LUND UNIVERSITY
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Internal Migration in Finland:

Municipal Characteristics and Net Migration, 1995-2024

by

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As rural-urban migration persists and population concentrates into urban areas, rural municipalities are increasingly struggling with population decline. Using longitudinal data from Statistics Finland, this thesis aims to investigate what municipal characteristics have contributed to net migration rates in 292 Finnish municipalities between 1995 and 2024 by conducting year fixed effects and two-way fixed effects regression. This thesis also analyses differences in net migration rates in eastern and western Finland between 1995 and 2024. The results suggest that unemployment is negatively associated with net migration outcomes in municipalities, and that it has also contributed somewhat to the East-West difference in net migration rates. The East-West difference in net migration rates was large in the late 1990s and early 2000s but has since then converged significantly. Inconclusive results are found as to whether average labour income differences between municipalities are associated with net migration outcomes. Population composition is strongly associated with net migration outcomes, contributing to differences in net migration between urban, semi-urban and rural municipalities.

Keywords: internal migration, urban-rural differences, municipalities, Finland

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1 Introduction

This chapter introduces the research problem and presents the research questions. The aim and scope of the thesis are discussed, and the research design is summarized. Lastly, the outline of the thesis is presented.

1.1 Research Problem

Inequalities between regions have been growing in the last decades within many OECD countries, partly driven by the growth of metropolitan areas accompanied by internal migration flows (OECD, 2023, p. 22). Metropolitan areas attract people partly due to the concentration of jobs and education opportunities, which causes people to migrate from other regions (OECD, 2023, p. 20). Internal migration flowing from rural to urban areas thus plays a part in increasing regional inequalities within countries (OECD, 2023, p. 3). Due to internal out-migration, many regions within OECD countries are struggling with population decline, population ageing, and have increasing difficulties of maintaining infrastructure and basic services (OECD, 2023, p. 3). The OECD report (OECD, 2023, p. 3), however, notes that this development is not inevitable, as many countries have been able to bridge the gaps between regions.

Finland is among the countries where regional inequalities have been shaped by the concentration of population into urban areas (Karhula et al., 2020; Rowe et al., 2019). Internal migration in Finland is mainly characterized by rural-urban migration (Karhula et al., 2020), and many rural municipalities are struggling with population decline and population ageing, as especially working-aged people tend to migrate to urban centres (OECD, 2025b, p. 34). Population concentrating into certain regions as a consequence of internal migration can be seen as positive, as it can allocate labour to where demand for labour is highest (Pekkala, 2003; Poghosyan, 2018), but from the municipalities' perspective, population decline due to internal migration is concerning (Makkonen & Inkinen, 2023). The primary purpose of Finnish municipalities is to offer basic services to their inhabitants. These services are mainly financed by taxes from the earned income of the population, which becomes more difficult as demand for the services increases due to population ageing, and the supply of taxable income decreases due to population ageing and outmigration of working-age people (OECD, 2025a, p. 33). The increasing difficulty to provide services also makes municipalities less attractive for people, which might further increase outmigration, which can deepen regional inequality within the country (OECD, 2025a, p. 33).

Regional imbalance in Finland has been a topic of discussion in recent years. There was divergence between Finnish regions after the early 1990s economic recession, and since then, especially eastern and northern municipalities have been experiencing faster population ageing,

higher unemployment, and lower regional GDPs (Mäki-Arvela, 2003). The eastern and western regions have also developed differently, as most urban centres are located in the West, while eastern regions tend to have sparser population density, and their economies have traditionally been more reliant on tourism, resource extraction and logistics (OECD, 2025b). There has also been regional divergence after the 1990s economic recession, since southern Finland especially recovered faster in comparison to other Finnish regions (Enflo, 2018, p. 111). Since eastern and western regions have developed differently, this thesis aims to see if they have also had different net migration outcomes. This will shed light on broader regional inequalities, apart from the urban-rural regional difference.

Intermunicipal migration remains an important issue in discussions of regional development and demographic change in Finland, as well as in many other European countries, that are experiencing population concentration into urban areas. Migration tends to react to labour market conditions, such as unemployment and wage differentials (e.g. Laamanen 2014; Pissarides & McMaster, 1990), which is why this thesis will investigate how municipal economic characteristics, such as unemployment levels, the structure of the municipality's economy, and average labour incomes are associated with net migration rates in municipalities. Many previous studies on Finnish internal migration have focused on interregional migration, but regional-level analysis may conceal heterogeneity between municipalities within the same region, since Finnish regions contain municipalities with different demographic and economic characteristics, as well as different urbanization levels. There is also limited previous research on the differences in intermunicipal net migration in eastern and western municipalities. Therefore, this study aims to fill this gap by analysing municipality-level characteristics in mainland Finland that are associated with net migration rates in intermunicipal moves between 1995 and 2024. This study additionally aims to explain what trends there have been in the net migration rates between eastern and western municipalities during this period, and what municipality characteristics contribute to this difference.

1.2 Aim and Scope

This study focuses on intermunicipal net migration in mainland Finland, which means that immigration and emigration are not included in the analysis. This is done because the OECD (2025b, p. 34) finds that due to international migration, the total migration balance in many municipalities in Finland has stayed nearly neutral, but due to intermunicipal out-migration and population ageing, the working-age populations have declined. The net migration rate is measured as the difference between intermunicipal in-migration and out-migration, divided by the mid-year population and multiplied by 1,000. This study focuses on net migration, instead of in-migration or out-migration separately, because net migration directly captures whether a municipality has gained or lost population in a year. An analysis of in-migration or out-migration could provide different results, as especially places with a large population tend to have high inflows, but also high outflows of migrants (Greenwood, 2016, p. 34). The unit of analysis is municipalities, in order to study which municipality-level characteristics are associated with net migration. Therefore, the study does not shed light on determinants of individual-level migration decisions. Due to data availability, the study also cannot determine

whether out-migrants are moving within the region, or if they are making longer distance moves. The specific municipal characteristics included in the analysis are unemployment levels, average labour income levels, structure of the economy in the municipality, the share of people with tertiary education, the share of retired people, the share of foreign-born people, and the distance to nearest cities.

The specific research questions this thesis aims to answer are as follows:

1. What are the trends in intermunicipal net migration rates in eastern and western mainland Finland between 1995-2024?
2. What municipal characteristics are positively and negatively associated with net migration rates?
3. What municipal characteristics contribute to the difference in net migration rates between urban, semi-urban and rural municipalities?
4. What municipal characteristics contribute to the difference in net migration rates between the East and the West?

