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Exploring Future Development Paths for Shrinking Regions

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ACADEMIC DISSERTATION
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"Who controls the past controls the future; who controls the present controls the past." George Orwell

Abstract

This dissertation aims to shed light on the futures of shrinking regions by examining the current expectations of local agents. It is based on three peer-reviewed research articles, with an empirical focus on shrinking regions in Finland.

Relying on the theory of evolutionary economic geography, with a focus on integrating a future-oriented perspective into economic geographic research, this dissertation expands the understanding of how future expectations influence present actions and regional development.

Semi-structured interviews serve as the primary data source. Articles I and II are based on 45 interviews with real estate appraisers, brokers, bank representatives, and public sector authorities involved in land-use planning from eight shrinking cities. In addition, newspaper articles were used as data sources in these articles. Article III, on the other hand, is based on 24 interviews with municipal decision-makers, including municipal chief executives and chairpersons of municipal executive boards, from the South Savo region.

Based on the results of this dissertation, several key arguments can be made. First, real estates and the built environment shape the future development of regions through the expectations and actions of various actors. These factors can reinforce specific development paths, such as further entrenching regions in a trajectory of population decline. Thus, real estate market, in particular, create a structural barrier to the development of shrinking regions.

Second, this dissertation has also demonstrated that the future holds various possibilities, and shrinking regions can develop along multiple alternative trajectories. The study's findings reveal that local agents have identified several time-specific opportunity spaces linked to the sustainability transition and local municipal institutional actors have taken actions to realize them.

One such opportunity space emerges in sustainable nature tourism, which local agents perceive as having the potential to influence people's attitudes toward tourism while boosting both domestic and international nature tourism in certain shrinking regions. This opportunity is particularly significant given the COVID-19 pandemic and the war in Ukraine, which have profoundly reshaped the tourism landscape, especially in eastern Finland.

Another time-specific opportunity related to the sustainability transition was renewable energy, which many local agents associated with high future expectations. Renewable energy was primarily seen as a financial opportunity, offering property tax and rental income, as well as financial savings through property-specific investments. Additionally, it could generate positive externalities by fostering new business activities and industries, such as hydrogen production, battery manufacturing, and other refining processes

centred on renewable energy production. These developments have the potential to diversify local economies and create new opportunities for growth and innovation.

External shocks play an important role in theories of evolutionary economic geography, as they are seen as one way for regions to escape the trap of being "locked-in." Covid-19 can be seen as an example of a shock that created opportunity space for some regions with declining populations. This opportunity space is linked to remote work, multi-local living, but also nature tourism. Remote work enables people to spend longer periods at second homes in rural areas. Overall, it is believed that remote-, location-independent-, and hybrid work allow individuals to live farther from workplaces in major cities, including in shrinking and rural areas.

Taken together, the dissertation emphasizes various actions taken by municipal institutional actors to capitalize on opportunities while also addressing the challenges of population decline and the attraction of new residents and businesses. Whether these actions will lead to significant changes in development paths remains to be seen. Nevertheless, it is important to recognize that the future remains open to various possibilities.

Tiivistelmä

Tämä väitöskirjatutkimus tarkastelee väestöltään vähenevien alueiden tulevaisuuksia kartoittamalla paikallisten toimijoiden nykyhetkessä tulevaisuuteen kohdistamia odotuksia.

Tutkimus nojaa evolutionäärisen talousmaantieteen teoriaan ja pyrkii integroimaan tulevaisuusorientoituneen näkökulman entistä vahvemmin tähän tutkimussuuntaan, laajentaen ymmärrystä siitä, miten toimijoiden tulevaisuuden odotukset vaikuttavat nykyhetkessä tapahtuvaan toimintaan ja laajemmin aluekehitykseen.

Väitöskirja pohjautuu kolmeen vertaisarvioituun tieteelliseen artikkeliin, joiden empiirinen tarkastelu keskittyy väestöltään kutistuviin alueisiin Suomessa. Puolistrukturoidut teemahaastattelut toimivat ensisijaisina aineistolähteinä kaikissa artikkeleissa. Artikkelit I ja II perustuvat 45 haastatteluun, jotka on tehty kiinteistönarvioitsijoiden sekä kiinteistönvälittäjien, pankkien edustajien ja maankäytön suunnittelusta vastaavien viranhaltijoiden kanssa kahdeksassa suomalaisessa kaupungissa. Lisäksi näissä artikkeleissa on hyödynnetty sanomalehtiartikkeleita aineistona. Artikkeli III pohjautuu 24 haastatteluun, jotka on tehty kuntapäättäjien - kunnanjohtajien ja kunnanhallitusten puheenjohtajien- kanssa Etelä-Savon alueella.

Tämän väitöskirjan tulosten perusteella voidaan esittää muutamia keskeisiä väitteitä. Ensinnäkin kiinteistöt ja rakennettu ympäristö muovaavat voimakkaasti alueiden tulevaa kehitystä toimijoiden niihin kohdistamien odotusten ja odotusten kehystämien toimien kautta. Nämä tekijät voivat vahvistaa tiettyjä kehityspolkuja, kuten juurruttaa alueita entistä syvemmälle väestön vähenemisen ja negatiivisen kehityksen polulle. Näin ollen kiinteistömarkkinat luovat rakenteellisen esteen kutistuvien alueiden tulevaisuuden kehitykselle.

Toiseksi tämä väitöskirja osoittaa, että väestöltään kutistuvien alueiden tulevaisuus on avoin monille mahdollisuuksille ja ne voivat kehittyä useisiin vaihtoehtoisiin kehityssuuntiin. Tämän tutkimuksen tulokset osoittavat, että paikalliset toimijat tunnistavat useita mahdollisuudentiloja, jotka liittyvät kestävyyssiirtymään.

Yksi kestävyyssiirtymän luoma mahdollisuuden tila avautuu kestävän luontomatkailun ympärille, sillä paikalliset toimijat uskovat, että tulevaisuudessa ihmisten asenteet matkailua kohtaan muuttuvat. Tämän odotetaan lisäävän kotimaanmatkailua sekä kansainvälisten luontomatkailijoiden määrä alueella. Kestävän luontomatkailun tarjoamat mahdollisuudet liittyvät osaltaan toimintaympäristössä tapahtumiin yllättäviin shokkeihin kuten COVID-19-pandemiaan ja Ukrainan sotaan, jotka ovat vaikuttaneet voimakkaasti matkailuun erityisesti Itä-Suomessa.

Toinen kestävyyssiirtymään liittyvä mahdollisuudentila liittyi uusiutuvaan energiaan, johon monet toimijat liittivät korkeita tulevaisuuden odotuksia. Uusiutuvaa energiaa pidettiin ensisijaisesti taloudellisena mahdollisuutena, sillä sen katsottiin tarjoavan

kiinteistöverotuloja ja vuokratuloja kunnille. Lisäksi kiinteistökohtaisten uusituvan energian investointien odotettiin tuovan taloudellisia säästöjä kunnille. Uusiutuvan energian odotettiin myös synnyttävän positiivisia ulkoisvaikutuksia ja edistävän uusien teollisuudenalojen syntyä Etelä-Savon alueella, kuten vety- ja akkuteollisuutta sekä muita uusiutuvaan energiaan perustuvia jalostusprosesseja. Nämä kehityskulut voivat monipuolistaa paikallista taloutta ja luoda uusia mahdollisuuksia kasvuun sekä innovaatioihin.

Ulkoisilla shokeilla on tärkeä rooli evolutionaarisen talousmaantieteen teorioissa, sillä niitä pidetään yhtenä keinona irtaantua "lukkiutuneisuuden" ansasta. COVID-19-pandemiaa voidaan pitää yhtenä esimerkkinä shokista, joka loi mahdollisuudentilan joillekin väestöltään kutistuville alueille. Tämä mahdollisuudentila liittyy etätyöhön, monipaikkaiseen asumiseen sekä jo mainittuun luontomatkailuun. Etätyö mahdollistaa sen, että mökillä tai kakkoskodissa voidaan viettää entistä pidempiä ajanjaksoja. Yleisesti ottaen etä-, sijaintiriippumaton- ja hybridityö mahdollistavat asumisen entistä kauempana suurten kaupunkien työpaikoista, myös väestöltään kutistuvilla ja maaseutualueilla.

Kaikki väitöskirjaan sisältyvät kolme artikkelia nostavat esiin kunnallisten toimijoiden toteuttamia toimenpiteitä, joilla pyritään hyödyntämään mahdollisuuksia sekä vastaamaan väestökadon aiheuttamiin haasteisiin. Nykyhetkessä ja tämän väitöskirjan tulosten perusteella ei voida tehdä johtopäätöksiä siitä, johtavatko nämä toimet merkittäviin muutoksiin alueiden tulevaisuuden kehityspoluissa. Varmaa on kuitenkin se, että tulevaisuus on avoin mahdollisuuksille. Siksi nykyhetkessä väestöltään kutistuvilla alueilla on monia vaihtoehtoisia tulevaisuuden kehityssuuntia.

Esipuhe

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Ensimmäinen ajatukseni väitöskirjan tekemisestä syntyi jo vuonna 2012, kun osallistuin kummitätini väitöstilaisuuteen ja karonkkaan—aikana, jolloin en ollut vielä edes aloittanut kandidaattiopintojani. Kiitos siis myös Arja-tädilleni esimerkin näyttämisestä, joka osaltaan johdatti minut tälle väitöskirjamatkalle.

Tapiolassa 18.9.2025
Annamari Kiviaho

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List of Original Publications

This doctoral dissertation consists of a summary and of the following publications which are referred to in the text by their Roman numerals (I-III):

I Kiviaho, A. & Toivonen, S. (2023). Forces impacting the real estate market environment in shrinking cities: possible drivers of future development. *European Planning Studies*, 31(1), 189-211. https://doi.org/10.1080/09654313.2022.2121604

II Kiviaho, A. & Toivonen, S. (2024). Reimagining alternative future development trajectories of shrinking Finnish cities. *International Planning Studies*, 1-18. https://doi.org/10.1080/13563475.2023.2259109

III Kiviaho, A. & Hyyryläinen, T. (2025). Sustainability transition in shrinking regions: uncovering perceived regional opportunity spaces and expectations shaping regional development. *Geoforum,* 164, 104326. https://doi.org/10.1016/j.geoforum.2025.104326

Summary of Contributions

	Article I	Article II	Article III
Original idea	AK, ST	AK, ST	AK, TH
Study design	AK, ST	AK, ST	AK, TH
Data collection	AK, ST, AH	AK, ST, AH	AK, TH
Data analysis	AK	AK	AK
Literature review	AK	AK	AK
Writing original draft	AK	AK	AK
Writing, editing, and reviewing	AK, ST	AK, ST	AK, TH

AK = Annamari Kiviaho, ST = Saija Toivonen, AH = Annabella Haavisto, TH = Torsti Hyyryläinen

1 Introduction

1.1 The Importance of Studying Shrinking Regions and Their Futures

Research concerning the future of regions often focuses on growing cities. Some researchers have even claimed that the prevailing narrative in urban economics often posits that the largest cities and agglomerations represent the future (Rodríguez-Pose, 2018). These future cities are expected to be smart and sustainable, capable of addressing the challenges associated with rapid urbanization (Höjer & Wangel, 2015). However, the challenges of urbanization and population growth do not affect all cities and regions. Many cities, municipalities, and regions are facing issues related to population decline and its negative consequences.

The issues associated with so-called shrinking cities and regions—such as segregation, declining real estate values, underutilized infrastructure and housing abandonment —pose significant planning challenges for these areas (Hollander et al., 2009; Hollander & Hartt, 2019). These places are often perceived as having poor development prospects, leading to the belief that such declining places have 'no future' (Rodríguez-Pose, 2018). However, this perspective is overly simplistic; the future is open to various alternative possibilities, and declining places may also develop along several different alternative trajectories. That is, the future of these currently shrinking regions is not predetermined, and they can develop in several alternative directions. For instance, the two shrinking cities, Liverpool and Leipzig, experienced new population growth after years of depopulation (Haase et al., 2021).

In future research, the future is not seen as singular but rather as plural and open to various alternative possibilities (Dator, 2002). It can be visualized as a branching tree, where each branch represents an alternative possibility and has the potential to produce a different future (Niiniluoto, 2001). Similarly, some geographers advocate that the future is open. When conceptualizing space-time, Massey (1999) proposes that while the future is inevitably influenced by histories, it remains open. She also adds that for the future to retain its openness, temporality must be conceived “as the product of interaction, of interrelations.” (Massey, 1999)

Although the future is crucial for regional (economic) development, it has received relatively little attention (Gong, 2024). Some scholars argue that only a few empirical studies have explored futures and future-making practices within the field of economic geography (Gong, 2024). Nonetheless, a shift has occurred in the field, with scholarly attention gradually moving from a predominantly historical focus towards a greater emphasis on the future (Martin & Sunley, 2022; Steen, 2016).

While EEG has traditionally emphasized how past events constrain regional development—often resulting in path dependency and lock-ins—recent developments in the field underscore a more dynamic understanding that incorporates the role of agency shaping of future regional economic trajectories. While past perspectives stressed how historical events and structures steer regional development trajectories, newer approaches recognize that regions are not merely bound by their histories; instead, agents play a crucial role in influencing regional development outcomes (Grillitsch & Sotarauta, 2020; Rekers & Stihl, 2021).

In particular, the complex and wicked issues that contemporary societies face—such as climate change, biodiversity loss, and the overuse of natural resources and energy—demand strong agency and future-oriented decision-making. Unsustainable consumption and production practices are driving various sustainability challenges, creating an urgent need for a radical shift in socio-technical systems (Köhler et al., 2019; Wittmayer et al., 2014). This shift, commonly referred to as "the sustainability transition" is essential for addressing these challenges effectively (Köhler et al., 2019; Wittmayer et al., 2014).

Future developments can be impacted in the present moment. Therefore, we do not have to accept future realities as predetermined; instead, we have the opportunity to shape a world that has not yet materialized (Patomäki, 2006). To make informed decisions aimed at building a more sustainable future for regions with declining populations, we need to study alternative development paths. This knowledge enables choices and actions that steer development toward desirable future outcomes. Population decline and sustainability transition occur simultaneously in the same places, thus creating an interesting interactive space for examining regional development. For instance, wind and solar parks, as well as large data centers, are often located outside the largest cities, in non-core regions including smaller towns and rural regions (Business Finland, 2025; Salonen & Tomrén, 2023).

1.2 Objectives and Research Questions

The primary objective of this dissertation is to shed light on the alternative futures of regions. Specifically, it explores and describes potential future development paths for regions experiencing population decline. This dissertation is based on three peer-reviewed research articles that address the research questions presented in Table 1.

Table 1. Research questions.

	Research question	I	II	III
RQ1	How do local agents perceive the future **development paths** of regions experiencing population decline?	X	X	X
RQ2	What kind of **expectations** local agents have regarding future development of shrinking regions?		X	X
RQ3	How do local agents perceive the **opportunity space** related to sustainability transition?			X
RQ4	What **actions** have municipal institutional actors implemented to harness the potential future opportunities?	X	X	X

The theoretical framework of the dissertation is grounded in evolutionary economic geography (EEG), with an emphasis on incorporating a future-oriented perspective into economic geographic research. While EEG-related studies have recently begun to focus more on the future and have recognized its importance for regional (economic) development, some researchers argue that our understanding of regional futures still remains limited (Gong, 2024; Hassink et al., 2019; Martin & Sunley, 2022). Thus, this dissertation seeks to advance the understanding of regional futures and broaden our knowledge of how different local agents perceive the futures of regions with shrinking populations.

