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Published in:
European Planning Studies

DOI:
[10.1080/09654313.2022.2121604](https://doi.org/10.1080/09654313.2022.2121604)

Published: 01/01/2023

Document Version
Peer-reviewed accepted author manuscript, also known as Final accepted manuscript or Post-print

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Please cite the original version:
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>

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Forces Impacting the Real Estate Market Environment in Shrinking Cities: Possible Drivers of Future Development

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Abstract

Urban shrinkage poses significant challenges to Real Estate markets in Shrinking Cities and has multiple negative impacts on society, environment and economy. Although major cities are growing rapidly, a significant volume of building stock and population will endure in shrinking cities in the future. To enhance the resiliency of local real estate markets and communities, forces that offer novel possibilities for shrinking cities should be actively studied. This study deepens understanding of the forces affecting the real estate market environments of Shrinking Cities by examining the public discourse and the perceptions of local market participants, both of which steer future market development. To identify and analyse these forces, an environmental scanning method was employed, using as data sources 872 Finnish newspaper articles and 45 interviews with market actors in eight shrinking cities in Finland. The results categorise the identified forces under three themes that describe the drivers of future market development. The findings indicate that, although the Real Estate markets of Shrinking Cities face challenges, forces such as telecommuting, multi-local living and emerging industries may offer new opportunities and slow urban shrinkage. The findings may be utilised to steer the development of Shrinking Cities in a more resilient direction.

Key Words

Shrinking cities, Real estate market, Futures studies, Environmental scanning

1. Introduction

According to the United Nations, there were 33 megacities globally in 2018, and this number is expected to increase in the future (United Nations, 2018). While many large global cities are growing, however, many others struggle with problems related to population decline. It has been estimated that one-fifth of European cities have experienced population loss since 1990 (Wolff and Wiechmann, 2018). These so-called Shrinking Cities, SCs, are not only a European problem, but they are a common story and a significant challenge in many countries around the globe (Martinez-Fernandez, al., 2012b; Batunova and Gunko, 2018).

Urban shrinkage causes a variety of negative impacts on cities and regions. These may be social, such as poverty and segregation (Wiechmann and Pallagst, 2012), or economic, such as unemployment, job losses and reduction in the tax base (Martinez-Fernandez et al., 2016). Urban shrinkage also has many negative impacts on buildings and the urban environment. When people and companies leave SCs, a significant amount of building stock and infrastructure is left behind, leading to challenges such as dilapidated housing stock and obsolescence of infrastructure (Martinez-Fernandez et al., 2016).

Many of these impacts further influence the fundamentals of the Real Estate, (RE), market: supply and demand. For instance, a declining population and number of companies reduces space and investment demand, increasing vacancy levels and decreasing the prices as well as the market and collateral values of RE. These negative impacts on demand, quality and value development in RE put both public and private property owners in danger of losing their equity (Bogataj et al., 2016), so lenders may not accept the property as collateral. This not only paralyzes economic activity but also raises many questions regarding social sustainability when residents cannot satisfy their housing preferences according to their needs. Furthermore, because RE prices and values are falling and future price growth is uncertain, homeowners postpone refurbishments and renovations, especially energy renovations (Weinsziehr et al., 2017). Consequently, cities and states may struggle to meet climate goals, as building stock generally constitutes 40 % of the total energy consumption (European Commission, 2019). Altogether, urban shrinkage is a complex problem spawning a wide range of complex challenges in the RE market. Because RE plays a crucial role in economic, social and environmental sustainability, its role should be highlighted as a way to build resilience among communities.

Previous studies have discussed the effects of urban shrinkage on the RE market, most focusing on a specific phenomenon related to the market environment. For instance, Hollander and Hartt (2019) analysed the vacancy rates of commercial RE and demonstrated that high vacancy rates cluster at the edges of city centres. Glaeser and Gyourko (2005) studied housing prices and concluded that population decline has a strong negative impact on housing prices in shrinking cities as discussed above. Bogataj et al. (2016) examined management, financing and taxation issues related to housing stock in shrinking cities; their study reveals that the taxation of RE transactions reduces the housing equity of the elderly, who seek to move from their residential properties to more accessible ones. In addition to the studies discussing the economic issues linked to the RE market, the voice of land use planners is emphasised. For example, planning-related studies find that SCs could benefit from urban greening in response to the demolition of vacant and abandoned buildings (Schilling and Logan, 2008). Previous studies from specific perspectives add to the valuable body of knowledge on the root causes and past and current impacts of urban shrinkage in the RE market. The negative impacts of urban shrinkage are broadly acknowledged, but little seems to be known about its possible positive impacts or future opportunities to mitigate the vicious circle of urban shrinkage.

Our literature review identified a research gap and a need for holistic, possibility-driven and future- and actor-oriented research that responds to the distress of SCs. Therefore, the aim of this study is to deepen the understanding of the forces impacting the RE market environment in such cities. This study explores two main research questions. To identify the forces, we seek to answer the question: What are the forces of change that are impacting the RE market environment in SCs? To analyse and describe the impacts of these forces in SCs, we ask: How do these forces of change affect the RE market in SCs? We focused on the perceptions of local market actors, in eight case cities in Finland, and on the local and national public discourse. First, by investigating the perceptions of market actors, who steer future demand and supply, we obtain authentic, grassroots-level information and views that are not accessible in other forms, such as statistics or market reviews. Market studies often focus on primary market areas and major cities (Theurillat et al., 2015) rather than on inactive and small market environments, even though, taken together, they represent a significant amount of the national building stock. Also, in an environment in which market information is insufficient and uncertain, emotions and intuition play an important role in decision-making (Watkins and McMaster, 2011). Thus, decision-makers may compensate for a lack of ‘official’ knowledge with information from the market atmosphere, such as the public discourse. Futures studies methods were employed to uncover those forces, enabling a systemic, actor- and future-oriented research approach (Toivonen, 2021; Toivonen et al., 2021). More precisely, environmental scanning (ES) was employed to identify and analyse the forces, using as data sources 872 Finnish newspaper articles and 45 interviews with market actors in eight SCs from Finland. This study not only describes the negative consequences of urban shrinkage but seeks to identify forces that offer positive opportunities to ensure a more resilient RE market in SCs.

This study’s novelty lies in its examination of the RE market in SCs from the perspective of market participants, not only land-use planners but also appraisers, brokers and bank representatives, whose views have been neglected in previous studies. This enables us to paint a more holistic and comprehensive picture of the forces impacting the RE market environment in SCs, so a great variety of decision-makers, including governments, municipal councils, RE investors and owner-occupiers, may benefit from the results of this research. Awareness of diverse forces may enable them to adjust their actions to produce more resilient decisions, adapt to coming changes and even change cities’ trajectories in a more favourable direction. We argue that communities in both SCs and growing urban areas could benefit from our study’s holistic, far-reaching research approach. Despite rapidly growing metropolitan areas and major cities, a significant population will continue to live in SCs, and more and more people living in growing cities will inherit RE in SCs, so market development in those cities will affect the wealth of all these actors.

The rest of the article is structured as follows: Chapter 2 explains why and how cities are shrinking, which is crucial to understanding how the causes and effects of urban shrinkage affect the fundamentals of RE market dynamics. The third chapter introduces the ES method used to identify and analyse the forces impacting the RE market environment. In the fourth chapter, we present the identified and categorised forces and the drivers of future market development. The final chapter provides a discussion and conclusions.

2. Urban Shrinkage Impacting the Fundamentals of RE Market Dynamics

It is frequently noted that the term *shrinking city* remains ambiguous (Batunova and Gunko, 2018), even though the subject has been studied for decades. It is challenging to provide a

single definition of the term, as it describes a diverse, complex phenomenon with many causes and effects (Batunova and Gunko, 2018) that manifest in various ways in different places (Wolff and Wiechmann, 2018). It is also difficult to disentangle the intertwining causes and effects from one another (Hollander et al., 2009; Haase et al., 2016). The literature suggests that urban shrinkage results from economic or demographic changes (Bogatay et al., 2016), suburbanisation, ‘shock’ events, such as natural hazards and wars (Wiechmann and Bontje, 2015), or a combination of factors (Haase et al., 2016). Academics recognise several effects of urban shrinkage, such as rising unemployment, vacancies, decay of buildings, abandonment and out-migration (Haase et al., 2016; Batunova and Gunko, 2018).