The dataset used in this study is a panel dataset, which includes both time-varying and time-invariant variables for 292 Finnish municipalities between 1995 and 2024. All the data is obtained from Statistics Finland. The data corresponds to the municipality division on the 1st of January 2025, when there were 308 municipalities in Finland. 16 municipalities in the Åland region are excluded from the study, because Åland is almost entirely Swedish speaking, the municipalities have extremely small populations (contributing to 0.5% of the Finnish population in 2024), it is not a part of mainland Finland and has an autonomous status. This introduces many factors specific to Åland and outside the scope of this study that can be associated with the propensity to move to and from that region. The first research question is approached by producing descriptive figures based on data on net migration rates in intermunicipal moves. The second research question is approached by applying a year fixed effects regression model and a two-way fixed effects model, which looks at within-municipality variation in the outcome based on time-variant independent variables over the 30-year period analysed in this study. The third and fourth research questions are approached with the year fixed effects model, where time-invariant variables can be included, and the analysis will shed light on between-municipality differences in net migration outcomes. The fourth research question is further analysed by including interaction terms in the year fixed effects model, where explanatory variables are interacted with the East-West dummy variable. The empirical analysis is conducted for the periods 1995-2024 and for 2007-2023, since data on the economic structure of municipalities is only available for the latter period. The longitudinal approach aims to show long-term associations and allows for the within-municipality analysis. 1995-2024 is chosen as the time span because it is the longest period for when data on most of the variables is available. This thesis contributes to existing knowledge on what factors are associated with net migration outcomes in internal migration, and sheds light on differences between eastern and western municipalities when it comes to intermunicipal net migration rates.

1.3 Outline of the Thesis

The second chapter of this thesis will present the context of the study. A brief context is given by outlining the trends and the history of internal migration in Finland, differences between eastern and western Finland, and the role of municipalities in Finland. Chapter 3 presents migration theories, previous research and hypotheses. In section 3.1 common migration theories and their relevance to this thesis are discussed. This section also discusses selectivity in migration as well as push and pull factors associated with migration. Section 3.2 presents previous research on internal migration and its possible determinants. In section 3.3, hypotheses are drawn based on theory and previous research. Chapter 4 presents the data used in this study and describes the dependent and independent variables. Chapter 5 introduces the methods used in the empirical analysis, which are year fixed effects, two-way fixed effects, and interaction terms. In chapter 6, the results of the empirical analysis are presented and discussed. This chapter starts with a descriptive analysis of trends in net migration rates in eastern and western Finland, after which results from the fixed effects analyses are presented. The chapter concludes with a discussion of the results in connection to the hypotheses and previous research. Chapter 7 concludes the thesis by summarizing the results, discussing the implications of the study, the limits of the study, and possible topics for further research.

2 Context

According to Rowe et al. (2019), several European countries, particularly countries in Northern, Central and Eastern Europe, are experiencing population concentration into urban areas, while some countries in western and southern Europe are experiencing population deconcentration. The OECD (2023) report on regional inequality within OECD countries also notes that several OECD countries are experiencing population concentration into urban areas, which increases regional inequality within countries. Rowe et al. (2019) find that in the late 1990s and early 2000s, Finland experienced slow population concentration into urban areas, but that the concentration accelerated after 2003. Finland has approximately 5.6 million inhabitants, large distances and a relatively sparse population density. The sparse population density is also evident in the way municipalities are classified, as urban areas in Finland tend to have a lower population density than urban areas in other countries (Karhula et al., 2020). Since Finland has a relatively small population, there are only a few large cities. Population has also tended to concentrate in these few cities because of internal migration. The five largest urban areas in Finland are the Helsinki capital region, Turku, Tampere, Jyväskylä and Oulu (Pekkala, 2003), out of which only Oulu is in eastern Finland. This may also contribute to differences in average net migration rates between eastern and western municipalities. Karhula et al. (2020) note that while Finland is already an urbanized country, there is still evidence of ongoing urbanization.

Kultalahti (2001) summarizes internal migration in Finland in his paper and explains that while rural-urban migration in Finland emerged in the 19th century following industrialization, Finland remained an agrarian society until the 1960s. After the Second World War, Finland underwent significant structural changes, which contributed to strong rural-urban migration in the 1960s and early 1970s (Kultalahti, 2001). Finland underwent this structural change relatively late in comparison to other Western European and Nordic countries (Kokkinen et al., 2007), which has contributed to rural-urban migration accelerating relatively late in Finland, but in the 21st century, Finnish internal migration patterns have been similar to those of other Nordic countries, where population is concentrating into urban areas as a consequence of internal migration (Rowe et al., 2019).

Apart from analysing net migration rates in rural, semi-urban and urban municipalities, this study is also interested in net migration differences between eastern and western Finland. An East-West comparison in Finland can shed light on what factors contribute to regional inequalities by going beyond a comparison of rural and urban regions. The eastern and western regions of Finland have developed differently in the past. Historically, the western regions of Finland have benefitted from better access to Western European markets through access to the Baltic Sea (Enflo, 2018, p. 104). After Finland was annexed by Russia, industrialized in the 19th century and railroads were built, the economic performance of eastern and western regions somewhat converged (Enflo, 2018, p. 104, p. 110). Following the Second World War, Finland lost its then second largest city of Vyborg to Russia, which contributed to a relative decline of eastern regional GDPs (Enflo, 2018, p. 113). In the early 1990s, Finland was heavily impacted

by the global economic recession and the collapse of the USSR. This affected Finnish regional GDPs quite evenly, but the post-crisis recovery was uneven (Enflo, 2018, p. 111). After the recession, Finland's GDP grew quite rapidly, driven mainly by high-tech industries in southern Finland, which contributed to regional divergence after the recession (Enflo, 2018, p. 107, p. 111). According to Mäki-Arvela (2003) especially southern Finland recovered very rapidly in terms of employment, while regions in the eastern and northern parts of Finland experienced lower levels of employment in comparison to other Finnish regions. It has also been found in a study by Pissarides & McMaster (1990) that migration responds strongly to regional differences in unemployment. Kultalahti (2001) notes that the recession impacted internal migration. During this period, eastern and northern Finland, as well as parts of Central Finland experienced the heaviest out-migration losses (Kultalahti, 2001). In essence, Kultalahti (2001) finds that internal migration has contributed to regional imbalance in Finland over a long period of time.

In the 21st century, the eastern region of Finland has experienced heavier demographic decline and economic challenges than the western region, with an ageing population, less economic diversity and a shrinking labour force in part due to heavy out-migration (OECD, 2025b, p. 33). Especially the eastern regions of South Savo and Kainuu have experienced the strongest population ageing (OECD, 2025b, p. 34). Population ageing impacts the municipalities' tax revenues and their ability to provide services when demand for them is increasing as population ages (OECD, 2025b, p. 34). The OECD (2025b) report also addresses eastern Finland's declining role in Finland's economy. Since 1995, the eastern regions' contribution to Finland's total GDP has declined along with a decline in the share of Finland's workplaces and population (OECD, 2025b, p. 36). The economies of municipalities in the eastern regions have relied on sectors such as tourism, natural resources, forestry, manufacturing and logistics (OECD, 2025b, p. 21).

This study uses municipalities as the unit of analysis. In Finland, municipalities are the smallest administrative regions (Lehtonen & Tykkyläinen, 2018). Municipalities are self-governing and are responsible for education, economic affairs, transport and housing services (OECD, 2025a, p. 7). Before 2022, municipalities were also responsible for maintaining health, social and rescue services (OECD, 2025a, p. 11). Municipalities levy taxes from their residents, which is an important part of municipalities' finances, contributing to approximately 47% of municipalities' total revenue in 2022 (OECD, 2025a, pp. 15-16). For this reason, maintaining a good dependency-ratio is of importance to the vitality of municipalities. Negative net migration rates contribute to population decline and tend to weaken the dependency-ratio of municipalities, if migrants are mainly working-age, which is why this thesis uses municipalities as the unit of analysis.

