global economic integration of goods, ideas, movement (Barnes & Christopher, 2018) makes distinguishing different scales even more complex. It is therefore an important part of the framework that an ideal region cannot be singled out. Or disconnected. Furthermore, region is understood as a matter of positionality and a region, or regional, differs based on perspective. Concretized in research application by investigating what regional development is to classified periphery in FA-region Stockholm.

Interview guide: What is regional development from the perspective of the peripheral?

The narrative of urban growth poles has together with the knowledge economy seemingly further cemented the current centre-peripheral structure. Spatial disequilibrium was in early thought a juvenile stage of regional development but self-reinforcing momentum of concentrating physical and human capital and resources, growth, and power, has proven resilient. This thesis applies development as institutional capability in a research enabled by the qualitative approach.

Interview guide: What is regional development from the perspective of the peripheral?

Skill-selective spatial sorting of human capital towards some centres has been observed at national and regional scale. Meanwhile national, regional, and local success is associated with attracting and securing a particular kind of inhabitant. The highly educated, wealthy and well-behaved - ‘talent’. This aligns with previous critique and seems to further increase centre-peripheral segregation. Applied in the empirical research by investigating experience of human capital in relation to regional development and mapping human capital indicators.

Interview guide: How is human capital distributed in centre-peripheral regional development and how is it affecting local and regional development?

Research design

Methodological approach

The research was designed in relation to the theoretical framework, aim and unit of analysis. Simultaneously shaping the framework and empirics. Previous research frequently leans towards quantified interregional growth indicators. Which is both reasonable and viable. However, there are also suggestions that regional development needs to steer away from a one-size-fits-all approach by capturing experience and involve classified periphery. Therefore, a transformative mixed research (Cresswell, 2009: 15) was deemed appropriate and designed in relation to the given demarcations. With qualitative and quantitative data complementing each other. Selected and analysed from a certain theoretical standpoint and sample (Berg & Lune, 2012: 325). If applied, mixed research should be holistically integrated through the design (Mason, 2018: 83; Bryman, 2011: 555) for strategic and legitimate reasons (Bryman, 2011: 578). Increasing data quality into one stronger output.

A purely qualitative research would have lessened ability to address spatial patterns, foundational to the analysis. Purely quantitative research would not have answered the identified epistemological and ontological gap that constitutes the research questions. The qualitative method of interviews was therefore necessary. Mapping human capital indicators within the FA-region enabled additional dimensions and situated the qualitative findings. The research is inductive in that empirical data is used to answer predetermined questions. The predetermination of the questions and operationalization is the deductive part. The secondary socio-economic data is visualized and processed via ESRI's ArcMap, highlighting otherwise intangible relationships. If qualitative data is treated by methodological rigour and systematic filing (Bryman, 2011: 154-55) it enables different findings than quantitative. Thus, the research both explore patterns in regional human capital spatial sorting and dives into meaning, role, and experience of the pattern. The conceptual workflow at the next page visualizes the research design.

Figure 1 – Research design

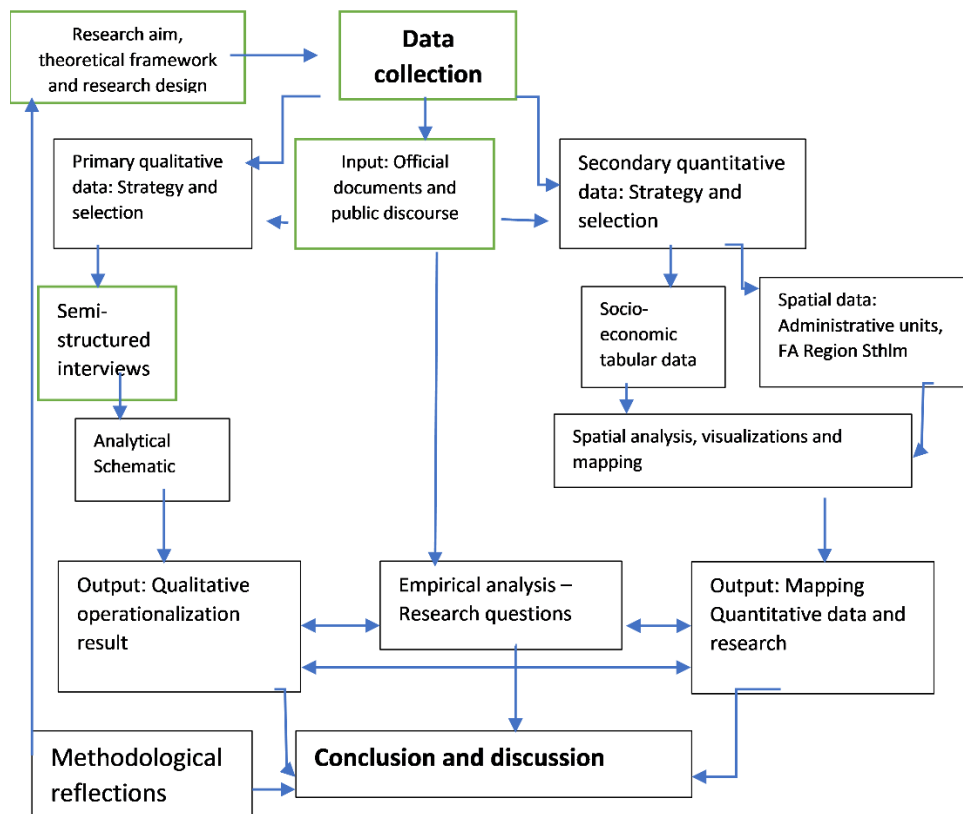


Figure 1 – Johan Ovsiannikov

Case and sample selection

Case selection is an intricate and sensitive part (Berg & Lune, 2012: 325) but essential when exploring processes (Cresswell, 2009). By the theme of this research, perhaps even more than usual. Here understood as a methodological approach enabling nuances to a phenomenon (Baxter, 2016). The vital part is to consider what the actual unit of analysis is and should be. Addressing region (-al) demands thorough selection of empirical setting as the fluidity of the concept enables numerous possible cases (See *theoretical framework and background*). As already introduced administrative regions, former county councils, are responsible for regional development and consists of municipal subunits. However, an alternative official regional development analysis region is defined as:

- Functional Labour Region - *Funktionell arbetsmarknadsregion* (FA-region). “A region in which people can live and work without spending too much time commuting” (Tillväxtverket B, 2020). Addressed henceforth as FA-region.

The current division was made 2015, revised approximately 2025 and based on SCBs (Statistics Sweden Official Agency) forecast of labour-market and commuting around local centres (Tillväxtverket, 2020A; SCB, ND). A definition that precisely aligns with the thesis objective. Aside from official analytical adherence, selecting FA-region Stockholm enables studying peripheral perspectives *within* one of Europe’s most advanced regions. For instance, if the administrative Region of Stockholm was selected; peripheral units, as a matter of perspective, could have been found but not in adherence to the common theoretical conceptualization.

The centre of Stockholm is the centre of the administrative region, the FA region, Sweden, and some would argue Scandinavia. The case of FA-region Stockholm presents an opportunity to study

intraregional centre-periphery within one of Europe's most advanced regions but with multi-scale territorial, economic and social disparities. The qualitative sampling strategy selection became purposive sampling. A common method in qualitative data collection (Bryman, 2011: 434) to identify informants with specific knowledge, position and perspective. To increase validity and reliability of the purposive sampling (Stratford & Bradshaw, 2016) the following systematic approach was developed.

Tillväxtverket (2020AB) analytically classifies Swedish FA regions and municipalities as shown below in table 1:

FA Region Classification	Municipal Classification
1. Large City Region	1. Large City Municipality
2. Dense Regions close to a city	2. Dense Municipality
3. Dense Regions Remotely located	3. Countryside Municipality
4. Countryside Regions close to a city	
5. Remote Countryside Regions	
6. Very remote Countryside Regions	

Table 1 – Johan Ovsiannikov

- *Municipal class 1*; Less than 20 % rural population, and at least 500 000 inhabitants in the municipality or shared with neighbouring municipalities.
- *Municipal class 2*; Other municipalities with less than 50 % rural population.
- *Municipal class 3*; At least 50 % rural population.

The aim is to investigate peripheral perspective and role within FA-region. FA-Region Stockholm is classified as 1 but consists of municipalities from all three types. Figure 2 at the next page illustrates the FA region and highlighted peripheral municipalities. At least one municipality from each administrative region within the FA-region is represented in the qualitative sample.

Figure 2 – Sample Selection

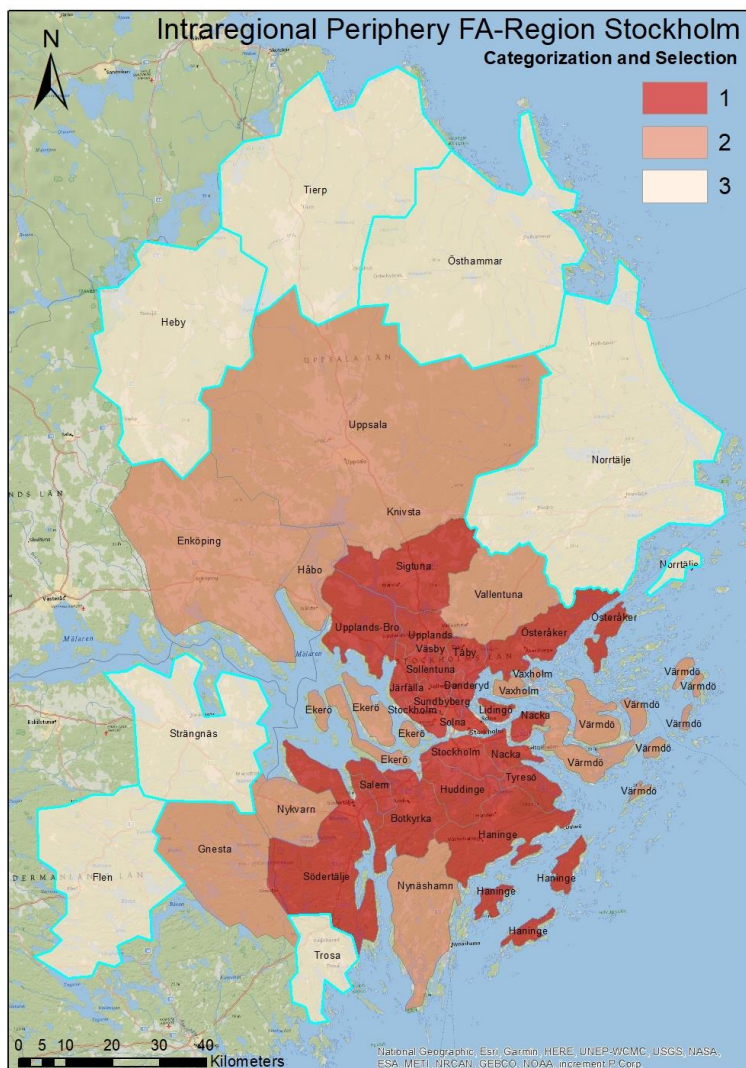


Figure 2 – Johan Ovsiannikov

Highlighted municipalities became the spatial qualitative target population, a gross list of classification is found in appendix 2.1. Once the spatial target population was identified the next step was determining appropriate informants based on:

- Relevancy, position, and knowledge about; regional and local development; human capital; comparable inter- and intraregional units.

Representative informants were therefore set to individuals responsible for regional development at the classified peripheral municipalities. Meaning either director or other strategic employment. Local and regional policymakers was an alternative, as representation of the inhabitants. It would, however, been more biased to political agenda. Once the parameters were set, the strategy to find appropriate informant was using management within local and regional development as gatekeepers, assessed via contact centers. The research aim, questions and interest were discussed with each gatekeeper and matched with informant. In some interviews, management became the informant while others delegated to specific employees. The systematic approach and informant precision were possibly increased by personal position at a similar municipal organization and unit. Validity and reliability should therefore be high, and the effort put into selecting appropriate informants was hopefully

rewarded by increased data quality. Informants had up to 20 years practical experience with regional development at municipal and regional scale, at different locations, and underlined both importance and validity of the angle, sample, and research questions. Table 2 below is the list of informants by employment. For ethical purposes they are presented as numbers without internal order in the result section. Appendix 1.1 shows the interview schedule.

Informants
Director planning and development
Director planning and development
Development strategist
Local and regional strategist and director
Local and regional planning strategist: Sustainability and infrastructure

Table 2 – Johan Ovsianikov

Analysis demographical spatial pattern and human capital distribution

Quantitative data collection and processing method

Aggregated visualized secondary quantitative data was included as part of the transformative mixed research design. A spatial analysis includes *“all of the transformations, manipulation and methods that can be applied to geographic data to add value to them, to support decisions, and reveal patterns and anomalies that are not immediately obvious.”* (Longley et al, 2011: 352). A GIS is a tool to capture, analyse, and display geographically referenced information (Musa et al, 2013; Elliot & Gatrell, 2014: 87) and to explore how different places relate to each other by making the abstract tangible (Longley et al, 2011: 40-42). ESRI ArcMap was applied to map the FA-region and the geographical structure of identified indicators.

The process of selecting secondary socio-economic data and spatial visualization was steered by subsequent operationalization question:

- Which demographical and human capital indicators matter and how are they distributed within the FA-region?

Selecting appropriate variables was necessary but challenging and rests upon previous studies intersecting human capital and regional development. Secondary data was obtained via SCB population registration in a vast screening. The chosen variables serve as indicators assessing structural human capital at interregional level. Demographic dependency ratio (DDR) and mean income serve as direct measurements. Education is a common proxy in assessing human capital distribution and skill-selective development patterns. High education was set to ‘at least 3 years of post-secondary education’ and additional variables gender and age 25-34 was added. Selected data was processed and coded in Excel into municipal subparts of the FA-region by gender and age. Thereafter, by relevancy and ability to incorporate into the research within the limited timeframe. After the tabular data was categorized it was joined with spatial data in ArcMap assessed from Lantmäteriet and SCB.

Choropleth mapping was used as GIS technique as “an effective tool for identifying spatial patterns in a dataset... used widely for visualizing socioeconomic patterns, disease, crime, and other human geographic variables” (Boscoe & Pickle, 2003: 237). Giving tabular data a spatial dimension by classification coding (Esri, 2020; Longley et al, 2011: 69). In this research choropleth maps contextualizes and visualizes otherwise intangible spatial relationships. Thus, adding a visual dimension that enriches the analysis and increasing communication (Longley et al, 2011: 298) of the findings. Presented maps has followed general principal design (Dunn, 2005: 324). The maps reflect human capital relative to population as it enables centre-peripheral comparisons. Metadata, variables, and classification is found in Appendix 3.

Analysis peripheral knowledge and experience of regional development and human capital

Qualitative data collection and processing method

The primary method of the mixed research is qualitative interview. Interviews are time-consuming (Dunn, 2016), which had to be regarded especially in relation to timeframe of this thesis and covid-19 constrains. In-depth and follow-up face-to-face interviews was therefore not possible. As oppose to structured interviews, semi-structured puts the informant's knowledge and perspective in focus (Bryman, 2011: 434) which is the precise purpose of this research. Semi-structured interviews were therefore selected as qualitative data collection method. Commonly used in qualitative geographical research and applied here as a tool to extract data of pre-determined topics (Bryman, 2015: 206).

The inherent flexibility of semi-structured interviews was well-suited to the challenges and aim of this research. The unprecedented COVID-situation raised many "unknown unknowns", especially regarding the qualitative research that relied on communication and interaction. It affected both author and informant's ability to conduct interviews. This application of distance semi-structured interviews was forced by ethical adherence to current regulations, but reflecting on it, that is also the strategic part. Knowing how to manoeuvre should expected or unexpected events occur. The application therefore become qualitative interviews via digital video platform. Selecting visual communication instead of telephone was based on relying on few but qualitative interviews. Comparable aspects to telephone interviews were the planning and an increased remoteness reducing interviewers influence (Bryman, 2008: 197-205). On the other hand, telephone interview reduces high quality interview time to 20-25 min (Ibid). The beforehand selection was Zoom, a cloud-based professional tool for video conferencing in private conversations and group meetings (Zoom Video Communications Inc, 2016). Especially useful through high quality, security, and opportunity to directly record the interaction (Ibid).