Despite the diverse causes and effects, population loss has been seen as the main determinant of urban shrinkage (Martinez-Fernandez et al., 2012a; Haase et al., 2016; Batunova and Gunko, 2018). Beyond population loss, the literature on SCs focuses on the economic decline (Hartt, 2019) linked to deindustrialisation and job losses. That are included in the definition established by the Shrinking Cities International Research Network (SCiRN), which describes a SC 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’ (Wiechman, 2007; Hollander et al., 2009; Haase et al., 2016). This study adopts this definition. Next, we discuss population loss and economic decline in detail and describe their relationship to the RE market.

Natural demographic changes, such as ageing and low fertility rates, are among the factors driving population loss in SCs (Kabisch et al., 2012) or exacerbating shrinkage problems as explained by Hollander et al. (2009). Therefore, statistically, some cities face population losses and shrink despite an absence of out-migration (Hartt and Hackworth, 2020). The problem of declining birth rates particularly is worsened by young women and young couples moving away from SCs (Lima and Eischeid, 2017). Consequently, the relative proportion of the older population increases in these areas. Political changes, such as the collapse of state socialism, have also triggered demographic developments leading to population decline in many eastern European countries (Rieniets, 2009).

In SCs, out-migration is accelerated by job losses caused by an economic decline that results from diverse challenges. The post-industrial transition from manufacturing to service industries has caused job losses in manufacturing (Hollander et al., 2009), a traditional employer in many SCs. Job losses and increased unemployment have intensified job-seekers’ out-migration from old industrial areas, such as the Ruhr area in Germany and North America’s Rust Belt (Hollander et al., 2009). In addition to the post-industrial shift, automatised production has reduced workforce demand (Rieniets, 2009). Many SCs have failed in the global or national competition and have not been able to attract and retain companies, capital and a skilled workforce (Martinez-Fernandez et al., 2012a; Großmann et al., 2013; Hartt, 2018; Silverman, 2020). Out-migration and outflows of human resources and capital characterise these peripheral areas and cities that lie in the shadows of major cities.

Overall, cities and regions whose economies depend heavily on a single industry are in a vulnerable position in global competition. In Finland, for instance, many peripheral small cities and regions are heavily dependent on a single industry, such as the forest or mining industry, and struggle with population loss when production shifts to cheaper locations or closer to growing markets (Kotilainen et al., 2015).

Population loss and economic decline greatly impact the fundamentals of RE market demand. Population loss changes the balance between RE supply and demand in SCs; as the

population declines, housing demand falls, but the RE stock remains stable, causing an oversupply (Hackworth, 2014; Haase et al., 2016). Because buildings cannot be moved, a spatial mismatch develops between the national population distribution and buildings in SCs. Population loss and its driving factors, such as natural demographic changes, also have other impacts on housing demand. Eichholtz and Lindenthal (2014) have demonstrated that, while housing demand increases with age, it seems to decline or flatten out among retirees. In addition to quantitative demand, natural demographic changes impact qualitative RE demand. Previous studies have shown that an ageing population changes its housing preferences, for example, by increasingly demanding accessible buildings (Demirkan, 2007) and preferring apartments over single-family houses and rental apartments over owner-occupied apartments (Abramsson and Andersson, 2016).

Population loss also affects the demand for other types of premises and investments. Population decline and the resultant loss of potential retail customers reduces the incomes of local retailers (Galster, 2019), who consequently may need to relocate from the city to a more profitable location (Galster, 2019), thus reducing demand for retail and commercial spaces. In addition, the size of the labour market is an important resource in attracting workers, companies and investments to cities (Greenstone et al., 2010). A shrinking population and the out-migration of the young and educated weakens cities' attractiveness to companies, reducing demand for office and production facilities.

Economic decline has direct and indirect impacts on RE demand. For instance, job losses and increasing unemployment are reflected in the demand for housing and commercial spaces. Gathergood (2011) points out that unemployment risk lowers the likelihood of house purchases, which can reduce the demand for housing and affect preferences related to owner occupancy by increasing rental housing in proportion to owner-occupied housing. Choi and Painter (2015) demonstrate that shocks to the unemployment rate significantly affect household formation, a foundational component of housing demand, because household formation decreases as unemployment increases. In addition, job losses and unemployment cause income losses (Knabe and Rätzel, 2011) that may reduce residents' consumption opportunities, further dampening demand for commercial and retail spaces as explained earlier. The relocation of industrial production due to globalisation and competition also weakens the demand for industrial properties.

In summary, urban shrinkage is a complex phenomenon with many causes and effects that are strongly linked to RE market factors. In particular, population loss and economic decline significantly affect RE demand in SCs. As demand decreases and the RE stock remains stable, an oversupply emerges. According to previous research, oversupply may be followed by high vacancy rates, building decay and declining RE prices and values (Hackworth, 2014; Haase et al., 2016) as shown in the introduction. The next chapter describes and justifies the methods and data used in this study.

3. Study Design

The method of ES was employed to identify and analyse the forces impacting the RE market environment in SCs. ES, an information collection method used in futures research, is stated to be well suited to future-oriented studies related to RE and RE markets (Toivonen, 2011; Toivonen and Viitanen, 2015; Riekkinen et al., 2016). The aim of ES is to seek, identify and analyse signals or indicators of processes or events in a specific environment (Rubin, 2004; Bell, 2009). In this context, *environment* indicates a sociocultural, political, ecological and

economic entity (Toivonen and Viitanen, 2015). The forces differ in their characteristics (e.g. pace, significance and probability) (Toivonen, 2011), but this study focuses on their content and their ability to provide insight and shape future development. The following subchapters describe in detail how ES was conducted in four steps: (1) selection of case cities, (2) selection of data sources, (3) scanning of data sources and (4) analysis of observations (Figure 1).

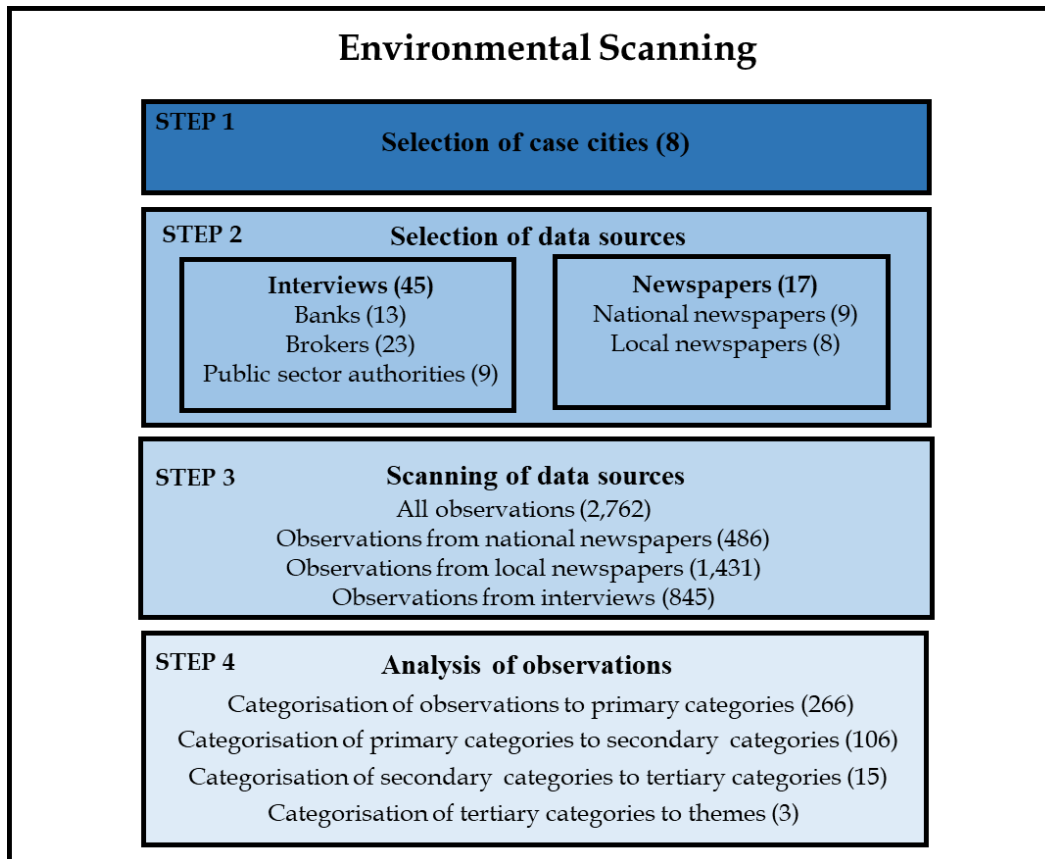


Figure 1. The ES process.