To summarize, internal migration in Finland, as in many other European countries, has generally been oriented towards cities and over time the concentration of population into urban areas has contributed to regional imbalance. Eastern and western regions of Finland have developed differently in the past and in the late 1990s their recovery from the economic recession of the early 1990s was imbalanced. In the 21st century, eastern Finland has been struggling with faster population decline and a rapidly ageing population in comparison to western Finland.

3 Theory and Previous Research

This chapter presents theoretical approaches to migration, previous research on internal migration, and the hypotheses drawn based on previous literature. In section 3.1 some theories of migration are discussed. This section provides an overview of popular migration theories and discusses the most relevant theories to this context in more detail. Migrant selection and push and pull factors of migration are also briefly discussed to provide an overview of important aspects of migration. Section 3.2 provides an overview of previous research on possible determinants of internal migration in Finland and abroad. Section 3.3 presents the hypotheses for this study that are drawn based on previous literature.

3.1 Theoretical Approaches to Migration

There are several migration theories applicable to a context of international migration, but a limited number of theories that are applicable to internal migration in a developed country. Massey et al. (1993) provide an overview of common migration theories. Some aspects of these theories may be applicable to internal migration, which is why they are shortly presented here. According to Massey et al. (1993), dual labour market theory sees migration occurring because of demand for international labour in developed countries. World systems theory explains migration in terms of the structure of the world market and growth of global cities, which draw labour migrants from other countries. Network theory implies that migrants who have already migrated once, and those who are related to someone who has migrated, are more likely to migrate, as they have better information which can make the migration easier. The new economics of migration sees migration as a household-level decision used to mitigate risks when there is a failure in markets. (Massey et al., 1993.) Cumulative causation can, to some extent, be applied to internal migration in a developed country. A key insight of this theory is that migration flows tend to persist because each act of migration changes perceptions of migration through different mechanisms, such as by changing the social and economic structures within the community (Massey et al., 1993). This can, for example, result in migration becoming an expectation for young people, in that they may feel that migration is a valued thing to do to elevate their status (Massey et al., 1993). Different mechanisms may be at play in different migration contexts, but a common finding in empirical studies is that migration flows tend to persist. The theories briefly described here, however, tend to be more applicable to international migration, than internal migration in a developed country, where, for example, risks attributed to market failures tend to be mitigated by government programmes, as argued by Maczulskij and Böckerman (2023).

A neoclassical migration theory developed by Todaro (1969) explicitly focuses on internal migration, albeit in developing countries. Human capital theory, developed by Sjaastad (1962)

is also applicable to the context of internal migration in a developed country. According to Taylor and Martin (2001), neoclassical migration theories explain that migration occurs as a reaction to wage-differentials between two regions, usually urban and rural areas. Migration happens as individuals want to maximize utility. According to these theories, migration flows continue until the wages in rural and urban areas reach equilibrium. The theories have been criticized since they assume perfect markets, while in reality, migration does not always equalize wages between rural and urban areas. (Taylor & Martin, 2001.) Todaro (1969) extended the neoclassical migration model and sought to explain why rural-urban migration persists even when urban unemployment is high (Taylor & Martin, 2001). Todaro's individual-level model (1969) and the macro-level model developed by Harris and Todaro (1970) discuss rural-urban migration in less-developed countries, but according to Greenwood (2016, p. 35), Todaro's model is also applicable to other contexts. According to Harris and Todaro (1970), on the macro-level, migration occurs when expected urban wages exceed rural wages. An important aspect of the model is the definition of expected wages. A part of what forms expected wages is the unemployment level in the urban destination, and therefore not only are income differentials important, but the likelihood of finding a job in the destination also plays a part in the migration decision (Greenwood, 2016, p. 35). The migration decision is generally made by an individual, and the potential migrant weighs their options of staying in the origin or moving to another location (Harris & Todaro, 1970). According to Todaro (1969), the migration decision on the individual-level is a function of wage-differentials between the rural and the urban area, adjusted for urban unemployment. Even if urban unemployment is high, migrating to an urban area may still be economically rational for an individual migrant in the long run, if expected urban wages are higher than rural wages. This generally depends on how long it takes to find a job in the urban area (Todaro, 1969).

The human capital theory of migration views migration as an investment in human capital. This theory developed by Sjaastad (1962) views migrants as individuals that seek to maximize utility. According to the theory, migration is seen as an investment, as the returns to the migration are not immediately gained, but the migrants consider their expected lifetime earnings (Greenwood, 2016, p. 35). Essential to the theory is that that migrants will consider the excepted returns and costs associated with the migration. These costs may be money costs, such as the price of traveling and finding accommodation, or non-money costs which are psychological. If the expected returns exceed the costs, the migration occurs. (Sjaastad, 1962.) The term expected returns is used, as the migration decision also involves risks and uncertainty, which means that migrants do not have perfect information about returns to migration (Greenwood, 2016, p. 35). According to the theory, the migration destination is decided by comparing expected returns in different possible destinations, and the migrant will choose a destination that is better than their current place of residence (Greenwood, 2016, p. 35). This theory also implies that young people would be more likely to migrate than the old, since younger people have a possibility to accumulate the returns of migration for a longer time (Taylor & Martin, 2001).

Migration research also often consider push and pull factors. According to the push and pull - model, there are push factors associated with the origin and pull factors associated with the possible destinations that shape migration processes (Lee, 1966). Additionally, there are intervening factors that shape the migration process and migration decisions, such as the cost of migrating (Lee, 1966). Push factors associated with the origin are the factors that may

encourage the potential migrant to consider other locations. The possible destinations have pull factors that can attract migrants from elsewhere. Lee (1966) also emphasizes imperfect information and uncertainty that play a part in migration. The origin is a place of which the migrants have a good understanding, but when it comes to the destination, there are unknown factors that play a part in shaping the migration experience (Lee, 1966). Push and pull factors may either be unchanging, such as the climate or other amenities municipalities offer, or factors that change over time, such as unemployment or services offered by the municipality.

It should also be noted that migrants are usually self-selected by some characteristic. As the Sjaastad (1962) theoretical framework implies, those who have the most to gain from migrating in terms of expected lifetime earnings are the most likely to migrate. Migrants tend to be self-selected by age, education, sex and many other characteristics (Greenwood, 2016, p. 37). Migrants can for example be either positively self-selected in that they are better educated than the population that stays in the origin or negatively selected in that they are less educated than the population that stays in the origin. According to Borjas (2020, pp. 281-282), migrants are positively selected when the returns to skills in terms of wages are higher in the destination that in the origin. Therefore, educated people may move to cities if they feel that they have more opportunities and will get higher returns to skills there. This is not always the case, since sometimes migrants may be negatively selected in terms of skills. If the slope of returns to skill is steeper in the origin than in the destination, migrants will be negatively selected, as they will find higher returns to lower skills in the destination than in the origin (Borjas, 2020, pp. 281-282). This implies that the skill composition of the migrant flow from one region to another is determined by the relative pay-off to skills in the destination in comparison to the origin (Borjas, 2020, p. 282). Selectivity in migration cannot be explicitly studied in this thesis, as it focuses on net migration rates, but selectivity plays a part in shaping the population composition in municipalities. For example, selectivity in migration can contribute to highly educated people concentrating in larger cities and it can contribute to the growth of the share of retired people in peripheries if mainly young people are deciding to out-migrate.