However, during the precarious situation, I was in no position to request a specific interviewing medium. Ad hoc solutions became necessary to facilitate the informant's participation and take valuable time from their working responsibilities. Meaning that high flexibility and creativity within the research was required. Not necessarily a limitation, but prior knowledge was limited in the literature and to the researcher. The interview situation was proposed to Zoom but decided based on possibility and conducted in Google Meet, Microsoft Teams, Zoom and Telephone. One informant wanted to conduct the distance interview via telephone. Comparing the two underlines previous findings and adds that visual increased time aspects of quality, the quality of the interactions, and therefore also the data. The different tools increased quality by adaption to informant's professional environment. It reduced quality by compromising consistency and technical ability. During the covid-19 pandemic distance communication has in many workplaces replaced real life face-to-face interaction. Video has previously been compared to telephone interviews but that is doing the method a disservice based on this thesis experience. Some aspects are lost in comparison to real life interaction, but I would argue that video interviews should be considered a separate method application. One prior study was found addressing qualitative interviews and video conference (Zoom) (Archibald et al, 2019) finding great potential in eliminating time and space limitation. Increasing suitability for informant and reach for researcher. Weaknesses was the risk of connectivity issues during the interviews and in getting started. Met in this study by conducting test interviews and ensuring stable connection.

Distance interviews would not have been chosen if not forced. However, that probably has more to do with personal and research path dependency. As a process of learning, this specific method application should therefore be viewed as possibility rather than limitation. The method has been continuously evaluated by discussing the experience in rounding up the interviews, see notes in Appendix 1.3.

Qualitative analysis

The analysis tool was developed before the data collection (Kvale & Brinkmann, 2009) which proved a valuable approach in integrating the empirical data with the research design and framework. Analysing qualitative data is a matter of scientific justification, rigor, and systematics (Stratford & Bradshaw, 2016). Applied throughout the thesis by explicitly illustrating operationalization and application of concepts from theoretical framework to empirical research and analysis. The analysis was directly or indirectly active throughout the crafting of the thesis, from reviewing literature to the interview guide (Cresswell, 2009: 184). The most explicit part was transforming the qualitative visual and audio raw data via coding and sorting to interpretable text by and from the theoretical framework and research questions (Ibid: 185; Kvale & Brinkmann, 2009: 235-238; Dunn, 2016: 378). The thesis used the empirical data as input in a tailor-made (Cresswell, 2009: 185; Kvale & Brinkman, 2009: 194) pre-determined coding and interpretation device designed to the aim and grounded in academic praxis illustrated below in Figure 3.

Figure 3 – visual model analytical device

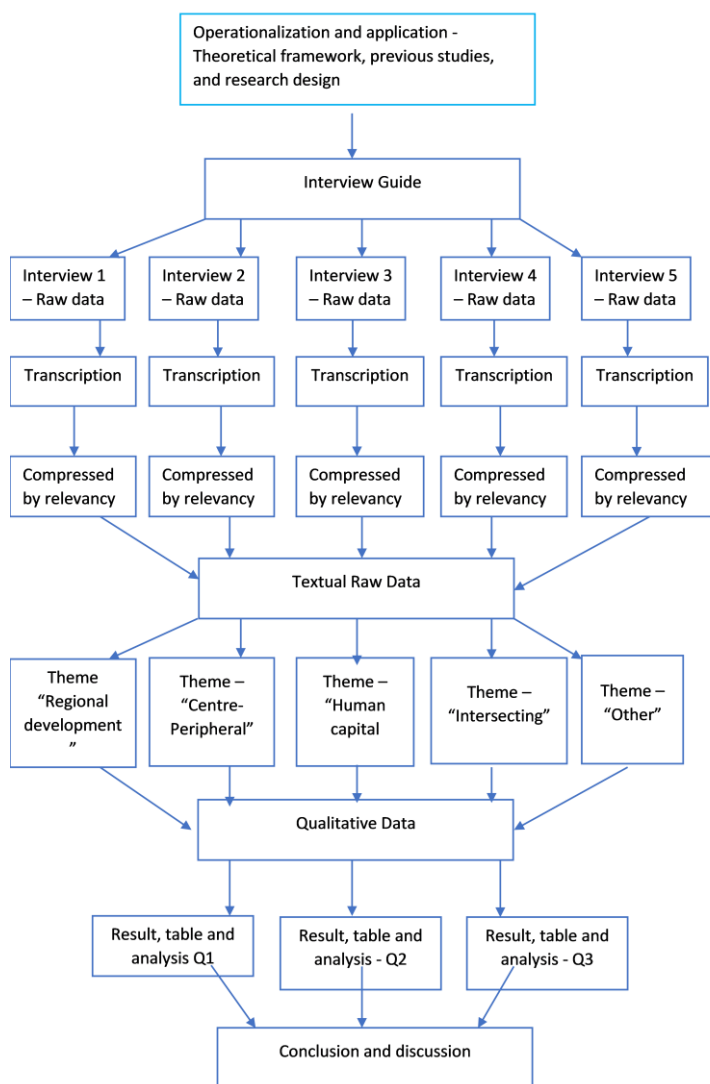


Figure 3 – Johan Ovsianikov

The figure illustrates the developed analytical process and tool. The theoretical framework is rounded up with application of introduced concepts. How they translate to each research question, integrate

into the interview guide and following analysis. Applied in a systematic identification of patterns and meaning (Berg & Lune, 2012: 349 – 373; Cresswell, 2009) by sorting, filing, and processing themes (Bryman, 2008: 528) through printed hardcopies of transcriptions and excel.

Interview guide

The interview guide was written in English, translated to Swedish in processing test to finalized version. The formal interview guide is in Swedish, translated is found in Appendix 1.2. So is the transcribed text as the recorded language is Swedish. Translation back to English was conducted in step 7- 8 in figure 3 above. Conducting the interviews in Swedish was necessary and increased quality. However, with a risk that implications and connotations are lost in translation. The guide was developed by concretizing each section in the theoretical framework into operationalization. Thereafter designed to capture knowledge and experience of the informant without addressing research problematic explicitly. Open questions were aimed for as a tool to lift the perspective of the informant towards the theme. The interview guide was processed in multiple versions based on ethical and analytical considerations of; attempting to develop clear non-leading questions and eliminating sensitive information by objective questions (Dalen, 2015: 35-36).

Methodological reflections

Regarding quality

Quality of applied methodology, methods and data is assessed here by discussing reliability and validity along with experienced weaknesses and strengths. Reliability and validity goes hand in hand, steps to increase one increased the other as well. However, both aspects are vulnerable to positionality biases.

Internal validity is the relation between different parts of this thesis, for example conceptual framework and empirical observations (Ibid; Mason, 2018: 236). The research was designed so that each selection is traceable and justified by dovetailing methods and concepts. The design was systematically integrated in all parts and the whole process. The coding and analysis tool were developed before the interview guide which helped integrate the data with the thesis and increasing reliability, relevance, and validity of the acquired data. External validity is usually addressed as generalizability (Bryman, 2008: 531; Mason, 2018: 35) which needs to be assessed by other specific cases but is further discussed in the conclusion. External reliability is applied methods (Bryman, 2008: 351;). A matter of accuracy, whether the same methodology is applicable at other data sources, generating equally interpretable results. The experience both by the researcher and the informants was that the methodology hit the mark and could be directly used in other contexts. Internal reliability is the accuracy of interpretation within the research (Bryman, 2008: 351; Mason, 2018: 35). External and internal reliability should be increased by the systematic and transparency of the study. A tool was developed, from sample selection to interview guide, aimed to be adoptable and coherent. Serious considerations were put into thematic and informant selection (Dunn, 2016: 150-158) to consolidate quality by accuracy.

Assessing secondary data quality is mainly tied to availability of data, its integration with the thesis (Clark, 2005: 72) and GIS relies on accurate collection of high-quality data (Shaw & McGuire, 2017). In this thesis validity and reliability (Bryman, 2011: 299-313) should be high, as it was generated from SCB. A concern, not for quality of the data, but in appliance was reliance on open public data. Risking a “work with you got”-scenario, especially troublesome while working with GIS (Ibid: 275). Plausible indicators were found but availability limitation lies in the spatiality of the data. For example, migration patterns with background variables education and gender at a municipal level is not publicly available. Therefore, the analysis could not dive as deep as preferred in direct selective migration.

SCB generates labour and regional preconditions in regional development specifically related to FA-regions. However, spatially limited to cross-analyse *different* FA-regions, not unveiling dynamics *within*. It was solved by aggregating and processing municipal data manually, selection of indicators

and by using secondary data complementary rather than primary. With choropleth mapping a usual bias lies in classifications (Krieger, 2003: 385) and setting areal units (MAUP, Dunn, 2005: 324). In this study solved by the given case of administrative borders, municipalities, within the FA-region of Stockholm. Fragmented geodata of each administrative border was publicly available via Lantmäteriet and SCB and reworked matching the FA-region. The downside of mapping the FA region in a mixed research with qualitative data as primary was that it perhaps rendered more descriptive maps. GIS is also dependent on previous skills and experience, which in this thesis is and was limited. However, the strengths of visualization, in patterns and communication, and the personal aim to learn how to integrate GIS and qualitative research became decisive. GIS enables tangible and concrete reflections of otherwise obscure and abstract phenomena, e.g. “Spatial sorting of human capital”. A powerful reflection but *one* reflection of reality. An important point, as the reflection passes through alterations before visualisation. Knowledge is always situated within a context and a map is never innocent. When one relationship is mapped, another is not. For instance, in mapping the functional region, where do the functional, relational, region “stop”? Albeit customized to official regional analysis, this thesis also adheres to administrative boundaries. Which means that what is analysed is one reflection of the functional region of Stockholm.

Regarding qualitative data, the author became well acquainted with the guide which increased quality of application (Bryman, 2008: 197-205) and the mutual benefit increased by each interview. Test interviews was conducted with a personal contact in a similar position as the informants. The test refined conversational and listening skills, the guide, and the questions (Dalen, 2015: 40). The guide and questions were well received and understood, yet with some differences in conversation emphasis. Which suggests that the aim of capturing the informants particular experience, knowledge, and perspective was achieved. During the first interview (1-hour meeting, 44 min recording, 30 min qualitative data) effort was put into solving technical issues and establishing a common ground, which compromised quality. This relates to the previous discussion of flexibility in visual communication tools in the precarious covid-19 situation. Lessons were learnt and quality increased incrementally with experience of the different mediums and each interview became more engaging. Methodological notes and feedback from each informant were written directly after.

The result profited from interviewing informants based on official municipal employment to increase and share knowledge of the research theme and problematic. However, this also comes with potential pitfall of informants biased by political agenda and personal ideology. The experience was however that the conversations were sincere and genuine. Furthermore, the informants have academic background within the field of regional development and adjacent areas. Which suggests that the experience of the informants, the data, is valid as situated in both academic regional development and practical appliance.

Regarding sampling errors (Bryman, 181) the risk lies in how purposive sampling is exercised. Selecting the municipalities was grounded in adherence to research design, case, analytical and official praxis. The informants were selected by municipal management in regional development as gatekeepers. Augmenting high validity and reliability. However, sample and study population rarely fully match, and the sampling error was reduced as much as possible. Each informant gave unique perspectives and insight to the research questions but two of the target population did not participate in the qualitative study. Gatekeepers at one municipality did not reply when contacted. An assumed possibility beforehand. Solved by reaching out early to the target population and securing interviews where possible. A decision was made to thoroughly prepare, conduct, process and analyse 5 interviews instead of using limited time chasing one more. Withdrawal from one municipality towards a student project with calendars already full of official responsibilities seems understandable.

Regarding ethics and positionality

The research design and presentation were continuously revised based on ethical criteria's; voluntarism, integrity, confidentiality, and anonymity (Bryman, 2008: 131-32). Confidentiality is always a concern (Bryman, 2008: 132; Valentine, 2005: 122), in this thesis addressed by removing

personal data. Informants are coded and answers aggregated. Consent was given to record, rework, quote, and use. Age and gender are left out as background variables. A concrete ethical implication was conducting the research and writing the thesis during covid-19. The FA-region for the time-period had increased regulations of social distance, avoid public transport etc. It affected the entire thesis, from research design to crafting it in self-isolation. Another ethical consideration that mistakenly was not foreseen by the author was that development, or perceived lack of it in relation to others, for instance in human capital supply, can be sensitive to address. Aside from practical ethical research considerations, what ethics really involves is “critically engage with the issues” (Mason, 2018: 87-93). To consider contextuality, positionality (Ibid) and integrate epistemological awareness as part of the research design throughout the thesis. This approach inspired exploring centre-peripheral practical and analytical hierarchies.

A research problematic is identified where peripheral areas are sometimes neglected in regional development and public discourse. It is grounded in the theoretical foundation, previous studies and underlined in the qualitative result from informants stressing the importance and validity of the questions and theme. Interest and positionality are on the one hand, a necessary component for any study. On the other, the framework and analysis is built based on the research aim, influenced by positionality. Thus, it is not objective. This thesis main positionality directly affected the sampling, and thus potentially the result, as one municipality of the target population was removed due to personal employment at the municipality working with local and regional development. That certain interview was planned for and ready to be scheduled but decided to be removed as it would have reduced quality and impacted ethical and personal position. However, the personal organizational knowledge and knowledge of practical regional development probably made this particular perspective possible.

Positionality issues also relates to validity by the informant’s subjectiveness. As professionals, working for locally elected policy-makers, their experience is reflected in their position. Possibly informing the answers from a certain agenda. All though affecting the research external validity, it is not seen as a weakness in this thesis. The aim is to capture and lift their experience and knowledge. Their positionality. The informants are employed for their skills in the research area and in a position corresponding to the research questions. Knowledge is always situated and produced (Mason, 2018: 5-6), and if their knowledge about regional development is not viable, whose would be?

Reflecting on it, transparency and letting others judge positionality is key. A critical point forming the epistemological positionality that one must take (Mason, 2018: 111) and a vital part in validating and situating the critical approach (Benton & Craib, 2011: 8). Also relevant to the theme of thesis, regional development. Observable in the critique of who is producing regional development and for whom (Pike, A; Rodríguez-Pose, A; Tomaney, J. 2007). The thesis should therefore be read as a nuanced observation of regional development from *a* perspective. The aim is to complement other studies and this application of regional development explores epistemological and ontological biases in regional development. This is also ethics, as it discloses power in producing regional development.

The ontological question – what is regional development? Is tied to the epistemological questions – to whom? And why? (Pike, A; Rodríguez-Pose, A; Tomaney, J. 2007).

Result and analysis

First, development of FA-region Stockholm is contextualized and mapped as part of answering the research questions and to enable subsequent analysis. The qualitative result is presented in tables reflecting each informant's key experience and response towards each research question. Chosen to increase direct communication of the data. The data is analysed in relation to each table and figure and the section is tied together by connecting the three research questions.

Regional development in FA-region Stockholm

Thinking of "Stockholm" as a region, what usually springs to mind is a metropolitan urban agglomeration of high cultural, human, and monetary capital. The administrative region of Stockholm is indeed dominated by urban form in physical and abstract reach, but also home to Sweden's third largest "countryside"-population of 160 000 inhabitants (Region Stockholm, N.D). A number that increases when jumping scale to the functional region of Stockholm. *Regional enlargement* is the buzzword in Swedish regional policy encapsulating further geographical labour integration, advanced digitalization, and improved road infrastructure. Observable by how Swedish FA-regions has decreased in quantity from 187 to the current 71 since the 1970s (SOU 2020:8). As the centres sphere of influence increases, centre-peripheral relations and dynamics changes. FA-region Stockholm's regional development reflects both theorized centre-peripheral structure and increasing reach of large centres.