Step 1: Selection of case cities

Eight SCs were selected as case areas from Finland (Table 1), which is a representative European example of a country in which many small cities struggle with the challenges of urban shrinkage (Kotilainen et al., 2015). It has been estimated that two-thirds of Finnish municipalities are shrinking (Huuhka, 2016). The case cities were selected following the SCiRN definition of a SC and utilising data from Statistics Finland. The aim was to select cities that: (1) had more than 10,000 inhabitants; (2) lost more than 10 % of the population compared with the reference year 1990; (3) faced population losses for more than two years; (4) suffered from high unemployment rates and job losses; (5) have a distressed RE market environment including elements (e.g., high vacancy rates and declining housing prices); and (6) were geographically located in different parts of the country.

The selection process was conducted as follows. First, of the 311 Finnish municipalities, only those where the population exceeded 10,000 inhabitants were selected. In 2019, these kinds

of municipalities totalled 98. Following Syssner (2016), municipalities where the population has declined by more than 10 % compared with the reference year 1990 were selected from this group. Of these 27 municipalities, those where the population has not decreased during the last two years were discarded. The remaining 24 municipalities were considered more precisely, paying attention to: job losses and unemployment. To gain insight into the RE market environment, statistics on vacancy rates, transactions and prices were considered as additional attributes; as described earlier, they are typically related to urban shrinkage. Interestingly, many of these 24 cities were located in the eastern part of the country. However, to be able to contribute to a more differentiated understanding of the forces of change, attention was also paid to the locations of the case cities so that selected cities were located geographically in different parts of the country. By utilising judgemental sampling, the researchers made the final decision and selected eight cities, emphasising the location of the city and the statistics mentioned above. Thus, the selection aimed not to provide a statistically representative sample of case cities but to select cities that share many common characteristics of urban shrinkage but are located in different parts of the country (Figure 3). As shown in Tables 1 and 2, the development of the case cities differs from that of the growing capital city, Helsinki, and the average of all Finnish municipalities.

The case cities (Figure 3) are relatively small and sparsely populated (Table 1) compared with those in previous studies on SCs in Central Europe or North America, but cities in Finland are generally small. In 2019, the average size of a Finnish city (municipality with city status) was approximately 41,000 residents, with a median of 16,000 residents (Statistics Finland, 2020). Population densities in Finnish cities are considerably low, as in only two Finnish cities does the population density exceed 1,500 inhabitants per square kilometre of land (Statistics Finland, 2020). Due to low population densities and small sizes, Finnish cities or case cities may not meet the definition of a city if the term refers to urban agglomeration as a functional unit. On the other hand, in this study, the term city denotes a local authority with a high level of autonomy and thus the term city could be replaced by the term municipality. However, in the Finnish municipal system, all the case cities have the status of a city; therefore, we use the term 'city' rather than 'municipality'.

Table 1. Case cities: statistics.

	Population 2019	Population change (%) 1990- 2019	Continuous shrinkage period 1990- 2019 years	Inter- municipal net migration 2019	Persons aged under 15, change between 2010- 2019 p.p.	Persons aged over 64, change between 2010- 2019 p.p.	Job loss/increase (%) 2010- 2018	Unemploy- ment rate (%) 2019	Populatio n density * 2019
Lieksa	10,884	-37.9	29	-196	-0.6	10.3	-13.7	17.4	3.2
Pieksämäki	17,682	-26.7	29	-123	-1.1	7.7	-9.4	9.7	11.3
Jämsä	20,182	-22.4	25	-272	-2.3	8.7	-13.7	13.4	12.8
Kurikka	20,678	-22.2	29	-174	-0.4	8.2	-10.3	8.5	12
Imatra	26,508	-21.0	29	-296	-0.9	7.2	-10.0	17.7	171
Savonlinna	32,974	-20.3	23	-314	-1.7	8.6	-9.0	13.1	14.7
Kemi	20,707	-18.4	29	-286	0.1	7.6	-8.0	15.4	217.1
Kouvola	82,113	-13.0	26	-636	-1.4	7.1	-8.5	12.7	32.1
Average **	23,869	-16.7	23	-170	-1.2	7.8	-8.6	12.8	33.3
Average of all municipalities	17,842	-8.0			-1.2	7.0	-5.5	9.5	61.6
Helsinki	653,835	32.7		1726	0.8	2.2	7.2	9.1	3,051

*inhabitants / km²

** of the considered 24 municipalities

Sources: Statistics Finland

Table 2. Case cities: housing market statistics.

City	Housing vacancy rate (%) 2020	Apartment transactions* 2010-2019	Apartment prices* 2010-2019	Single-family house transactions* 2010-2019	Single-family house prices* 2010-2019	Rent change ** (%) 2011-2019
	Lieksa	20.2	-5.2	-1.3	-0.6	-1.8
Pieksämäki	17.5	-4.3	-4.5	6.4	4.7	5.1
Jämsä	17.5	-4.5	-2.7	-4.4	-1.0	4.7
Kurikka	16.4	-1.2	0.2	0.0	-0.5	12.3
Imatra	14.0	-6,5	-0.9	-5.1	-1.7	12.8
Savonlinna	17.1	-5.6	-0.3	-2.5	-0.8	12.6
Kemi	17.6	-0.7	0.2	-4.7	1.7	11.6
Kouvola	10.9	-4.7	-0.4	-4.0	-0.6	15.5
Average ***	16.6	6.7	-0.2	-0.1	-0.2	12.8
Average of all municipalities	15.3	-3.4	-0.5	-0.2	-0.3	10.3
Helsinki	8.3	-0.7	2.7	3.2	3.0	33.6

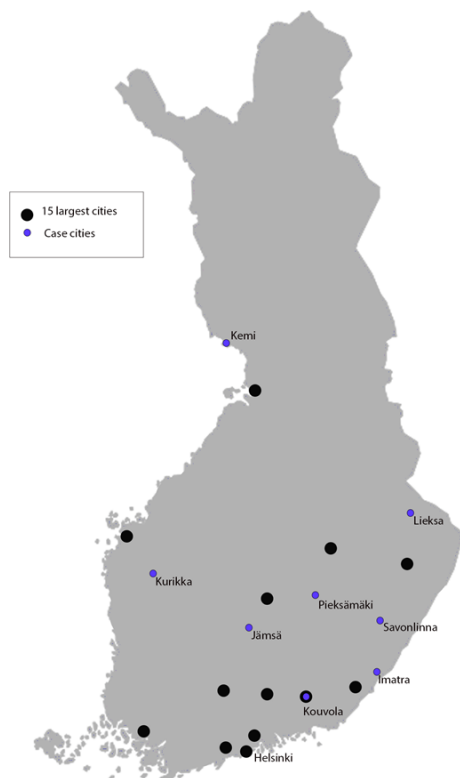
* average yearly change (%), € / m²

** € / m² / month, non-subsidized housing

***of the considered 24 municipalities

Sources: Statistics Finland, National Land Survey of Finland

Figure 2. Locations of the Case cities.