For this study of internal migration in Finland, especially the neoclassical theories are relevant, since many of the other theories are better suited to a context of international migration. This study looks at municipality-level characteristics that may be associated with net migration rates. The net migration rate will be negative if there are more out-migrants than in-migrants, and positive if there are more in-migrants than out-migrants. Based on the theories developed by Todaro (1969), Harris and Todaro (1970) and Sjaastad (1962), potential migrants decide to migrate, if they expect higher returns or higher wages in the destination. According to Todaro (1969) and Harris and Todaro (1970) unemployment plays a part in shaping those expected earnings. This would mean that people should be more likely to move from high-unemployment regions to low-unemployment regions. This may lead migrants to move from rural areas into urban areas, and unemployment rates in the municipality may also play a role. Unemployment, the economic structure, and wage differentials between locations may also act as either push or pull factors discussed in Lee's (1966) migration theory. The literature on self-selection of migrants also implies that migrants will likely be younger and highly educated, who may prefer cities, if they expect higher earnings there. While this thesis cannot determine individual migration origins and destinations due to data availability, these theories provide a framework for understanding what factors play a part in individual migration decisions and are likely important in determining what factors play a part in shaping municipalities' net migration rates.

3.2 Previous Research

Most of previous research on internal migration in Finland focuses on interregional migration. Poghosyan (2018) finds that between 1987-2016, there was relatively limited regional labour mobility in Finland. According to his study, large distances and a sparse population density in Finland have acted as barriers to regional labour mobility. He also finds that labour mobility in Finland has mainly been associated with unemployment differences between regions. He finds that in Finland, migrants tend to move from regions with high unemployment to regions with relatively lower unemployment. This is a similar finding to a study by Laamanen (2014) where he finds that between 1988-1996, interregional migration was affected by differences in unemployment as well as employment opportunities available in different Finnish regions. According to him, labour market conditions both in the origin and the destination regions are important determinants of internal migration in Finland (Laamanen, 2014). However, Laamanen (2014) also finds that the unemployment rate in the origin is the most important push factor, but that it does not significantly affect in-migration to the region. Poghosyan (2018) also finds that unemployment differences between regions change very slowly over time. This is a similar finding as in a study of internal migration in Great Britain between 1961 and 1982, where Pissarides and McMaster (1990) find that regions with high unemployment consistently lose population to regions with lower unemployment, and that the regional differences in unemployment are generally quite persistent in time. Pissarides and McMaster (1990) also find that during periods when unemployment is higher on the national level, migration flows shrink.

Eggert et al. (2010) discuss that differences in unemployment and wages between two regions within a single country encourage people to migrate from the region with lower wages and higher unemployment rates to the more developed region. They find that this often leads to brain drain from poorer regions to the richer regions, with the more educated and skilled people deciding to migrate, as they have more to gain in terms of expected returns from the migration (Eggert et al., 2010). Some micro-level studies have found that loss of employment may not be an immediate push-factor to migrate. Unemployment in Finland may not be an immediate reason to migrate on the individual-level, as Maczulskij and Böckerman (2023) find in an analysis of individual-level register data between 1997 and 2015, that receiving unemployment benefits weakens incentives to migrate. They also find housing prices in other regions to be possible barriers to migrating after job loss in Finland (Maczulskij & Böckerman, 2023). Hansen et al. (2021) find in a study of Danish internal migration between 2007 and 2015, that people in rural areas are less likely to migrate after job-loss than people in urban areas, even during macroeconomic shocks that leaves many people unemployed.

Kennan and Walker (2011) find in a longitudinal study of internal migration in the United States in the late 20th century, support for Sjaastad's (1962) theory. They find that individuals tend to migrate when their expected lifetime earnings are higher elsewhere (Kennan & Walker, 2011). Interestingly, Poghosyan (2018) finds that wage differentials between regions do not matter to interregional migration in Finland, which is opposite of what Harris & Todaro's (1970) theory would suggest. He hypothesizes that this finding may be related to centralized wage bargaining. Since wage bargaining is centralized, very large wage differentials do not tend to occur, and therefore migrants may not expect to get higher lifetime earnings in other destinations. On the

other hand, in a micro-level study Pekkala (2002) finds that between 1987-1995 migration and earnings in Finland were related. According to her study, the highest post-move incomes could be found in Uusimaa and Åland, which attract many migrants, but some migrants who decided to move to more peripheral regions had the highest growth of incomes in comparison to migrants to Uusimaa. These studies approach wage differentials from a different perspective, but Pekkala (2002) argues that migrants may decide on more peripheral destinations because they expect higher growth of income, which points to wage differentials potentially playing a part in migration decisions in Finland.

Economic structures of different regions may also play a part in shaping migration patterns. Lehtonen & Tykkyläinen (2018) have studied path dependence in Finnish intermunicipal migration in Finland and find that between 1980 and 2013, migration has tended to flow from regions with a large primary sector to urban centres with more productive industries. Interestingly, Muilu and Rusanen (2003) find in a study in the Finnish context, that between 1970 and 2000, young migrants tended to move either to the largest cities or to municipalities with a large primary sector. However, they also find that municipalities losing many young people to migration are usually small or medium-sized municipalities in central, eastern and northern Finland. They find that especially municipalities located further away from growth centres experience higher net out-migration (Muilu & Rusanen, 2003).

Karhula et al. (2020) analyse rural-urban migration in two 1980's birth cohorts in Finland. They discuss that urbanization in Finland is mostly driven by internal migration. Karhula et al. (2020) note that internal migration in Finland tends to be concentrated in the five largest urban regions. They also find that internal migrants are positively selected for education and income (Karhula et al., 2020). Carson et al. (2022) review development of sparsely populated areas based on evidence from northern Sweden, Iceland, Finland, Scotland, Alaska, and Australia, and discuss that even within regions that are mainly rural, the peripheries of these regions can lose population due to migration to the centres of the service centres of the regions. This observation shows that within regions, there can still be differences in migration-related population decline in municipalities, that are concealed in an interregional study of migration.

There is a limited number of studies dealing specifically with the East-West difference in internal migration. Some studies have, however, found evidence of an East-West difference. Pekkala (2002) finds that after the mid-1990s, internal migration in Finland has generally been directed from the North to the South, and from the countryside to cities. Lehtonen & Tykkyläinen (2018) find evidence for cumulative causation in internal migration related loss of population in Finnish municipalities. They also find that over time, these patterns have turned into self-reinforcing cycles. Many eastern Finnish regions have experienced the most permanent losses of population due to migration, which Lehtonen and Tykkyläinen (2018) hypothesize is connected to unemployment and an economic structure heavily reliant on agriculture and forestry. They also find that macroeconomic shocks briefly interrupt the self-reinforcing trend of internal migration, but they do not significantly change the regional migration patterns in the long-term. (Lehtonen & Tykkyläinen, 2018.)