The articles that form the basis of this dissertation are future-oriented, either through their methods (articles I and II) or their theoretical framework (article III). Additionally, a key aspect linking these articles is their empirical focus on areas with long-term population decline. The study of regions with shrinking populations is particularly compelling because their futures, and expectations of their futures, differ significantly from those of regions experiencing population and economic growth. Furthermore, in the EEG literature, the focus is often on regions with success stories (Boschma, 2009), rather than on those grappling with various

challenges, especially related to population decline. Therefore, it is important to shift the research focus toward non-core and shrinking regions and to address their futures, as done for instance in the study by Sotarauta et al. (2025).

In this dissertation, along with the associated articles, the primary focus is on agents and their current expectations and visions regarding future regional development. Articles I and II concentrate on agents such as local real estate appraisers and brokers, bank representatives, and public sector authorities responsible for land-use planning and policy-making. Article III broadens the focus with municipal decision-makers, including municipal chief executives and chairpersons of municipal executive boards. All they represent an important type of agency, with the capacity to act and impact on regional path developments. Moreover, they hold influential positions with the capacity to impact the future development of regions through their decisions and actions. Indeed, in their professional roles, they are obligated to consider future outcomes. However, they approach the future of the region from different perspectives, which allows for the creation of a comprehensive picture of alternative regional future development paths. The first research question addressed in all three articles of this dissertation is as follows:

RQ1: How do local agents perceive the future development paths of regions experiencing population decline?

In the articles I and II, the future development paths are examined through the lens of the real estate market. Real estates are considered as a significant part of the region's historical development and an integral component of its economic and political structure. In this sense, real estates and overall built environment represents inherited characteristics that have been shaped over the course of the region's history. Thus, real estates can be seen as an important part of a region's structural preconditions, representing both barriers and opportunities that may influence the region's development paths. However, as noted by Froy (2023) the role of built environments has previously been largely neglected in the EEG discipline. In article III, future development paths are examined from the perspective of sustainability transition, which is considered as one of the major contemporary trends profoundly shaping societies, influencing objectives, and steering regional development.

Some researchers have argued that future expectations and visions play a crucial role in understanding and explaining new path development (Hassink et al., 2019; Steen, 2016). The future can be seen to materialize through expectations that shape planning, strategies, and thus drive actions (Borup et al., 2006). However, it has been proposed that economic geographers need to consider future expectations more seriously to better understand and explain causal mechanisms and

evolutionary processes (Martin & Sunley, 2022). All the articles of this dissertation address expectations regarding future development of regions with shrinking population, thus answering to the second research question:

RQ2: What kind of expectations local agents have regarding future development of shrinking regions?

The opportunity space encapsulates agents' deliberations regarding the future, integrating both agency and structure (Grillitsch & Sotarauta, 2020). The concept of opportunity space does not abandon the basic assumption of EEG, which emphasizes "how and why history matters for innovation and regional economic growth" (Binz et al., 2016; Martin, 2010). Instead, it also incorporates opportunities that have not yet been realized in the present but have the potential to alter the course of regional development (Grillitsch & Sotarauta, 2020; Kurikka et al., 2023). It has even been suggested, for instance by Gong (2024), that the concept of opportunity space serves as compelling evidence that futures are being taken more seriously by economic geographers. In article III, the concept of opportunity space is applied and utilized as a framework for empirical analysis, thus addressing the third research question of this dissertation:

RQ3: How do local actors perceive the opportunity space related to sustainability transition?

Municipalities as institutional actors can be seen as crossroads that connect local, national, and international governance (Gustafsson & Mignon, 2020; Hodson & Marvin, 2009). As local-level agents, municipalities can act as mediators or connectors between various stakeholders, organizations, and interests across different regional levels (Hodson & Marvin, 2009; Köhler et al., 2019). Municipalities may also serve as arenas for formulating and implementing strategies for long-term sustainable development (Isaksson & Hagbert, 2020). In the Nordics, and especially in Finland, municipalities are important place-based actors responsible for various duties, such as land use planning, zoning, issuing building permits, education, providing culture services and environmental protection. As such, municipal institutional actors are crucial enablers and key actors in promoting opportunities related to the sustainability transition, while also managing the challenges associated with possible population decline (Syssner, 2022). Thus, this dissertation, aims to answer the final research question:

RQ4: What actions have municipal institutional actors implemented to harness the potential future opportunities?

In Finland, the term municipality can be defined as follows: "a public entity established at the local level with its own territorial limits and population, with the right to levy taxes, where the residents elect a decision-making body vested with the highest decision-making authority" (Sanastokeskus, 2024; Valtioneuvoston kanslia, 2023). Additionally, it is important to note that in Finland, "a municipality may use the designation 'town' or 'city' if it considers that the requirements for an urban community are met" (Local Government Act 410/2015). Therefore, even municipalities that include large sparsely populated rural areas can institutionally become cities. The term municipality can refer to both the organizational units of Finnish local government and the geographical area defined by the municipal borders. For clarity, in this dissertation, the term municipal institutional actor is used to refer to municipalities as actors.

1.3 Structure of the thesis

This dissertation consists of five main sections. Section 2 presents the theoretical and conceptual background of the dissertation. It begins by introducing the theoretical concepts and basic ideas related to evolutionary economic geography (EEG). As the dissertation focuses on the future and agency, this section also explains how these phenomena are connected to EEG. The second part of Section 2 delves into previous academic literature on shrinking cities and regions, providing brief explanations of the causes and consequences of this phenomenon. These insights serve as the foundation for the research presented in this dissertation and detail the preconditions that characterize the development of these types of regions and cities. Section 3 provides a description of the study areas including summary of the historical phases of regional development and regional policies in Finland, as well as the data and methods used in the articles of the dissertation. Section 4 presents the results and addresses the research questions. Finally, Section 5 encapsulates the contributions of this dissertation and summarizes the key findings.

2 Theoretical Foundations

This chapter outlines the theoretical foundations of the dissertation. It begins by introducing the key concepts and explanations from Evolutionary Economic Geography that examines and explains the (economic) development of regions. Following this, the roles of institutions and agency are discussed. The chapter also highlights the scholarly shift within EEG from past perspectives toward future directions. The second part (2.2) focuses on shrinking regions, exploring the reasons behind population decline and its consequences. The chapter concludes with a brief explanation of how shrinking regions are linked to the sustainability transition.

2.1 Evolutionary Economic Geography

2.1.1 Basic Framework of EEG

The EEG literature primarily emphasizes how the economic landscape evolves over time and inherits the legacy of its past. Thus, history conditions future development by influencing its evolution. In other words, decisions and outcomes of the past significantly influence the present and future trajectories of regions, places, technologies, firms, and industries (Boschma & Frenken, 2006). EEG emphasizes the significance of time and history in regional economic development and endeavours to explain how these factors matter (Henning, 2019).

EEG has been employed to explain regional economic disparities and why some regional economies continue to prosper while others struggle with negative development path (Chu & Hassink, 2023). By drawing on concepts such as path dependence and "lock-in", evolutionary economic geographers have been able to conceptualize the self-reproducing and self-reinforcing mechanisms that affect the (economic) development of regions (Martin, 2010). Other important explanatory concepts emphasized in EEG literature include new regional industrial path development and regional diversification (Hassink et al., 2019). In recent years, EEG research has also shifted its attention to exploring how new path development emerges and the roles of human agency in such evolvement.

When discussing path dependence, development paths, and new path creation, the concept of "path" often remains undefined. However, for instance, Sotarauta & Grillitsch (2023) determine this notion as "temporal sequence of events" and "the course or direction in which, for example, a region or an industry in a region is moving."

In EEG literature, the term 'lock-in' describes a sequence of events leading to a situation where regions become locked into a particular development path (MacKinnon, 2008). In many EEG writings, lock-ins are often viewed negatively, as regions or local economies become trapped in a path or trajectory that no longer supports regional economic growth. Growth is considered one of the key dimensions of regional success in EEG studies. This is particularly evident in old industrial regions, where negative lock-ins explain the difficulties, these regions face in adapting to change (Boschma & Lambooy, 1999; Grabher, 1993). For example, regions like the Ruhr area in Germany have become trapped by their industrial past, hindering growth, innovation, and adaptability (Boschma & Lambooy, 1999; Grabher, 1993). Interestingly, literature on shrinking cities and regions has also directed scholarly attention, especially to old industrial areas such as the Rust Belt in North America and the Ruhr area in Germany (Bernt et al., 2014; Hollander et al., 2009).

These old industrial regions, once dominated by specific industries with strong commitments in terms of capital goods, management, R&D, and labour, find it difficult to diversify into new activities (Boschma & Lambooy, 1999). In other words, the economic structure that once supported their phase of prosperity – such as specialized skills, infrastructure, and institutional frameworks – suddenly becomes a barrier to change. Negative lock-in occurs as the specialized structure of the region creates challenges in adapting to new technologies (Boschma & Lambooy, 1999). This creates a vicious cycle where the region's economic prospects are hindered by its historical success, leading to prolonged periods of economic stagnation or decline.

Path dependency in EEG literature also has a positive side, describing processes where positive lock-ins occur, leading to regional growth and, hence, success (Martin & Sunley, 2006). Regions may enter a phase of growth where the expansion of one or a few industries stimulates increasing returns and positive externalities, reinforcing positive lock-ins (Martin & Sunley, 2006). Such a phase of success can continue for a long time, potentially lasting for decades (Martin and Sunley, 2006). However, some of these regions that have represented leading industries and basked in their glory eventually end up in a phase of negative lock-in as the technological systems become mature (Martin & Sunley, 2006).

In EEG, self-reinforcing mechanisms are closely related to the concept of lock-ins. As certain paths are followed, the benefits—or disadvantages in the case of negative lock-ins—continue along those paths, creating a self-reinforcing cycle that

limits the scope for alternative development paths (Evenhuis, 2017). These mechanisms can lead to either negative or positive impacts (Martin & Sunley, 2006).

Another crucial aspect of path dependence theories is that small, even 'accidental' events or decisions can have far-reaching, long-term, and unpredictable consequences (Evenhuis, 2017). These events narrow future options and may cause widespread lock-ins, affecting economic structures, organizational forms technologies, as well as geographical patterns of industry and employment (Martin & Sunley, 2022).

2.1.2 How Can Development Paths Be Interrupted, and Lock-Ins Escaped?

Regions are not permanently locked into their past or a specific trajectory. External shocks play an important role in path-dependent theories, as they are seen as one way for a region's economy to escape from the trap of being 'locked-in' and shift towards a more competitive configuration (Martin and Sunley, 2006). The impact of such shocks is related to a region's ability to interrupt path dependence (Martin and Sunley, 2022). For instance, an economic crisis might expose the vulnerabilities of a region's reliance on a single industry, prompting diversification and innovation. Shocks can also lead to institutional changes, altering development trajectories by creating new opportunities for growth and innovation. Overall, external shocks disrupt established paths, offering the possibility of changing development trajectories. However, exogenous shocks and crises could also have the opposite effect (Martin & Sunley, 2006), potentially reinforcing negative lock-ins and existing trajectories.

Path dependency is often seen as reinforcing the specialization patterns of regions over time. Based on previous studies, it can be concluded that localities with highly specialized economic structures are particularly vulnerable when it comes to adjusting to changes, and are more likely to become trapped in path dependency and negative lock-ins. (Martin and Sunley, 2006) In contrast, one possible solution to avoid or escape negative lock-ins, as suggested by many researchers, is economic diversification (Kogler et al., 2023). Regions with diversified economies are better able to withstand exogenous shocks, as they can more easily adapt to changes than specialized regions reliant on a single industry. Diversified regions have a greater variety of economic activities, so a crisis in one industry may not affect other industries and the local economy as a whole (Boschma, 2015). Furthermore, in regions with diversified economies, future development opportunities are broader, allowing for more pathways for adaptation and evolution, thereby preventing them from becoming stuck in a specific trajectory (Boschma, 2015). However, it should be kept in mind that diversification can be particularly challenging for shrinking

(rural) regions and small cities, where resources, infrastructure, and workforce availability are limited.

2.1.3 Roles of Institutions in Evolutionary Economic Geography

While institutions are defined in various ways, a common approach is to divide them into formal institutions (including laws, constitutions, charters, bylaws, and regulations) and informal institutions (including norms, social conventions, traditions, and relationships) (Rodríguez-Pose, 2013). Broadly, some scholars define institutions as structures that shape social interactions (see, for instance, Evenhuis 2017). However, when defining institutions within the institutional and evolutionary literature, North's (1990) definition is frequently cited: “institutions are the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction”.

Institutions have a dual impact on regional development paths: they provide both constraints and incentives for new knowledge creation, thereby influencing the selection and retention of these development paths (Boschma & Martin, 2007). According to Hodgson (2006) institutions function both as external, objective structures and as internal, subjective motivators that shape human agency.

Institutions can be a significant source of lock-in, particularly in old industrial regions (Evenhuis, 2017). Grabher (1993) introduces the concept of "political lock-in," referring to dense institutional frameworks aimed at preserving existing industrial structures, which he uses to explain the decline and economic stagnation of the Ruhr Area in Germany. Efforts to maintain these industrial structures often prevent essential changes needed to overcome lock-ins and promote new industrial activities and restructuring, potentially reinforcing the lock-ins. For example, Boschma and Lambooy (1999) illustrate how, in specialized regions, various institutional actors, such as labour unions or public authorities, may resist changes due to perceived threats to their dominant positions. Another example is the lack of incentives for local authorities to promote restructuring or attract new inward investments, as large local enterprises already contribute significant tax revenues (Hassink, 2005).

Researchers who have integrated institutional ideas into the evolutionary paradigm have also explored how industrial development and institutions affect one another. Some scholars propose that institutions coevolve with the development of industries (Benner, 2022; Boschma & Frenken, 2009). It has been suggested that the institutional landscape shapes industrial development, eventually leading to specialization (Grillitsch et al., 2023). However, industrial development also impacts the institutional landscape (Grillitsch et al., 2023). Over time, institutions adapt to the needs of specific industries that form and grow in a region, establishing favorable conditions for the industries' future growth

(Grillitsch, 2015). Thus, institutional change is necessary for the emergence of new industries and to achieve new specializations (Boschma & Frenken, 2009; Grillitsch et al., 2023; Hassink, 2005).

Institutions do not only create or reinforce lock-ins; they can also have a positive impact on regional development (Cooke, 2018; Harris, 2021; MacKinnon et al., 2019). Some researchers suggest that institutions foster variety and innovation (Cooke, 2018; Sotarauta & Pulkkinen, 2011) providing a way out of lock-in situations. National and regional government institutions are often essential in mobilizing agents to create new development paths (Martin & Sunley, 2006). For instance, political and institutional leaders can play a pivotal role by initiating new initiatives, mobilizing resources, promoting collective action, and driving institutional change.

EEG scholars have also considered the relationship between agents and institutions. This relationship is twofold: agents influence institutions, and institutions, in turn, affect agents. The institutional framework within which agents operate influences their decisions and actions (Boschma & Frenken, 2006; Sotarauta & Pulkkinen, 2011) as well as their interactions (Sotarauta & Suvinen, 2018). Consequently, institutions shape the emergence of new industrial paths and can also serve as potential sources of lock-in (Sotarauta & Suvinen, 2018).

Rekers and Stihl (2021) remind us that institutions, both formal and informal, operate on various scales, such as national, regional, and local. As these institutions coexist and interact at different scales, they form distinctive institutional contexts that impact the actions of local actors (Rekers & Stihl, 2021). In other words, different localities are both cursed and blessed with varying institutional contexts that can either encourage or discourage efforts to steer local development paths (Rekers & Stihl, 2021). A study by Rekers and Stihl (2021) showed that formal and informal institutions influence how public authorities, firms, and other local stakeholder groups perceive and act (or fail to act) in shaping development paths.