Step 2: Selection of data sources

Several data sources can be used in ES (Gordon and Glenn, 2009). Naisbitt (1984) formed his famous Megatrends by using newspaper articles, and researchers such as Toivonen and Viitanen (2015) have used literary, oral and online sources in ES. This study likewise used various data sources, including 872 local and national newspaper articles and 45 interviews with local RE actors.

Local newspapers were chosen as information sources because they are the most important forum of public discourse in the case areas, reflecting perceptions of the market atmosphere and ongoing debate related to urban shrinkage as explained in the introduction. To examine the link between shrinking and growing cities (as previously discussed) and to gain a more comprehensive view, national newspapers were also scanned. The sources include the seven largest national newspapers and two electronic news sites published by the largest news media groups in Finland. All the analysed articles were published between January 2011 and April 2020. One main local newspaper published between January 2019 and April 2020 was scanned from each case city. The scanning was performed from April through June 2020.

Semi-structured interviews with bank representatives, public sector authorities and RE appraisers and brokers elicited their perceptions of the forces impacting the RE market and its development in the case cities. We examined the perspectives of these market participants for several reasons as explained in Chapter 1. Firstly, RE appraisers and brokers possess local expertise on the market environment, including unwritten knowledge of the market atmosphere and an understanding of buyers and sellers' mindsets (Levy et al., 2008).

Secondly, bank representatives play an essential role by providing the mortgages that are usually secured by local RE. In addition, our study offers insights from the public sector authorities responsible for land-use planning and policies, who thus establish the framework for market activities. The interviewees were found utilising the following registers; “Registration of real estate or letting agents” maintained by Regional State Administrative Agency and “Business Information System” maintained by the Finnish Patent and Registration Office and via the internet (company and city web pages). Eventually, 23 local RE appraisers and brokers, 13 bank representatives and 9 public sector authorities were interviewed from May through November 2020 (response rate: 62%). The interviewees were evenly distributed between case cities. The interviews addressed how the interviewees perceived the real estate market development in these cities (see Appendix 1). Due to Covid-19, the interviews were conducted remotely; they were recorded and transcribed to improve the reliability of the study.

Step 3: Scanning of data sources

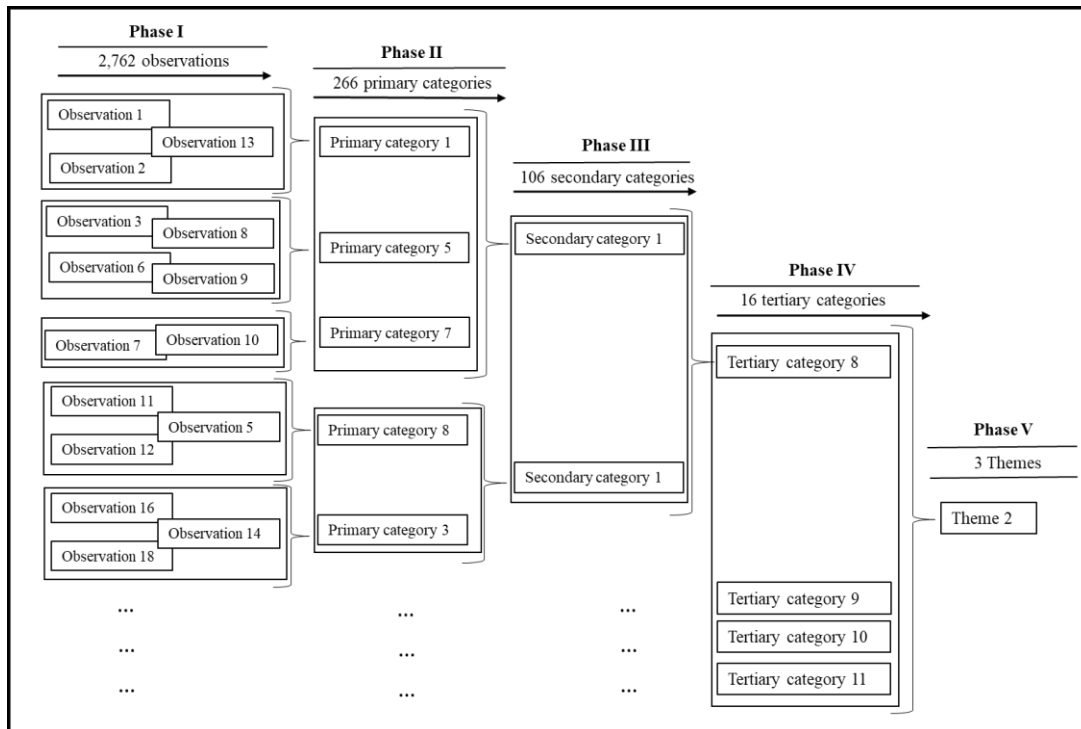
The transcribed interviews and newspapers were scanned to elicit observations. The observations described changes, events and phenomena and their appearance in the market environment. The national newspapers were examined by using search words related to urban shrinkage. The following search words were used, singly: *population loss, declining city, population decline, shrinking city, shrinking municipality*, or combining with following words: *real estate, real estate market, commercial real estate market, housing, housing market*. Local newspapers were systematically examined with a focus on observations related to urban shrinkage and RE market fundamentals. During the scanning, observations and information sources were recorded in a database. Most of these observations were sentences, but also single words, or even longer texts, such as a short newspaper article. It was essential that the observation formed an entity based on its content. Scanning was also used as a method to analyse and categorise the transcribed interviews. Similarly, as in the conventional thematic analysis and coding, scanning was utilised to capture the most essential elements (observations) from the data set. In total, 2,762 observations were recorded, 845 from interviews and 1,917 from newspapers (Figure 1).

Step 4: Analysis of observations

The forces were formed based on the analysis and categorisation of the observations in five phases (see Figure 4). First, individual observations were grouped based on the content analysis and after that, the categories were merged in several phases to arrive at upper-level categories describing the overall theme and essence of the observations. In other words, our categorisation tactic was to move from specific observations to broad themes. The 2,762 recorded observations were analysed and categorised into several phases based on their content. First, they were organised into 266 primary categories. The primary categories were then merged into 106 secondary categories to form a broad perspective of the content. After this, the secondary categories were merged into 16 tertiary categories describing their overall content. Finally, 16 tertiary categories were categorised into three themes describing the general drivers of future market development. In addition, we analysed whether the observations had a positive or negative impact on the RE market. Some secondary categories were placed under multiple themes because their content was complex and multi-connected, which is typical and has been noted by Toivonen (2011) and Toivonen and Viitanen (2015).

As described earlier, the nature of the forces differs; consequently, forces were found in each of the category levels. The next chapter presents the results in detail.

Figure 4. The categorisation process.



4. Results

This study identified and analysed the forces impacting the RE market environment in SCs. Our analysis found that urban shrinkage impacts the RE market environment through several distinct forces, which were first categorised into primary and secondary level categories, then into 16 tertiary categories and eventually into three themes as shown in Table in Appendix 2. The tertiary level categories with the most observations were **(14) Spatial polarisation of RE markets** and **(16) Concentration**. The categories with the fewest observations were **(7) Sharing economy** and **(9) Competition among cities**. In the analysis of the impacts of diverse forces on the real estate market, **(11) Digital transformation** had the most positive observations, and **(14) Spatial polarisation of RE markets** had the most negative observations. Similarities emerged in comparing the results with those of the previous studies discussed in Chapter 2. For instance, **(8) Globalisation** is recognised to significantly impact the RE market via global shifts in demand for forest industry products and by reinforcing economic restructuring, leading to job losses and out-migration followed by RE oversupply in shrinking Finnish cities. Other examples include **(1) Demographic changes**, especially ageing and the out-migration of young people, which have also been identified by previous researchers. Based on the content of the observations related to population ageing, **(3) Ageing and retiring** was separated from other demographic changes in its own tertiary category. Beyond confirming the results of previous studies, we uncovered novel forces. Our analysis

next focuses on these novel findings under three themes: (I) Drivers of space and investment demand, (II) Redefinition of location and (III) Uneven spatial development.