As for selectivity in internal migration, Lundholm et al. (2004) focusing on internal migration in the Nordic countries between 1999 and 2001, find that people who move to densely populated areas tend to be younger and more highly educated than those who moved to less densely

populated areas. Pekkala (2003) finds similar results in her study on interregional migration in Finland between 1985 and 1996 using micro-level data. She finds that younger and more highly educated migrants were moving to the five largest urban regions, possibly because of higher expected wages and more employment opportunities. As explained by Borjas (2020, pp. 281–282), a destination that offers high returns to human capital will receive highly skilled migrants. This is likely the case in cities, where more jobs that offer high returns to skill are available than in many of the origin municipalities. The study also finds that there is also some urban-rural migration, with especially older and less educated people return-migrating to their home regions. Pekkala (2003) additionally notes that the selectivity in the rural-urban migration and the urban-rural return migration has sped up the regional population concentration in Finland. Highly educated people have tended to concentrate in urban areas, located mainly in the South and the West, while less educated and older people have concentrated in more rural areas (Pekkala, 2003).

3.3 Hypotheses

Based on theory and previous research the following hypotheses are placed:

Hypothesis 1: Since eastern municipalities experienced slower recovery after the 1990s recession and they have experienced faster population ageing partly due to migration (Mäki-Arvela, 2003; OECD, 2025b), eastern municipalities will likely have on average lower net migration rates than western municipalities between 1995 and 2024.

Hypothesis 2: Unemployment is likely negatively associated with net migration, since migration often occurs from areas with low employment levels to areas with higher employment levels (Eggert et al., 2010; Pissarides & McMaster, 1990; Poghosyan, 2018), and regional unemployment tends to be a common push factor in migration (Laamanen, 2014).

Hypothesis 3: A higher share of jobs in agriculture will likely be negatively associated with net migration rates, as migrants tend to move from agricultural areas to places with more economic diversity (Lehtonen & Tykkyläinen, 2018).

Hypothesis 4: Municipalities being urban will likely be positively associated with net migration rates, since Finnish migration flows tend to be oriented towards cities (Karhula et al., 2020).

Hypothesis 5: Population composition possibly explains part of the urban-rural differences in net migration rates, because previous studies have found that educated people tend to migrate to urban centres (Eggert et al., 2010; Lundholm et al., 2004; Pekkala, 2003)

Hypothesis 6: The East-West difference in net migration rates is partially explained by unemployment, since the East has tended to have lower employment levels (OECD, 2025b), and regional differences in employment levels tend to be persistent (Pissarides & McMaster, 1990).

4 Data

This chapter presents the data sources and explains the municipality classifications and the East-West division. This chapter also explains the outcome variable, and the explanatory variables used in this study. Descriptive statistics of the dependent and independent variables based on the urban-rural classification are also presented.

4.1 Source Material

The data for this study comes from Statistics Finland's StatFin-database as well as the Municipal Key Figures -database. Additional data on the grouping of municipalities as rural, semi-urban and urban comes from Statistics Finland's Statistical Grouping of Municipalities from 2025. Information on which region a municipality belongs to are obtained from Statistics Finland's correspondence table between municipality and region. Based on the region a municipality is in, the municipalities are grouped as either eastern or western. Spatial data on municipalities, that is used to calculate distance to the nearest city, is obtained from Statistics Finland's interface service (*Paikkatietohakemisto*). The specific data sources for each variable are presented in table 10 in appendix B. Statistics Finland is Finland's national statistical institute, and obtains their data from various sources, such as the population register, as well as from Finnish institutions.

This study includes data for 292 Finnish municipalities between 1995 and 2024. The data used in this study corresponds to the municipality-division on January 1st, 2025. The total number of municipalities in Finland in 2025 was 308, but 16 municipalities in the Åland region have been excluded from this study. In 1995, there were 456 municipalities in Finland, and in 2024 there were 309 municipalities in the whole country (Statistics Finland). This means that throughout the whole period, many municipalities have merged. The municipalities that were merged before January 1st, 2025, have had their values combined for each year by Statistics Finland. Since the data is already aggregated to correspond to the number of municipalities in 2025 by Statistics Finland, it is not possible to conduct the analysis in this thesis for the actual number of municipalities that existed in each year. This results in a panel dataset with a total of 8,760 observations, which means 292 municipalities over the 30-year period of 1995 to 2024. This time period is chosen because it is the longest time span for which data on most of the independent variables is available and allows this study to consider long-term patterns in internal migration and within-municipality changes in migration instead of taking a cross-sectional approach, which could yield very different results since migration intensity tends to respond to macroeconomic shocks (e.g. Lehtonen & Tykkyläinen, 2018; Pissarides & McMaster, 1990). This period is also appropriate, since most previous studies on the topic have focused on the 1980s and 1990s, but there is a lack of more recent studies. The regressions are

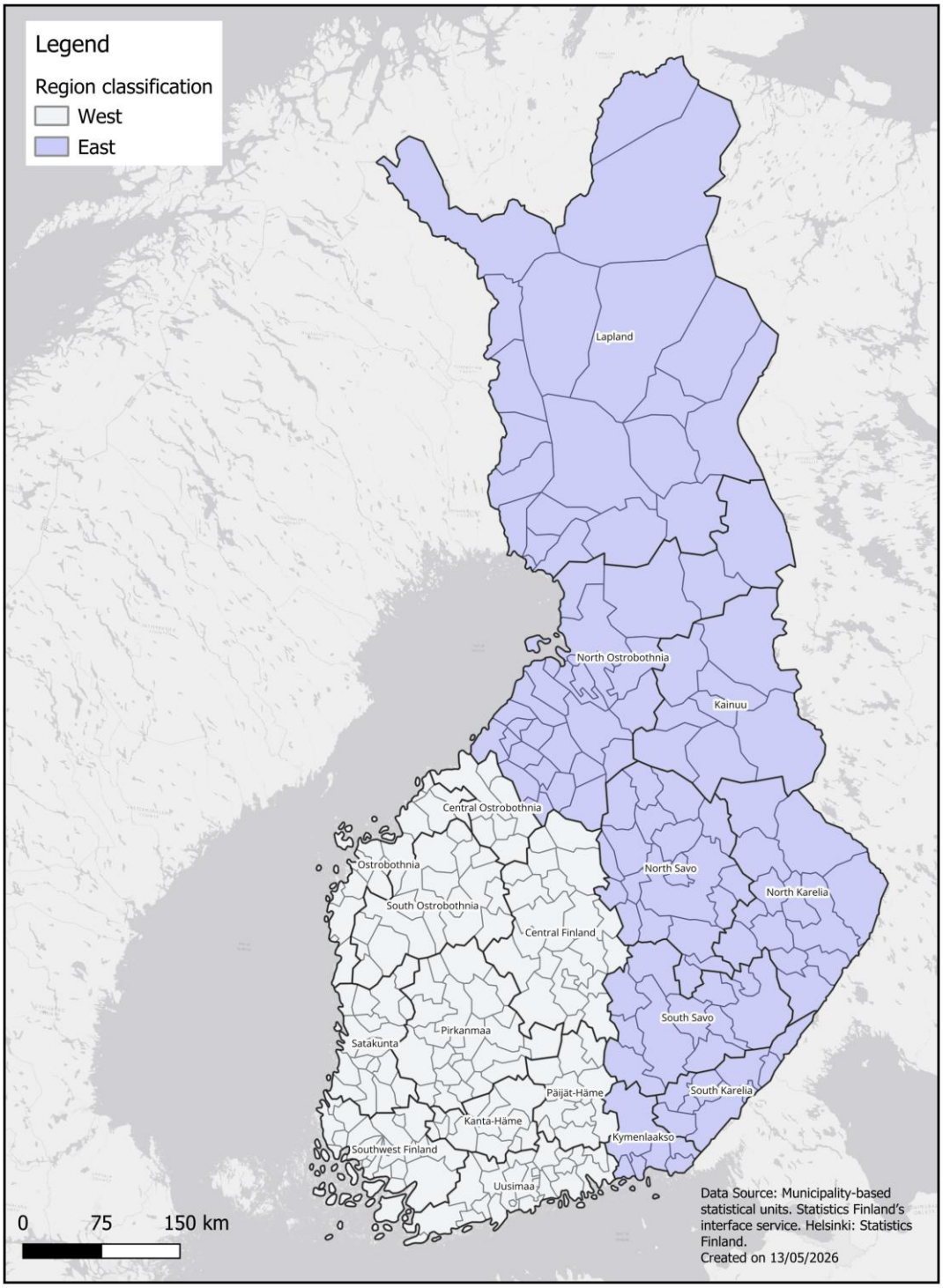
also run for the period between 2007-2023 for when there is data available for the structure of the municipalities' economy. In these regressions, the total number of municipality-year observations is 4,964, which is 292 municipalities over 17 years.