In summary, institutions shape agency, which is a key focus of this dissertation. They both create barriers and provide motivations for action, making them essential to understanding the sustainability transition in shrinking regions.

2.1.4 Role of Agency

Sotarauta and Grillitsch (2023) describe the difference between path creation and path dependence as follows: while path dependence illustrates how history and structure slow down economic restructuring, path creation emphasizes agentic perspective. In EEG literature, agency is usually defined as “action or intervention by an actor to produce a particular effect” (Emirbayer & Mische, 1998; Sotarauta & Suvinen, 2018).

Although EEG has previously been criticized for neglecting the role of agents (Boschma, 2017; Harris, 2021; MacKinnon et al., 2009) recent years have seen a growing focus on the role of regional agents in regional development. This shift is particularly evident in the literature on path creation and new path development, where the role of agency is emphasized. Agents play a crucial role not only in changing existing regional development paths but also in creating new ones. Large strands of the recent literature on EEG have shifted more focus to 'path creation,' sometimes using the notion of 'new path development' (Hassink et al., 2019; Martin & Sunley, 2006).

Regarding agency, Martin and Sunley (2006) write that external shocks have the potential to wake up agents or policymakers to invent and develop new strategies. Thus, they recommend examining strategic decisions made by policymakers to understand regional path creation (Martin & Sunley, 2006). Overall, many scholars have recognized that agentic responses to external shocks and crises have the potential to alter regional development paths (Rekers & Stihl, 2021).

Agents and their actions can be seen as locked into not only development paths but also specific places. Place dependence typically highlights the inter-embeddedness of multiple actors who are tied to a specific location, affecting their decision-making and, consequently, regional economic change (Chu & Hassink, 2023). Although EEG literature has been criticized for primarily focusing on the roles of firms and entrepreneurs in fostering new path development (Hassink et al., 2019) recent research increasingly acknowledges the contributions of a broader array of agents, including universities and R&D institutes (Trippl et al., 2020) as well as municipal politicians and civil servants (Rekers & Stihl, 2021). Consequently, it is widely recognized among scholars that the activities of multiple actors collectively contribute to the creation of new growth paths (Hassink et al., 2019).

In EEG literature, the importance of investments and financing in fostering innovations, new technologies, and industries is well recognized. However, EEG studies have not paid much attention to financial agents, such as banks, funds, or other financial institutions, and their role in regional development. For instance, banks, through their loan decisions, are significant actors influencing both business formation and real estate construction and development in regions.

2.1.5 Shifting Attention from History Towards the Future

EEG is interested in how economic landscapes, as dynamic entities, change over time. As discussed in previous chapters, the basic idea of path dependency is that history and past events influence the probability of future events occurring (Boschma & Frenken, 2006). Thus, temporality is central to EEG, as it examines

how historical events and time-specific decisions in the past shape the present and future economic development of regions.

Temporality is particularly associated with agency, which can be seen as an inter-temporal process connecting the past, present, and future. According to Emirbayer and Mische (1998), agency is "a temporally embedded process of social engagement, informed by the past (in its habitual aspect), but also orientated towards the future (as a capacity to imagine alternative possibilities) and toward the present (as a capacity to contextualise past habits and future projects within the contingencies of the moment)"(Emirbayer & Mische, 1998, 963). Actors operate in the present, basing their knowledge on the past, which forms the foundation for ongoing action. At the same time, their actions and decisions are oriented towards the future, shaped by visions and expectations (Steen, 2016). The future can be understood as materializing through these expectations and visions (Borup et al., 2006).

Related to the future and expectations, Levy (2021) has claimed that the present capitalist economy is determined by a combination of past experiences, which influence actions, and current expectations that link future horizons to the present. He argues that the capitalist economy is shaped by individual and collective psychological projections of the future (Levy, 2021). Steen (2016) proposes that expectations can significantly impact why, where, how, and when industries and technologies evolve, as they guide decisions on where to direct investments and resources.

Although much of the EEG literature emphasizes the importance of history, it is not solely concerned with historical perspectives. In recent years, scholarly attention has slightly shifted toward the future. Martin and Sunley (2022) note that some evolutionary economic geographers have begun to explore how past experiences influence future expectations in specific places. They argue that economic geographers need to consider future expectations more seriously to better understand and explain causal mechanisms and evolutionary processes (Martin & Sunley, 2022). In addition, narratives that guide expectations of the future could benefit EEG by shedding light on how agency in economic evolution depends on future projections (Martin & Sunley, 2022). Additionally, Steen (2016) points out that economic geography literature has been criticized for ignoring expectations in new path development. Hassink et al. (2019) also encourage economic geographers to focus on the future and examine how visions of future and expectations influence the emergence and growth of industrial paths.

Space, a key concept in geography, is closely related to the process of imagining the future, where actors connected to specific spaces construct and envision plausible futures (Kurniawan & Kundurpi, 2019). The actors' ability to imagine futures and construct them using their imagination (Kurniawan and Kundurpi 2019) is based on their knowledge of the past and is essential for stimulating action

(Garud, Kumaraswamy, et al., 2010). Actors can mobilize the past not only to avoid certain outcomes but also, more importantly, to create new options, where images of future could lead to actions in the present (Garud, Kumaraswamy, et al., 2010). That is, existing challenges can serve as catalysts for change, encouraging actors to seek new opportunities and reimagine future possibilities.

2.1.6 Opportunity Space

The concept of opportunity space can be seen as evidence that the future perspective has become an essential part of economic geography in recent years (Gong, 2024). The concept of opportunity space encapsulates agents' deliberations regarding the future, and it integrates these two elements: agency and structure (Grillitsch & Sotarauta, 2020). Opportunity space is defined as “the time or set of circumstances that make a change possible” (Grillitsch & Sotarauta, 2020). The concept of opportunity space encourages researchers to evaluate the range of possibilities available in a given area and to study how these opportunities are shaped by history, natural resources, infrastructure, and economic conditions (Beer et al., 2023).

The opportunity space can be divided into three distinct dimensions, as shown in Figure 1. The first, time-specific opportunity space, "delineates what is possible given the global stock of knowledge, institutions, and resources at any moment in time" (Grillitsch & Sotarauta, 2020). The second dimension is region-specific opportunity space, which includes the historically formed preconditions of an area, such as industrial structures, institutions, and the institutional environment (Grillitsch & Sotarauta, 2020). These kinds of structures provide a framework for the agents; they both enable and limit their actions. The final dimension, agent-specific opportunity space, refers to the perceived opportunities by individual agents and their capabilities to exploit those opportunities and drive change (Kurikka & Grillitsch, 2021).

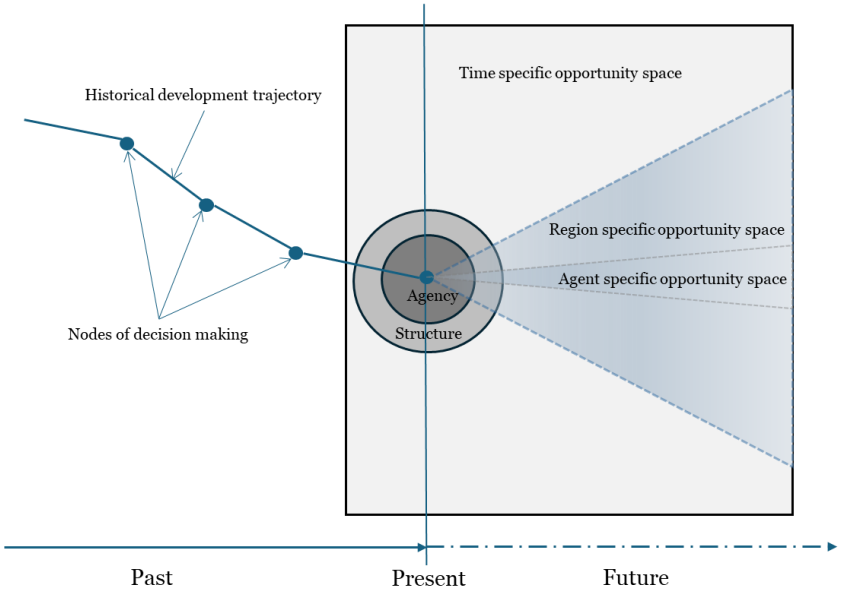

Figure 1. Path dependence and dimensions of opportunity space (based on Grillitsch & Sotarauta, 2018; Kurikka et al., 2023; Wilson, 2012)

As stated by Sotarauta et al. (2021), the utilization of opportunity spaces is contingent upon their initial identification. For a time-specific opportunity to impact the development path, the agent must not only recognize the opportunity but also possess the ability to take actions to seize it. On the other hand, structural preconditions create a setting for agency; they either enable or, conversely, pose challenges to agency (Grillitsch et al., 2022). As argued by Grillitsch and Sotarauta (2020), regional preconditions play an important role in shaping the interactions and experiences of agents, consequently affecting agent-specific opportunity spaces.

To summarize, the EEG literature primarily emphasizes how historical conditions shape future development by influencing its evolution. In other words, past decisions and outcomes significantly impact the present and future trajectories of regions, places, technologies, firms, and industries (Boschma & Frenken, 2006). While various agents play a crucial role in transforming existing regional development paths and creating new ones, regional development is not solely determined by historical preconditions but also remains open to alternative futures.

2.2 Shrinking regions

2.2.1 Shrinkage as a Phenomenon

In this dissertation, the empirical focus is on regions that have experienced long-term population decline. These so-called shrinking cities, municipalities, communities, and regions have attracted academic interest for many decades. Despite this, the definitions remain ambiguous. However, what these studies have in common is a focus on places experiencing consistent population decline (Döringer et al., 2020; Fernandez & Hartt, 2022). Researchers have also considered various causal factors in urban development, such as rising unemployment and economic downturns, when defining shrinkage and shrinking regions (Döringer et al., 2020; Wolff & Wiechmann, 2018). In particular, the fact that economic decline and demographic shrinkage are lumped together has received criticism from scholars (Hartt, 2019). Bernt (2016) argues that many definitions also include common issues associated with urban shrinkage, such as vacant housing, outmigration, and social problems.

The literature and research on shrinkage have traditionally been rooted in studies of industrial cities, particularly in Germany and the US (Syssner, 2016, 2022). Consequently, the term "shrinking city" is widely used, and the empirical focus has been primarily on urban environments. However, more recently, voices questioning this urban-centric focus have emerged. For instance, academics such as Hospers & Reverda (2015) and Syssner (2016) have argued that rural regions, rather than cities, are more likely to be severely impacted by population decline. On the other hand, some researchers have questioned whether cities should grow and have proposed that cities and regions could potentially shrink in a way that creates smaller, more sustainable communities with a better quality of life. This paradigm shift is known as "smart shrinkage". (ESPON, 2017; Newman et al., 2018; Peters et al., 2018; Wiechmann & Pallagst, 2012)

The duration of shrinkage varies between countries and regions. For instance, Wolff and Wiechmann (2018) categorized shrinking cities into three groups: continuously, episodically, and temporarily shrinking cities, based on the duration of population loss. Likewise, Haase et al. (2016) observed both long- and short-term shrinkage in European cities. In addition, Turok & Mykhnenko (2007) and Kabisch et al. (2012) identified similar trajectories. Previously shrinking regions can change their development trajectories, eventually leading to regrowth, as seen in Leipzig and Liverpool, where this transformation was driven by strong public engagement in improving living conditions and creating new job opportunities (Haase et al., 2021).

2.2.2 Causes of shrinkage in literature

Many causes of population decline have been found in previous research literature, but typically, population decline has been considered the result of demographic changes, globalization, suburbanization or urban sprawl, deindustrialization, natural hazards, or economic decline (Ehrenfeucht & Nelson, 2011; Hollander & Németh, 2011; Makkonen & Inkinen, 2023; Martinez-Fernandez et al., 2016; Martinez-Fernandez et al., 2012). It has been argued that behind shrinkage is a combination of various factors that reinforce each other (Haase et al., 2016, 2021). In addition, the complexity is increased by the fact that the causes and consequences of shrinkage manifest themselves in diverse ways in different places and regional contexts (Escudero-Gomez et al., 2023; Haase et al., 2016; Wolff & Wiechmann, 2018). In other words, the same causes in specific locations do not automatically lead to similar developments in other as national economic conditions and governance arrangements also influence the shrinkage trajectories.

Regarding the reasons for population decline, demographic factors are particularly emphasized in the research literature (Döringer et al., 2020). Population decline is often attributed to factors such as low birth and fertility rates, resulting in younger age groups being smaller than previous ones (Kabisch et al., 2012; Syssner, 2016). Demographic factors are also linked to population aging, which increases the mortality rate associated with aging (Escudero-Gomez et al., 2023; Steinführer & Grossmann, 2021). Additionally, the age structure of the population changes when young people and working-age individuals move away which increases the share of older population in these regions (Escudero-Gomez et al., 2023; Steinführer & Grossmann, 2021). In Finland, these factors are one driver of population decline.

The globalization process is connected to deindustrialization and post-industrial shift (Döringer et al., 2020), where the shift from manufacturing industries to services has led to job losses, increasing unemployment, and job-seeking out-migration in regions that have lost their main industries. In the literature examples of regions that have confronted such developments are Manchester and Liverpool in Britain, Ruhr area in Germany and Rust Belt in North America (Bernt et al., 2014; Hollander et al., 2009).

Globalization as a cause of population loss is also linked to the movement of industries and manufacturing jobs from high-cost regions to lower-cost regions, leading to job losses and outmigration (Kotilainen et al., 2015; C. Martinez-Fernandez & Wu, 2009). In Finland, an example of such areas are peripheral regions whose economies have been built around a single industry, for example, the mining industry or forestry (Kotilainen et al., 2015). When these industries shifted to cheaper locations and closer to growing markets, for instance, in China and South America, these areas lost jobs and consequently population (Kotilainen et al., 2015).

Globalization is also connected to urbanization and peripheralization, which promote the growth of large, globally connected cities (Lang, 2012). Decades ago, Sassen (1991) argued that globalization has transformed a small number of cities, such as Tokyo, New York and London, turning them into dominant financial centres with large concentrations of financial activities and expertise. These so-called 'global cities,' have grown rapidly in terms of population and have successfully attracted a highly skilled workforce and international investments (Sassen, 1991).

In contrast, there are cities and regions that have failed to attract capital and, as a result, human resources (Bernt et al., 2014) and thus can be seen as the 'losers' in the global competition for resources, workforce, and capital. Outmigration and capital outflows characterize these peripheral regions and cities (Silverman, 2020), leaving the periphery to struggle with shrinking populations. The competition for people, capital, and workplaces occurs both globally and within countries (Lang, 2012).

2.2.3 Consequences of Shrinkage

Negative consequences of population decline are location-specific, diverse, complex, and far-reaching. This complexity makes it difficult to distinguish between causes and consequences, as they are deeply interconnected and overlapping.

Many consequences particularly affect local service organisation duties of municipal actors. For instance, as the population decreases, and particularly as the working-age population leaves or, alternatively, as unemployment rises, the tax revenues decline, making it more difficult to organize local services (Syssner, 2022). Additionally, as tax revenues decrease, lack sufficient funds to maintain local infrastructure (Bogataj et al., 2016). In general, the organization of services and infrastructure needs to be reconsidered because these are often planned for a larger population. When the birth rate remains low for an extended period, schools built for larger numbers of students may have to close (Syssner, 2016, 2022). In areas where the population decline is driven by job loss, unemployment rises, and various social problems become more prominent (Hollander et al., 2009).