The transition towards knowledge-based economy comes with structurally polarized labour markets in Sweden (SOU 2015: 157). Signified in that 1985, 40 % of the Swedish population aged 18-65 lacked high-school education but by 2010, 40 % had attained post high-school education (Ibid: 101; 154). In regional development practice called "*the structural change*". Labour is increasingly centralized and increasingly dominated by labour requiring high education (RUFSS 2050). Also confirmed here in the result as this trajectory is pushed furthest in FA-region Stockholm. Sweden consistently ranks top in global GDP/Capita, hitting record levels post-2008 (Statistics Sweden, 2019). The FA-region of Stockholm is realizing 40 per cent of Sweden's overall growth (Stockholms Handelskammare, 2019). A trajectory continuously secured by the strategy to attract the right kind of talent (Stockholms Handelskammare, 2020).

In 2019, Sweden ranked second most innovative country in the world (Report, 2019) and Stockholm was deemed "the worlds smartest city" (Government Europa, 2019). '*European Centre for Entrepreneurship and Policy Reform*' calls Sweden one of Europe's most knowledge-based economies and "Stockholm is Scandinavia's Silicon Valley... the only downside [to knowledge concentration] is that housing prices are rising due to it" (Weimer, 2020). Simultaneously, "polarization among different municipalities is increasing in terms of population, competence and economical pre-conditions" (SOU 2020:8 – 23) due to imbalanced municipal demographical changes. Apparent in the region of Stockholm as centre-peripheral labour polarization and socioeconomic segregation is deemed a major policy challenge towards cohesion (RUFSS 2050: 172-173). This centre-peripheral development of FA-region Stockholm is visualized in Figure 4 and 5 below mapping demographical structure in the years 2006 and 2019.

Figure 4 & 5– Demographic Dependency Ratio in FA-region Stockholm

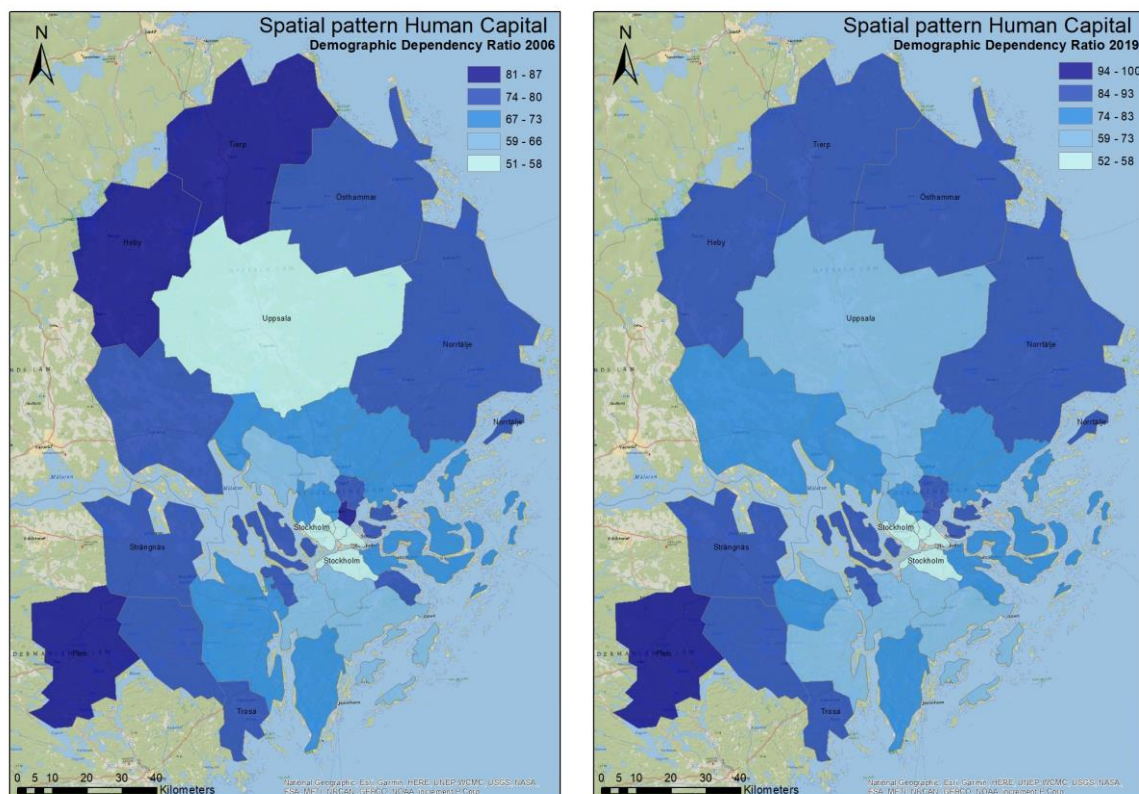


Figure 4 & 5 – Johan Ovsiannikov

Demographic Dependency Ratio (R2, 2020), as indicator of realized human capital, assesses quantity of young and elderly people that labouring population (age 20-64) must support. 2006 was the earliest year of accessible data and different years was selected to assess development. The different maps display similar distributional patterns but 2019 the centre-peripheral imbalance has increased gradually with distance from the centre. In the primary centre (Stockholm municipality) year 2019 the figure is 52-58 and in classified periphery 84-100. This means that the labouring population in peripheral municipalities within the region has up to almost twice as many elderly and young people to support.

Additionally, it is also a matter of which kind of labour is located where. The demographic transition represents structural condition, capacity and relationships. It affects local and regional development in a wide range of aspects from taxation and welfare pressure to labour diversity and innovation. It is one of the most pressing structural challenges, yet rarely addressed in regional policy. The pattern is not unique to the FA-region, but it highlights differences within. The DDR in the centre is advantageous and stable. Other parts of the region have risen by 10-20. A cause and effect of differences in distribution of human capital and development capacity. Additionally, half of Sweden's projected population growth of 1,3 million by 2040 is among the elderly cohort and the regional labour market is set to further polarize (SOU 2015: 24; 157). The most assessed indicator of regional development, mean income, correlates with the structural conditions and is mapped below in Figure 6.

Figure 6 – Mean income in FA-region Stockholm

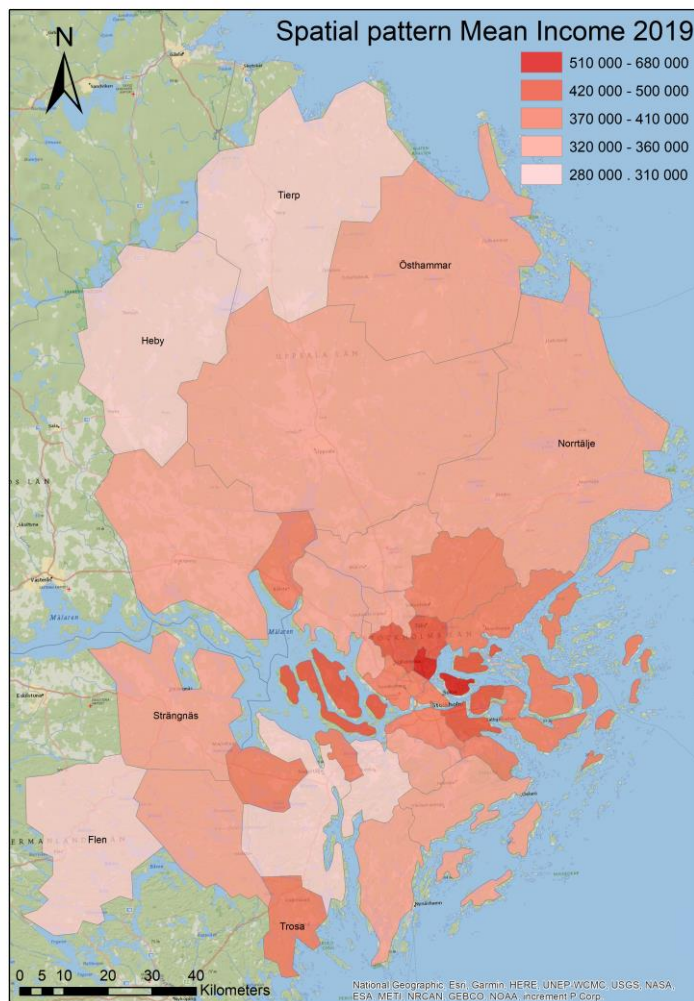


Figure 6 – Johan Ovsianikov

The figure above visualises intraregional distribution of mean income in FA-region Stockholm. The concentration of capital pulsates outwards from the primary centre. Which correlates with concentration of high human capital as visualized in Figures 7-10 and favourable DDR (Fig 4-5). The figure also illustrates variances between peripheral municipalities correlating with the qualitative findings (Table 3-5). In current centre-peripheral structure this pattern is expected. The centre as the place of concentration is not disputed but that it occurs in centre-peripheral relation is the essential contribution to further analysis. Regional development practice and analysis sometimes view mean income in isolation. As such it symbolizes success, or lack of it, of different places and people residing within those different places. In this thesis 'mean income' is instead observed in relation to the centre-peripheral structural pattern. In that sense, it becomes one tangible outcome of centre-peripheral development. When the dark red areas in the map above are zoomed in, it shows how share of regional gain, success, is place-specific and relational. The FA-region Stockholm is a place of high economic opportunity and lead performer in indexes of innovation, patents, education etc. However, place-specific regional gain is not necessarily regional development. Regional development has more and different meanings.

Voices from classified periphery within FA-region Stockholm

Regional development narrative, discourse and policy often focuses on centre development but is in practice more diverse. The same applies to FA-region Stockholm with its recognized diversity enabling both the unique possibilities and position but also internal challenges.

Perspectives, meanings, and role of regional development

The table below presents the aggregated result of what regional development is to the informants representing peripheral areas within FA-region Stockholm and what it could well be to other regions as well.

Table 3 – Regional development

Interview	Keywords	Key Quote	Key Finding
1	Difficult. Functional structures. Population Growth. Convergence.	<i>“To us - regional development is investment in infrastructure and convergence adapted to actual migration flows”</i>	Experience regional development as abstract and complicated, filled with different meanings. Describes functional structures as more important than administrative and different regional identities can sometimes hinder collaboration.
2	Coherence. Functional structures. Growth. Quality. Perspectives.	<i>“Regional development aims at regional growth and that inhabitants in the region lives as good life as possible, and local development actually shares that aim.”</i>	Experience of numerous and abstract meanings of regional development based on applied perspective. Describes it as a process and task to merge multi-scale development.
3	Coherence. Synergies. Centralized. Disparities. Location.	<i>“To systemize regional consensus and trajectory. That is regional development to me. To understand different needs and to see how different local needs create regional and local gains. ”</i> <i>“Regional development strategy is not regional development to us [because of its centralizing aim], it undermines our functional</i>	Describes regional development as an objective to equally address and dovetail different intraregional functions but in practice regional policy tends to neglect disparities.

		<i>development capacity."</i>	
		<i>"It's a pity, in regional development, you have to address disparities. It's really annoying when people say, "this is an example from the periphery - what periphery?"</i>	
4	Enlargement. Functional. Labor-market. Disparities. Possibilities. Population growth.	<i>"I think the key challenge for this region is that it is so diverse, not one municipality is like the other"</i> <i>"This double citizenship [functional and administrative] has, maybe not disappeared but been reduced... It has become easier to accept our differences, it is now okay to have functional regional cooperation"</i>	Addresses regional development as a function between location and structural connections. Describes and identifies a challenge of regional development as functional but administratively governed.
5	Essential. Dependency. Soft/hard infrastructure. Inclusion. Power.	<i>"The regional development has not been as dependent on us, as we have been of the regional development... Or the regional development maybe hasn't really understood what we contribute with to the greater region."</i> <i>"We are located in the middle, the geographical heart, [but functionally marginalized]"</i> <i>"[Countrysides] have similar challenges but different pre-conditions. Dependent on location, what's next to you and what is not".</i>	Conceptualizes regional development as functional flows of people, infrastructure, and communication in its most broad sense. Experiences regional development as problematically one-dimensional. Stresses a higher degree of participation importance in comparison to other informants.

Regional and development is coherently described as complex to isolate, navigate and explain by these professionals of local and regional development in FA-region Stockholm's classified periphery. The description of both concepts can be analysed as ever-changing and adaptive based on context, scale, and actor. Regional is described in two ways. As "actual", functional, in cooperation or in population flows and as administratively coordinated and governed by the formal institution. Functional is however coherently emphasised in giving regional development a pragmatic understanding and certainly relational.

Sample municipalities also borders other administrative regions outside of FA-region Stockholm and the main instrument, RDS, is exercised by 3 different administrative regions in regional competition and described as operating with a centralized bias. Problematically meaning that regional development to some extent is found governed by institutions not fully corresponding to the need. Mapped borders mismatch functional cooperation. Causing institutional challenges in policy, decision-making and in supporting functional collaboration and thus, development. The core of the conflict lies in that functional regions are fluid, changing, like development. The current administrative regions are more static and invented to fit another economic landscape. To some extent described as a path dependent functional lock-in. However, also described as going in the right direction illustrated in the following passage from interview 4:

"The administrative region really has assumed leadership in a different way than before, in daring to say that we are a county but perhaps not necessarily a functional region"

"If you were to ask me two years ago, I would have said that the region needs to assume a clearer and stronger role, but now that is being done. If the current trajectory is maintained than I believe it will bear fruit"

As evident in the structural change of FA-region Stockholm, regions are increasingly functioning as enclaves in transnational networks.

In Swedish regional terminology, growth and population growth are often used interchangeably, making it difficult to evaluate. Regional development contains all activities within specific areas but is often assessed as positive or negative based on population growth as concrete symbol. Population growth is one indicator, albeit perceived as decisive. However, the data here states that development as a process of participation is different and more than growth. The findings also show that it is a matter of who, where and why in relation to economic opportunity. Conceptualizing regional development is here given deeper meanings.

The informants describe and uses regional development in two ways. First, to elevate own position in a regional network of functional relationships. Second, to acknowledge and transform local disparities to synergetic development at a regional scale. Neglecting disparities is described as functioning to maintain economic and participatory inequalities. Regional development is described not as a thing, but as a process of including and dovetailing different geographical functions. Regional growth is understood as a sub-outcome of it. This conceptualization of regional development from a peripheral experience is close to what previous and current stream of theoretical critics has called for. "Adaptation to actual [labour and population] migration flows" is described in interview 1 as a key component of regional development. In this thesis, described in one of the research questions as human capital centre-peripheral distribution and its effects.

Centre-peripheral spatial sorting of human capital in the FA-region of Stockholm

Swedish regional development is amid a structural transition with a known expectancy of increasing centre-peripheral labour and education segregation. Segregation here understood as spatially separating two or more interlinked phenomena while simultaneously obscuring the separation. This is also why the otherwise success story FA-region Stockholm is interesting to decipher from within.

Figure 4, 5 & 6 visualized DDR and mean income as indicators of structural advantages and human capital in a diverging centre-peripheral development. Here the pattern and its effect on local and regional development within the FA-region is deeper delved into. First, by presenting the result of the mapped distributional pattern and momentum of human capital associated to knowledge-intense regional development. Highly educated younger adults, mapped below by place of residency, represents resource to attract in a spatial competition of stimulating local productivity and beneficial socio-demographical composition.