(I) Drivers of space and investment demand

Although some forces dampen RE demand, such as **(1) Demographic changes**, we uncovered forces that can generate new space and investment demand in SCs. For instance, interviews and newspapers revealed many **(2) Changes in housing preferences**, such as the growing popularity of rental housing and multi-local living as a new option. In particular, **(3) Ageing and retiring**, emerged as an important driving factor of RE markets, as it seems to change housing needs, e.g. by increasing the demand for sheltered housing and age-friendly facilities and amenities and by intensifying urbanisation as older people move to city centres. **(2) Changes in housing preferences** seem to have both positive and negative impacts on local RE markets. For instance, increasing demand for sheltered housing could create new investment opportunities for RE investors in SCs, as many seniors no longer want to own RE in a risky market environment.

(4) Housing investments were a recurrent observation in our data. Both interviews and newspapers indicated that RE prices are relatively low while rental income is reasonable in SCs. Consequently, city apartments in particular have been purchased for investment purposes. However, a minority of interviewees mentioned that some case cities had suffered negative consequences because some investors had not undertaken necessary repairs but had ‘pumped out’ the rental income before leaving the RE vacant and decaying. Some interviewees perceived that a number of banks refused to finance refurbishment loans for housing companies with a significant number of investors (as opposed to owner-occupiers) due to the high risks associated with their actions, interests and financial standing. According to the newspapers, the terms of refurbishment loans can be less attractive for housing companies owned by many investors than for companies that are mainly privately owned. At the same time, a small number of interviewees mentioned that RE can be bought for the price of a used car in some cities, so banks do not have to grant large loans, and their risk remains at a reasonable level when compared to construction and refurbishment loans. Some interviewees stated that home buyers and investors were concerned about whether the RE could be sold later.

According to our results, **(5) Strengthening nature values** bring forces that positively affect SCs. Many interviewees perceived that the demand for second homes has increased significantly due to Covid-19, as many of those who have been thinking of buying a second home decided to realise their dream to get closer to nature by having a second home in small cities. Therefore, also low-priced old single-family houses with minimal amenities in the rural areas of SCs are being purchased as second homes. Significantly increasing the popularity of nature tourism and actively developing local tourism could increase demand for accommodation services, especially rental cottages, creating new RE investment opportunities. For instance, vacant houses can be rented through platforms such as Airbnb to accommodate tourists.

(6) Ecological solutions also nurture several forces that positively affect the RE market in SCs. According to our results, companies have already invested in some of the case cities, for example, to develop wood-based bioproducts in new factories. Such investments create new job opportunities in cities that endured economic restructuring caused by globalisation in the forest industry. New job opportunities could increase demand for housing and, especially, for

rental apartments during the factories' construction phase. In addition, investments in renewable energy, such as wind farms, heighten demand for land in the region and are speculated to increase municipal property tax revenues. Some interviewees predict that climate change could provide future opportunities that benefit the RE markets of SCs if it increases the number of climate refugees, thereby increasing demand for local RE.

Our results reveal forces related to the **(7) Sharing economy**. For instance, the 'renting instead of owning' mentality both affects second homes and housing and increases the need for co-working spaces and multi-purpose facilities. These have both negative and positive impacts on the local RE market. For instance, multi-purpose facilities might reduce the space costs of local municipalities, but, as space use becomes more efficient, more buildings are left without use and probably vacant.

(II) Redefinition of location

In line with previous studies, such as those of Martinez-Fernandez, et al. (2012b) and Kotilainen et al. (2015), our results indicate that **(8) globalisation-related forces**, including global competition, job losses and economic restructuring, are seriously challenging SCs. Unlike in previous studies, however, our results reveal the forces that are changing our understanding of the meaning of location and distance. These forces, described next, increase location independence and may alter the locational choices of companies and people now and in the future. In addition, location independence can significantly change the dynamics of regional competition as the importance of physical location and distance declines.

(9) Competition among cities is intensifying nationally as cities compete for population, a skilled workforce, public infrastructure investments and companies' choices of location. Some case cities were in the shadow of at least one major city that competed with them, but some interviewees felt that the case cities could benefit from their proximity to larger cities if people noticed the affordable housing in the case cities, moved from large cities to SCs and commuted to the former for work. In particular, **(10) Changes in the work environment**, including telecommuting, self-employment and location-independent work (for instance, in the videogame industry), could benefit many SCs and increase demand for local RE. Location-independent work enables people to choose the location of their home or place of residence regardless of the location of the workplace, so people can live farther from the physical location of the workplace, which may benefit SCs near major cities. These changes could create new job opportunities and create a need for new types of workspace, such as co-working spaces, in SCs.

Overall, the forces included in **(11) Digital transformation** have many positive effects on local communities and the RE market. Online services, remote health care, e-commerce, distance learning and telecommuting enable working, studying and access to services in SCs where services, jobs and study opportunities have declined. Digital transformation also allows digital property transactions, in which a distant investor can buy an apartment without physically visiting it. Some interviewees also mentioned that new, web-based platforms enable RE marketing to a wider range of people, unbound to a specific geographical area or country. Taken together, these forces could alleviate the spatial mismatch between national population distribution and buildings in SCs.

(III) Uneven spatial development

Interestingly, although the importance of location is falling, our results indicate that micro-location in local markets is growing more importance. Our data uncovered significant differences in spatial development, both within SCs and between different cities and regions. In this section, we focus on these forces.

According to our results, **(12) Changes in the urban core** include forces that negatively affect SCs. These changes can be seen in the RE market environment, for instance, in vacant retail properties and declining retail activity in city centres. However, according to newspapers, many localities have tried to solve these problems by developing the centre through cooperation with residents and by organising various events in city centres. Overall, several case cities have sought to reverse their negative development through **(13) Revitalisation of the city** by branding and marketing themselves (especially in social media), developing local tourism, attracting a new population via incentives and revitalising the housing market by demolishing the municipal rental housing stock. However, according to our results, **(14) Weakening of the municipal economy** is challenging the case cities, as they must balance new investments and savings. Several case cities had made investments to attract families, especially in new school buildings near the city centre, and had lured new residents by offering monetary incentives, including free housing in municipal rental housing. Meanwhile, population decline and ageing reduced tax revenues, causing pressure to find savings and reduce spending on municipal services. Because of this dilemma, some case cities found it difficult to comprehensively develop the city, as investments had been allocated in certain areas while others were left without investment.

(15) Spatial polarisation of RE markets is strongly related to uneven spatial development. Most of these forces negatively affect the functioning of the local RE market. RE values and prices are falling sharply in sparsely populated rural areas, but prices and values have declined less dramatically in city cores and areas near city cores. In particular, the growing popularity of living in the city core increases the oversupply of RE in sparsely populated areas and, thus, intensifies polarisation in the RE market. Some interviewees perceived that, due to high supply and low demand, spatial differences are intensifying in the local context, where well-maintained and relatively new RE located near services sells but poorly maintained houses, especially in sparsely populated areas, are left vacant and quietly decay. The polarisation of RE markets is amplified by problems related to RE redevelopment projects and renovations. A common view amongst the interviewees was that, in SCs, new construction is not profitable because the construction costs are higher than the market value of the completed new building. This also applies to renovations, as expensive renovations do not sufficiently increase the market value of RE. Some of the interviewees interpreted this as explaining why some homeowners and housing companies have delayed renovations. On that topic, our results show that the significant repair debt of housing companies can be an obstacle to obtaining a refurbishment loan in SCs. This especially applies to housing companies outside the city centre. Overall, some interviewees felt that banks have tightened standards for house mortgage loans due both to tightened regulations and to uncertainty related to the development value of RE in SCs.