4.2 Municipality Classifications

To analyse net migration rates in different types of municipalities, this study uses a categorical variable that divides municipalities into urban, semi-urban and rural municipalities. The level of urbanization is likely associated with internal migration, since several previous studies have found that internal migration is often directed from rural areas to urban areas (e.g. Karhula et al., 2020; Pekkala, 2002, 2003). Semi-urban municipalities may also draw more in-migrants than rural municipalities as many of them are located within a commuting distance from cities (Makkonen & Inkinen, 2023). The classification of municipalities as urban, semi-urban or rural used in this study comes from Statistics Finland. The classification used here is the 2025 classification, and the variable is operationalized as time-invariant, because there is no consistent data on the classifications for the whole period. This results in some inaccuracy, as heavy out-migration or in-migration over time may have changed a municipality's status throughout the period. According to the classification by Statistics Finland, a municipality is urban if at least 90% of the population lives in urban settlements, and the largest urban settlement has a population of at least 15,000 inhabitants. This also means that when a municipality is classified as urban, it does not mean that it is necessarily a large city. A semi-urban municipality has between 60% and 90% of the population living in urban settlements, and where the largest urban settlement in the municipality has a population between 4,000 and 15,000 inhabitants. A rural municipality has less than 60% of the population living in urban settlements, and where the largest urban settlement has less than 15,000 inhabitants. Those municipalities where 60-90% of the population live in urban settlements, but where the population of those settlements is less than 4,000 are also categorized as rural municipalities. Out of the total 292 municipalities in mainland Finland, 57 are urban, 66 are semi-urban and 169 are rural.

As this study is also interested in East-West differences in internal migration, the municipalities are also grouped as either eastern or western. To group municipalities, the correspondence table between municipalities and regions by Statistics Finland is used. The regions then define whether a municipality is eastern or western. The division of Finnish regions to eastern and western used in this study is based on a division used by OECD (2025b). There are 18 regions in mainland Finland. Out of these, OECD (2025b) groups eight regions as eastern, and the remaining ten regions as western. The eastern regions include Lapland, North Ostrobothnia, Kainuu, North Savo, South Savo, North Karelia, South Karelia and Kymenlaakso. The western regions include Uusimaa, Southwest Finland, Satakunta, Kanta-Häme, Pirkanmaa, Päijät-Häme, Central Finland, South Ostrobothnia, Ostrobothnia, and Central Ostrobothnia. The municipality-borders, regional borders, and the East-West division are displayed in figure 1.

Figure 1. Regions and municipality borders in mainland Finland, 2025



4.3 Net Migration Rate

The outcome variable in this study is the net in-migration rate in intermunicipal moves but will be referred to as the net migration rate. This means the difference between intermunicipal in-migration and out-migration, divided by the municipality's mid-year population, and multiplied by 1,000. The variable is continuous and gets values ranging from negative to positive. An observation having a negative net migration rate means that the municipality had more out-migration than in-migration in that year. The net migration rate is used as the outcome instead of net migration, since the rate adjusts the numbers relative to population size. This is done to make the numbers comparable between municipalities of different sizes, as for smaller municipalities, losing even a few inhabitants has implications on the municipality's economy.

The intermunicipal moves that are registered in the Statistics Finland-database are based on register data from the Population Information System, where migrants are expected to register their moves. Between 1995-2024, approximately 7.9 million intermunicipal migrations have been registered (Official Statistics of Finland, Table 11a1). Officially, a move must be registered within a week from when there is a change of address. People can of course have several homes at the same time and share their time in two locations, but the municipality to which people are registered is the municipality to which people pay their municipal taxes, and for this reason also of interest to this study, where the municipalities are the unit of analysis. A limitation with the data is that it is not possible to assess where the migrants are moving, that is, whether they are moving inside the same region, or if they are moving to the big cities. Therefore, this study cannot define specific reasons for migration but instead assesses what municipality-level factors are associated with their net migration outcomes.

Summary statistics of the net migration rate -variable can be found in table 11 in appendix B. The net migration rates range from -56.4 to 60.7, with the mean being -4.1. Table 2 presents the average net migration rates in urban, rural and semi-urban municipality-year observations. On average, rural municipalities have the lowest net migration rates, with an average net migration rate of -6.1. Semi-urban municipalities have an average net migration rate of -2.9, and urban municipalities have an average net migration rate of 0.42.

Table 1. Net migration rate in municipality-year observations

Net migration rate	Freq.	Percent	Cum.
Positive	2,581	29.46	29.46
Negative	6,179	70.54	100.00
Total	8,760	100.00	

Table 2. Average net migration rates in urban, rural and semi-urban municipalities

	Urban-rural classification			
	Urban	Semi-Urban	Rural	Total
Net migration rate	0.42 (7.75)	-2.88 (7.36)	-6.13 (9.37)	-4.12 (9.03)
N	1,710 (19.5%)	1,980 (22.6%)	5,070 (57.9%)	8,760 (100.0%)

Note: Standard deviations in parentheses.

4.4 Explanatory Variables

The explanatory variables used in this study include municipality-level variables on the economy, the population composition of the municipalities, and the location of municipalities relative to the largest cities. The summary statistics of the independent variables are displayed in tables 11 and 12 in appendix B. The main independent variables are unemployment, the average labour income in the municipality and the share of jobs in agriculture and manufacturing.