Population decline affects the built environment and real estate market. As the population decreases, real estates and other physical structures created during earlier phases of development no longer meet the changing demand. Previous studies have found that population decline leads to decreased demand for real estate while supply increases, resulting in an oversupply and a fall in property values and prices (Glaeser & Gyourko, 2005; Haase et al., 2016; Hackworth, 2014). This type of development affects different types of real estate, such as residential buildings, retail spaces, commercial buildings, and offices. As a result, properties are often left empty increasing vacancy rates, and in some cases, even abandoned

(Glaeser & Gyourko, 2005; Hackworth, 2014). When demand and sales prices are low, new construction is no longer economically viable, and thus, it does not occur (Hartt & Hackworth, 2020). The situation is exacerbated by the fact the construction costs of new buildings are significantly higher than the final selling prices (Hartt & Hackworth, 2020). Some studies have shown that while real estate prices are decreasing and future expectations of price growth are uncertain, renovations and refurbishments to properties also ceased (Galster, 2019; Weinsziehr et al., 2017). In general, the real estate stock deteriorates as a result of population shrinkage (Wiechmann & Pallagst, 2012).

The current development trajectories of shrinking regions may cause many consequences that can have far-reaching implications for the future development (Kiviaho & Einolander, 2023, 2024). For instance, current housing prices reflect assumptions about future housing price growth (Glaeser & Gyourko, 2005). In shrinking regions where housing prices are decreasing such trajectory can predict the future decline of housing prices (Glaeser & Gyourko, 2005). In addition, shrinkage increases housing abandonment, which has been considered an indication of future decline (Hollander & Hartt, 2019). Young and educated individuals are leaving shrinking regions (Lima & Eischeid, 2017; Wiechmann & Pallagst, 2012). As a result, social capital declines, and human resources become scarce, causing some shrinking regions to grapple with low levels of innovation (Martinez-Fernandez & Wu, 2007). These developments may challenge the future vitality and economic growth of regions.

2.2.4 Sustainability Transition, Shrinking Regions and EEG

The process through which established socio-technical systems shift to more sustainable modes of production and consumption is known as a sustainability transition (Markard et al., 2012). Transitions involve extensive changes across multiple dimensions, including technological, material, organizational, institutional, political, economic, and socio-cultural aspects (Markard et al., 2012). Transition processes are typically long-term and multi-dimensional, aiming to promote and govern a transition toward sustainability (Markard et al., 2012). Due to the long-term goals that inform the direction of the transition, it can typically be described as purposeful and intentional, with various actors expected to work together in a coordinated way. However, what is considered sustainable may vary over time and is open to interpretation (Garud et al., 2010), making it a deeply normative issue (Truffer & Coenen, 2012).

Energy and transportation systems are widely recognized as socio-technical systems undergoing sustainability transitions, characterized by interconnected technological, institutional, and social changes (Markard et al., 2012). The sustainability transition within the energy sector is commonly referred to as the

energy transition. As part of this transition, the integration of variable renewable energy, the electrification of transport, and the phase-out of conventional power plants introduce new challenges for energy resilience and grid balance (Einolander et al., 2024a). However, emerging solutions such as bidirectional electric vehicle charging present new opportunities for consumers, enabling self-sustainment during power outages and providing financial benefits (Einolander et al., 2023b, 2024b). Additionally, intelligent load management (e.g., demand response) can help alleviate grid balance issues, ensuring greater stability in energy systems (Einolander et al., 2023a; Einolander & Lahdelma, 2022)

Sustainability transition and its sub-theme, energy transition, can also be seen as geographical processes that unfold, materialize, and become apparent at specific places (Hansen & Coenen, 2015). The opportunities offered by the sustainability transition are strongly tied to local geographical conditions, which can either enhance or limit a region's potential to benefit from the transition (Köhler et al., 2019). For instance, the availability of natural resources has a significant role in determining whether a region can benefit from the sustainability transition. Renewable energy, for example, is highly dependent on local conditions such as wind, making wind farm construction profitable in some locations but unfeasible in others. Likewise, local technological and industrial specializations, as well as localized informal institutions, influence the spatial disparities in transition dynamics (Köhler et al., 2019).

In shrinking regions, population decline and its associated consequences are crucially shaping the local process of sustainability transitions and the development of new (green) development paths. Green regional industry path development can be seen as part of a recent strand of literature linking EEG with sustainability transition (see Jolly et al., 2024; Trippl et al., 2020). Similar to the advancement of other technologies, the emergence of green innovations has been associated with agglomeration advantages, such as access to a skilled labour pool, the presence of intermediary organizations, and the availability of research institutes and universities (McCauley & Stephens, 2012).

However, a thin organizational support structure and the absence of actors, including financial organizations such as banks and venture capital providers, as well as non-firm entities like universities and educational bodies, can create barriers to building the capabilities necessary to promote green path development (Trippl et al., 2020). Other constraints on endogenous green path development include the lack of skills, knowledge, capable firms, and other assets (Trippl et al., 2020).

Shrinking regions face significant disadvantages in this regard, as prolonged population decline—particularly due to the outmigration of young and educated people—has likely led to a substantial reduction in the working-age population, thereby diminishing the regional labour pool. Moreover, low education levels

further constrain the availability of skilled workers. In particular, peripheral regions experiencing population loss are particularly disadvantaged, as they lack access to highly qualified scientific labour and knowledge workers due to the absence of strong educational institutions (Jolly et al., 2024).

When local actors take a strategic, change agency-oriented approach and have significant financial and technological resources, they can play a pivotal role in advancing sustainability transitions (Roebke et al., 2022). However, financial constraints can be one factor affecting the ability to advance sustainability transition in shrinking regions. For instance, population decline leads to a reduction in municipal tax revenues, which not only complicates the provision of public services (Bogataj et al., 2016; Syssner, 2022) but may also constrain the capacity of municipal organizations to allocate funding for initiatives that support sustainability transition.

Particularly, peripheral rural regions undergoing population decline face significant challenges, as they have a limited number of businesses, which are often small in scale (Nilsen et al., 2023). Similarly, overspecialized regions, such as old industrial regions with a strong concentration of a few declining industries and a small number of large firms, face comparable challenges (Coenen et al., n.d.; Steiner, 1985). As a result, the local actor base in these regions is smaller and less diverse, which creates challenges for promoting new green path development—often requiring the involvement of multiple actors.

It can be concluded that shrinking regions inherently have unfavourable regional structural preconditions, shaped by historical developments, that do not support the emergence of new development paths—particularly those based on the opportunities created by the sustainability transition.

However, despite these challenges, the literature suggests that the sustainability transition offers potential for positive change and the possibility of creating new (green) development paths also in shrinking regions. For instance, Donner-Amnell (2020) showed in his study that Nordic regions suffering from population decline, such as Jämtland in Sweden and Kainuu in Finland, have successfully diversified their economies and increased employment rates sustainably by leveraging place-specific resources like low-carbon business initiatives and renewable energy production. Likewise, Lundmark et al. (2022) studied giga-investments to "green industry" projects in northern Sweden and showed that high expectations are directly linked to the potential for reversing population decline through large-scale in-migration from southern Sweden. Giga-investments, such as Northvolt's battery factory in Skellefteå and Swedish Steel (SSAB)'s fossil-free mini-mill in Luleå, have raised high hopes that these cities will experience significant in-migration, while surrounding regions could also benefit from these investments (Lundmark et al., 2022).

One explanation for why regions with unfavourable regional preconditions have succeeded in building new green development paths or diversified existing development paths lies in agency and the ability of actors and organizations to promote and create development paths, thus compensating for the lack of supportive regional structures (Jolly et al., 2024; Trippl et al., 2020). The role of agency and its ability to drive change is also recognized and emphasized in the literature on the geography of sustainability transitions (Isaksson & Hagbert, 2020).

3 Materials and Methods

This Chapter focuses on the study areas, materials, and methods. Given the empirical emphasis of this dissertation on shrinking regions in Finland, the chapter begins with an overview of population dynamics in the Finnish context, followed by a condensed summary of the historical phases of regional development and regional policies in Finland. The latter aims at providing the context for understanding current trends and future expectations in Finnish regional development. After that context setting, the chapter outlines the characteristics and selection criteria of the study areas on which both the articles and the dissertation are based. Following this, the research materials and methods used in the dissertation and its articles are presented.

3.1 Study Areas

3.1.1 Population dynamics in Finland

Even though Finland's population grew by 39,881 people in 2023, and by 152,581 people between 2013 and 2023, regional differences in population changes are significant. Of the 309 Finnish municipalities in 2023, the population increased in only 93 municipalities (approximately 30 percent), while it declined in 216 municipalities (approximately 70 percent). Between 2013 and 2023, the population grew in 64 municipalities (approximately 20 percent) and declined in 245 municipalities (approximately 80 percent). Rural areas are experiencing population decline, while the largest cities are growing. For example, in 2023, about 80% of municipalities classified as rural lost population, 72% of semi-urban municipalities experienced population decline, and 31% of urban municipalities saw a decrease in population. (Statistics Finland, 2023a) While many rural regions have faced population decline for decades, the population decline in small towns and even regional capitals is a relatively new phenomenon (Tervo et al., 2018).

3.1.2 From Past to Present: Finland's Regional Development Trajectories

As presented in earlier chapters, EEG literature is based on the idea that historical conditions shape future development: past decisions and outcomes impact present and future trajectories. Thus, understanding the historical phases of regional development and regional policies as well as real estate market development in Finland provides valuable contextual understanding for interpreting the current situation and future expectations. Therefore, this chapter traces the trajectories of Finland's regional development from the post-World War II era to the present day.

Post-War Era: Construction of the Welfare State

Before World War II, Finland was primarily an agrarian and forestry-based society with relatively even regional development, during which internal migration was minimal and both centers and their hinterlands experienced growth (Tervo, 2010). However, the post-war era marked the beginning of industrialization, urbanization, and the growth of service industries, all of which had a profound impact on Finland's regional development. Moisio and Leppänen (2007) describe the operations of the Finnish state, beginning in the late 1950s, as being characteristic of the Keynesian state. One of the key features of the Keynesian welfare state was that national governments introduced various spatial policies aimed at reducing territorial disparities within the country (Brenner, 2009).

The period beginning in the 1950s can also be described as the era of the construction of the dispersed welfare state (Moisio, 2012). One key priority of the state in was ensuring that the state could provide regional welfare services and growth-promoting conditions throughout the state's territory (Soininvaara, 2023).

By expanding public services, infrastructure, and economic opportunities across the state territory, political processes aimed to promote more spatially balanced development and reduce regional disparities (Honkanen, 2016; Soininvaara, 2023). The state directed public infrastructural investments especially to less-developed regions, aimed at homogenizing spatial economic development (Moisio & Leppänen, 2007; Tervo, 2010). Efforts to balance regional development and overcome regional differences also included establishing new universities in different parts of the country (Moisio & Leppänen, 2007; Sippola, 2016; Tervo, 2010). That is, this period can be characterized as inward-looking and based on equalizing principles (Moisio & Leppänen, 2007).

Investments in welfare infrastructure, including the construction of local hospitals, office buildings, and transportation networks, continued throughout the 1970s, during which the state also prioritized the development of the rail network, road infrastructure, and the automation of the telecommunications network

(Moisio & Leppänen, 2007). During the 1970s, regional policy, which had previously focused on development areas, shifted toward implementing a nationwide approach to regional policy (Sippola, 2016). The state also distributed its power across its territory. These efforts included initiatives to delegate responsibilities and authority from central administration to regional and local levels (Sippola, 2016). A notable example of this was the location of offices and institutions outside the Helsinki region (Moisio & Leppänen, 2007; Sippola, 2016). As a result, regional centres particularly strengthened their positions (Moisio, 2012, p. 160).

Municipalities played an important role in building the welfare state, as they were given responsibility for many key tasks, such as social and health services, as well as education and cultural services (Katajamäki, 2022). This also led to the creation of new jobs in the public sector in municipalities (Honkanen, 2016).

The period between 1950 and 1970 witnessed significant changes in the societal changes, as a substantial portion of the workforce shifted from agriculture and forestry to the service sector, driven by technological advancements in agriculture and forestry (Moisio, 2012, p. 77). This transition also led to increased migration from rural areas to urban centres (Doling, 1990). The magnitude of this shift is evident in the fact that, between 1950 and 1970, one-fifth of the rural population relocated to cities (Moisio, 2012, p. 77).

All these changes were also reflected in the real estate market, with demand increasing along with a rise in new construction. The scale of housing construction during this period is evident from the fact that between 1970 and 1980, the housing stock grew by more than a quarter (Doling, 1990). Construction peaked in the early 1970s, especially in growing cities but also in rural regions (Laakso, 2001). State efforts to balance regional development created jobs and housing demand also outside urban areas.

The financing of housing construction was managed through the state's Arava loan system (Tulla, 1999). In particular, during the 1950s, these state-guaranteed Arava loans played a significant role, with the underlying idea of providing low-interest state loans to increase housing production (Doling, 1990; Tulla, 1999). By the early 1990s, about a quarter of all dwellings had been constructed with an Arava loan (Doling, 1990). These loans were offered to firms, other organizations such as municipalities, and private individuals (Juntto, 1992).

Banks also participated in financing residential real estate construction and home purchases, but their operations were heavily regulated until the 1980s (Booth et al., 1994). Regulation affected, for instance, lending rates, exchange rate controls, and interbank agreements on deposit rates (Booth et al., 1994). To obtain a housing loan, a high self-financing share was required, and repayment periods were short (less than 10 years) (Doling, 1990). However, at the same time, interest on loans intended to finance the purchase of owner-occupied housing was tax deductible

(Doling, 1990). Banks also provided external funding for Finnish firms (Booth et al., 1994), thereby impacting local businesses and their operational opportunities. In particular, cooperative banks had—and currently have—a significant local impact, as they operate in local markets and thus play a central role in lending to small businesses, agriculture, and households at the local level (Sääskilahti, 2016).

Due to heavy regulations (1950–1980), banks expanded their operations regionally and sought to grow their service network, as being located close to customers improved their ability to collect deposits (Ruuskanen 2009; Särkijärvi, 2014). The network of bank branches became dense, with branches established even in small rural villages (Ruuskanen, 2009). Additionally, banking required physical visits to branches multiple times, creating a strong demand for local bank offices across the country (Särkijärvi, 2014). Local banks often had a strong understanding of local contexts, including the needs of local populations and economic conditions.

To sum up, Finland underwent a major transformation from an agrarian society to an industrial and service-based welfare state. The state aimed to promote more spatially balanced development and reduce regional disparities by, for instance, investing in infrastructure, constructing welfare facilities, expanding public services, and establishing new universities across the country. Real estate demand, and consequently new construction, was strong nationwide. A widespread and strongly regulated local bank branch network also developed, strengthening the local presence of banks that provided loans for both businesses and housing.

The 1980s: First steps towards Competition State

By the 1980s, the development of the welfare state had reached its peak, and the economic structure of society began transitioning from an emphasis on industry to other sectors (Moisio & Leppänen, 2007; Sippola, 2016). The importance of heavy investments declined, while technology and knowledge gained prominence (Sippola, 2016). This change was also reflected in the actions of the state: investments were no longer primarily directed toward material infrastructure but increasingly focused on non-material investments (Moisio & Leppänen, 2007). Particular attention was given to research and development, which began to attract growing interest and resources (Moisio & Leppänen, 2007).