The forces related to the development of **(16) Concentration** recurred throughout the interviews and newspaper data. Young people, companies, universities and employment opportunities are concentrated in large cities and metropolitan areas, negatively impacting the RE market in SCs both directly, through falling demand, and indirectly. For instance, some

large banking operators have closed their branches in SCs, and property valuation has shifted from local branches to larger units in different parts of the country. This impacts RE market conditions, e.g. by reducing knowledge of the local characteristics relevant in RE collateral assessment. Likewise, competition between local banks decreases as fewer market players operate in local markets. In the local context, public services, such as schools, kindergartens, social services and health services, are concentrated in larger units near city centres. Concentration also applies to commercial services and retail that are concentrated in shopping centres away from city centres, undermining the vitality of the city centre.

5. Discussion and Conclusions

This study identified and analysed the forces impacting the RE market environment in SCs. Using ES, we found several forces that we divided into 16 tertiary categories and eventually gathered under three themes of the drivers of future market development (see Appendix 2). Although some of these forces cause or intensify urban shrinkage, we also found factors that can slow shrinkage and provide new opportunities for these cities.

The results uncovered drivers that can generate new demand for space and investment. New space occupiers were recognised, especially for housing, industrial and leisure spaces. Our study did not find any significant growth for traditional retail spaces, but changes related to e-commerce can be expected in the future as suggested by previous studies (e.g. Kickert et al., 2020). New investment demand was found, seemingly driven by affordability of housing prices combined with reasonable rental income. The results suggest that rental housing is growing in popularity as some homeowners no longer want to own RE in a risky market environment. This could indicate a profound change in the preferences of market actors, as the level of homeownership had formerly been high in shrinking Finnish cities. The increasing availability of rental housing could lower the threshold for moving and act as a magnet to attract new inhabitants to SCs.

The findings also suggest that restructuring the ownership of previously publicly owned spaces, such as health care facilities, can bring new types of investment opportunity and attract new investors to an area. In addition, professional investment demand has historically been targeted mainly at metropolitan areas, with SCs not seen as appealing. A risky market environment and low prices could potentially introduce a new type of player to the investment market, including both professional investors seeking alternative strategies and new local players.

Our results imply that some forces can change the dynamic between locations in a way that reduces the importance of physical location and distance. Location-independent work could alter the competitive environment between cities to favour SCs, because housing costs are high in many major cities, where residents live in small apartments while SCs offer affordable housing and adequate single-family homes with plenty of space for home offices. A survey in the Helsinki Metropolitan Area examined residents' housing preferences. Forty-six percent of 1,214 respondents stated that their preference is a single-family house, but a significant proportion of the respondents currently lived in an apartment block (Huttunen et al., 2016). Digitalisation and, especially, telecommuting offer new opportunities to realise housing ambitions, as people can move farther from workplaces in major cities.

Furthermore, our findings show that telecommuting makes it possible to spend longer periods in second homes. Multi-local living increases the demand for local services and enlivens cities, but it can also exacerbate the intermittent nature of space and service demand, which requires adaptability from the local market environment and its actors. Our results indicate that multi-local living, together with 'return to the countryside' thinking, could create demand for RE that is in danger of being left vacant and decaying. In particular, the Covid-19 pandemic has intensified this development. Overall, previous surveys have suggested that the willingness to move to small towns or rural areas has increased both in Finland (Maaseudun tulevaisuus, 2021) and elsewhere in the world, e.g. the USA (Statista, 2021). The Covid-19 pandemic or possible new pandemics could increase the attractiveness of case cities because due to the low population densities, these cities can be perceived as safer places to live than larger cities.

Despite the many positive forces for change, our results indicate that the RE market still faces the challenges identified in previous studies, such as an increase in vacant properties (Hollander and Hartt, 2019) and the challenges related to new construction and renovation (Weinsziehr et al., 2017), which may also threaten the social sustainability of communities. For instance, an ageing population requires increased accessibility. If the renovations needed to ensure accessibility remain undone, the mobility and quality of life of the elderly may be impaired.

Our findings suggest that contradictory forces are causing differences in spatial development in SCs. In sparsely populated areas, the population is declining more sharply than in city cores, because the urban areas of SCs draw people from rural and sparsely populated areas. By contrast, second homes are usually located in sparsely populated areas, far from city centres, and thus might intensify urban sprawl in the future. In addition, the concentration of commercial services and retail away from city centres weakens the attractiveness of the centres. Many case cities have actively tried to respond to this and other challenges of urban shrinkage, but further development is needed in the future to exploit the opportunities found in this study. For instance, if SCs want to benefit from increasing multi-local living, they must create an environment that supports multi-locality, for example, through good transportation connections to other cities and adequate local services that can be provided to multi-local residents. E-commerce, tourists and commuters would also benefit from good transport connections. In particular, the accessibility of natural attractions, national parks and hiking areas could be improved as the popularity of nature tourism has increased. Urban planners could also pay more attention to multi-local residents and consider their perceptions as part of the participatory planning process. Additionally, co-working spaces offered by local cities or private companies can support multi-local living, online learning and telecommuting in SCs. As noted by Mariotti et al. (2021), co-working spaces attract teleworkers who suffer from isolation in their home offices. Some Finnish municipalities have already organised co-working spaces for residents and companies, and many hotels, especially in Lapland, now offer co-working spaces to their guests.

Although our analysis focused on the content of the forces, the results clearly show that the forces differ in their characteristics. Some are megatrends, such as population ageing or globalisation, that have been identified by previous researchers (Kabisch et al., 2012; Haase et al., 2016). Other forces, such as those related to the sharing economy, can be identified as weak signals, the first indications of coming changes (Rubin, 2004).

In interpreting the results, some limitations of this study must be considered. Firstly, one might question whether newspaper articles were suitable sources of information for studying the forces impacting the RE market environment. However, the results were not based solely on those data sources but were supported by the interviews with market participants. In addition, previous studies have indicated that interviews and newspaper articles are proper data sources for uncovering forces (Toivonen, 2011). Secondly, as noted by Toivonen and Viitanen (2016), one may ask whether these forces truly exist in the environment under examination. This limitation is mitigated by the fact that many of the forces we found resemble those identified in other studies (Toivonen and Viitanen, 2015; Riekkinen et al., 2016). Thirdly, one may also question whether our results are generalisable. Case study approach was chosen as it allows to generate an in-depth understanding of events or phenomena in an everyday context rather than aiming to propose statistically generalisable conclusions. Therefore, the results as such are limited to the eight case cities. To be able to generalise the results to other European countries, comparative studies from other countries are needed. When interpreting the results, it should be noted that the results describe the views of the interviewees participating in the study and the public discourse via newspapers of the particular case cities. However, as the results are in line with the results of previous studies and many similarities were found between the case cities, it is possible that some of the results could be generalised to other geographical locations. Furthermore, this study was conducted during the global Covid-19 pandemic, which influenced the practical methods used, for instance, the interviews had to be conducted remotely. The pandemic could have an impact on the interviewees' responses. For instance, some interviewees themselves or their clients had been telecommuting due to the pandemic. Therefore, some themes, such as teleworking, might have been emphasized in several of the interviews.

The novelty of the results stems from the study's presenting the views of various market participants, who are key players whose actions and decisions can further influence local RE market development. Furthermore, our findings offer a new understanding of the threats and, especially, the opportunities affecting RE markets in SCs. This information will benefit the future development of SCs by informing planning and decision-making. Diverse market actors, such as government or municipal councils, land-use planners, RE investors and owner-occupiers, have better opportunities to avoid the negative impacts related to the RE market and to support resilient RE market development. Further research should be undertaken on the future of SCs, for instance, by creating long-term scenarios of the future development of such cities. Likewise, it is crucial to investigate the perceptions of investors, local residents and second homeowners, as they are the ones who buy, own and renovate RE in SCs. How do they perceive the future of the city, and what kind of development do they prefer?

Declaration of competing interest

The authors report there are no competing interests to declare.

Funding details

This work was supported by the Academy of Finland under Grant number 339549.