Figure 7 & 8 – Human Capital Distribution in FA-Region Stockholm

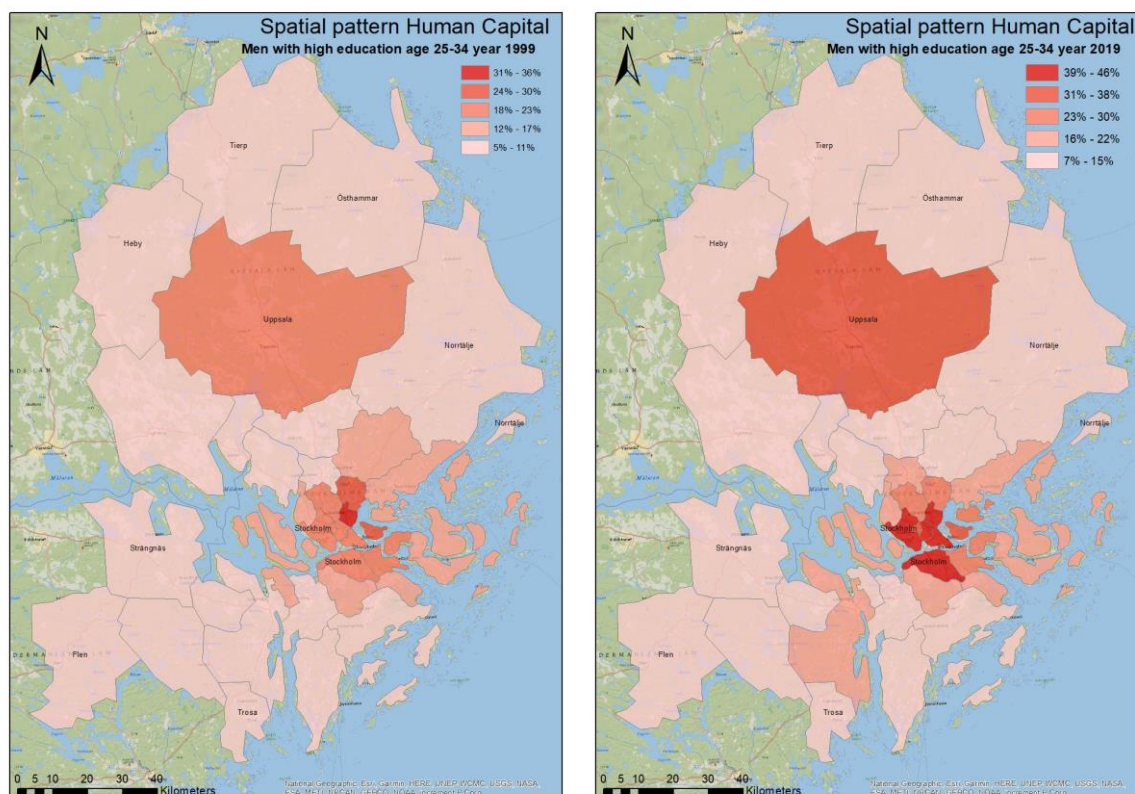


Figure 7 & 8 – Johan Ovsiannikov

Figure 7 and 8 visualizes a centre-peripheral spatial distribution of young men with high formal education. Increasing educational level during the time-span can be observed across the FA-region and specifically in the centres. In the maps above, a concentration pattern towards Stockholm and Uppsala, main and second centre of the region, is found. The uneven spatial distribution is, partly, explained by the two centres as main locations of educational institutions. In peripheral areas by the year 1999, 5-11 per cent of the male population aged 25-34 had received high education. By 2019, the share increased with 2-4 percent. While the centre increase was 8-10 per cent, from an already existing discrepancy of 25 percent to peripheral areas.

Gender was included as part of investigating human capital distribution both spatially and within the population. An increasing discrepancy of both aspects in acquiring high human capital by formal education can be concluded. In 1999, the share of high formal education was higher among men than women in each interval. In the past 20 years it has dramatically shifted, especially in peripheral areas and should not be discarded when addressing development capacity and struggle for resources within the FA-region. The next figures visualizes distribution of share of younger women with high formal education, showing a similar but more dramatic pattern.

Figure 9 & 10 – Human Capital Distribution in FA-Region Stockholm

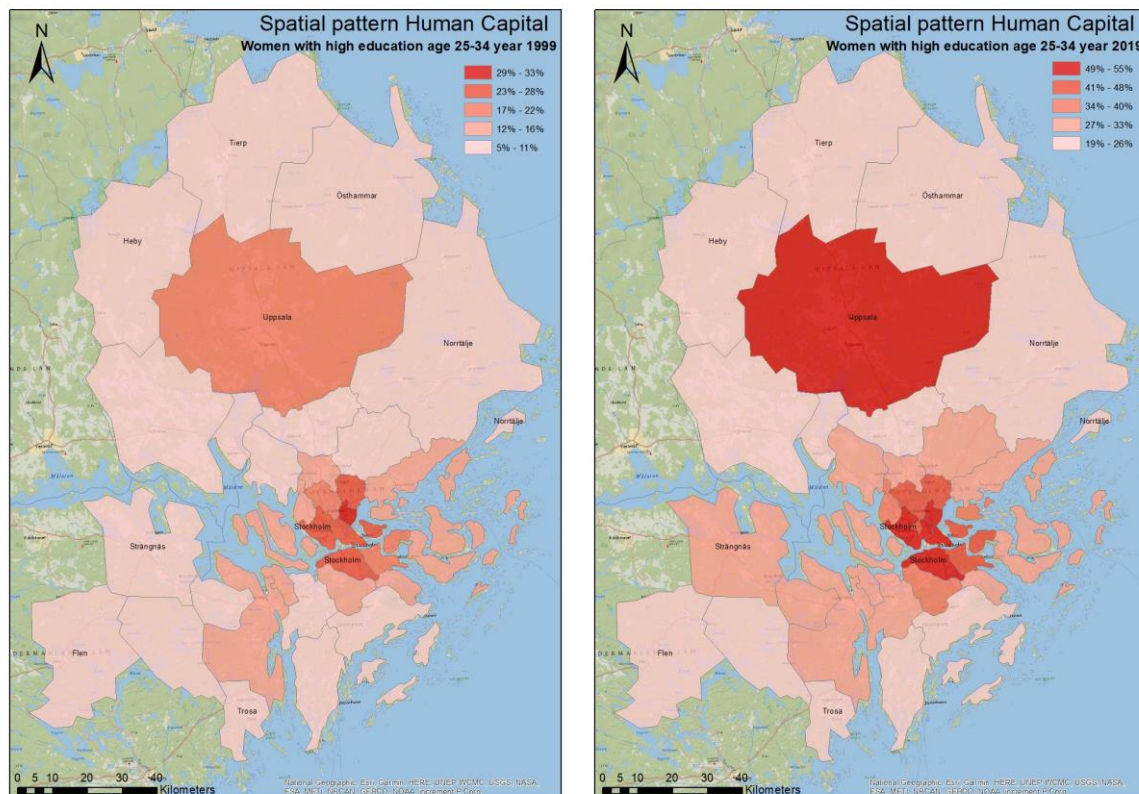


Figure 9 & 10 – Johan Ovsiannikov

High formal education rates among age 25-34 in the female population is found to have increased considerably during the last 20 years across the region. In peripheral areas share of young women with high education increased by 14-15 per cent, compared to 2-4 in male equivalent. However, the concentrating momentum is evident here as well. In the three highest intervals the share increased with circa 20 per cent, and in the two lowest circa 15. As education increases adaptability and regional education signifies adaptation to current dominant paradigm it makes individual labour and systematic labour market either vulnerable, in peripheral (light-red) areas, or well adapted, centre (dark-red) areas. The spatial patterns in Fig 7-10 suggest an increasingly uneven distribution of human capital towards the centras development in FA-region Stockholm. As with other patterns it is not unique to the FA-region but still important to consider and establish. As argued in background section, absolute internal centre-peripheral migration, as urbanization, has already happened. What is shown here are the center-peripheral selective flows and dynamics of a sorting process. The next table represents the qualitative data regarding lifted aspects of human capital in relation to local and regional development.

Table 4 – Human capital in regional development

Interview	Keywords	Key Quotes	Key Finding
1	Industrial lock-in. Transition. Stepping-stone. Centre-conditional.	<i>"The whole region suffers from old industrial landscape - and then people categorize – 'what do the region do? Well, the region has low education and manufactures.'" "But we try to develop towards technology and innovation". "A stepping-stone towards Stockholm, very problematic... from that perspective, it feels terrible. Local taxpayers pay the education for Stockholm's labour force".</i>	Currently in active transition towards knowledge-intense trajectory. Addresses hindrances regarding institutional, cognitive, and industrial lock-ins of being in classified periphery of the functional labor-market and sometimes used as stepping-stone for centre labor migration.
2	Strategic. Demographic transition. Complex. Stepping-stone. Centre-conditional.	<i>"We probably have the oldest demographics, and that profile is only increasing" "Sometimes we become, what should we call it, a nursery for development employees" "We have an advantage in being close to Stockholm, but it's also negative because it is difficult to maintain human capital ... a question that should be dealt with regionally, but it is very difficult to do in practice".</i>	Addresses demographic transition as the most strategic development challenge. Describes a partly mutual exchange within functional labor movement but sometimes hindered by serving as stepping-stone for centre labor migration by development professions as representations of high human capital.
3	Possibility. Circulation. Education. Stepping-stone. Centre-conditional.	<i>"People who physically have to be at work lives in the municipality" "We have had a tendency to be a stepping-stone" "Education mostly collaborates with the</i>	Depicts how highly educated labor resides outside of the municipality, especially development professionals. Describes a centre-conditioned human

		<i>municipality where it is located, and that is not countryside-municipalities".</i>	capital supply in the labor-market which is experienced as sometimes neglected in regional development practice.
4	Education. Circulation. Possibility. Attractivity. Positivity.	<i>"The centre commute is advanced labor" "In comparison to others... We have many who live here. We have been able to maintain human capital ...it is to a large extent about culture, and I think it's also about the positively charged questions, we are a growing municipality"</i>	Addresses importance of nuances in periphery and stands out as the peripheral success story with a centre-approach. Explained by the informant as culturally and institutionally tied to positively charged development discourse and quality in local collaborations.
5	Spatial sorting. Education. Stepping-stone. Peripheral.	<i>"We share the same need for the same competence, but not the same pre-conditions [to attract human capital]" "It's like we get nothing in return, we teach, and then they move on to other parts of the region. There is strength and pride in doing it well, but it doesn't give anything other in return. I don't get higher salary as labor moves towards the centre, our municipality doesn't get more tax revenue for it." "The universities needs to move out from the centre, that is important to regional development and its associations with labor, human capital and population education".</i>	Describes an active process of being peripheralized from contemporary favorable economic development and the FA-region as a double-edged sword to be part of but not equally participate in. Addresses marginalization effects of regional sorting of human capital and ties it partly to path dependency and as lock-in.

In summary, the education level of younger adults has increased drastically across the region and in a concentration process. Possibly reflecting displacement effects of increasing human, cultural or physical capital required to participate in Stockholm's place-specific development and position. Simultaneously, the formal educational gap between young men and women has increased. Especially in peripheral areas. DDR, mean income and formal education rates are unevenly distributed in centre-periphery as both causes and effects. Regional development is connected to competitive advantage by controlling resources and increasing human capital is undoubtedly beneficial to regional and local development. The FA-region is a success story relative to other regions, but who benefits from the centre-peripheral segregation is another question. The visualized spatial socio-demographic patterns can be tied to intraregional differences in welfare capacity and institutional and individual development. These visualized gaps should be lifted as issues not just to stimulate further development but to maintain functionality.

Development professionals symbolizes high human capital *and* directly impacts development by the profession. The qualitative result describes how peripheral areas are used as a platform to gain experience and knowledge and as stepping-stones towards center labour migration. The gained knowledge is thereafter realized in the centre and it signifies how the peripheral functions in relation to the centre. This selective migration process reduces development capacity and consistency which also affects the relationship between formal institutions, the local municipalities, and inhabitants, as members of the municipality. Crudely, the experience is that the peripheral in the FA-region becomes a centre nursery paid for by the peripheral inhabitant. It is possibly also a symptom of centre-peripheral differences in cultural aspects and ability to reward human capital. Or as it is more unproblematically put, "attracting talent". This partly explains the identified spatial imbalances in Figure 4-10. Being peripheral in FA-region Stockholm is described as a double-edged sword. It enables supply of highly educated labour force, but at the centres condition. An interesting exception highlights the pattern. Interview 4, unlike the others, describes realized potential of high human capital. By the informant explained by entrepreneurial culture and positively charged development discourse. Which signifies the importance of associations and concrete outcome of producing the countryside as synonymous with "left-behind".

Centre-peripheral relations in FA-region Stockholm.

The table below is the result of the qualitative study regarding the overarching research questions of centre-peripheral dynamics and structures, explicitly and implicitly described.

Table 5– centre-peripheral perspectives

Interview	Keywords	Key Quotes	Key Finding
1	Opportunities. Unique. Marginalized. Centre-conditioned.	<i>"We belong to this administrative region, and we don't mind it, but we look more towards Stockholm"</i>	In conceptualizing self from a centre-perspective, describes a place of " <i>fantastic opportunity that has everything, close to the city and the country</i> ". When conceptualizing from how others would describe the locale, it was more difficult to describe.
2	Misunderstood. Unique. Complex.	<i>"First of all, we are not only countryside - even if different"</i>	Communicates experience and understanding of

	Interdependent.	<p><i>authorities classify us as such".</i></p> <p><i>"The city is dependent on the country and the country is depended on the city; the issue is to illustrate how in different ways".</i></p>	<p>countrysides as diverse in and across different municipalities and peripheral as depending on focus, position, and location. Describes a partly neglected mutual dependency and an institutional "trust crisis" between 'country' and centre.</p>
3	<p>Potential. Unique. Location. Marginalized. Centre-conditioned.</p>	<p><i>"It has shown during covid-19, our big strong research institutes is unable to separate different countrysides"</i></p> <p><i>"The RDS is very centralized, neglecting information from us, how to include the whole region, even neglecting part of our municipality in describing the region".</i></p>	<p>When viewing self as centre describes unique location and opportunities. Describes a conflict in being peripheral in regional development and simultaneously in a process of local and regional transition illustrated by regional enlargement, structural change and old industrial landscape.</p>
4	<p>Self-centre. Entrepreneurial. Modern. Unique. Identity.</p>	<p><i>"There is a very strong local, entrepreneurial identity - you are proud to be a resident and an ambassador for the municipality."</i></p> <p><i>"If one must use that terminology, one really have to talk about different countrysides. When i get questions about "countryside-development" it feels completely strange. Because darn it, we are not countryside even though we have countryside. we grow and develop most housing by capita in Sweden, and somehow that is not mentally synonymous with countryside... but</i></p>	<p>Expresses a perception of self as centre which correlates with description of strong local identity and role in the region. Strong entrepreneurial culture and governmental institutions. Lifts critique against classifications and experience of pejorative countryside terminology as a cognitive lock-in.</p>

something else. "

5	Possibilities. Marginalized. Centre-conditioned. Exclusion.	[How would others describe XX municipality?] "... ... <i>Unfortunately, I think few know, sadly enough</i> ". <i>"The city and hinterlands need to collaborate all the time. The city cannot exist without its hinterlands, and the hinterlands... Well maybe the hinterlands actually can without the city."</i>	Describes implications of being in the geographical centre but peripheral in functional region. Where functional periphery to dominant economic activity is decisive. Describes an experience of being neglected in centre-conditioned regional development and ties it to structural issues of place-specific human capital, economic opportunity, and demography.
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Table 5 – Johan Ovsiannikov

A key result of how centre-peripheral structures affect regional development is the neglecting of differences in and between countrysides. Consensus lies in that what is determined as peripheral - by academia, public discourse, policy etc – often is categorized into one homogenous group. Which resonates with the discourse of centre as what matters and “the rest”. This is described as both inaccurate and problematic. It became apparent during the interviews that this thesis initially fell into the same trap of conceptualizing “*the countryside*”. An important finding as it can explain the lack of recognizing diversity in need and opportunity in regional development, which possibly explains the “untapped potential” of peripheralized areas.

Another implication is how peripheral areas are neglected in regional attention by this categorization of ‘not-being-the-centre’ as common denominator. Which is visible when describing periphery in relation to the FA-centre. An important result as socio-spatial categorization transcends to the individual and thereafter to collective experience of marginalization or stigmatization. The result describes how ‘lagging’ areas are not anomalies with themselves to blame, but part of the centre-peripheral structure. The peripheral experience in the FA-region exposes centre-peripheral as an active human geographical construct and development as conditional. Each informant stresses own unique location, possibilities, and context. When analysed together they are seemingly positioned at different hierarchical levels, with different shades of exposure. One informant observes self in a centre-perspective. The same area stands out as ‘success story’ of the sample. Described with positively charged discourse, maintaining high human capital, entrepreneurial culture, and institutional quality. This is also analysed as a cognitive lock-in of being considered peripheral. The centre-peripheral structure has become and is maintained as universal but analysing the FA-region Stockholm exposes a marginalizing process. Centre-peripheral as one system is found to have gradually developed towards a disconnecting of the structure into separate subparts both in analysis and practice.