Average labour incomes are included in this study to shed light on differences between urban, semi-urban and rural municipalities. Higher average labour incomes can generally be found in urban areas in Finland, especially in the largest cities, since they typically have a higher number of jobs that pay the highest wages. This variable does not directly measure wage differentials between regions, since the variable is dependent on the population composition. Therefore, it is not possible to test with this variable, whether wage differentials between different regions are associated with internal migration. The average labour income quintile is a categorical variable which shares the municipalities into relative wage quintiles in each year, with category 1 being the lowest and 5 being the highest average labour income quintile. It is based on data of the average labour income of household-units in euros after taxes of the population in each municipality. The variable is constructed in this way in order to make the variable comparable over time. This variable then measures the average labour income of a municipality in relation to average labour incomes of other municipalities in the same year.

The share of labour force unemployed is constructed by dividing the number of people between ages 15-64 who are not students or retired and are not employed on the last week of the year, by the total labour force. The total labour force consists of people aged 15-64 who are neither students nor retired in the last week of the year. This variable is included to measure the unemployment levels in municipalities, which have been found in previous studies (e.g. Laamanen, 2014; Pissarides & McMaster, 1990; Poghosyan, 2018) to be associated with internal migration.

The share of jobs in agriculture corresponds to the share of jobs in agriculture, forestry or fishing, and the figure is obtained directly from Statistics Finland. Similarly, the share of jobs in manufacturing is obtained directly from the Statistics Finland -database, and corresponds to

the share of jobs in mining, manufacturing, electricity supply, water supply and construction. These data are only available for the years 2007-2023. In the analysis, the regressions will be run separately for the whole period 1995-2024 and for the years 2007-2023, when the data on the shares of jobs in each sector is available. These variables will be used to account for the structure of the economy of the municipalities and the remaining share of jobs in the economy is the share of jobs in the service sector. Shares of jobs in agriculture and manufacturing are included in the analysis, as previous research has found that labour tends to flow from rural areas, characterized by agricultural economy, to urban areas with larger service sectors (Lehtonen & Tykkyläinen, 2018). For this reason, higher shares of jobs in agriculture or manufacturing in comparison to a larger service sector may be associated with more negative net migration rates.

The share of population with tertiary education corresponds to the share of the population above 15 years old who have at least a bachelor's degree from a higher education institution, which includes both universities as well as universities of applied science. This variable is included, since highly educated people tend to migrate to larger cities (e.g. Lundholm et al., 2004; Pekkala, 2003), so this variable may contribute net migration rates in urban municipalities. The retired share of population is the share of the total population that receives pensions and is not employed. The retired share of the population is included, because in general, retired and older individuals are the least likely to move, so if a municipality has a very large share of the population retired, it also has less people who would potentially migrate. Data on the foreign-born share of the population is obtained directly from Statistics Finland and corresponds to the share of each municipality's population that is born outside Finland. The foreign-born share of population is another variable used to control for the demographic composition of the municipalities.

Distance in kilometres to the nearest city with a population above 100,000 is computed with QGIS. The distance is calculated from the municipality centroids. Here, cities are defined as having a population above 100,000 in 2024, which corresponds to 9 cities in Finland. These cities are Helsinki, Espoo, Vantaa, Tampere, Turku, Oulu, Lahti, Kuopio and Jyväskylä, out of which Oulu and Kuopio are in eastern Finland. The distance to the nearest big city is included, since municipalities very close to larger cities may also have larger inflows of migrants, since larger cities tend to be attractive to migrants, but migrants may choose to live outside the city they work if these areas are within commuting-distance from the place of work (Makkonen & Inkinen, 2023). Previous research also deals with the importance of distance in internal migration, and the findings indicate that areas located very far from larger cities tend to experience the strongest population decline due to out-migration (Muilu & Rusanen, 2003).

Table 3 presents descriptive statistics on averages of the independent variables in urban, semi-urban and rural municipalities. This table shows the average of the variables in all the municipality-year observations in the dataset. Unemployment levels do not, on average, differ much based on whether a municipality is urban, semi-urban or rural. Average labour incomes are the highest in urban municipalities, and lowest in rural municipalities. The share of jobs in agriculture is highest in rural municipalities, where the average is approximately 16%, and lowest in urban municipalities, where the average is 1.7%. The share of jobs in manufacturing is highest in semi-urban municipalities, where the average is 29%, but the differences are not large between urban, semi-urban and rural municipalities. Share of population with tertiary

education is highest in urban municipalities, where approximately 23% are highly educated, and lowest in rural municipalities where approximately 14.5% are highly educated. The share of retired people is on average highest in rural municipalities and lowest in urban municipalities. The foreign-born share of population is highest in urban municipalities, where approximately 4% are foreign-born. Overall, only 2.5% of the population is foreign-born, and differences in the averages between the urban, semi-urban and municipalities are not large. As said, municipalities classified as urban are not all large cities, and therefore the distance to the nearest city with a population of above 100,000 inhabitants is on average, 66 kilometres in urban municipalities. The average distance in semi-urban municipalities is approximately 83 kilometres, and approximately 108 kilometres in rural municipalities.

Table 3. Averages of independent variables in urban, rural and semi-urban municipalities

	Urban-rural classification			
	Urban	Semi-Urban	Rural	Total
Share of labour force unemployed	12.19 (4.47)	12.00 (4.86)	13.59 (5.49)	12.96 (5.22)
Average labour income quintile (within-year)	4.15 (0.89)	3.56 (1.17)	2.25 (1.21)	2.92 (1.40)
Share of jobs in agriculture	1.71 (1.38)	7.41 (3.76)	16.35 (6.98)	11.47 (8.24)
Share of jobs in manufacturing	26.65 (8.65)	29.13 (8.13)	22.51 (10.13)	24.82 (9.84)
Share of population with tertiary education	22.92 (5.81)	17.99 (4.34)	14.49 (4.12)	16.92 (5.60)
Retired share of population	22.86 (5.93)	25.98 (6.00)	31.58 (6.99)	28.61 (7.51)
Foreign-born share of population	4.30 (3.03)	2.19 (1.31)	2.14 (1.74)	2.58 (2.16)
Distance in km to nearest city (population > 100,000)	66.68 (61.7)	82.82 (57.41)	107.78 (73.33)	94.11 (69.88)
N	1,710 (19.5%)	1,980 (22.6%)	5,070 (57.9%)	8,760 (100.0%)

Note: Standard deviations in parentheses.

5 Methods

This thesis first uses a year fixed effects regression model, which is an extension of the multiple linear regression. In essence, the model analyses the association between explanatory variables and the outcome variable, but it includes year fixed effects. This model is used first to understand the associations between explanatory variables and net migration rates, including time-invariant variables, such as urbanization level, the East-West classification and the distance to the nearest large city. The year fixed effects approach is adopted, because the year fixed effects control for time-variant events between 1995 and 2024 that have impacted all municipalities. These can be, for example, macroeconomic shocks, as Lehtonen & Tykkyläinen (2018) have found that macroeconomic shocks decrease the volume of internal migration in general. As the year fixed effects model estimates the association between the dependent and independent variables between municipalities, it is not possible to draw causal inference based on the model. In the context of this study, it is likely that net migration has some sort of effect on the independent variables as well. For example, it very likely impacts the concentration of educated people in certain areas. It may also be the case that the independent variables are associated with unobservable factors in municipalities, such as certain amenities that the municipalities offer, that draw migrants to that area. This problem is mitigated by extending the model to include the municipality fixed effects and analysing the association between net migration rates and municipal characteristics by using the two-way fixed effects model.