References

- Abramsson, M. and Andersson, E. (2016) Changing preferences with ageing—housing choices and housing plans of older people. *Housing, Theory and Society* 33.2, 217–41.
- Batunova, E. and Gunko, M. (2018) Urban shrinkage: an unspoken challenge of spatial planning in Russian small and medium-sized cities. *European Planning Studies* 26.8, 1580–97.
- Bell, W. (2009) *Foundations of Futures Studies: History, Purposes, Knowledge. Volume I: Human Science for a New Era*. Transaction Publishers.
- Bogataj, D., McDonnell, D. R. and Bogataj, M. (2016) Management, financing and taxation of housing stock in the shrinking cities of aging societies. *International journal of production economics* 181, 2–13.
- Choi, J. H. and Painter, G. (2015) Housing formation and unemployment rates: Evidence from 1975–2011. *The Journal of Real Estate Finance and Economics* 50.4, 549–66.
- Demirkan, H. (2007) Housing for the aging population. *European review of aging and physical activity* 4.1, 33–38.
- Eichholtz, P. and Lindenthal, T. (2014) Demographics, human capital, and the demand for housing. *Journal of housing economics* 26, 19–32.
- European Commission (2019) The European Green Deal. Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions. Brussels 24.
- Galster, G. (2019) Why shrinking cities are not mirror images of growing cities: A research agenda of six testable propositions. *Urban Affairs Review* 55.1, 355–72.
- Gathergood, J. (2011) Unemployment risk, house price risk and the transition into home ownership in the United Kingdom. *Journal of Housing Economics* 20.3, 200–209.
- Glaeser, E. L. and Gyourko, J. (2005) Urban decline and durable housing. *Journal of political economy* 113.2, 345–75.
- Gordon, T. J. and Glenn, J. C. (2009) Environmental scanning. *Futures research methodology—version 3*.
- Greenstone, M., Hornbeck, R. and Moretti, E. (2010) Identifying agglomeration spillovers: Evidence from winners and losers of large plant openings. *Journal of Political Economy* 118.3, 536–98.
- Großmann, K., Bontje, M., Haase, A. and Mykhnenko, V. (2013) Shrinking cities: Notes for the further research agenda. *Cities* 35, 221–25.
- Haase, A., Bernt, M., Großmann, K., Mykhnenko, V. and Rink, D. (2016) Varieties of shrinkage in European cities. *European Urban and Regional Studies* 23.1, 86–102.
- Hackworth, J. (2014) The limits to market-based strategies for addressing land abandonment in shrinking American cities. *Progress in Planning* 90, 1–37.
- Hartt, M. (2018) How cities shrink: Complex pathways to population decline. *Cities* 75, 38–49.
- Hartt, M. (2019) The prevalence of prosperous shrinking cities. *Annals of the American Association of Geographers* 109.5, 1651–70.
- Hollander, J. B. and Hartt, M. (2019) Vacancy and property values in shrinking downtowns: a comparative study of three New England cities. *Town Planning Review* 90.3, 247–73.
- Hollander, J. B., Pallagst, K., Schwarz, T. and Popper, F. J. (2009) Planning shrinking cities. *Progress in planning* 72.4, 223–32.
- Huttunen, H., Hasu, E., Hirvonen, J., Tervo, A. and Ullrich, T. (2016) The New Finnish Dream Home?: Townhouse Living from a Resident’s Perspective. Aalto University Publication Series ART + DESIGN + ARCHITECTURE 5/2016. Department of

- Architecture, Aalto University.
- Huuhka, S. (2016) Vacant residential buildings as potential reserves: A geographical and statistical study. *Building Research & Information* 44.8, 816–39.
- Kabisch, N., Haase, D. and Haase, A. (2012) Urban population development in Europe, 1991–2008: The examples of Poland and the UK. *International Journal of Urban and Regional Research* 36.6, 1326–48.
- Kickert, C., Vom Hofe, R., Haas, T., Zhang, W. and Mahato, B. (2020) Spatial dynamics of long-term urban retail decline in three transatlantic cities. *Cities* 107, 102918.
- Knabe, A. and Rätzl, S. (2011) Quantifying the psychological costs of unemployment: the role of permanent income. *Applied Economics* 43.21, 2751–63.
- Kotilainen, J., Eisto, I. and Vatanen, E. (2015) Uncovering mechanisms for resilience: Strategies to counter shrinkage in a peripheral city in Finland. *European Planning Studies* 23.1, 53–68.
- Levy, D., Murphy, L. and Lee, C. K. C. (2008) Influences and emotions: exploring family decision-making processes when buying a house. *Housing Studies* 23.2, 271–89.
- Lima, M. F. and Eischeid, M. R. (2017) Shrinking cities: rethinking landscape in depopulating urban contexts. *Landscape Research* 42.7, 691–698.
- Maaseudun tulevaisuus (2021) MT-kysely: Yhä useampi suomalainen haluaa asua maaseudulla – alle 30-vuotiailla miehillä eniten muuttohaaveita. Available at <https://www.maaseuduntulevaisuus.fi/kotimaa/artikkeli-1.1398074> (accessed 12rd December 2021)
- Mariotti, I., Akhavan, M. and Rossi, F. (2021) The preferred location of coworking spaces in Italy: an empirical investigation in urban and peripheral areas. *European Planning Studies* 1–23.
- Martinez-Fernandez, C., Weyman, T., Fol, S., Audirac, I., Cunningham-Sabot, E., Wiechmann, T. and Yahagi, H. (2016) Shrinking cities in Australia, Japan, Europe and the USA: From a global process to local policy responses. *Progress in Planning* 105, 1–48.
- Martinez-Fernandez, C., Audirac, I., Fol, S. and Cunningham-Sabot, E. (2012a) Shrinking cities: Urban challenges of globalization. *International journal of urban and regional research* 36.2, 213–25.
- Martinez-Fernandez, C., Wu, C., Schatz, L. K., Taira, N. and Vargas-Hernández, J. G. (2012b) The shrinking mining city: Urban dynamics and contested territory. *International Journal of Urban and Regional Research* 36.2, 245–60.
- Naisbitt, J. (1984) Megatrends -Ten new directions transforming our lives. Warner Books Edition, The United States of America.
- Riekkinen, K., Toivonen, S., Krigsholm, P., Hiironen, J. and Kolis, K. (2016) Future themes in the operational environment of the Finnish cadastral system. *Land Use Policy* 57, 702–8.
- Rieniets, T. (2009) Shrinking cities: causes and effects of urban population losses in the twentieth century. *Nature and Culture* 4.3, 231–54.
- Rubin, A. (2004) TOPI –Tulevaisuuden tutkimuksen oppimateriaalit. Available at <https://tulevaisuus.fi/menetelmat/toimintaympariston-muutosten-tarkastelu/> (accessed 3rd December 2020).
- Schilling, J. and Logan, J. (2008) Greening the rust belt: A green infrastructure model for right sizing America’s shrinking cities. *Journal of the American Planning Association* 74.4, 451–66.
- Silverman, R. M. (2020) Rethinking shrinking cities: Peripheral dual cities have arrived. *Journal of Urban Affairs* 42.3, 294–311.
- Statista (2021) Rural Life Desire Rises in 2020. Available at