Discussion

The thesis was designed with multiple research questions to tackle different aspects of the aim. The analysed result is here tied to the theoretical framework. Regional development theory is rich and deep. The subject, “development” was also found to be in perpetual change. Hence, it was complex to study and phases of “theoretical crisis” seems somewhat reasonable. Places in most need of inclusion is seemingly furthest away from actual participation on equal terms. This need is found as a learning opportunity to practice and theory. Regional inequalities (Massey, 1979) are increasing with rising populism (The economist, 2017). Regional structural change of the FA-region and Sweden is expected to further increase place-specific inequalities by centre-peripheral labour and education segregation (SOU 2015:101; SOU 2020:8). Which risks accelerating the fuse of the “ticking bomb” (European Commission, 2017).

In relation to the first research question, the qualitative data describes an understanding of regional development as a process of institutional participation, collaboration, and synergies. This means that regional development is understood as a means for harmonization in collaboration. Applicable in practice by soft measures, e.g., regional cooperation, and hard, e.g., transport infrastructure. Another finding is that *functional* is growing over *administrative* in terms of regional conceptualization and practice even in administrative governance. This correlates with the economic transition towards more flexible and adaptive regions in a wider, fluid, network (Grabher, 1993 etc). An interesting adaptation process but also identified as an institutional challenge in coordinating functional fluid regions with strict boundaries of governance.

To answer the second research question human capital indicators were mapped which indicated an on-going centre-peripheral segregation of structural advantages and economic opportunity within the FA-region. The knowledge-intense regional development of FA-region Stockholm do seem to work selectively and the objective of ‘attracting talent’ is more conflict-filled than it first appears. In the FA-region shown how being a peripheral part of one of the most dynamic and successful regions is described as a double-edged sword. The main identified opportunity is inclusive participation in the enlargement process. Not only “spreading” of human capital and knowledge but spreading control over it. The main identified challenge regarding human capital is peripheralized areas serving as “nursery” for development professionals which hinders institutional learning, stability, and capacity, foundational to development, at one side. While concentrating, securing, and maintaining advanced knowledge at the other (Gertler, 1997; Glaeser, 1997; Rodriquez-Posé, 2012 etc).

The third, overarching, research question was answered in applying a centre-peripheral perspective throughout the thesis which exposed an obfuscated hierarchy. Centre-peripheral structures can be analyzed by the data as an active and causal process in and of regional development. As it was initially understood (Friedmann, 1963), with human capital as one tool to steer it. Peripheralized municipalities within the FA-region experience the categorization, by theory and practice, as one homogenous group as negative which also can be tied to subsequent neglect of economic possibility. Described concretely by highly centralized regional development strategies (Interview, 3: table 3) and abstractly by peripheralized as a cognitive and institutional lock-in (Grabher, 1993). Here discussed in some aspects of how peripheralized areas development capacity is directly and indirectly affected. Region and development are here also defined as interconnected and ever-changing. Which could explain the theoretical ‘crisis’ and ambiguity of the concepts.

Regional development from the perspective of the periphery

The informants represent administrative development governance. Therefore, the emphasis on region as functional was interesting and surprising. On the one hand, signifying adaptation towards flexibility, marketization, and networks (Scott, 1988). On the other, raising questions regarding institutional barriers. A promising adaptation was found to be in motion. The following passage highlights importance of increasing regional leadership in institutional quality:

“This double citizenship [functional and administrative] has, maybe not disappeared but been reduced...”

... The administrative region really has assumed leadership in a different way than before, in daring to say that we are a county but perhaps not necessarily a functional region...

... If you were to ask me two years ago, I would have said that the region needs to assume a clearer and stronger role, but now that is being done. If the current trajectory is maintained than I believe it will bear fruit”

(Interview 4: table 3).

However, this concerns one administrative region. As such it highlights the challenge of cohesive, clear, leadership in collaboration and trajectory for the functional region consisting of three administrative regions. The administrative region forms hard and formally institutionalized boundaries. Functional boundaries are increasingly porous and, like development, also changing. The functional region is based on local centre-peripheral labour markets. Again, and currently in transition by Covid-19 catalysing full-on digitalization. This accentuates the issue of static regional development in a functional and ever-changing economic landscape. The experience from the peripheral regarding region *and* development as in perpetual change should be a key consideration in studies of regional development. Which it to some extent is in EEG and path dependency (Kogler, 2015). An interconnected understanding (Pike; Rodríguez-Pose; Tomaney, 2017) of region and development means that neither of the concepts “region” and “development” can be fully considered isolated phenomena with dissectible subcomponents. Which means that one regional, or centre-peripheral, trajectory cannot be disjoint. The on-going and pronounced difficulty to theorize and generically study regional development is therefore part of the understanding. Which perhaps also explains the limitations in accounting for continuous spatial disequilibrium (Hadjimichalis & Hudson, 2014; Martin, 2015).

Furthermore, the result suggests that the primary centres of the FA-region have advantages by definite position and identity which enables cognitive proximity (Boschma, 2005) in formulating local trajectory in a regional context at all scales. The outskirts suffer from being stuck (Grabher, 1993) not only in, but also between places. Making it difficult to stake a claim in a global web of competition. However, being in between centres can also be most advantageous of locations. The overall point is that regional changes and context matters. As one informant put it: *“It is dependent on what is next to you”* (I, 5: T, 3). Globalization has made regional boundaries more difficult to distinguish than ever (Barnes & Christopher, 2018; Hermelin, 2013) and similar effects are found in FA-region Stockholm. Distinguishing regions are important, as it enables classifications, which enables control and analysis. That does not mean that it is optimal for development. From this empirical study, “regional” depends on scale and agency. Development is found to be a process towards collective and individual economic, environmental, and social well-being. “Regional development” differs based on perspective, focus and composition of those aspects. Not, only, place-specific growth (Feldman & Storper, 2018). This proposed definition likely applies to other contexts as well.

"To us - regional development is investment in infrastructure and convergence adapted to actual migration flows" (1:3)

Both in the functional and the administrative region, different agents meet in cooperation and competition with different understandings of region. Thus, "region" as contextual setting upholds. However, it is ill-fitting in practical application. The objective of regional development is found to be integrating different areas developments together, not apart. This found perspective of regional development as a process towards institutional coherency and synergies by using local disparities seemingly outruns theory and policy (Pike, Rodriguez & Tomaney (2007: 2017). The understanding is visible by the FA-regions development professionals' difficulty to discuss and isolate what regional development is and instead describing how they currently relate to and adopt it.

"To systemize regional consensus and trajectory. That is regional development to me. To understand different needs and to see how different local needs create regional and local gains." (3:3)

This involves conceptualizing regional growth representing one quantifiable (Lucas, 1988) variable in a wider system.

"Regional development aims at regional growth and that inhabitants in the region lives as good life as possible, and local development actually shares that aim." (2: 3)

The success of regional growth is perhaps how it symbolizes relational success, or lack of it. Hence, it represents power in contemporary regional competitive narrative. Regional growth is here instead understood as one place-specific outcome of regional development. Unevenly distributed within FA-region Stockholm's development as visible in the spatial patterns (Fig 4-10). The continuously increasing momentum of centre growth and inertia of spill-overs and trickle-down, (Martin; 2015; Pike, Rodriguez-Pose & Tomaney, 2007;2017; European Commission, 2017) is strengthened by this study of intraregional development of FA-region Stockholm. Active policy seems to be necessary (Hermelin, 2013) and expected relocation by growth (Alonso, 1968 etc) seems insufficient. An interesting consideration is what could be achieved if the understanding of regional development found in this study is applied also to interregional development as well. Highlighting the importance of incorporating, not neglecting, different perspectives.

"The regional development strategy is not regional development to us [because of its centralizing aim], it undermines our functional development capacity." (3:3)

Centre-peripheral regional development tends to be thought of as a "natural" structure. This thesis instead describes an active process of concentrating human capital and other economic resources.

Spatial sorting of human capital and its effects on local and regional development

Regional inequality (Massey, 1979) applies at all scales. Within intraregional development of FA-region Stockholm as well and geographical location is more than coordinates.

"We are located in the middle, the geographical heart, [but functionally marginalized]" (5:3)

The determining factor of economic interest (Friedmann, 1963) should be broadly understood. This thesis found that cultural and social aspects (Gertler, 1997) certainly matter in intraregional centre-peripheral development as well.

"In comparison to others... We have many [development professionals] who live here. We have been able to maintain human capital ...it is to a large extent about culture, and I think it's also about the positively charged questions, we are a growing municipality" (4:4)

Another explicit example is demographical composition adapted to dominant form of economic activity (Fig 4-10). Which also relates to the assessment of regional development entirely by

population quantity fluctuations. The development of regions involves more aspects than place-specific monetary, and population, growth. For instance, place-specific demographical compositions is actively shaped, and power of associations is a factor in 'attracting talent' or high human capital.

"There is a very strong local, entrepreneurial identity - you are proud to be a resident and an ambassador for the municipality." (4:5)

Human capital is a resource in and to regional development. DDR, mean income and formal education was found highly skewed to FA regions Stockholm's primary centres (Fig 4-10) mirroring previous studies (Feldman & Storper, 2018) both spatially and by gender in the selected education and age cohort.

"We share the same need for the same competence, but not the same pre-conditions [to attract human capital]" (5:4)

The spatiality of human capital determines structural position and gain in regional development, yet rarely discussed in terms of interconnectivity.

"We have an advantage in being close to Stockholm, but it's also negative because it is difficult to maintain human capital ... a question that should be dealt with regionally, but it is very difficult to do in practice". (2:4)

The human capital selective sorting reflects previous studies in other European contexts and scales (Johansson, 2016; Fratesi & Percoco, 2014; Keuschnigg, Mutgan; & Hedström, 2019 etc). A process and product of regional development likely to continue. Human capital (Becker, 1993) and DDR was found as plausible indicators encapsulating and representing a wide range of socio-economical structures (Fig 4-10). The found uneven distribution of human capital is a self-accumulating causal effect and controlling human capital seemingly determines place-specific gain of regional success. The on-going structural change (SOU 2020:8) towards centralized knowledge further accentuates both the spatial struggle of high human capital and subsequent problematics.

It was previously known that some western urban agglomerations, in this study most prominently Stockholm and Uppsala, thrives by concentrating learning, innovation and opportunity (Gleaser, 1997; Shearmur & Doloreux, 2016 etc) in a social regional network (Boschma, 2005; Grillitsch, Asheim & Trippel, 2018; Iammarino, Rodriguez-Pose & Storper, 2017 etc). The peripheral experience of being at the threshold, knocking at the door of participation in that process, strengthens the importance of the notions but complements with finding that the centres opportunity is enabled by a regional hierarchy within collaboration and development. Situating the body of knowledge of human capital and regional development with this study highlights some limitations as typically associated concepts as innovation, clusters etc, (Gleaser, 1997; Lucas; 1988; Florida, 2002 etc) were difficult to apply. Neither where they described by the regional development professionals. Instead, structural issues as educational migration and labour movement was frequently emphasized.

"The whole region suffers from old industrial landscape - and then people categorize – 'what do the region do? Well, the region has low education and manufactures.'" (1:4)

Furthermore, this study applied formal education as quantitative proxy (Fig 7-10) and maintains the position that valued or non-valued is more accurate than dualisms of "skill", "creative" or "talent" (Florida, 2002; Florida, Mellander & Stolarick, 2008; Florida & Mellander, 2018). The dualisms can now also be broken to desired human capital and knowledge adapted to the dominant and most rewarded form of economic activity. Here parallels to EEGs notions of adaptation and adaptability towards current and future economic transitions can be found (Gertler, 1997; Grabher, 1993; Scott, 1988; Grillitsch & Hansen, 2019 etc) as high human capital increases economical adaptation (Becker, 1993). What is observed in the result is therefore uneven institutional capacity, learning opportunity and social aspects directly proven to stimulate or hinder development (Gertler, 2003; Rodriguez-Posé,

2012 etc). Some current events, covid-19 and forthcoming sustainability transition rocks the foundation of the European economic landscape which increases the risk for increasing centre-peripheral divergence.

Previous Swedish studies establishes interregional centre- peripheral human capital, age, gender and skill selective migration (Johansson, 2016; Keuschnigg, Mutgan & Hedström, 2019; Ahlin et al, 2018) and was used to design the research (Fig 7-10). Strengthening claims of centre-peripheral human capital segregation (Florida & Mellanders, 2018; Eriksson & Hansen, 2013) as a causal effect in regional inequality (Fratesi & Percoco, 2014; Gennaioli et al, 2013: 152). Apart from the visualizations, most explicitly described in peripheral areas experience of being used as platform towards desired centre-migration. Benefitting the centres economic development, labour, and knowledge.

"Sometimes we become, what should we call it, a nursery for development employees" (2:4)

"A stepping-stone towards Stockholm, very problematic... from that perspective, it feels terrible. Local taxpayers pay the education for Stockholm's labour force". (1:4)

Competitive advantage, via brain gain (Grubel, 1987), of success regions does therefore not necessarily apply at the functional region, but at selective areas within.

"It's like we get nothing in return, we teach, and then they move on to other parts of the region. There is strength and pride in doing it well, but it doesn't give anything other in return. I don't get higher salary as labour moves towards the centre, our municipality doesn't get more tax revenue for it." (5:4)

The primary centres Stockholm and Uppsala are co-developing with the knowledge-intense trajectory, and knowledge is increasingly centralized. Accumulating 'talent' is also functioning as a tool to gate wanted or unwanted human capital. Which leads to homogenization of high human capital in centre and low in periphery. Low human capital and labour development is the foundation of EU discontent (Dijkstra, L, Poelman, H & Rodríguez-Pose; 2020) and this explains why discontent is highest in peripheralized areas. Demographical diversity matters and the centre concentrates learning by integrating differences. It matters not only directly in production but also in generating and forcing social and cultural learning, tolerance, and development. Interregional development studies positions FA-region Stockholm as a European winner (European Commission, 2017) but centre-peripheral tensions (Boc, 2020) exist within. When regions are labelled a 'success story' the question to whom, why, and as this thesis have shown, also where is still relevant. The identified problematic of centre-peripheral human capital segregation is seemingly transregional and transnational. It may differ in gravity, but the pattern remains.

In a spatial struggle to attract and maintain human capital, directly and indirectly associated with development, the centre of FA-region Stockholm stands out as undisputed winner regionally and nationally. However as asked above, whose regional development is discussed, what regional development is meant? Why, and whose is not included? (Hadjimichalis, & Hudson, 2014; Martin, 2015; Pike, Rodríguez-Pose & Tomaney, 2007; 2017). This discloses the notion of "*urbanization not happening at the expense of the countryside*" (Nilsson et al 2017AB) as somewhat misleading.

Recent empirical observations have rekindled dormant criticism against neoclassical convergence via growth (European Commission, 2017:2) and knowledge economy tends to concentrate capability and "spur further regional inequality rather than reduce it" (Iammarino, Rodríguez-Pose & Storper 2017: 22). This thesis lands in a similar conclusion in observing peripheral development as conditioned by the centre. Peripheral areas develop, but the centre maintains competitive advantage by ensuring that the difference in development remains the same or increases. The knowledge intense development of Stockholm is visible across the FA-region, but the centre-peripheral gulf is increasing more (Fig 4-10).

The concentration of resources is continuously fortified by conditional development and spatial sorting. Development is relational, regional success should not be assessed in isolation and the difference between centre and peripheral development must persist for the centre to maintain a hegemonic position. This is what I mean with peripheral development being conditional. This conclusion is made possible by lifting different perspectives within the FA-region and mapping the spatiality of regional success. In this study it is observed in a centre-peripheral hierarchy. It could, as some suggests, serve as incentive to stimulate development. To climb the hierarchy. Those who makes that claim are often in a high hierarchical position. Which also is reasonable, maybe the regional “winner” knows how to do things best. There is also logic in existence of high requiring low. I think this is what Friedmann (1963) meant with centre-periphery as “*simultaneously a cause and an effect of economic transformation*” and colonial. Or as this study found, conditional.