During the 1980s, the first steps were taken toward market-oriented approaches, marking the beginning of what is referred to as the period of the decentralized competition state (Moisio & Leppänen, 2007). This shift involved abandoning the old Keynesian-Fordist growth model that had previously dominated economic and regional development strategies (Moisio & Sirviö, 2021). Moisio (2012, p. 167) describes this transformation as a shift from a welfare state to a competition state, where the state's role was to maintain social order, create

competitive conditions, and attract investment capital from abroad. Ahlqvist and Moisio (2014) explain that the political rationality built on the construction of the spatially dispersed welfare state – that ultimately strengthened small and medium-sized localities – was gradually challenged by neoliberal political rationality.

From the perspective of the development of the residential real estate market and its financing, the 1980s saw significant changes as the credit markets were deregulated (Juntto, 1992; Doling & Ruonavaara, 1996; Laakso, 2000). Before these changes, purchasing an owner-occupied dwelling in Finland was difficult due to limited credit availability (Juntto, 1992). However, due to the liberalization of the housing credit market, obtaining loans for purchasing or constructing a home became easier, leading to increased demand for housing (Doling & Ruonavaara, 1996; Laakso, 2000). Overall, the role of the banking sector in financing the housing market strengthened throughout the 1980s (Doling, 1990). The rise of housing demand was reflected in increase of prices and residential real estate construction boomed, which surged across the country also in rural regions, with a price peak occurring between 1987 and 1989 (Doling & Ruonavaara, 1996; Laakso, 2000; Kiander, 2001).

The 1990s: Economic Recession, EU Membership, and Knowledge Economy

In the 1990s, Finland became a competition state, the development of which Moisio divides into two phases. The first phase is marked by efforts to develop a national urban network, aimed at building a more competitive Finland (Moisio, 2012, p. 177). Regional planning and regional research were particularly dominated by concepts such as internationalization, networking, and regional specialization (Moisio, 2012, p. 181).

The 1990s brought significant changes, including an economic recession and Finland's EU membership in 1995 (Katajamäki, 2022). As a result of the recession, jobs declined significantly, but this reduction was not evenly distributed across the country (Tervo, 2000). Some areas experienced greater job losses than others, and following the recession, regional unemployment disparities widened (Tervo, 2000). Migration from high-unemployment areas was directed toward major urban centers, where new jobs in export and high-technology industries were created (Tervo, 2000, 2010). The recession also led to cuts in public spending, which affected regions that had benefited the from a public sector and the balancing effects of public budgets (Tervo, 2000). Public service networks diminished in smaller localities, such as villages, and services shifted to larger regional centers (Hyyryläinen et al. 2025). After the recession, also public material investments decreased (Moisio & Leppänen, 2007). Antikainen and Vartiainen (2005) describe the period starting from 1994 as "an era of new regional differentiation."

The recession and the subsequent regional differentiation are also strongly connected to the real estate market. The sharply rise housing prices collapsed by 1990 (Laakso, 2001). The decrease in housing prices, as well as the previous price increase, followed a similar trend across all regions of Finland (Laakso, 2000; Kiander, 2001). In addition, decrease of housing construction affected similarly all regions (Laakso, 2001). Housing prices turned upward during 1996, but due to differences in employment growth, housing demand developed unevenly across different parts of the country (Laakso, 2000; Kiander, 2001; Lujanen, 2004). After the recession, housing prices rose particularly in the Helsinki metropolitan area and other major urban centers, while in areas experiencing population loss, prices increased moderately—if at all (Laakso, 2000; Kiander, 2001; Lujanen, 2004). In other words, after the recession, the regional development of the housing market became increasingly polarized (Laakso, 2001). This was also reflected in housing production, where significant regional disparities emerged: growth in construction was concentrated in the Helsinki region and cities, while in rural areas and small towns, housing production remained at the low levels seen during the recession (Laakso, 2001).

The banking sector also entered a crisis in the early 1990s (Kiander, 2001). The rise in loan interest rates while housing prices decreased led to a decline in housing loans (Viitanen et al., 2000). Overall, households faced significant difficulties due to the fall in housing prices, and customer insolvency resulted in credit losses for banks (Ruuskanen, 2009). The banking crisis led to a large-scale restructuring of the banking sector and the merging of banks (Ruuskanen, 2009; Särkijärvi, 2014). As a result, bank branches and staff were drastically reduced, which in turn led to concentration of banking services (Ruuskanen, 2009; Särkijärvi, 2014).

Finland's EU membership in 1995 brought changes not only to the implementation of spatial policy but also to its content (Moisio & Leppänen, 2007; Sippola, 2016). With EU membership, regional policy practices increasingly adopted principles of international competitiveness, high-tech development, and privatization, which were also reflected in state actions (Moisio & Leppänen, 2007).

Another significant shift starting in the 1990s was the growing emphasis on an economy based on knowledge and expertise (Moisio & Sirviö, 2021; Sippola, 2016). This shift was underpinned by the idea that highly educated workers drive technological innovations, forming the foundation for economic success (Moisio & Leppänen, 2007). Overall, Finland's ability to succeed in global competition was seen as depending on how effectively the country could foster technological innovations (Moisio & Leppänen, 2007). These ideas were also reflected in state-directed investments, which, from the 1990s onward, increasingly focused on supporting innovation and non-material assets such as education, research, product development, and marketing, all of which were believed to be essential foundations for economic growth (Moisio & Leppänen, 2007).

In particular, the adoption of an urban network model – significantly tailored by professor Perttu Vartiainen – marked a turning point, as it replaced the old central hierarchy model and elevated the prominence of urban regions (Katajamäki, 2022). This shift represented a move away from a spatially dispersed regional development framework toward urban-centered economic growth model (Moisio, 2012).

The development of rural policy adds its own dimension to Finland's regional development trajectory in 1990s. A key milestone was the year 1991, when the first Rural Policy Programme was published (Honkanen, 2016; Katajamäki, 2007). Rural policy has many aims, including securing rural vitality, strengthening the competitiveness and attractiveness of rural areas, and enhancing services and living conditions in rural areas (Katajamäki, 2007; Uusitalo, 2002). It was considered a part of regional policy alongside urban policy (Vihinen, 2018). However, while urban policy has been seen as strengthening, rural policy has gradually faded (Vihinen, 2018). This decline has been linked, for instance, to Finland's EU membership, which shifted promotion of rural development towards a program- and project-based approach (Katajamäki, 2007). Such narrow rural policy tools have been argued to have failed to address many of the challenges that rural areas face, such as population decline and job losses (Katajamäki, 2007).

Taken together, in the 1990s, Finland transitioned into a competition state. Significant factors influencing regional development during this period included the economic recession and Finland's EU membership. The recession led to widening regional unemployment disparities. At the same time, policies began to emphasize innovation, education, and competitiveness, while rural policy weakened. Overall, this marked the beginning of a new era of regional differentiation.

2000s Onward: Urban-Centered Development and Regional Differentiation

From the mid-1990s onwards, the Finnish state began to implement non-material and spatially differentiating policies aimed at addressing a central political challenge: international competitiveness (Moisio, 2012). Luukkonen and Sirviö (2019) suggest that "the principles of new regionalism and urban-centered national policies" were increasingly embraced. This approach, which views metropolitan areas and urban regions as essential spatial units in global economic competition, has strongly influenced Finland's regional development strategies. Policy initiatives specifically targeted the strengthening of the largest urban agglomerations. (Luukkonen & Sirviö, 2019)

Various critics argued that the decentralized territorial structure of the country was too expensive and hindered its ability to compete globally (Luukkonen & Sirviö, 2019). They contended that achieving success in international competition required concentrating "resources and activities in powerful urban nodes" (Luukkonen &

Sirviö, 2019). Influenced by international theories, particularly those of Michael Porter on “competitiveness” and Richard Florida on the role of high skilled workforce in inter-regional competition, Finland adopted the objective of creating attractive environments to lure the international "creative class" and footloose capital (Moisio & Leppänen, 2007). Only major cities and metropolitan areas were seen as capable of offering such appealing environments, thus justifying the need to focus development efforts on major urban areas.

Urban-centric ideas have been actualized through various initiatives. During the 2000s, significant investments were directed to the largest cities and the Helsinki metropolitan area, justified by the claim that these investments would eventually benefit the entire country (Luukkonen & Sirviö, 2019). One example of such measures is the Land use, housing and transport agreements (*Maankäytön, asumisen ja liikenteen MAL-sopimukset)*, which aim to integrate land use, housing, and transport policies in urban areas. Directing development resources to the largest urban regions has also expanded employment and education opportunities in these areas (Moisio & Sirviö, 2021).

According to some researchers, the urban-centered development of the 2000s has been reinforced by interest groups that stand to benefit from urbanization. For instance, Luukkonen and Sirviö (2019) highlight the role of the Finnish Construction Trade Union, which, alongside other industrial and business lobbying organizations, has produced "roadmaps" urging the national government to respond to the rapid pace of global urbanization. Consulting firms, identified as key proponents of the urban-regionalist narrative, have also been instrumental in shaping these reports (Luukkonen & Sirviö, 2019). Katajamäki (2022) provides a critical perspective, arguing that consultants have gained increasing influence over national regional development policies and practices during the competition-state era.

While urban areas have gained prominence in regional policy, rural regions have been interpreted as less important (Katajamäki, 2022). As investments have flowed to urban areas, job creation and population growth have also become increasingly concentrated in cities and central regions, leading to growing regional disparities in Finland (Moisio & Leppänen, 2007). These trends, rooted in prevailing imaginaries and discourses, influence public policy actions, such as the allocation of public investments, underscoring that urban growth is not, as Moisio and Sirviö (2021) aptly put it, a natural law or inevitability.

Overall, the public financial flows have been unevenly distributed across different parts of Finland in the 2000s. Makkonen et al. (2025) found that between 2018 and 2021, various public financial flows such as central government transfers to municipalities, social benefits, and regional aid were directed primarily to rural municipalities. On the other hand, flows based on the presence of the state and

knowledge-intensive activities were mainly concentrated in cities, particularly in the capital region and regional centers (Makkonen et al., 2025).

In the 2000s, banking regulation tightened and became more international, particularly after the financial crisis of 2008 (Alasoini, 2021). For instance, the Basel III framework introduced a leverage ratio requirement alongside risk-based capital requirements, aiming to ensure stronger capital buffers and improve the stability of the banking sector (Kiema & Jokivuolle, 2011). To contain excessive household indebtedness and avoid situations where housing loans exceed the value of the collateral, regulations and guidelines for calculating the loan-to-value (LTV) ratio were revised (Financial Supervisory Authority, 2015). For home purchase financing, the LTV was set in 2016 at 95% for first-time buyers and 90% for other buyers (Eerola, 2022).

Other changes affecting the banking sector in the 2000s include the continuous shrinking of the branch network. Due to digitalization and technological development, customer meetings at bank branches have increasingly shifted to remote interactions, and banking services have moved online (Särkijärvi, 2014; Alasoini, 2021). Särkijärvi (2014) demonstrated in her doctoral dissertation that in Southwest Finland, the concentration of cooperative banking and the decline in the number of savings banks led to a situation where, by 2007, many municipalities were reliant on only one local banking group. Overall, strong concentration has occurred in the Finnish banking sector; the four largest banks have a market share of 80%, with the largest holding a 40% share in deposits, housing, and corporate loans (Huhtilainen et al., 2021). In particular, two largest commercial banks have closed their branches outside the major cities (Huhtilainen et al., 2021). However, cooperative banks and savings banks have still remained in these regions (Huhtilainen et al., 2021).

The regional differentiation of the housing market has also continued throughout the 2000s. Housing price trends have been mainly positive in areas with population growth, while in areas with population decline, prices have decreased. As housing demand has shifted toward regions with growing populations in major cities, residential construction has also become concentrated primarily in these areas. (Eerola et al., 2020, 2022)

Summarizing these developments, the role of major cities in Finland's regional development has significantly strengthened over the past three decades. A city-regionalist imaginary has become deeply embedded in national policy circles (Luukkonen & Sirviö, 2019). Similarly, Katajamäki (2022, p. 114) proposes that the often-repeated claim that "urbanization is a global megatrend" that cannot be influenced or reversed has continued to shape Finnish regional policies in the 2020s.

Overall, this chapter has shown that the differentiation of regions in Finland has deep historical roots. During the construction phase of the decentralized welfare

state, regional disparities diminished and reached their lowest point in the early 1980s. However, from the early 1990s onward, these disparities began to widen, and by the 2020s, they have further intensified. In particular, the Helsinki metropolitan area and a few major cities have experienced growth in both population and employment, while many smaller cities and rural regions have faced population decline. Population shrinkage has become an increasingly prominent feature of Finland's regional development landscape. These developments have significantly influenced the current situation of the areas examined in this dissertation, which are presented next.

3.1.3 Study Areas of Articles I and II

Articles I and II are based on empirical findings from eight shrinking Finnish cities: Imatra, Jämsä, Kemi, Kouvola, Kurikka, Lieksa, Pieksämäki and Savonlinna. In accordance with earlier studies, these were selected based on the Shrinking Cities International Research Network (SCiRN) definition of a shrinking city that defines a shrinking city as "a densely populated urban area with a minimum population of 10,000 residents that has faced population losses in large parts for more than two years and is undergoing economic transformations with some symptoms of a structural crisis" (Hollander et al., 2009). Statistical data, mainly from the year 2019, from Statistics Finland were used in selection process.

The selection process was not intended to provide a statistically representative sample but rather to select areas that share many common characteristics identified in earlier literature on shrinking regions. Thus, from the group of all Finnish municipalities with populations exceeding 10,000, those that met the following criteria were selected: (1) experienced a population decline exceeding 10% relative to the baseline year of 1990; (2) endured population losses for a period of more than two years; (3) faced high unemployment rates and job losses; (4) exhibited characteristics of a distressed real estate market, characterized by high vacancy rates and decreasing real estate prices; and (5) were geographically located in different parts of the country.

In practice, the selection process was as follows: First, all Finnish municipalities in 2019 were reviewed, identifying the 98 municipalities with populations exceeding 10,000 inhabitants. Second, from these, municipalities that had experienced a population decline of more than 10% since 1990 were selected, totalling 27 municipalities. Third, municipalities where the population had not decreased in the past two years were excluded, leaving 24 municipalities. These were further analysed, focusing on job losses, unemployment, vacancy rates, and real estate transactions. Finally, using judgmental sampling, eight cities were selected with an emphasis on geographic diversity and the aforementioned statistics. All of these have city status and are thus referred to as "cities" in the

articles and this dissertation. It should be noted that, geographically, these areas include not only population centres but also surrounding rural areas and small localities.

The development trajectory of areas examined in this dissertation can be incorporated into Finland's broader regional development trajectory presented in the previous chapter. These eight cities attracted rural migrants as Finnish society transitioned from an agrarian society to an industrial and service-based welfare state. Employment opportunities emerged not only in these cities but also in smaller rural municipalities—for instance, in the South Savo municipalities discussed in article III—due to the expanding responsibilities of the welfare state. Likewise, these cities and municipalities of the article III benefited from state infrastructure investments. Until the 1980s, regions across the country—including these study areas of this dissertation—experienced broadly positive development. During this era of building a decentralized welfare state, regional disparities narrowed, and these study areas experienced growth.

The 1990s, however, marked a turning point. Following the economic recession, job creation concentrated in high-technology industries primarily located in larger urban centers, prompting migration toward these growth hubs. As a result, these eight empirical cities and rural areas began to lose population. Public spending and material investments declined, and the real estate market became increasingly differentiated as demand and new construction shifted toward population-growing areas. In general, regional disparities widened throughout the 2000s. A city-regionalist imaginary further reinforced these dynamics by directing investments, job creation, and population growth toward the largest cities and the Helsinki metropolitan area. Meanwhile, these studied cities and rural regions were increasingly left behind with shrinking populations.