- <https://www.statista.com/chart/23855/rural-urban-living/> (accessed 12rd December 2021)
- Statistics Finland, (2020) Municipal key figures. Available at https://pxnet2.stat.fi/PXWeb/pxweb/fi/Kuntien_avainluvut/ (accessed 12rd December 2021)
- Syssner, J. (2016). Planning for shrinkage? Policy implications of demographic decline in Swedish municipalities. *Ager: Revista de estudios sobre despoblación y desarrollo rural= Journal of depopulation and rural development studies* 20, 7-31.
- Theurillat, T., Rérat, P. and Crevoisier, O. (2015) The real estate markets: Players, institutions and territories. *Urban Studies* 52.8, 1414–33.
- Toivonen, S. (2011) Tulevaisuuden toimitilamarkkinat: muutosvoimat, niiden vaikutukset ja toimitilatoiveet pääkaupunkiseudulla. PhD dissertation, Department of Surveying, Aalto University.
- Toivonen, S. and Viitanen, K. (2015) Forces of change shaping the future commercial real estate market in the Helsinki Metropolitan Area in Finland. *Land Use Policy* 42, 471–78.
- Toivonen, S., Rashidfarokhi, A., & Kyrö, R. (2021). Empowering upcoming city developers with futures literacy. *Futures*, 129, 102734.
- Toivonen, S. (2021). Advancing futures thinking in the real estate field. *Journal of European Real Estate Research*. 14.1, 150-166
- United Nations (2018) *The World's Cities in 2018—Data Booklet*.
- Watkins, C. and MCmaster, R. (2011) The behavioural turn in housing economics: Reflections on the theoretical and operational challenges. *Housing, Theory and Society* 28.3, 281–87.
- Weinsziehr, T., Grossmann, K., Gröger, M. and Bruckner, T. (2017) Building retrofit in shrinking and ageing cities: a case-based investigation. *Building Research & Information* 45.3, 278–92.
- Wiechman, T. (2007) Between spectacular projects and pragmatic deconstruction. *The future of shrinking cities: Problems, patterns, & strategies of urban transformation in a global context*. Berkeley, CA. February 8.
- Wiechmann, T. and Bontje, M. (2015) Responding to tough times: Policy and planning strategies in shrinking cities. Taylor & Francis.
- Wiechmann, T. and Pallagst, K. M. (2012) Urban shrinkage in Germany and the USA: A comparison of transformation patterns and local strategies. *International journal of urban and regional research* 36.2, 261–80.
- Wolff, M. and Wiechmann, T. (2018) Urban growth and decline: Europe's shrinking cities in a comparative perspective 1990–2010. *European Urban and Regional Studies* 25.2, 122–39.

Appendices

Appendix 1. Discussion themes.

- Could you tell me about the changes that have taken place in the local real estate (RE) market operating environment?
- Have you observed any changes in the supply of different space types? Can you describe these changes?
- Have you observed any changes in the demand of different space types? Can you describe these changes?
- Have you noticed any changes in people's housing preferences? Can you describe these changes?
- Could you tell me more about the local RE stock?
- How do you think the local RE market is going to develop in the future? Possible changes?
- Please describe the trends/megatrends affecting the RE market? How are these trends/megatrends reflected in the local RE market environment?
- How do you see the regional/spatial development of the real estate market in the future?
- Can you describe the future opportunities for the local RE market?
- What kind of future risks can affect the local RE market? What kind of impact can these risks have?

Appendix 2. Categorisation of the forces, number of observations and positivity/negativity.

Themes & Tertiary categories	Secondary categories
(I) Drivers of space and investment demand	
1 Demographic changes (190)	Population ageing 99 (-), outmigration 50 (-), low birth rates 33 (-), and household size decline 10 (-)
2 Changes in housing preferences (150)	Growing popularity of rental housing 41 (+-), multi-local living 35 (+), 'return to the countryside' thinking 34 (+), growing popularity of living in downtowns 33 (+-), pet parenting 27 (+), environmental awareness 18 (+-), demand for well-maintained and new buildings 17 (+-), and low prices supporting owner-occupied housing 17 (+)
3 Ageing and retiring (120)	Growing demand for elderly home care services, sheltered housing, age-friendly facilities and amenities, remigration of retired population 42 (+), low renovation intensity of ageing homeowners 23 (-), skilled workforce leaving the labour market 11 (-), increasing social and health care costs 10 (-) and weakening of economic dependency ratio 8 (-)
4 Housing investments (145)	Decrease in RE prices in shrinking cities 49 (+-), housing investment boom 42 (+-), banks tightening standards for mortgage house loans 38 (-) and vacant buildings in shrinking cities 22 (-)
5 Strengthening of nature values (211)	Popularity of nature tourism 46 (+), growing demand for second homes 39 (+), multi-local living 35 (+), 'return to the countryside' thinking 34 (+), regionalism 28 (+), environmental consciousness and sustainability in tourism 20 (+), and strengthening of village communities 9 (+)
6 Ecological solutions (89)	Climate change 27 (+-), investments in renewable energy 17 (+), reduction in greenhouse gas emissions 13 (+-), bioeconomy 12 (+), eco-aware cities 10 (+), circular economy 6 (+), and electrification of transport 4 (+)
7 Sharing economy (37)	Multi-purpose facilities 12 (+-), Airbnb 11 (+), voluntary working 7 (+), and 'renting instead of owning' mentality 7 (+-)
(II) Redefinition of location	
8 Globalisation (144)	Global competition for capital, investments, a skilled workforce, and locational choices of companies 31 (+-), Finland-China cooperation and twin cities 30 (+-), economic restructuring 25 (-), EU regulation 19 (+-), global economic cycles 19 (-), internationalisation of housing markets 17 (+) and vulnerability of global tourism 13 (-)
9 Competition among cities (61)	Competition for investments and locational choices of companies 23 (+-), population 18 (-), a skilled workforce 15 (-) and infrastructure investments 5 (+-)
10 Changes in the work environment (162)	Telecommuting and location independent work 61 (+); job losses 33 (-), geographic and skills mismatch 24 (-), video games industry 17 (+), retirement of entrepreneurs 13 (-), rising self-employment 10 (+) and co-working spaces 4 (+)
11 Digital transformation (214)	Telecommuting and location independent work 61 (+), E-commerce 57 (+-), online services 30 (+), distance learning 22 (+), 5G and importance of cellular networks 10 (+), digital property transactions 11 (+), autonomous vehicles 8 (+), mobility as a service 7 (+-) and remote health care 7 (+)
(III) Uneven spatial development	
12 Changes in the urban core (184)	Vacant retail properties 56 (-), revitalisation of city centres 29 (+), city centres as platforms for events 23 (+), reduction in retail activity 15 (-), desolation of city centres 14 (-), weakening in the attraction of city centres 14 (-), high management charges for retail properties 12 (-), problem of multiple local centres 10 (-), and participatory urban planning 7 (+)
13 Revitalisation of city (264)	Development of local tourism 80 (+), city branding and marketing 63 (+), revitalisation of the housing market via demolition 47 (+), attracting new population via incentives 24 (+-), investments in school infrastructure 18 (+-), growth paradigm 12 (+-), improving urban comfort and tidying up the cityscape 8 (+), participatory urban planning 7 (+), and strengthening the local identity 5 (+)
14 Weakening of the municipal economy (172)	Balancing the municipal economy 50 (+-), adjustment of municipalities' RE stock 28 (+-), decrease in tax revenues and pressure to raise taxes 24 (-), balancing act between new municipal investments and saving 20 (+-), difficulties in the comprehensive development of municipalities 18 (-), indebted municipalities 17 (-), and deteriorating public facilities 15 (-)
15 Spatial polarisation of RE markets (407)	Intensification of regional differences 64 (-), decrease in RE prices in shrinking cities 49 (-), oversupply of RE in shrinking cities 48 (-), challenges in RE redevelopment projects 45 (-), banks tightening standards for mortgage house loans 38 (-), abandoned buildings in sparsely populated areas 32 (-), significant repair debt of housing companies as an obstacle in obtaining a refurbishment loan 25 (-), renovations not increasing the value of RE 23 (-), vacant buildings in shrinking cities 22 (-), oversupply of rental apartments in shrinking cities 19 (-), decrease in RE values and prices in sparsely populated areas 17 (-), national media highlighting polarisation 16 (-), and increase in risks of investments in RE 9 (-)
16 Concentration (375)	Concentration of population in large cities and metropolitan areas 91 (-), concentration of services, companies, employment opportunities, schools, and universities in major cities 82 (-), shrinking urban areas drawing people from rural areas 59 (+-), growing inequalities between cities and regions 41 (-), concentration of schools, kindergartens, social and health services in larger units near the city centres 40 (+-); concentration of services and retail in shopping centres 29 (-); reduction of municipal services in small local centres 17 (-), and increasing housing

(+) = positive impact on RE market

(-) = negative impact on RE market

(+/-) = positive and negative impact on RE market