Centre-peripheral regional development

Centre-peripheral regions are situated as a matter of perspective and scale, (Friedmann, 1963). The argument that if a countryside is focused the urban core becomes peripheral was not always the case. Within each interview, the relation to the regional centre was in one way or another always apparent. Here it seems that a focus on the place of realization pushes countrysides and lesser centres into being peripheral and continuously produced and marginalized in a spatial struggle for attaining resources. Contextual nuances are a foundation of geographies of economies understanding of intricate and complex interplay between past, present and other areas ((Friedmann, 1963; Kogler, 2015, Grabher, 1993 etc). This research suggests that this premiss does not always apply regarding the classified periphery.

"First of all, we are not only countryside - even if different authorities classify us as such". (2:5)

"It has shown during covid-19, our big strong research institutes are unable to separate different countrysides" (3:5)

I would argue that an explanation is found within centre-peripheral power itself and in hypothesized lock-in (Grabher, 1993) of being kept peripheral (Friedmann, 1963; Forsberg; 2013). A limitation to capture peripheral opportunities therefore seems reasonable. Part of the explanation was by the data also drawn to the spatiality of knowledge institutions and by theory building of understanding the centre. This relates to the common epistemology and ontology of regional development and the “theoretical crisis of regional development” (Hadjimichalis & Hudson, 2014) is especially relevant here. The essence of it presumably lies in how centre-peripheral structures gradually has become disjoint into centre *and* periphery.

"it's a pity, in regional development, you have to address disparities. It's really annoying when people say, "this is an example from the periphery" - what periphery?" (3:3)

Two municipalities in the qualitative study were positioned as administratively secondary regional centres but peripheral in relation of FA-region Stockholm. Each municipality described itself as unique and sincerely stressed importance of nuances in countrysides and ‘periphery’.

"I think the key challenge for this region is that it is so diverse, not one municipality is like the other" (4:3)

Studying peripheral areas usually focuses on regions that successfully has undergone a transition or in other ways is labelled a success story. This approach, lessons from success in how to stimulate success, is important and viable but should also diversify. Focusing on the centre development (Martin, 2015; Forsberg, 2013) of success stories can draw analytical attention from structural questions of interconnectivity. Highlighting the, perhaps at first glance banal, question of what regional development is from a peripheral perspective as a key contribution enabled by the qualitative approach. Centre-peripheral development and urbanization brings extraordinary opportunities but is

not an innocent process and should not be depicted as such. If spatial imbalances grow peripheral areas are continuously locked-in but seemingly expected to solve the issues internally. Instead of addressing structural and causal relationships a discourse of simplification and blame is often applied to countryside's.

"If one must use that terminology, one really has to talk about different countrysides. When i get questions about "countryside-development" it feels completely strange. Because darn it, we are not countryside even though we have countryside. we grow and develop most housing by capita in Sweden, and somehow that is not mentally synonymous with countryside... but something else." (4:5)

'Skill', 'talent' and 'creative' dualisms falls under the same category. Usually negatively attributed to peripheralized areas. When categorized as, "the-rest", "unskilled" – unnecessary - it translates to local and individual development and back again to regional development (McCann, 2020). Hindering regional, local, and individual economic and labour opportunity. Creating and neglecting places, people, "left-behind" is unlikely beneficial for long-term regional development. It does, however, consolidate the position of the centre in a regional hierarchy. The social dichotomization around the centre and the rest (Forsberg, 2013) affects regional cohesion, institutional and individual development and concentrates competitive advantage. Peripheral areas lift important experiences in regional development knowledge and policy in relation to:

"The RDS is very centralized, neglecting information from us, how to include the whole region, even neglecting part of our municipality in describing the region." (3:5)

It can be observed as an active lock-in in need of disclosing to spur economic opportunity and by extension long-term regional development. Regional divergence and spatial sorting are here tied to differences in individual, local and regional development which possibly explains the rising geography of discontent. Increasing regional inequalities by spatial imbalances (Hadjimichalis & Hudson, 2014; (Pike, Rodríguez-Pose & Tomaney, 2007;2017; Martin, 2015) is to some extent an expected outcome. Development has been and is suggested as uneven by nature (Hirschmann, 1958; Alonso, 1968 etc). Hierarchies are often disguised as natural and, or, necessary. Terms often used in relation to concepts of centre-peripheral, uneven development and regional inequality. From the perspective of this thesis uneven development can and should be observed as actively produced. Development as incremental, not uneven.

Furthermore, regional development is understood as not an end but a means. The alternative is visible in current social, economic, and ecological development. Increasing rifts between places and people hinders long-term economic development. It is with increasing gaps in socio-economic opportunities that internal struggles, tensions, and polarization tends to rise. It is perceived development position, low human, cultural and physical capital *in relation* to others that determines discontent and unrest (McCann, 2020) with tangible outcomes showing in ballot-boxes all over Europe (Dijkstra, Poelman & Rodríguez-Pose, 2020; McCann, 2020). Sweden and FA-region Stockholm is no exception. Therefore, continuous uneven centre-peripheral development across regions and within FA-region Stockholm is problematic.

A relational understanding of centre-peripheral interconnectivity needs to be rectified to tackle these issues expanding beyond the FA-region. This attempt to study experience in relation to regional development in categorized periphery of FA-region Stockholm is part of it. Current governance and development system of inter- and intraregional competition for human and physical resources rationalizes spatial hierarchies. Regional inequalities are increasing with dislocation of power and structural advantages towards some dominant regions, success stories (European Commission, 2017; Rodríguez-Pose,2018). FA-region Stockholm usually stands out as a regional success story and rightly so. It depends on what is measured and compared against. It is undeniably the place of human and physical capital concentration in Sweden. This success brings extraordinary possibilities across the region. However, that is not necessarily equivalent to all that regional development entails.

The empirical research in this thesis highlighted a few cracks where some light got in. The FA-region of Stockholm is one of the most advanced success stories in European regional development, but economic opportunity is unevenly distributed spatially and demographically within (Fig 4-11). This case also demonstrates how knowledge of tackling continuous uneven development can be found within places usually addressed as “left-behind”. There are lessons from the peripheral perspective in FA-region Stockholm in how development can occur and in conceptualizing it. Peripheralized areas are furthest away, spatially, and institutionally, from regional development externalities. That is the implication of peripheral. They are also in a position of most dire need of it.

“The regional development has not been as dependent on us, as we have been of the regional development... Or the regional development maybe hasn’t really understood what we contribute with to the greater region.” (5:3)

Problematic as a lock-in that needs to be addressed but from a position of need, comes an understanding of what is necessary. Not to ignore disparities but acknowledge and use them to create local and regional friction. This study describes regional development as a tool for regional inclusion and convergence. Would a similar qualitative study involving the centres of the FA-region describe it as such, or would regional growth be emphasized? Here no conclusion is drawn but the question is relevant. To integrate peripheralized areas in regional development can be brushed off as an egalitarian issue. Somehow it seems easier to understand how and why adjacent countrysides are lifted by the centres development, than the other way around.

“The city and hinterlands need to collaborate all the time. The city cannot exist without its hinterlands, and the hinterlands.. Well maybe the hinterlands actually can without the city.” (5:5).

To expect a “ticking bomb”, “a crisis”, and neglect it in practice retells another quite acute and global phenomenon. Translating the problematic to regional development means to widen the regional lens, and not always in relation to the dominant centre. The same analogy as peripheralized in relation to centre transcends to individuals. In that sense it seems understandable if a geography of discontent arises as a symptom of active and increasing centre *and* peripheral segregation partly by spatial sorting of human capital.

Conclusion

In conclusion, this thesis clarifies an ontological and epistemological gap in regional development. The research aim ‘to explore regional centre-peripheral structures and spatial sorting of human capital and its effects on local and regional development from a peripheral perspective’ was answered by studying the functional region of Stockholm regarding:

How is human capital distributed in centre-peripheral regional development and how is human capital related to local and regional development?

The mapping of human capital and demographical indicators illustrated an on-going concentration of structural advantages towards the primary centres of the functional region of Stockholm. Human capital is seemingly spatially sorted in functional centre-periphery based on valuation towards dominant economic and cultural trajectory. The main opportunity seems to be inclusive participation in the enlargement process and in human capital distribution. Some identified challenges are intraregional structural imbalances and peripheralized areas sometimes serving as “nursery” for development professionals. Which hinders institutional learning, stability, and capacity at one side and secures advanced knowledge at the other.

What is regional development from a peripheral perspective in the functional labour region Stockholm?

Regional development was found to be a process of institutional participation and collaboration, with the objective to use local differences and transform it into regional synergies. This study therefore found a nuanced and complementary understanding of regional development to analysis, practice, and policy. Regional growth was found to symbolize relational success, or lack of it, and is instead described as a place-specific outcome of regional development. Another finding is that even in administrative governance, a functional conceptualization of regional development is becoming dominant. Which highlights an interesting adaptation process but also institutional challenges in harmonizing functional fluid regions with strict boundaries of administrative control.

How are centre-peripheral structures affecting regional and local development from the perspective of the peripheral?

The two previous questions are knitted together as part of an identified active hierarchical centre-peripheral process where power is exercised both directly and indirectly. A key finding is that peripheralized areas often are classified as one homogenous group. This is described as an active lock-in of marginalization that hinders local and regional opportunity, development, and cohesion. The concepts of “region” and “development” are found to be in states of perpetual change and interconnected in centre-periphery, which is tied to difficulties in theorizing continuous centre-peripheral uneven development. Furthermore, geography of discontent is theorized as an expected outcome of the center-peripheral segregation.

Policy implications

Regions are often assessed in comparison to other classified regions, but it is also beneficial to look within. The on-going centre-peripheral segregation should be addressed as what it is, one structure with different parts. Disconnecting the parts as centre and periphery is limiting possibilities and causing polarization. The notion of active policy as necessary is maintained but how and what is best left for policy to discuss. Structural issues are not easily addressed and in Sweden, the municipal and regional redistribution system is critiqued by official investigations as far too negligent of regional preconditions and simultaneously criticized for being too generous. However, *what* should be developed is a decision based on what is known today, but tomorrow that will have changed. Long-term regional development policies should therefore lift the issue, of asking *how*, before the *what*. Peripheralized areas needs to be integrated and included in regional development, not as an end but as means for regional synergies and gain. Human capital needs to be lifted and addressed as a structural

issue in regional development practice. Which was found to be a difficult task, but that does not erase necessity. That places compete for place-specific gain by sorting of human capital can become problematic. Regional policy also needs to address institutional issues regarding administrative governance of functional regions.

Recommendations

If any geographical phenomena have become generalizable it would be the centre-peripheral structure, and possibly the dynamics explored here as well. The pattern and findings within intraregional centre-peripheral development both could and should be tested in other contexts. Concrete suggestions for future research are how administrative regions handles the transition towards functional global hubs and if the role of the administrative is changing. In Sweden, regional development policy was recently transferred to administrative regions from state. What implications does this have for increasingly functional regional development? Regional enlargement and structural change increase the centres sphere of influence which is described as an opportunity for inclusion and the will to act is in motion. Future studies should therefore investigate how to facilitate peripheral opportunities in the enlargement process. As FA-region Stockholm spatially expand, how does it affect regional centre-peripheral tensions? How do forthcoming transition of digitalization and covid-19 impact functional regional development? How will it change skill-selective migration? How do the separation of centre-periphery impact adaptation towards long-term sustainable and resilient economic development?

Limitations:

More data would have further validated, deepened, and given more angles to the research. Using the same analytical tool and developed interview guide with centre municipalities, Stockholm, Solna, Uppsala etc and with professionals at administrative regions would have enabled more and interesting comparisons. A human capital selective spatial sorting pattern was identified but some important questions remain unanswered. Do the population increase in the time-period across the FA-region consist entirely by in-migration of realizing, or already attained, high human capital? Or is 'lower' human capital being pushed out of the region? Both? The research would have benefitted from being complemented by an in-depth study of migration patterns. It would however have compromised the depth given the delimitations. In limited frames, education, DDR and mean income were used as proxy variables as representing human capital related to regional development. Regarding displacement effects of human capital, comparison with other Swedish labour regions over time would have been necessary to reach wider conclusions. In the process of analysing regional development practice and theory it became clear that the analytical body of knowledge leans towards geographies of *economies*, place-specific production, and gain. A result, but also limitation in framing the research based on own prior knowledge. Another limitation lies in generalizability. Based on the result of differences between peripheralized municipalities within the FA-region, concluding what can be extrapolated to other contexts is difficult. The result probably differs in nuances in and across Swedish and European functional regions. However, as one of the informants put it, classified periphery "*have similar challenges but different pre-conditions. Dependent on location, what's next to you and what is not*" (Interview 5: table 3).

References

Figures and tables

Table 1 – Johan Ovsianikov, Data: Tillväxtverket, 2020A: 2020B.

Table 2 – 4 Johan Ovsianikov. Data: Qualitative interviews, 2020.

Figure 2 - Johan Ovsianikov. Data: SCB, 2020 and Lantmäteriet, 2020.

Figure 4- 10 Johan Ovsianikov. Data: SCB, 2020 and Lantmäteriet, 2020.

Data references

SCB. ND. Lokala Arbetsmarknadsregioner. Available at: <https://www.scb.se/hitta-statistik/statistik-efter-amne/arbetsmarknad/sysselsattning-forvarvsarbete-och-arbetstider/registerbaserad-arbetsmarknadsstatistik-rams/produktrelaterat/Fordjupad-information/lokala-arbetsmarknader-la/>. Assessed at: 2020-09-23.

R2. 2020. Demographical dependency ratio by region. SCB. Available at: http://www.statistikdatabasen.scb.se/pxweb/sv/ssd/START_AM_AM9906_AM9906D/RegionInd19R2/#. Assessed at: 2020-11-02.

Tillväxtverket. 2020A. Regiontyper. Available at: <https://tillvaxtverket.se/statistik/regional-utveckling/regionala-indelningar/regiontyper.html>. Assessed at: 2020-09-23.

Tillväxtverket. 2020B. Kommuntyper. Available at: <https://tillvaxtverket.se/statistik/regional-utveckling/regionala-indelningar/kommuntyper.html>. Assessed at: 2020-09-23.

Spatial data – Lantmäteriet, 2020. Open spatial data. <https://www.lantmateriet.se/sv/Kartor-och-geografisk-information/oppna-data/>. Assessed at: 2020-09-23.

Methodological references:

Archibald, R; Mavourneen, A; Lawless C; Lawless, M. 2019. ‘Using Zoom Videoconferencing for Qualitative Data Collection: Perceptions and Experiences of Researchers and Participants’. International Journal of Qualitative Methods. vol. 18. Available at: <<https://search-ebshost-com.ludwig.lub.lu.se/login.aspx?direct=true&db=edsdoj&AN=edsdoj.1504c15da42e45899f5d9d767cac2f&site=eds-live&scope=site>>. Assessed at: 14 October 2020.

Baxter, J. 2016. *Case Studies in Qualitative Research*. In: Qualitative research methods in human geography. Edited by Iain Hay. 4 ed. 130 – 146. Oxford University Press: Canada.

Benton, T & Craib, I. 2011. *Philosophy of Social Science: The Philosophical Foundations of Social Thought*. Basingstoke: Palgrave Macmillan.

Berg, L, Bruce, B & Lune, Howard. 2012. *Qualitative Research Methods for the Social Science*. 8 ed. Pearson: United states of America.

Bryman, Alan. 2011. *Samhällsvetenskapliga metoder [Social Research Methods]*. 3 ed. Oxford University Press: Spain.

Bryman, A. .2008. *Social research methods*. 3 ed. Oxford University Press. Available at: <https://search-ebshost-com.ludwig.lub.lu.se/login.aspx?direct=true&db=cat07147a&AN=lub.1773851&site=eds-live&scope=site>. (Accessed: 20 October 2020).