3.1.4 Study Area of the Article III

In article III, the empirical focus is on a broader administrative region, specifically South Savo, located in Eastern Finland. In 2024, this region comprises twelve municipalities: Enonkoski, Hirvensalmi, Juva, Kangasniemi, Mikkeli, Mäntyharju, Pertunmaa, Pieksämäki, Puumala, Rantasalmi, Savonlinna, and Sulkava, three of which are classified as cities. It should be noted that two of these cities, Savonlinna and Pieksämäki, are included among those studied in articles I and II. The South Savo region, along with the cities studied in articles I and II, is presented in Figure 2.

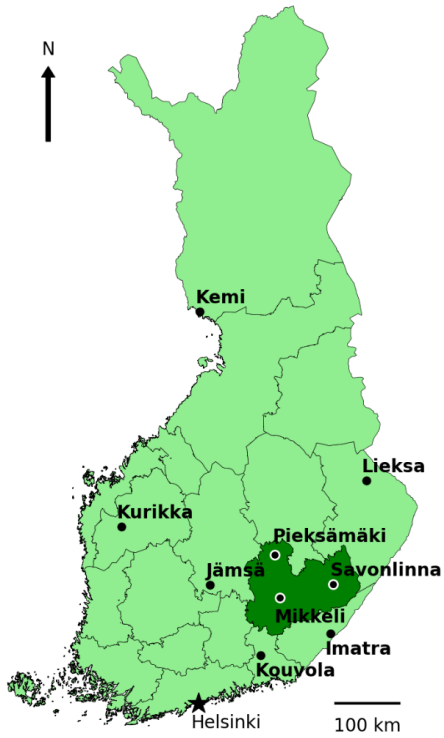

Figure 2. Study areas.

South Savo is predominantly rural and sparsely populated, featuring three urban centers and several rural settlements. South Savo was selected due to its long-standing population decline, with negative population trends persisting throughout the 21st century (Statistics Finland, 2024b). If the focus is solely on statistics, the population in the region is declining primarily due to two factors that also drive population decline in other parts of the country: an aging population and low fertility rates. South Savo has the oldest demographic structure in Finland (South Savo Regional Council, 2024). The birth rate has steadily decreased, with only 714 children born in 2022 compared to 1,862 in 1990 (Statistics Finland, 2024b).

Nevertheless, the official population statistics do not fully capture the actual population dynamics. South Savo experiences substantial seasonal population growth due to multi-local living and the widespread ownership of second homes. During the summer months, the population increases significantly as owners of second homes and summer cottages visit for leisure and spend their vacations in South Savo. With approximately 46,601 second homes in the region (Statistics Finland, 2024a), the local economy experiences significant seasonal changes. Multi-local residents contribute to the local economy by using local services and paying property taxes. According to some previous studies they may also serve as a

potential group of development actors (Rantanen & Czarnecki, 2023). Multi-local residents and second-home owners are an important resource for the region, but they remain invisible in population statistics.

3.2 Research Materials

3.2.1 Interviews

Semi-structured interviews serve as the primary data source in all three articles. Articles I and II draw on the same set of interview material, which was collected from eight cities between May and November 2020. In contrast, article III relies on 24 interviews conducted in the South Savo from April to September 2023.

The 45 interviews were performed in 2020 involved key market participants in the real estate market, including 23 local real estate appraisers and brokers, 13 bank representatives, and 9 public sector authorities responsible for land-use planning and policies. These interviewees represented all eight cities presented in the Chapter 3.1.3. Interviewees were found using several sources: the 'Registration of Real Estate or Letting Agents' maintained by the Regional State Administrative Agency, the 'Business Information System' maintained by the Finnish Patent and Registration Office, and internet searches through company and city websites.

In practice, the interviews were conducted remotely due to the Covid-19 pandemic. On average, each interview lasted approximately 60 minutes and focused on how the interviewees perceived real estate market development. All interviews were recorded and subsequently transcribed.

These stakeholders were chosen for interviews because it was believed that they possessed authentic, grassroots-level insights and perspectives on regional development. All interviewees are required to consider the future in their professional roles, although the future is approached from slightly different perspectives. Bank representatives play a critical role in the real estate market by providing mortgages typically secured by local real estate. Their lending decisions directly influence the supply of real estate in the market. When banks consider offering mortgages with a loan term of decades, they evaluate past, present, and future market conditions to guide their actions and ensure sound financial decisions. Local public sector authorities, responsible for land-use planning and policies, establish the framework for market activities while also steering the future development of regions through mechanisms such as zoning. Meanwhile, real estate appraisers and brokers contribute local expertise to the market environment, leveraging their knowledge when valuing properties. Real estate appraisers and brokers have extensive insight into both sellers' and buyers' perspectives and experiences, as well as second-hand knowledge of the operations of banks.

The 24 interviews conducted in 2023, which form the basis of article III, include other important stakeholders who have a vital role in the future development of regions, and they can be seen as representing an important type of agency driving regional path development. These stakeholders, responsible for various decisions that impact the long-term regional development of regions, include municipal decision-makers such as 11 municipal chief executives, 11 chairmen of municipal executive boards, one deputy for the municipal chief executive and one member of the municipal executive instead of the chairman. Two individuals were interviewed from each municipality in the South Savo. Municipal chief executives are expected to have a comprehensive understanding of the overall situation within the municipality, including the direction in which it is developing. On the other hand, chairmen of the municipal executive boards represent the political leadership of the municipality, and they possess a thorough understanding of councillor perspectives on municipal development.

These interviews aimed to uncover decision-makers' current expectations and visions regarding the regional opportunity space in relation to a sustainability transition. The interviews were structured around four key questions related to sustainability transition, and at the end of each session, participants were given the opportunity for open discussion. The concept of sustainability transition was approached with a broad and flexible interpretation, encompassing social, ecological, and economic dimensions. Of the 24 interviews, fourteen were conducted in person, while ten were conducted remotely. On average, each interview lasted approximately 90 minutes, and all sessions were recorded with the interviewee's permission and transcribed for analysis.

3.2.2 Newspaper Articles

In articles I and II, newspaper articles were also utilised as a source of data to gain a more comprehensive understanding of real estate market development study areas. Local newspapers were chosen because they serve as an important forum for public discourse in the eight cities, reflecting local perceptions of the real estate market atmosphere and the ongoing debate related to shrinkage. One main local newspaper published between January 2019 and April 2020 was analysed from each city. In addition, national newspapers were examined to broaden the perspective. The sources include articles from two electronic news sites and the seven largest national newspapers, published by the largest news media groups in Finland. The newspaper articles were published between January 2011 and April 2020.

Various search terms related to shrinking regions were used to examine the national newspapers. The following search terms were used individually: 'population loss,' 'declining city,' 'population decline,' 'shrinking city,' and

'shrinking municipality,' as well as in combination with words such as 'real estate,' 'real estate market,' 'commercial real estate market,' 'housing,' and 'housing market.' Local newspapers were systematically reviewed with a focus on observations related to shrinking regions and real estate market fundamentals. In total of 872 Finnish newspaper articles from 17 newspapers were analysed.

3.3 Analysis methods

3.3.1 Inductive Content Analysis in Article I

The empirical analysis in article I is based on inductive content analysis. In the article, the method is called Environmental Scanning. In practice, national newspaper articles identified using the search terms described in the previous chapter were read, with observations representing codes being recorded and collected in a database following open coding. Local newspapers were systematically reviewed, and observations were similarly documented in the database. The goal was to gather observations or codes that describe changes, events, and phenomena in the market environment, with a particular focus on those related to shrinkage and real estate market fundamentals. Many of these observations consisted of sentences, while others were single words. However, it was essential that each observation constituted a coherent entity based on its content. Transcribed interviews were analysed in a similar manner, with observations being coded and recorded. In total, 2,762 observations were collected, with 845 derived from interviews and 1,917 from newspapers.

Following this, the recorded observations or codes were grouped by merging similar or related ones into broader, higher-order categories. As explained by Dey (2003), in this process, it is up to the researcher's decision, through interpretation, to determine which items should be placed in the same category. In this process of inductive content analysis, categories are derived directly from the data, moving from specific observations to broader themes (Elo & Kyngäs, 2008). This approach aligns with the concept of abstraction, where categories are named using content-characteristic words. After this, subcategories that include similar events and incidents are grouped together under broader categories. (Dey, 2003; Elo & Kyngäs, 2008) The 2,762 recorded observations were first organized into 266 primary categories, which were then merged into 106 secondary categories that were further consolidated into 16 tertiary categories. Finally, the tertiary categories were grouped into three overarching themes that represent the general drivers of future market development.

3.3.2 Futures Wheel in Article II

In article II, the so-called Futures Wheel method was applied as a visualization and analysis tool for the interview and newspaper data. The idea to use futures wheel was deepen the analysis and identify various future consequences following from results revealed in the article I.

The Futures Wheel method is a structured approach to exploring the potential impacts of a particular phenomenon. It begins by placing the studied phenomenon at the center of the wheel. From there, primary impacts are identified and recorded around the center. The process then shifts to focusing on the consequences of these primary impacts, which are mapped as secondary impacts on the wheel. This continues to the tertiary level, creating a complex map that highlights the broader implications of the initial phenomenon. (Glenn & Gordon, 2009) The method encourages moving from linear thinking to a more interconnected, network-oriented perspective, allowing for the discovery of unforeseen implications (Bengston, 2016).

In article II, the Futures Wheel method was implemented as previously described, with the wheels being constructed by the internal research team based on transcribed interviews and newspaper data. A total of 24 key drivers of change were placed at the centres of the wheels. These drivers were selected to represent various elements of the PESTE framework in order to get a broader overview of the topic, which classifies them into political (P), economic (E), social (S), technological (T), and environmental (E) dimensions. After this, the primary-, secondary-, tertiary- and quaternary-order consequences of each futures wheel were analysed with a focus on future consequences related to real estate market development. The identified future consequences were then thematically categorized into different groups, which represent varying developmental trajectories leading to similar outcomes. Following this, the 14 categories representing possible future development paths were merged into four main themes based on their content.

3.3.3 Content Analysis in the Article III

In article III, interview data collected from the South Savo was analysed using hybrid inductive-deductive approach content analysis. Deductive content analysis is based on an existing theoretical knowledge (Elo & Kyngäs, 2008), and in this study, the theory was grounded in the concept of regional opportunity space. However, codes were generated inductively through open coding, with the questions serving as a broad framework for this stage. Having these questions helped the analysis stay focused on specific areas of interest in this study—the three dimensions of opportunity space. The aim was to uncover municipal decision-makers' current expectations and visions of the regional opportunity spaces that a sustainability transition could create for the South-Savo region, as well as the

potential disadvantages it might cause. To achieve this, the transcribed interviews were thoroughly reviewed multiple times to ensure a deep understanding of the participants' perspectives. Following this, the data was coded with a focus on the following questions:

- Time specific: What time-specific opportunity spaces do actors perceive in relation to a sustainability transition?
- Region specific: What kind of regional structures support these opportunities? What kind of regional structures create barriers for these opportunities?
- Agent specific: What kind of actions have been taken in municipal organizations to utilize these opportunities? What kinds of expectations affect perceived opportunities?

Codes of varying lengths, ranging from a few words to several sentences, were further examined in the process. Codes representing time-specific opportunity spaces were categorized into second-level categories, which were then consolidated into six main regional opportunities. Then the characteristics of regional structures that either strengthen or weaken these opportunities, along with the corresponding agent-specific actions and expectations, as well as the time-specific opportunity spaces, were combined into cohesive entities.

Overall, the methods and materials utilized in this dissertation are summarized in Table 2.

Table 2. Materials and methods.

	Article I	Article II	Article III
Title	Forces impacting the real estate market environment in shrinking cities: possible drivers of future development	Reimagining alternative future development trajectories of shrinking Finnish cities	Sustainability transition in shrinking regions: uncovering perceived regional opportunity spaces and expectations shaping regional development
Data	Local and national newspaper articles & Semi-structured interviews with bank representatives, public sector authorities and RE appraisers and brokers (N=45)	Local and national newspaper articles & Semi-structured interviews with bank representatives, public sector authorities and RE appraisers and brokers (N=45)	Semi-structured interviews with municipal decision-makers, including municipal chief executives and chairmen of the municipal executive boards. (N=24)
Time of data collection	From April through June 2020, and from May to November 2020	From April through June 2020, and from May to November 2020	From April to September 2023
Study Area	Eight shrinking Finnish cities*	Eight shrinking Finnish cities*	South Savo, 12 municipalities**
Analysis methods	Content analysis	Futures wheel	Content analysis

* Savonlinna, Pieksämäki, Imatra, Kemi, Lieksa, Kurikka, Kouvola, Jämsä

**Enonkoski, Hirvensalmi, Juva, Kangasniemi, Mikkeli, Mäntyharju, Pertunmaa, Pieksämäki, Puumala, Rantasalmi, Savonlinna & Sulkava

4 Results and Key Findings

This chapter presents the results and key findings from the three articles. Section 4.1 outlines future expectations related to real estate market development in shrinking regions, aiming to answer RQ1 and RQ2. Following this, Section 4.2 explores the opportunity space related to the sustainability transition, focusing on 1) multi-local living and remote work, 2) renewable energy, and 3) sustainable nature tourism. This section also presents expectations and actions related to the identified opportunity space, thus providing answers to research questions RQ2–RQ4.

4.1 Expectations regarding future real estate market development

The basic idea of EEG is that decisions made in the past influence the future development possibilities of a region (Binz et al., 2016). As shown in articles I and II, this is especially evident in the real estate market. Real estate construction requires significant investments, and the resulting stock changes slowly, making it difficult to adapt to changes, such as shifts in demographic structure. In other words, the physical structure built during periods of population growth—residential, public, and commercial buildings—may no longer align with altered demand and conditions when the population declines, as articles I and II suggest.

The results of articles I and II, along with previous studies, demonstrate how this mismatch between past structures and present leads to numerous problems, such as dramatically reduced demand for real estate and increased supply, resulting in an oversupply and a subsequent decrease in real estate values and prices. If the properties cannot be sold, the number of vacant properties will rise. Properties that have been vacant for a long time can become dilapidated and drift into an uninhabitable condition. As a result, more and more real estates, especially single-family houses in rural and sparsely populated areas, are in danger to be left vacant in the future, exposing them to the risks of accidents or vandalism. These issues reinforce cycles of decline, as deteriorating properties further reduce the attractiveness of these areas.

Such development paths affect not only the present but also the future. The physical structure and real estate market, shaped by historical development, influence a region's future through the expectations and current actions of various actors. Articles I and II revealed that agents hold very negative expectations regarding the future development of real estate values and prices in study areas, where these are expected to remain low or decrease further. These expectations affect decision-making and actions in the present, thereby shaping the future of these areas as well.

As stated in the literature agency can be described as inter-temporal by nature, involving ongoing processes that are simultaneously connected to the past and present (Steen, 2016). Agents operate in the present, basing their knowledge on the past, which forms the foundation for ongoing action. At the same time, their actions and decisions are oriented towards the future, shaped by visions and expectations (Steen, 2016).

For instance, the results of Articles I and II show that some Finnish banks, which typically finance renovations for housing companies and single-family homes, have refused to provide loans for large refurbishment projects in shrinking regions. One reason for this is the concern and expectation that real estate values may decrease in the future, rendering real estate assets inadequate as collateral for loans. On the other hand, some cases repair debt may exceed the market value of the building. Single-family houses and housing companies with significant repair debt, particularly those located in sparsely populated rural areas, face the greatest difficulties in securing loans. Overall, interviewees perceived that banks are concerned that the cost of renovation or construction exceed the market value of the property. However, it should be kept in mind that banks have tightened standards for house mortgage loans not only due to concerns and expectations regarding real estate value development but also due to tightened regulations.

The same development also applies to new construction. Based on the results of articles I and II, new construction is not expected to be economically viable, as the cost of construction is projected to exceed the market value of the completed building. Such expectations, along with the actions of banks, limit new construction, preventing the creation of new real estate stock.

Development trajectories where real estate stock is not well maintained and has significant repair debt, coupled with a lack of new construction, can lead to stagnant or declining property prices in the future. As suggested in article I, this situation could also result in a mismatch between supply and demand, as people tend to favour relatively new and well-maintained buildings. Consequently, there is a possibility that available real estates may not meet demand, with poor property conditions acting as a bottleneck for those interested in moving to these areas as shown in article III. Therefore, it can be argued that real estate stock and real estate

market conditions lock these regions into a path of population decline and negative development, constraining opportunities for change.

Overall, the results of articles I and II reveal that the expectations and actions of local agents reflect a national narrative that emphasizes the benefits of centralization, further entrenching regional disparities. Public services, including kindergartens, schools, healthcare, and social services, are increasingly concentrated in larger units within regional centres and their surroundings. Meanwhile, services have been reduced in rural areas and settlements, leading to a decline in the attractiveness of these areas. Due to such concentration of public services, many real estates owned by municipal organizations are also left without use and vacant. In addition, retail and commercial services are being located more frequently to shopping centres outside city centres, which weakens the vitality of city centre areas.

Furthermore, municipal institutional actors are focusing on developing city centres by demolishing dilapidated (often rental) housing stock and replacing it with new constructions. Population aging and the concentration of services, contribute to the further concentration of people in regional centres, as many older individuals' wish to move near services. By primarily funding new developments and renovations near city centers, banks are also reinforcing centralization. To summarize, emphasized expectations of centralization and actions that promote it intensify the differentiation between areas within individual municipalities.

Centralization also applies to banks, as some major banks have shut down their branches in non-core regions. This has also impacted real estate valuation, which is now conducted remotely from different parts of the country rather than locally, as demonstrated in article I. This shift affects real estate market conditions, for example, by reducing knowledge of local characteristics that are important for real estate collateral assessment. Similarly, competition among local banks decreases as fewer market players operate in local markets.

Results of articles I and II show that spatial disparities are becoming more pronounced. Relatively new and well-maintained real estate near services is easier to sell, while poorly maintained houses, particularly in sparsely populated areas, are more likely to be left vacant and deteriorate. Overall, the results of Article I indicated that real estate values and prices have been declining and are expected to continue declining, especially in sparsely populated rural areas, while the decline has been less severe in regional centres and their surroundings. These findings suggest that centralization creates a feedback loop. Declining services and infrastructure reduce the attractiveness of rural areas, contributing to population decline and stagnant development.

4.2 Sustainability Transition

In article III, six time-specific opportunity spaces related to sustainability transition and the corresponding agent-specific actions and expectations were identified. The focus on this dissertation is on three of these opportunities: 1) multi-local living and remote working, 2) renewable energy and 3) sustainable nature tourism, as these were mentioned in most of the interviews. Interestingly, these same themes were also acknowledged in the results of articles I and II indicating that they are widely recognized as important and relevant in many parts of Finland. The identified time-specific opportunity spaces and the corresponding agent-specific actions and expectations are presented in Table 3.

Table 3. Agent specific opportunity space

	Agent-specific opportunity space	
	Actions of municipal organization to harness the opportunity	**Attitudes and expectations that shape the opportunity**
Nature-based sustainable tourism	•Development of structures that support tourism. •Sustainable Travel Certificates. •Applying for UNESCO world heritage site status. •Collaboration with local travel companies to promote tourism. •Nature restoration projects and the establishment of protected areas. •Marketing the municipality on social media. •"No" for mineral exploration permits.	• Nature-based tourism cannot sustain growth. •The labour shortage, due to population decline, prevents the tourist season from growing. •Nature tourism income is limited, with few earning opportunities. •Nature-based tourism prevents the utilization of local resources, such as forests, and threatens the forest industry. •There are also lakes and pure nature elsewhere in Finland, so why would people come to this region? •The business culture in the area is characterized by satisfaction with the current situation, with no desire for growth. •The electrification of society requires mining, even though it poses a threat to the tourism industry and can result in environmental pollution. •The seasonality of tourism. How to make a living during winter?
Renewable energy	•Active development of windfarms. •Acting as an intermediary between citizens and windmill companies by organizing, for example, hearings for citizens. •Through projects promoting renewable-based industrial area development. •Promoting the construction of solar power parks by mapping suitable areas and offering municipality-owned land for their development. •Indirectly supporting companies related to renewable energy by offering rental spaces owned by the municipality.	•Fear that the region may become a reserve for electricity production, with processing taking place elsewhere. •The experience of being left behind in development, where the window of opportunity has closed. •The labour shortage, due to population decline. •Windmills spoil the natural landscape and, therefore, hinder multilocal leisure living and tourism. •Concerns about who will clean up the sites when the windmills reach the end of their useful lives. •Landowners do not receive adequate compensation. •The investments threaten agriculture and forestry in the region. •Solar parks and areas occupied by windmills cannot be used for forest cultivation, and the forest industry does not receive local raw materials.
Multilocal living and remote working	•Land use planning supports the construction of second homes. •Multilocal residents have been granted the opportunity to use the municipality's services. •Efforts are being made to involve multilocal residents and their views more strongly in the development of municipalities. •Municipalities have organized counselling and guidance for altering the intended use of a building. •Municipalities aim to enable the conversion from second homes to permanent homes. •Municipalities participate in projects to promote telecommunication connections and optical fibre in rural areas. • Zoning plots located near lake shores.	•A fear that if residents perceive the municipality to favour multilocal residents, conflicts could result between these two groups. •Actors are 'losing faith' in this opportunity. •The state has not done enough to promote dual-municipal residency and has left municipalities with shrinking populations on their own while focusing only on developing cities and regions with growing populations. •Seasonality of multilocality. How can entrepreneurs make a living during winter? •Guidance on climate and sustainability goals comes from outside the region; dense urban living is deemed sustainable, while living in the countryside is labelled unsustainable. •The climate and sustainability measures required by the state and the EU, such as increases in fuel taxes, make it difficult to live in rural areas. •Multilocality and second homes prevent the utilization of local resources, such as forests, and threaten forest industry. •"Multilocal living is not sustainable" •People are accustomed to having services nearby; the shrinking service network weakens people's willingness to move to small municipalities and rural areas.

4.2.1 Multi-local living and remote working

Although EEG has highlighted how the past is shaping the future, the future should not be seen merely as a continuation of the past, because unexpected events and shocks can alter the course of development, as previous EEG literature has also argued and demonstrated (Bækkelund, 2021). The unexpected shock caused by the Covid-19 pandemic led to rapid changes in Finnish society, which were evident also in the study areas of this dissertation. The Covid-19 pandemic can be seen as a shock that interrupted the self-reproducing and self-reinforcing path dependence and have potential change future regional development trajectories.

The results of all three articles emphasize the opportunities related to digitalization, particularly remote work. Finnish workplaces had already implemented remote work before the pandemic, but the pandemic significantly accelerated its adoption. The agents expressed high expectations that especially remote work, and the multi-local living it enables, could alter the future development trajectories of areas experiencing population decline and create new opportunities for these. Likewise, some other researchers have proposed that post-Covid world could generate a new set of opportunity spaces (Beer et al., 2023).

All articles suggest that remote work and location-independent jobs are viewed by local agents as a possibility for people to move farther from their workplaces, including to rural areas and areas experiencing population decline. It was proposed that the low real estate prices, particularly for single-family homes, could attract new residents from larger cities, where many people live in small apartments. Cities and regions with declining populations could offer more affordable housing and spacious single-family homes with room for home offices. This development was seen as having the potential to shift the competitive landscape between Finnish in favour of shrinking regions in the future.

On the other hand, in the study areas of this dissertation and across Finland, there is a long history of owning second homes and overall multi-local living (Einolander & Kiviaho, 2021; Pitkänen, 2008). In the articles, the rise of remote, hybrid, and location-independent work was seen as making it possible for people to stay longer in their second homes. This, in turn, was believed to have positive effects on service demand in these areas. The real estate market also saw interesting new trends during the pandemic, as demand for second homes increased significantly. Many people who had been dreaming of buying a second home decided to purchase one to fulfill their desire to spend more time closer to nature. Consequently, even single-family houses with minimal amenities, located in rural parts of smaller cities, were being purchased as second homes.

Both article I and article III identified the conversion of second home registrations into permanent residences as a significant opportunity. The agents hoped such development to increase the number of permanent residents in shrinking regions and, consequently, tax revenues. In Finland, a person may only

be registered in one municipality or city as their permanent residence, where their income taxes are also paid.

However, negative expectations were also raised. Article III revealed that some municipal decision-makers fear they have been abandoned by the state. They feel that the state's focus is primarily on developing large cities and regions with growing populations, leaving regions with declining populations behind. For instance, Article III highlighted agents concerns that the state has not done enough to promote dual-municipal residency. Overall, many agents believed that the common narrative portrays dense urban living as sustainable, while rural living is labelled as unsustainable.

Actions of municipal institutional actors to harness the opportunity

As stated earlier, EEG has been criticized for neglecting the role of agency, defined as "action or intervention by an actor to produce a particular effect" (Emirbayer & Mische, 1998; Sotarauta & Suvinen, 2018), and for placing too much emphasis on past developments and structural preconditions. Different actors shape regional development through purposeful and meaningful actions. Thus, in this dissertation, light is shed on agency and actions aimed at harnessing opportunities and thereby changing development paths.

The results of Articles II and III revealed various actions by municipal institutional actors intended to leverage opportunities related to multi-local living and remote working. Articles II and III exposed actions taken by municipal institutional actors to facilitate and support the conversion of second homes into permanent residences. For example, some local authorities have organized counselling and guidance for altering the intended use of buildings. To promote realization of opportunities related to remote work and multi-local living, article III showed that municipal institutional actors were actively developing infrastructure to support these trends. For instance, they have participated in projects to promote telecommunications and optical fiber connections to rural areas. In addition, efforts were made to involve multi-local residents more strongly and incorporate their views in the development of municipalities.

In Finland municipal institutional actors have a strong position and competence in land use planning, and based on the results of the articles, many of the actions municipalities have taken to harness opportunities related to remote work and multi-local living are related to land use planning. For instance, the articles showed that local authorities have zoned new plots near river shores and lakes, as well as in sparsely populated areas outside the city center. This has been done in an effort to attract new residents and second home owners, thereby promoting new construction in these areas.

4.2.2 Renewable Energy

Renewable energy, referring to especially solar and wind power in this context, was primarily perceived as a financial opportunity by municipal decision-makers in article III. Investments in and the construction of solar or wind farms were expected to increase municipal property tax revenues in the future. Additionally, solar or wind farms built or planned on land owned by municipal organizations were anticipated to generate rental income. Furthermore, the results of article I suggest that investments in renewable energy could also heighten demand for land in regions where population is declining.

Based on the results of article III, there are also high expectations for the emergence of new business activities and industries, such as hydrogen production, battery manufacturing, and other refining processes, centred around renewable energy production. In other words, these developments are seen to have the potential diversify local economies and open new possibilities for growth and innovation. Municipal organizations could also benefit from renewable energy by utilizing locally produced renewable power, thereby reducing their carbon emissions while promoting a more sustainable and greener image. Municipal institutional actors could harness a sustainable and green image to support local tourism and utilize it also in marketing and branding.

Despite these positive impacts, article III also revealed that local decision-makers have several concerns related to renewable energy. These negative expectations could have far-reaching consequences for the South-Savo's future, as they may undermine the potential benefits and jeopardize the realization of positive opportunities. Most of the concerns or negative expectations were related to possibilities of renewable energy investments endangering current local industries. Regarding multi-local living and tourism concerns were expressed that windmills or solar panel fields could decline region's attractiveness in the minds of tourists and multi-local residents due to changes in the landscape and potential noise disturbances. Other important local existing industries, such as agricultural and forest industries, were also seen endangered as wind power and/or solar power parks located on forest- and farmlands could hinder forest and food growth. Overall, the results of article III suggest that decisions and regulation made by the state or the EU regarding what is considered sustainable can significantly impact the local level. For instance, the prioritization of renewable energy expansion was believed to take precedence over the needs of local industries.

The sustainability transition was viewed to be contributing to spatially unequal development, with an uneven distribution of its benefits and challenges. The concerns were raised that only a small portion of the revenue streams from renewable energy investments would remain in the region, as profits are often captured by foreign investors and directed abroad. Additionally, decision-makers

worried that the region might become merely a reserve for electricity production, while the processing and its associated benefits would occur elsewhere, such as in major cities. Concerns were also raised about who would be responsible for cleaning up the sites when wind turbines, for example, reach the end of their lifespan.

Some of these negative expectations arise from structural preconditions that could limit a region's possibilities for new path development. For instance, some of the negative expectations were linked to the challenges posed by population decline and aging. The region's municipalities are already experiencing labour shortage due to a shrinking working-age population. This was seen as a significant obstacle to realizing opportunities related to renewable energy. Additionally, the decline in the working-age population was viewed as a threat to the future prospects of other industries, particularly in agriculture and tourism. It can be stated that prolonged population decline, and aging have created constraints that can limit future growth and the emergence of new development paths.

Actions of municipal institutional actors to harness the opportunity

Despite negative expectations, the renewable energy represents a new industrial sector for the South Savo, attracting significant positive future expectations that motivate present-day actions in the area. Relation to renewable energy, the efforts have been varied. Some local authorities have actively promoted wind and solar farm projects on their own land by zoning and granting building permits. Additionally, they have acted as intermediaries between residents and companies, organizing public hearings to help reduce prejudices and mitigate conflicts. In some municipalities, municipal rental premises were offered to companies working in the renewable energy sector.

Additionally, the implementation of individual property-specific solutions, such as geothermal or solar energy in municipally-owned buildings, was considered important. Since municipality organizations are significant property owners, these solutions are seen not only as helping to reduce emissions but also as leading to long-term financial savings.

4.2.3 Sustainable Nature Tourism

Article III highlighted that sustainable nature tourism is expected to offer opportunities for South Savo. Two major unexpected shocks—the Covid-19 pandemic and the war in Ukraine—further opened new development opportunities for sustainable nature tourism. The number of Russian tourists in the South Savo region collapsed due to the war and pandemic, and efforts have been made to replace this group by Central European tourists. On the other hand, the Covid-19

pandemic boosted domestic tourism, particularly nature tourism (Manakov et al., 2023; Veliverronena et al., 2023). However, it should be kept in mind that, even before these shocks, the South Savo was characterized by rural tourism and multi-local living.

The sustainability transition was seen to creating opportunities for both domestic and international nature tourism, fostering growth in these sectors. Municipal decision-makers suggested that the sustainability transition could influence people's attitudes toward tourism, potentially increasing the popularity of domestic travel. Additionally, multi-local living in the region was seen not only as an opportunity but also as a form of nature tourism, as second homes or summer cottages are used not only by their owners but also by their friends and relatives and can be rented out to tourists. On the other hand, the results of articles I and II showed expectations that the growing popularity of nature tourism might enhance the demand for accommodation services, including rental cottages, opening up new avenues for real estate investments.