- Clark, G. 2005. *Secondary data*. In: *Methods in human geography : a guide for students doing a research project*. Flowerdew, R & Martin, D (eds). 2 ed., Pearson Education Limited: Harlow. 57-72.
- Cresswell, J. 2009. *Research design: qualitative, quantitative and mixed methods approaches*. Third ed. Sage Publications: United States of America.
- Dalen, M. 2015. *Intervju som metod*. 2 ed. Gleerups Utbildning AB: Dimograft, Poland.
- Dunn, E, C. 2005. *Illustrating the report*. In: *Methods in human geography : a guide for students doing a research project*. Flowerdew, R & Martin, D (eds). 2 ed., Pearson Education Limited: Harlow. 312-331.
- Dunn, K. 2016. “*Doing*” *Qualitative research in Human Geography*. In: *Qualitative research methods in human geography*. Edited by Iain Hay. 4 ed. 149-188. Oxford University Press: Canada.
- Hekman, S. 2010. *The material of knowledge: feminist disclosures*. Bloomington, Ind.: Indiana University Press,
- Kvale, S & Brinkmann, S. 2009. *InterViews : learning the craft of qualitative research interviewing*. 2. ed. Sage Publications. Available at: <https://search.ebscohost.com/login.aspx?direct=true&db=cat07147a&AN=lub.1792440&site=eds-live&scope=site>. Accessed: 1 October 2020.
- Mason, J. (2018) *Qualitative researching*. Third edition. Sage Publications: London.
- Stratford, E & Bradshaw, M. 2016. *Qualitative Research Design and Rigour*. In: *Qualitative research methods in human geography*. Edited by Iain Hay. 4 ed .117 – 129. Oxford University Press: Canada.
- Valentine, G. 2005. *Tell me about...: using interviews as a research methodology*. In: *Methods in human geography : a guide for students doing a research project*. Flowerdew, R & Martin, D (eds). 2 ed., Pearson Education Limited: Harlow. 110-126.
- Zoom Video Communications Inc. 2016. *Security guide*. Zoom Video Communications Inc. Retrieved from <https://d24cgv3uvb9a9h.cloudfront.net/static/81625/doc/Zoom-Security-White-Paper.pdf>. Accessed: 1 October 2020.

Literature references

- Ahlin, L; Andersson, M; Thulin, P. 2018. ‘*Human capital sorting: The “when” and “who” of the sorting of educated workers to urban regions*’, *Journal of Regional Science*, 58(3), pp. 581–610. doi: 10.1111/jors.12366.
- Alonso, W. 1968. *Urban and regional imbalances in Economic Development*. (622-636). In: *Regional Policy: Readings in Theory and Applications*. Friedmann, John & Alonso, William (Eds). The Colonial Press Inc: United States of America.
- Barnes, T, J; Christopher, B. 2018. *Economic Geography: A Critical Introduction*. Wiley-Blackwell: Oxford, UK. (25-49).
- Becker, S. G. 1993. *Human Capital*. 3d ed. United States of America: The National Bureau of Economic Research.
- Beine, M; Docquier, F; Rapoport, H. 2001. *Brain drain and economic growth: theory and evidence*, *Journal of Development Economics*, Volume 64, Issue 1,2001,Pages 275-289, ISSN 0304-3878, [https://doi.org/10.1016/S0304-3878\(00\)00133-4](https://doi.org/10.1016/S0304-3878(00)00133-4).

- Boc, E. 2020. 'Brain Drain in the EU: Local and Regional Public Policies and Good Practices', *Transylvanian Review of Administrative Sciences*, 16(59), pp. 23–39. doi: 10.24193/tras.59E.2.
- Boscoe, F. P. and Pickle, L. W. 2003. 'Choosing Geographic Units for Choropleth Rate Maps, with an Emphasis on Public Health Applications', *Cartography and Geographic Information Science*, 30(3), p. 237. Available at: <https://search-ebshost-com.ludwig.lub.lu.se/login.aspx?direct=true&db=edo&AN=ejs29950289&site=eds-live&scope=site> (Accessed: 24 April 2020).
- Boschma, R. 2005. *Proximity and innovation: a critical assessment*. *Regional studies* 39(1): 61-74. DOI: 10.1080/0034340052000320887.
- Cooke, P & Leydesdorff, L. 2009. 'Regional Development in the Knowledge-Based Economy: The Construction of Advantage'. Available at: <https://search-ebshost-com.ludwig.lub.lu.se/login.aspx?direct=true&db=edsarx&AN=edsarx.0911.3425&site=eds-live&scope=site>. Accessed: 14 September 2020.
- Daugeliene, R. & Marcinkeviciene, R. 2009 'Brain Circulation: Theoretical Considerations', *Engineering Economics*, 63(3), pp. 49–57. Available at: <https://search-ebshost-com.ludwig.lub.lu.se/login.aspx?direct=true&db=bth&AN=43821048&site=eds-live&scope=site> Accessed: 31 August 2020.
- Dijkstra, L, Poelman, H & Rodríguez-Pose, A. 2020, 'The geography of EU discontent', *Regional Studies*, vol. 54, no. 6, pp. 737–753. Available at: <https://search-ebshost-com.ludwig.lub.lu.se/login.aspx?direct=true&db=bth&AN=143395087&site=eds-live&scope=site>. Assessed at: 2020-10.21.
- Eriksson, R & Hansen, H. K. 2013. 'Industries, skills and human capital: how does regional size affect uneven development?', *Environment and planning A*, 45(3), pp. 593–613. doi: 10.1068/a45186.
- Esri, 2020. *Create and use a choropleth map*. 2020. ArcGis Insights. <https://doc.arcgis.com/en/insights/latest/create/choropleth-maps.htm>. Assessed: 2020-11-03.
- European Commission. 2017. *My Region, My Europe, Our Future*. Seventh report on economic, social and territorial cohesion. September 2017.
- Feldman, M & Storper, M. 2018. *Economic Growth and Economic Development: Geographical Dimensions, Definitions and Disparities*. Gordon L. Clark, Maryann P. Feldman, Meric S. Gertler and Dariusz Wojcik (Eds). The new Oxford handbook of economic geography.
- Florida, R. 2002. *The Creative Class*. In: Legates, T Richard; Stour, Frederic (eds). *The City Reader*, 5th edn. United Kingdom: Routledge, 143-150.
- Florida, R. 2019. *The Geography of Brain Drain in America*. Bloomberg CityLab. <https://www.bloomberg.com/news/articles/2019-05-03/how-brain-drain-contributes-to-regional-inequality>. Assessed at: 2020-09-17.
- Florida, R; Mellander, C; Stolarick, K. 2008. 'Inside the black box of regional development—human capital, the creative class and tolerance', *Journal of Economic Geography*, 8(5), p. 615. Available at: <https://search-ebshost-com.ludwig.lub.lu.se/login.aspx?direct=true&db=edsjsr&AN=edsjsr.26161285&site=eds-live&scope=site>. Assessed at: 15 September 2020.
- Florida, R & Mellander, C. 2018. *Talent, Skills and Urban Economies*. Gordon L. Clark, Maryann P. Feldman, Meric S. Gertler and Dariusz Wojcik (Eds). The new Oxford handbook of economic geography.

- Forsberg, G. 2013. *Landsbygder i omvandling*. In: Planeringens utmaningar och tillämpningar. Forsberg, Gunnel (Eds). Författarna och Liber AB, Kina: 2013. 203-215.
- Friedmann, J. 1963. 'Regional Economic Policy for Developing Areas', Papers in Regional Science, 11(1), p. 41. Available at: <https://search-ebscohost-com.ludwig.lub.lu.se/login.aspx?direct=true&db=edb&AN=62775480&site=eds-live&scope=site>. Accessed: 7 September 2020.
- Fu, Y & Gabriel, SA. 2012. 'Labor migration, human capital agglomeration and regional development in China', Regional Science and Urban Economics, vol. 42, no. 3, pp. 473–484. Available at: <https://search-ebscohost-com.ludwig.lub.lu.se/login.aspx?direct=true&db=edselp&AN=S0166046211001013&site=eds-live&scope=site>. Assessed at: 2020-09-24.
- Gennaioli N; La Porta, R; Lopez-de-Silanes, F; Shleifer. 2013. 'Human Capital and Regional Development', The Quarterly Journal of Economics, 128(1), p. 105. Available at: <https://search-ebscohost-com.ludwig.lub.lu.se/login.aspx?direct=true&db=edsjsr&AN=edsjsr.26372495&site=eds-live&scope=site>. Accessed: 24 September 2020.
- Gertler, M S. 1997. *The invention of regional culture*, in Geographies of Economies (eds. Roger Lee and Jane Wills), p. 47-58. Arnold: London.
- Gertler, MS, Wójcik, D, Feldman, MP & Clark, GL. 2018. *The new Oxford handbook of economic geography*. Oxford University Press (Oxford handbooks online). Available at: <https://search-ebscohost-com.ludwig.lub.lu.se/login.aspx?direct=true&db=cat07147a&AN=lub.5823995&site=eds-live&scope=site>. Accessed at 2020-12-17.
- Glaeser, L, E. 1999. *Learning in Cities*, Journal of Urban Economics, Volume 46, Issue 2, Pages 254-277, ISSN 0094-1190, <https://doi.org/10.1006/juec.1998.2121>.
- Glasmeyer, A. 2018. *Income Inequality and Growing Disparity. Spatial Patterns of Inequality and the Case of the USA*. Gordon L. Clark, Maryann P. Feldman, Meric S. Gertler and Dariusz Wojcik (Eds). The new Oxford handbook of economic geography.
- Government Europa. 2019. *Smart City of 2019: Stockholm is World's smartest city*. 2019-11-22. <https://www.governmenteuropa.eu/smart-city-of-2019-stockholm/95554/>. Assessed at: 2020- 02-07.
- Grabher, G. 1993. *The weakness of strong ties: the lock-in of regional development in the Ruhr area*, in The Embedded Firm: On the Socio-Economics of Industrial Networks (Grabher ed.), p.255-277. London, United Kingdom: Routledge.
- Grillitsch, M; Asheim B.T; Trippel M. 2018. *Unrelated knowledge combinations: Unexplored potential for regional industrial path development*, Cambridge Journal of Regions, Economy and Society 11.2 (2018): 257-274.
- Grillitsch, M. 2016. 'Institutions, smart specialisation dynamics and policy', Environment and Planning C: Government and Policy, 34(1), pp. 22–37. doi: 10.1177/0263774X15614694.
- Grillitsch, M & Hansen, T. 2019. *Green industry development in different types of regions*. European Planning Studies, 27: 2163-2183.
- Grillitsch, M & Nilsson, M. 2015. *Innovation in peripheral regions: Do collaborations compensate for a lack of local knowledge spillovers?* The Annals of Regional Science 54:299- 321.
- Grubel, H.G. 1987. *The Economics of the Brain Drain*, Editor(s): GEORGE PSACHAROPOULOS, Economics of Education, Pergamon, Pages 201-206, ISBN 9780080333793, <https://doi.org/10.1016/B978-0-08-033379-3.50040-1>.

- Hadjimichalis, C. & Hudson, R. 2014 'Contemporary Crisis Across Europe and the Crisis of Regional Development Theories', *Regional Studies*, 48(1), pp. 208–218. doi: 10.1080/00343404.2013.834044.
- Hirschman, O. A. 1958. *Interregional and International Transmission of Economic Growth*. 139-158. In: *Regional Policy: Readings in Theory and Applications*. Friedmann, John & Alonso, William (Eds). The Colonial Press Inc: United States of America.
- Henry, N & Pinch, S. 2000. *Spatialising knowledge: placing the knowledge community of Motor Sport Valley*. *Geoforum*, 31(2), 191-208. DOI: 10.1016/S0016-7185(99)00038-X.
- Hermelin, B. 2013. *Regional ekonomisk utveckling. Landsbygder i omvandling*. In: *Planeringens utmaningar och tillämpningar*. Forsberg, Gunnel (Eds). Författarna och Liber AB, Kina: 2013. 266-284.
- Iammarino, S; Rodríguez-Pose, A; Storper, M. 2017. *Why Regional Development matters for Europe's Economic Future*, Working Paper 07, Directorate-General for Regional and Urban Policy, European Commission.
- Iammarino, S; Rodríguez-Pose, A; Storper, M. 2019. *Regional inequality in Europe: Evidence, theory and policy implications*. *Journal of Economic Geography* 19(2): 273–298. DOI: 10.1093/jeg/lby021.
- Johansson, M. 2016. 'Young women and rural exodus – Swedish experiences', *Journal of Rural Studies*, 43, pp. 291–300. doi: 10.1016/j.jrurstud.2015.04.002.
- Keuschnigg, M.; Mutgan, S.; Hedström, P. 2019. 'Urban scaling and the regional divide': *Science Advances*, (1). doi: 10.1126/sciadv.aav0042.
- Krugman, P. 1991. 'Increasing Returns and Economic Geography', *Journal of Political Economy*, 99(3), p. 483. Available at: <https://search-ebSCOhost-com.ludwig.lub.lu.se/login.aspx?direct=true&db=edsjsr&AN=edsjsr.2937739&site=eds-live&scope=site>. Accessed: 2020-09-24.
- Longley, A, P; Goodchild, F, M; Maguire, J, D; Rhind, W. 2011. *Geographical information systems and science* / Paul A. Longley. Chichester : Wiley, cop. 2010.
- Lucas Jr., R. E. 1988. 'On the Mechanics of Economic Development', *Journal of Monetary Economics*, 22(1), pp. 3–42. doi: 10.1016/0304-3932(88)90168-7.
- Kogler, D F. 2015. Editorial: *Evolutionary Economic Geography – Theoretical and Empirical Progress*, *Regional Studies* 49:5, 705-711. DOI: 10.1080/00343404.2015.1033178.
- Krieger, N. 2003. 'Place, Space, and Health: GIS and Epidemiology'. Available at: <https://search-ebSCOhost-com.ludwig.lub.lu.se/login.aspx?direct=true&db=edsuph&AN=edsuph.417&site=eds-live&scope=site>. Accessed: 2 April 2020.
- Lindblad, S; Tynelius, U; Danell, T; Pichler, W; Anderstig, C. 2015. *Demografins regionala utmaningar*. SOU: 2015:101. Available at: <https://www.tillvaxtanalys.se/download/18.62dd45451715a00666f1d337/1586366175710/demografins-regionala-utmaningar-sou-2015101.pdf>. Assessed at: 2020-09-23.
- Martin, R. 2015. *Rebalancing the Spatial Economy: The Challenge for Regional Theory, Territory, Politics, Governance*, 3:3, 235-272, DOI: 10.1080/21622671.2015.1064825
- Massey, D. 1979. *In What Sense a Regional Problem?* *Regional Studies* 13(2): 233– 243. DOI: 10.1080/00343400701232181.
- McCann, P. 2020 *Perceptions of regional inequality and the geography of discontent: insights from the UK*, *Regional Studies*, 54:2, 256-267, DOI: 10.1080/00343404.2019.1619928.

Morgan, K. 2016. *Nurturing novelty: Regional innovation policy in the age of smart specialisation*. Environment and Planning C: Government and Policy 35:569-583

Nilsson, B; Urwitz, G; Broman M & Gunnartz, K. 2017A. [*Stop seeing urbanization as a threat against the countryside*]. Dagens samhälle. 23 feb 2017. Available at: <https://www.dagenssamhalle.se/debatt/sluta-se-urbanisering-som-ett-hot-mot-landsbygden31785>. Assessed at: 2020-09-23.

Nilsson, B; Urwitz, G; Broman, M; Gunnartz, K. 2017B. *Den urbana utvecklingens drivkrafter och konsekvenser*. IVA. Available at: <https://www.iva.se/globalassets/info-trycksaker/framtidens-godastad/framtidensgodastad-urbanisering-b.pdf>. Assessed at: 2020-09-23.

Scott, A, J. 1988. *Flexible production systems and regional development: the rise of new industrial spaces in North America and Western Europe*. International Journal of Urban and Regional Research 12(2), 171-186. DOI: 10.1111/j.1468-2427.1988.tb00448.x.

Shearmur, R & Doloreux, D. 2016. *How open innovation processes vary between urban and remote environments: slow innovators, market-sourced information and frequency of interaction*. Entrepreneurship & Regional Development 28:337-357.

SKR. 2019. *Ekonomirapporten. Om kommunernas och regionernas ekonomi*. Available at: <https://webbutik.skr.se/bilder/artiklar/pdf/7585-549-3.pdf>. Assessed at: 2020-09-25.

SKR. 2020. *Regional Utveckling*. Available at: <https://skr.se/samhallsplaneringinfrastruktur/regionalutveckling.324.html>. Assessed: 2020-12-15.

Stockholms Handelskammare, 2019. "Sveriges och Stockholms tillväxt 2020 nedrevideras: "Rusta Stockholm och Sverige för sämre tider"". Available at: https://www.mynewsdesk.com/se/chamber/pressreleases/sveriges-och-stockholms-tillvaext-2020-nedrevideras-rusta-stockholm-och-sverige-foer-saemre-tider-2956485?utm_campaign=send_list. Assessed at: 2020-12-21.

Stockholms Handelskammare, 2020. *Framtidsagenda – mot Europas bästa huvudstad*. Available at: <https://www.chamber.se/rapporter/framtidsagenda-mot-europas-basta-huvudstad.htm>. Assessed at: 2020-12-21.

SOU 2015:101. *Demografins regionala utmaningar*. Regeringskansliet. Available at: <https://www.regeringen.se/contentassets/15c00134b8b4439185d351b14765da2a/demografins-regionala-utmaningar-sou-2015101>. Assessed at: 2020-12-21.

SOU 2020:8. *Starkare kommuner – med kapacitet att klara välfärdsuppdraget*. Regeringskansliet. Available at: <https://www.regeringen.se/4a7447/contentassets/39c4816961934a4ca8bd627868fd4423/starkare-kommuner--med-kapacitet-att-klara-valfardsuppdraget-sou-20208.pdf>. Assessed at: 2020-09-25.

Sveriges Riksdag. N.D. [The Swedish Parliament]. Lag (2010:630) om regional utvecklingsansvar. Available at: https://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/lag-2010630-om-regionalt-utvecklingsansvar_sfs-2010-630. Assessed at: 2020-11-03.

SVT, 2019. *Dyster prognos för kommunernas ekonomi*. Available at: <https://www.svt.se/nyheter/lokalt/vasternorrland/dyster-prognos-for-kommunernas-ekonomi> Var fjärde svensk kommun underskott 2018. Assessed at: 2020-09-25.

The Economist. 2017. *Left behind: The right way to help places hurt by globalization*. The Economist 21 October 2017, p. 11 and 19-24.

Region Stockholm. N.D. *Landsbygd och skärgård*. Available at: <https://www.sll.se/verksamhet/Regional-utveckling/landsbygd-och-skargard/>. Assessed: 2020-12-15.

Report, 2019. *Global innovation index*. <https://www.globalinnovationindex.org/gii-2019-report>. Assessed at: 2020-02-07.

Rodríguez-Pose, A. 2013. 'Do Institutions Matter for Regional Development?', *Regional Studies*, 47(7), pp. 1034–1047. doi: 10.1080/00343404.2012.748978.

Rodríguez-Pose, A. 2018. *The revenge of the places that don't matter (and what to do about it)*. *Cambridge Journal of Regions, Economy and Society* 11(1), 189-209. DOI: 10.1093/cjres/rsx024.

Rodríguez-Pose, A & Ketterer, T. 2020, 'Institutional change and the development of lagging regions in Europe', *Regional Studies*, vol. 54, no. 7, pp. 974–986. Available at: <<https://search-ebscohost-com.ludwig.lub.lu.se/login.aspx?direct=true&db=bth&AN=145282533&site=eds-live&scope=site>>.

RUFS 2050. [*Regional development strategy Stockholm*]. Region Stockholm. Available at: <https://www.sll.se/verksamhet/Regional-utveckling/strategier-och-planer-inom-regional-utveckling/rufs-2050/>. Assessed at: 2020-11-02.

Pike, A; Rodríguez-Pose, A; Tomaney, J. 2017. *Shifting horizons in local and regional development*. *Regional Studies* 51(1): 46–57. DOI: 10.1080/00343404.2016.1158802.

Pike, A; Rodríguez-Pose, A; Tomaney, J. 2007. *What kind of local and regional development and for whom?.* *Regional studies* 41(9): 1253-1269. DOI: 10.1080/00343400701543355.

Weimer, N. 2020-02-06. [*Sweden in top of international report about "brain jobs"*]. *Dagens Nyheter*. Available at: <https://www.dn.se/ekonomi/sverige-i-topp-i-internationell-rapport-om-brain-jobs/>. Assessed at (2020-12-21).

Appendix

1.1 Interview schedule

Municipality	Day	Time	Means of interviewing	distance	Region
Flen	2020-11-XX	13:00-14:00	XX		Sörmland
Heby	Personal bias	Personal bias			Uppsala
Norrtälje	2020-XX-XX	10:00-11:00	XX		Stockholm
Strängnäs	2020-XX-XX	09:00-10:00	XX		Sörmland
Tierp (Rescheduled)	2020-XX-XX	11:00-12:00	XX		Uppsala
Trosa	2020-XX-XX	11:00-12:00	XX		Sörmland
Östhammar	Non-response	Non-response			Uppsala

1.2 Interview guide

Explain and introduce:

Purpose of the research,

- Who you are,
- About the thesis and why,

Purpose of this certain interview,

- About Tillväxtverket classification, experience, knowledge, place and role local and regional development,
- About the purposive sampling, FA region and thank for possibility,
- About notetaking, and evaluating video conference interview,

How the results will be processed and used,

- About the interviews, confidentiality, integrity, and ethics.
- Ask about content to record and use
- How long the interview will take,
- follow-up questions,
- jump between questions,
- OK to skip questions, “No” is also an answer, no correct answers Interested about the informant’s perspective, inspire both reflection and spontaneous answers.
- Do you have any questions or considerations?

Informant: Occupation: Site:	
Date:	

Bakgrundsinformation, roll, position, perspektiv och kunskap. Background, role, position, perspective and knowledge.
<i>What is your role and responsibilities within the municipality?</i>
<i>How long have you been working at the municipality? Have you worked in different roles?</i>
<i>What is your educational background and what made you work at the municipality?</i>
<i>Do you live in the municipality? Why? Why not? Why do you choose to commute?</i>

What is regional development from the perspective of the peripheral?
The remaining part of the interview is divided into two blocks. The first now about regional development and XX municipality's role in it.
<i>How would you describe XX Municipality?</i>
<i>Is there a clear local or regional identity? How do the inhabitants view the municipality and in relation to the region?</i>
<i>How do you think others view XX Municipality?</i>
<i>Can you describe what regional development is to you and to XX Municipality? ... Is there a difference to others parts of FA region Stockholm?</i>
<i>OPTIONAL FOLLOW-UP: Does it affect local and regional development in any way?</i>
<i>How would you describe XX Municipality's place and role in the FA-region?</i>
<i>OPTIONAL FOLLOW-UP: Does it affect the development of XX municipality in any way?</i>

How do the municipality and the region work with the regional development strategy? Do you have any thoughts about it?

What specific challenges do you think XX municipality and the region is facing?

What do you think would be necessary to strengthen local and regional development?

Are there any particular questions of importance for the policy-makers in local and regional development?

Are there any typical sources of conflict or challenges within policy?

How is human capital and knowledge distributed in centre-peripheral regional development and how is it affecting local and regional development?

That was the first block. Now the second focuses more concrete on human capital within local and regional development. Again, if anything is unclear, makes you uncomfortable or anything, please say so.

BLOCK 2

Who migrates to the municipality and why? Who migrates from? Why?

OPTIONAL FOLLOW-UP: *How does this affect local and regional development?*

Can you describe your experience about who commutes to the municipality for work and who commutes from the municipality?

Of those who work at the municipality are there any patterns in who lives in the municipality and who commutes?

OPTIONAL FOLLOW-UP: *Both in general and in particular those who work with local and regional development and planning?*

Can you describe recruitment of competence and to vacant position? Possibilities? Challenges? Matching competence and demand?

...What education and experience to applicants usually have?

...Where are applicants from?

How do the municipality maintain and develop experience and competence? What is pulling and what is pushing?

...Who is staying at the municipality to work? Who is changing workplace and to where?

FOLLOW-UP: *How does this affect local and regional development?*

Is competence and access to human capital addressed in the practice of regional development in any way? How?

How do you think the private sector and enterprises address human capital in the municipality? Challenges and possibilities?

Are there similarities or differences in recruitment of human capital between municipalities within the region? How is it handled in regional development and within the region?

FOLLOW-UP: *How does it affect local and regional development and planning?*

BLOCK 2

When you started working in XX Municipality was there anything you experienced as new, challenging or surprising? Was it as you expected?

OPTIONAL FOLLOW-UP *Did you education and your colleagues education match XX municipalities development and specific preconditions?*

OPTIONAL FOLLOW-UP: *How?*

FOLLOW-UP: *Does it affect the development of XX municipality in any way?*

OPTIONAL IF NOT ADRESSED:

How would you describe XX municipalities possibilities to work with local and regional development in comparison to others part of the region?

How would you describe the relationship between centres in the region and surrounding municipalities?

How would you describe the relationship between towns and countryside within XX municipality?

Reflecting and based on what we have talked about – is there anything you would like to address that we haven't talked about?

End notes and rounding up:

- Time?
- Round-up and Thank the respondent – *Ask How it felt*
- *Ask about experience regarding the interview format and applied method.*
- *Ask about the validity and reliability of the questions*
- Address future questions, transparency, availability and contact.
- Give contact details.

1.2 Interview notes

Notes and feedback – Interview - Microsoft Teams.

In the first interview a lot of effort was put into solving technical issues, which compromised quality. It was a one hour meeting, 44 min recording and 30 min effective interviewing. For instance, the informant organized the meeting which meant that the informant had to record. Time was also consumed by establishing a common ground.

It was a good interview. The informant responded well to the theme and nature of the questions, nothing to comment on or sensitive data.

I could not keep up quality after 25 minutes. – did not have time to properly evaluate.

Did not have time to answers all q:s, the interview guide was used precisely as a guide and reminder to the author what to investigate. The questions merged with each other and were picked up. Could have reworked the guide after the first interview but it would have affected coherency in analytical tool.

Very difficult to discuss in depth and follow up in 30 min interview with no prior contact – half of the interview is to establish a common ground and learn how to talk to each other.

All questions were not asked– what was asked was the general topics and the informant decided on how and what to reply.

Notes and feedback – interview - Telephone.

Good questions – Understood.

Can be sensitive to talk about development and human capital questions, when it is an actual problem.

Telephone interview – one time started to glitch, had to hang up and start over. Otherwise worked without interruptions.

Missed Q – how other describe it. Different experience based on informant.

Notes and feedback – interview - Zoom.

The visual conference interview worked very well. The informant is now used to it and demands visual be turned on when doing meetings as it helps to see each other in responding, discussing and not interrupting. Can “read” the others facial expressions witch stimulate the conversation.

Feedback on very accurate questions and how the interview was conducted. The quality and technical competence is increasing.

Notes and feedback – interview - Microsoft Teams.

Can be sensitive to talk about human capital resources – or lack of it.

Interview worked very well – informant want a summary of the research afterwards and stressed the importance and validity of the sample, the angle and research problematic.

Have become more comfortable with interviewing, with using video conference as a tool and in using the interview guide to capture the informants thought and jump between different segments.

Notes and feedback – interview - Google Meet.

Fluent with the guide now. Informant talk about an aspect and i react by follow-ups that would have come later and then steer back. Have become better to round up, listen and make the informant express genuine thoughts, feel comfortable. Questions was good, informant encouraged the theme and research problematic. 5 interviews is enough, they are starting to sound more and more similar. 2 more would have provided more nuances but only strengthen the pattern.

Manage to keep the effective interview at around 25 minutes, as max for quality when doing it remotely.

Google Meet worked well as a visual interaction tool, but recording did not work within the programme. Needed more administrative controll, so recording was done by only audio.

2.1 Table Sample Selection

The table below highlights what is classified as intraregional periphery within the FA unit of Stockholm. Of these at least one from each county within the FA region is represented in the sampling. It was aggregated in Excel and joint with spatial data in ArcMap.

FA-Region Stockholm		
Municipalites	FA Class	Municipal

		class
Upplands Väsby	1	1
Vallentuna	1	2
Österåker	1	1
Värmdö	1	2
Järfälla	1	1
Ekerö	1	2
Huddinge	1	1
Botkyrka	1	1
Salem	1	1
Haninge	1	1
Tyresö	1	1
Upplands-Bro	1	1
Nykvarn	1	2
Täby	1	1
Danderyd	1	1
Sollentuna	1	1
Stockholm	1	1
Södertälje	1	1
Nacka	1	1
Sundbyberg	1	1
Solna	1	1
Lidingö	1	1
Vaxholm	1	2
Norrtälje	1	3
Sigtuna	1	1
Nynäshamn	1	2
Håbo	1	2
Knivsta	1	2
Heby	1	3
Tierp	1	3
Uppsala	1	2
Enköping	1	2
Östhammar	1	3
Gnesta	1	2
Flen	1	3
Strängnäs	1	3
Trosa	1	3

3. Maps – Metadata and operationalization

Summary

The purpose of the visualization is to increase understanding and situate the qualitative research as well as the geographical unit of analysis.

Choropleth mapping is a common tool in nuancing and spatializing demographical socio-economic variables. The classification is consistently set to "equal intervals" and 5 classes - useful when comparing different spatial units.

Description

Mapping and visualizing aspects of the distribution of human capital in contemporary skill-selective and knowledge-intense regional development in centre-peripheral FA-region Stockholm.

Credits

Spatial data – Lantmäteriet, 2020.

Variable: Geodata administrative borders municipalities.

Processed into FA-region in ArcGis.

<https://www.lantmateriet.se/sv/Kartor-och-geografisk-information/oppna-data/>

Demographic dependency ratio – SCB, 2020.

Variables: Municipality, year 2006 and 2018 (First and latest).

http://www.statistikdatabasen.scb.se/pxweb/sv/ssd/START__AM__AM9906__AM9906D/RegionInd19R2/#Human

Human Capital – SCB, 2020.

Variables: Age (1 year class), Gender, 2019, 3 years or more post-secondary education.

Aggregated in Excel into new classification 25-34 as indicator of spatial sorting of younger labour population with high education. Absolute numbers normalized by total population by gender and age 25-34 in each municipality. Population background variable education. SCB. 3 years or more of post-secondary education.

https://www.statistikdatabasen.scb.se/pxweb/sv/ssd/START__UF__UF0506/UtbBefRegionR/

Mean income in thousand kronor by municipality – SCB, 2020.

https://www.statistikdatabasen.scb.se/pxweb/sv/ssd/START__HE__HE0110__HE0110A/SamForvInk1c/.

Population – SCB, 2020.

One-year classification in each municipality. Aggregated into new classification by gender and age 20-29 in excel.

https://www.statistikdatabasen.scb.se/pxweb/sv/ssd/START__BE__BE0101__BE0101A/BefolkningNy/

Use limitations

There are no access and use limitations for this item.

Extent

West 16.411679 **East** 19.182511

North 60.625929 **South** 58.748059

Scale Range

Maximum (zoomed in) 1:5,000

Minimum (zoomed out) 1:150,000,000

Spatial Reference ▼▶

[ArcGIS coordinate system](#)

* [Type](#) Projected

* [Geographic coordinate reference](#) GCS_SWEREF99

* [Projection](#) SWEREF99_TM

* [Coordinate reference details](#)

[Projected coordinate system](#)

[Well-known identifier](#) 3006

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[Y origin](#) -9998100

[XY scale](#) 450445547.3910538

[Z origin](#) -100000

Z scale 10000
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Z tolerance 0.001
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Latest well-known identifier 3006

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