Despite the opportunities of sustainable nature tourism, several negative expectations were also raised. Negative expectations may lock regions into historical development paths, as expectations direct activities and resource allocation (Steen, 2016). In other words, negative expectations can result in activities and resources not being directed toward future opportunities.

The article III showed that the potential of nature tourism to drive regional growth was questioned. Criticism emerged that nature-based tourism may not be able to sustain growth, as an increase in the number of tourists could damage valuable natural environment and disrupt the natural peace. Some suspected that income streams from nature tourism are small, and thus the earning potential and economic growth potential is limited. On the other hand, nature tourism and multi-local living were seen as sources of carbon emissions. As a result, it was argued that nature tourism is unsustainable and threatens municipalities' carbon neutrality goals.

Similarly to renewable energy, decision-makers expressed concerns that the growth of nature tourism and multi-location living could lead to conflicts with other local industries, such as forestry and agriculture. For instance, there were concerns that large-scale forest protection could threaten the local forest industry.

Declining population was seen as a contributing factor to an existing labour shortage, and this trend was expected to continue, posing an obstacle to the growth of nature tourism. Since tourism in the area is concentrated during the summer months, the availability of seasonal labour is crucial for the growth of the sector.

Another important factor identified in Article III, which was expected or feared to threaten local nature tourism, was the mining industry. It was believed that sustainability transition related the electrification of society would require more mined materials and rare metals in the future. As a result, the pressure to open

mines in the South Savo region has increased, raising concerns about threats to the local tourism industry and potential pollution of natural environments.

Actions of municipal institutional actors to harness the opportunity

Actions related to promoting sustainable nature tourism represent agentic responses to external shocks and crises, as well as efforts to support the competitiveness of the industry and create a favourable environment for its further growth. Regarding actions promoting sustainable nature tourism, article III revealed that local authorities have played an active role by developing infrastructure to support sustainable tourism, such as by creating bicycle and hiking trails, and related facilities. They have also supported local entrepreneurs in the tourism industry by the development of websites or platforms that provide comprehensive tourist information, including attractions, events, accommodations, and other services offered by local businesses. For example, these platforms allow visitors to book e-bikes or paddling courses. Nature restoration projects and the creation of new nature reserves have also been aimed at boosting local nature tourism. Some municipal institutional actors have participated in joint projects with other municipalities and regional councils to apply for UNESCO heritage status, with the expectation that achieving UNESCO recognition would increase the area's visibility and attractiveness, particularly among international tourists. Due to fears and concerns that mines and the mining industry may harm local nature tourism, negative statements have issued regarding mining and mineral exploration permits.

In addition, articles II and III shed the light on other actions that municipal institutional actors have done to supporting tourism and lure new residents. For instance, new residents and tourists were attracted by branding and marketing (especially through social media).

5 Discussion and Concluding Remarks

The aim of this dissertation has been to shed light on the futures of shrinking regions, by focusing on the current expectations and visions of various local agents. By relying on the theory of evolutionary economic geography (EEG), this dissertation has sought to expand the understanding of agents' expectations regarding future regional development and highlight the significance of the real estate market in locking regions into a path of negative development. At the same time, the dissertation has explored the opportunity space that the sustainability transition may create for shrinking regions. The framework of the dissertation is presented in Figure 3.

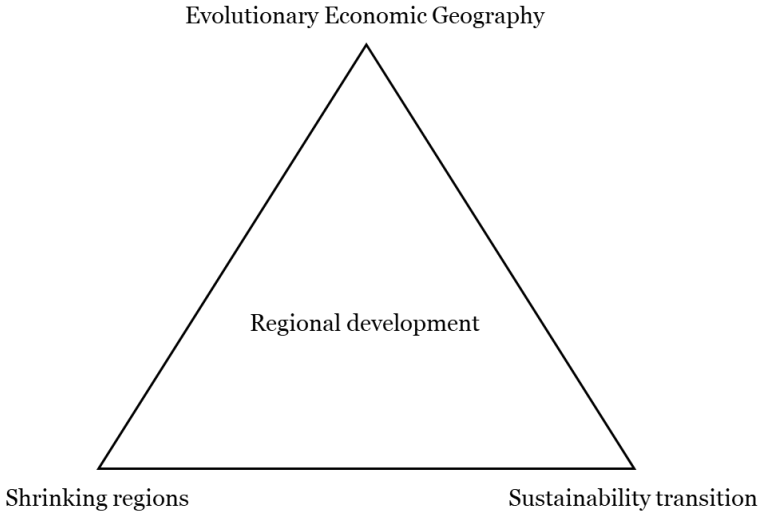

Figure 3. Framework of the dissertation.

EEG literature is based on the idea that historical conditions shape future development by influencing its evolution; past decisions and outcomes impact the present and future trajectories of regions, places, technologies, firms, and industries (Boschma & Frenken, 2006). In this dissertation, shrinking regions are positioned within the broader historical regional development trajectory of Finland

to contextualize some of the development paths that have led to the current situation. At the same time, these historical developments continue to shape the conditions and foundations for future regional development.

A significant historical period shaping the current situation was the construction of the welfare state, which began after World War II and laid the foundation for vibrant and liveable municipalities and regions across the country. Moisio (2012) argues that the foundation for regional differentiation was established during the decentralized welfare state era. The state directed investments toward less-developed areas, but over time, funding was distributed more broadly across Finland (Moisio & Leppänen, 2007; Sippola, 2016; Tervo, 2010). Welfare infrastructure was developed nationwide, including hospitals, office buildings, and transportation networks (Moisio & Leppänen, 2007). Additionally, government offices and institutions were located outside the Helsinki region, and universities were established in various parts of the country (Moisio & Leppänen, 2007; Tervo, 2010). A key objective of regional development policies was to reduce territorial disparities within the country, and population decline did not define regional development. The era of welfare state construction was also characterized by extensive housing/real estate construction. With increasing urbanization, housing was built particularly in cities, but also in rural municipalities (Laakso, 2001). State efforts to balance regional development created jobs and housing demand also smaller cities and rural regions. Housing price trends were similar and positive across the country (Laakso, 2001).

The 1990s can be seen as a turning point, the beginning of "an era of new regional differentiation" (Antikainen & Vartiainen, 2005) and after which spatially differentiating policies have dominated regional development in Finland (Moisio, 2012). This shift was partly generated by Finland's EU membership and the economic recession (Moisio & Leppänen, 2007; Sippola, 2016; Tervo, 2010). Increasing emphasis was placed on the role of innovation in fostering economic growth, with education, research, and product development seen as particularly important for innovation creation (Moisio & Leppänen, 2007).

In real estate market development, a turning point occurred after the recession. The liberalization of the housing credit market in 1980s led to a situation where prices and housing construction boomed across the country (Juntto, 1992; Laakso, 2000; Kiander, 2001). Overheated markets crashed, and housing prices collapsed nationwide by 1990 (Laakso, 2001). However, following the recession, real estate demand began to develop unevenly across different parts of the country (Laakso, 2000; Kiander, 2001; Lujanen, 2004). Real estate demand and prices started to rise particularly in the Helsinki metropolitan area and other major urban centers, where new jobs were created in the export and high-technology industries (Laakso, 2000; Kiander, 2001; Lujanen, 2004). As a result, construction also became increasingly concentrated in these regions, while in rural areas and small

towns, housing production remained low (Laakso, 2001). This regional differentiation of the real estate market has continued throughout the 2000s (Eerola, 2022). Price trends have been positive in areas experiencing population growth, while in areas with population decline, prices have decreased (Eerola et al., 2020, 2022). However, it is important to note that both real estate and apartment prices have declined, and that average selling times have increased even in the major growth regions, such as the Helsinki metropolitan area, following the COVID-19 crisis and the subsequent rise in interest rates since 2022 (Bank of Finland 2025, Statistics Finland, 2025).

During the 2000s, urban-centered national policies were increasingly adopted, with (large) cities viewed as essential for succeeding in global economic competition (Luukkonen & Sirviö, 2019; Moisio & Leppänen, 2007). Although public investments were previously directed to support development across the country, they have now started to play an important role in creating differentiation, including spatial differentiation in real estate markets. Policy initiatives, along with public financial flows, were directed toward strengthening the largest urban agglomerations (Luukkonen & Sirviö, 2019). As investments have concentrated in urban areas, job creation and population growth have also become increasingly centered in cities and core regions, exacerbating regional disparities in Finland (Moisio & Leppänen, 2007).

While some urban areas have gained prominence in regional policy, non-core and rural regions have been regarded as less important (Katajamäki, 2022). Nearly three decades of urban-dominated regional policies have left a lasting impact on Finland's regional development. The situation, in which some regions prosper and experience population growth while others decline and lose population, has not emerged by chance but are partly result of public and private investments, demographic changes, and political decisions on public investments (Moisio & Sirviö, 2021). By the 2020s, shrinkage had become an increasingly prominent feature of Finland's regional development landscape.

Shrinking population dynamics challenge one of the fundamental premises of regional development systems: continuous growth. As a phenomenon, shrinkage is inherently the opposite of growth. This raises an important question: is continuous population growth the only possible path for regional development? Long-standing examples of regions experiencing demographic decline demonstrate that it is possible to adapt—and in some cases even thrive—with a smaller population base. Some earlier studies have shown that shrinking cities could maintain economic prosperity despite population decline (Hartt 2019).

On the other hand, population decline may be understood not solely as a challenge but also as a potential pathway towards greater environmental sustainability. A smaller consumer base can be associated with lower emissions. Although transitional phases towards a smaller demographic base are likely to be

difficult, over time population structures can stabilise, eventually leading to a new form of equilibrium. Digitalisation, for example, offers new opportunities for organising services more efficiently for a smaller population base, helping regions adapt to demographic decline.

Although EEG literature emphasizes the importance of historical developments and structures as factors shaping the future development of regions (Boschma & Frenken, 2006), in recent years, increasing attention has been given to agency and the role of actors in influencing regional development (Rekers & Stihl, 2021). Through their decisions and actions in the present, actors can shape the future trajectories of regions—creating new development paths or transforming existing ones (Hassink et al., 2019; Martin & Sunley, 2006). On the other hand, actors as well as institutions can also contribute to reinforcing lock-ins, thereby limiting possibilities for change (Boschma & Lambooy, 1999).

EEG literature has examined various agents and their significance in regional development (Rekers & Stihl, 2021; Trippl et al., 2020). However, the role of the banking sector and financial actors has not received attention. This dissertation highlighted the role of banks as significant players influencing regional development. Banks wield power within their operating areas and influence regional development through lending decisions. They finance housing purchases, residential construction, and renovation (Doling 1990; Lujanen, 2004), thereby influencing population mobility between regions. Additionally, banks provide funding for firms (Booth et al. 1994), for instance, in the construction of industrial properties such as factory halls, and through their lending decisions, they can impact local businesses and their operational opportunities.

According to EEG literature, actors' expectations about the future influence their current decision-making and actions (Steen, 2016). The findings of this dissertation suggest that various negative future expectations are associated with the development of real estate markets in shrinking regions, particularly regarding the future value development of real estates. In shrinking regions, and especially in their rural areas, real estate values are expected to decline in the future. Such expectations impact current decision-making: loans for property renovations or new construction may not be granted, as the costs of renovations or new builds are perceived to exceed the property's value. The tightening regulation of banking activities in the 2010s has also had an impact on actions and expectation. As a result, expectations of declining real estate values and prices hinder decisions related to new construction and renovations. Long-term negative trends, where no new construction occurs and properties remain unrenovated, create bottlenecks for those interested in moving to these areas. Thus, it can be argued that the real estate market becomes a structural barrier to regional development. Expectations regarding the future development of the real estate market, and actions based on these expectations, further reinforce the trajectory of negative (population)

development, locking these areas into a path of population decline and stagnant growth, thereby constraining opportunities for change.

In addition to banks, municipal institutional actors are also important actors influencing regional development, and this dissertation has paid particular attention to their role. In Finland, municipal institutional actors shape the development of real estate markets through land-use planning, land policy, and zoning, and they can also be significant property owners in their respective localities and wider regions. Furthermore, municipal institutional actors are key actors with broad responsibilities related to the provision of various services, such as education, cultural services, and promoting local vitality by providing business information services. At the same time, they are also directly affected by population decline and its associated challenges.

Due to their broad influence across various sectors, they can not only shape the advancement of the sustainability transition but also benefit from the changes it enables. The sustainability transition can be defined as a process through which established socio-technical systems shift toward more sustainable modes of production and consumption (Markard et al., 2012). Such a profound transformation, which cuts across all sectors of society, may create new future development opportunities for many regions, including shrinking and rural ones.

This dissertation utilized the concept of opportunity space, which encapsulates agents' deliberations regarding the future and integrates agency and structure (Grillitsch & Sotarauta, 2020) in relation to the sustainability transition. Seizing a time-specific opportunity space to influence the development path requires not only recognizing the opportunity but also having the capacity to act upon it. Municipal institutional actors are among those with a broad range of responsibilities, giving them the ability to promote and create development paths, thereby compensating for the lack of supportive regional structures. The study's findings reveal that local agents have identified several time-specific opportunity spaces linked to the sustainability transition, and local municipal institutional actors have taken various actions to realize them.

It is possible that these opportunities may challenge the long-dominant trajectory of regional development that benefit major urban areas. Remote work, which is not tied to a specific location, enables individuals to freely choose their place of residence. The physical location of a workplace, for instance in a major city, no longer necessarily determines where employees live. Remote work and location-independent jobs provide greater flexibility to share daily life across multiple locations, reinforcing multi-local living. This growing trend, in turn, can be seen as leading to a more dispersed pattern of regional development, as people divide their time between a primary residence in an urban area and a second home or cottage, often located in rural regions. This also means that there will be greater demand for and use of real estate in areas outside major urban areas. At the same time,

opportunities related to renewable energy and nature-based sustainable tourism are emerging outside (major) cities. Is it, therefore, worth asking whether one chapter in Finland's regional development—urban-centred phase—is coming to an end, and whether a new era, emphasizing location-independence and also the non-core regions, is beginning? Or do real estate stock and real estate market conditions – coupled with non-investment by major banks and other financial institutions – lock these regions into a path of population decline and negative development, constraining opportunities for change? This remains to be seen. Nevertheless, it is important to remember that the future remains open to various possibilities.

Although this study has shed light on an underexplored topic—the role of financial actors in regional development and evolutionary economic geography (EEG)—future research should place greater emphasis on different types of financial institutions, such as banks, funds, and other financial actors, as well as on EU financial instruments, and examine how these actors and their future expectations influence regional development. Further research is needed to investigate the expectations of actors across different territorial scales, to assess whether differences exist between the local, regional, national, and international levels, and to map possible contradictions in their perceptions of regional development.

Future research should pay more attention to the future development paths that may emerge based on the expectations of these actors. Within evolutionary economic geography, development paths could be constructed also towards the future, thereby engaging more closely with the methods of futures research, as has been done in this dissertation. By directing attention, for example, to desirable futures, it may be possible to free actors from lock-in type of thinking and to strengthen the recognition that the future is open to various possibilities. At the same time, as the present is the outcome of historical development, identifying lock-ins created by past trajectories and the resulting path dependence remains essential. Accordingly, scenario methods and business-as-usual projections can help policymakers understand the kinds of futures that may unfold when development becomes locked into a specific trajectory. Overall, it could be useful to utilize different types of development paths that EEG studies have already recognized—such as new regional industrial path development, diversification, or path upgrading—and use these to create scenarios of future development paths.

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