The two-way fixed effects model holds time-invariant municipal characteristics constant, as well as time-variant events common to all units of analysis, that are not observed in the model. This essentially means that the two-way fixed effects model looks at within-municipality variation in the outcome, net migration rate, and how explanatory variables are associated with the outcome (Allison, 2009, p. 1). With this approach, the differences between municipalities, such as urbanization level and distance to large cities, or other amenities not measured in the data, are held constant, meaning that they do not confound the results. The model essentially answers the question of how do net migration rates change, when there is a change in the explanatory variable in the municipality.

Both models are run first for the period between 1995 and 2024, and after that for the period 2007-2023, for when data on the shares of jobs in agriculture and manufacturing are available. This is done in order to first analyse long-term patterns of municipal characteristics and their association with net migration rates and thereafter strengthening the model with adding the variables that describe the structure of the local economies. The coefficients in both models in this study are estimated using OLS, which minimizes the sum of squared errors (Cameron & Trivedi, 2009, p. 80).

The year fixed effects regression model is formally defined as:

$$y_{it} = \alpha + X'_{it}\beta + \lambda_t + u_{it}$$

where *y* is the outcome in municipality *i* in year *t,* X are the independent variables in municipality *i* in year *t*, λ_t denotes the year fixed effects, and u_{it} is the remaining disturbance (Baltagi, 2005, p. 12). The baseline model implemented in this thesis is as follows:

$$y_{it} = \beta_1 urban_1 + \beta_2 eastwest_2 + \lambda_t$$

where *y* is the net migration rate in municipality *i* in year *t,* which is first estimated based on the independent variables that describe the municipalities' urbanization level, and whether the municipality is in eastern or western Finland. λ_t denotes the year fixed effects, which are included in the model as dummy variables. To estimate which municipality characteristics are associated with the net migration rate, and which variables potentially contribute to the difference in net migration rates between urban, semi-urban and rural, as well as eastern and western municipalities, more independent variables are added to the baseline model one by one. These variables are the share of labour force unemployed, the average labour income, the share of population with tertiary education, the retired share of population, the share of foreign-born population and the distance in kilometres to the nearest city with a population above 100,000 inhabitants. Since this study uses a panel dataset, the observations are municipality-year combinations.

The two-way fixed effects model, on the other hand, holds unobserved time-invariant municipal characteristics, that differ between units of observation, and year-specific events affecting all units of observation constant. This means that the two-way fixed effects model compares outcomes within the unit of observation when there is a change in an independent variable (Allison, 2009, p. 1). A two-way fixed effects model is used instead of only including municipality fixed effects, since Baltagi (2005, p. 34) notes that a one-way fixed effects model will suffer from omission bias, if the year-fixed effects included in the two-way fixed effects model are statistically significant. In this study, the two-way fixed effects model is chosen, because the year fixed effects included are statistically significant.

The formula for the two-way fixed effects model is as follows:

$$y_{it} = \alpha + X'_{it}\beta + \mu_i + \lambda_t + v_{it}$$

where y_{it} is again, the outcome in municipality *i* in year *t.* X_{it} denotes the observed independent variables for municipality *i* in year *t.* μ_i denotes unobserved individual effects that are constant over time, λ_t denotes time-specific effects common to all municipalities, and v_{it} denotes the remaining disturbance (Baltagi, 2005, p. 11, p. 33). The two-way fixed effects regressions are also run first for the whole period 1995-2024, and then only for the period 2007-2023. Allison (2009, p. 3) notes that a limitation with a fixed effects model is that estimates can have large standard errors, because the fixed effects model considers only within-individual differences, and if there is much variation within individuals, it can lead to high p-values and wide confidence intervals. Baltagi (2005, p. 12) also notes that in a fixed effects model, inference drawn from the model is conditional on the observations chosen for the analysis, which means that the observations are not treated as a random sample. In this study, the units of analysis are the 292 municipalities in mainland Finland, for which data on most of the time-variant variables is available for 30 years, and for 17 years for the shares of jobs in agriculture and manufacturing.

Lastly, to analyse determinants of the East-West differences in net migration rates further, this study uses interaction terms in the year fixed effects model. The independent variables for unemployment, average labour incomes, and the shares of jobs in agriculture and manufacturing are interacted with the East-West dummy variable to see if the association between the independent variables and the net migration rates differs between eastern and western municipalities. The formula for this model is as follows:

$$y_{it} = \beta_1 urban_1 + \beta_2 eastwest_2 + \beta_3 X_3 + \beta_4 (X \times eastwest) + \lambda_t$$

where again, y is the net migration rate in municipality *i* in year *t*, the East-West dummy variable is interacted with an explanatory variable X, and the interaction coefficient is β_4. Year fixed effects are also included in the model. Controls for the share of population with tertiary education, the share of retired people, the share of foreign-born population and the distance to the nearest city will also be included in the models.

6 Empirical Analysis

In this chapter, the results of the empirical analysis are presented and discussed. To investigate net migration trends in eastern and western municipalities between 1995 and 2024, section 6.1 presents descriptive statistics on the explanatory variables in eastern and western municipalities and presents figures of average net migration rates in the East and the West. Section 6.2 presents the results of the year fixed effects regressions for 1995-2024, and for 2007-2023. Section 6.3 presents the results of the two-way fixed effects analysis, also first for 1995-2024, and then for 2007-2023, when sector-shares are included. Section 6.4 presents the results of the year fixed effects model, where interaction terms are included to investigate determinants of net migration rates in eastern and western municipalities. Lastly, in section 6.5 the results are discussed in connection to the hypotheses that were placed after the literature review.

6.1 Descriptive Analysis of East-West Differences

Table 3 presents descriptive statistics of the averages of independent variables in eastern and western municipalities. Eastern municipality-year observations have on average higher unemployment than western municipality-year observations. There is a small difference in average labour incomes, with the West having slightly higher labour incomes. The average share of jobs in agriculture is slightly higher in the East than the West, while the average share of jobs in manufacturing is higher in the West. The western municipalities have on average slightly higher shares of highly educated people, while the East has on average slightly higher shares of retired people. There is only a small difference in the average share of foreign-born people. The average distance in kilometres to the nearest large city is significantly larger in the East than in the West.

Table 4. Descriptive statistics of independent variables by the East-West division

	East-West classification		
	East	West	Total
Share of labour force unemployed	15.66 (5.30)	11.15 (4.30)	12.96 (5.22)
Average labour income quintile (within-year)	2.36 (1.27)	3.29 (1.36)	2.92 (1.40)
Share of jobs in agriculture	13.08 (8.23)	10.40 (8.07)	11.47 (8.24)
Share of jobs in manufacturing	21.03 (10.24)	27.35 (8.68)	24.82 (9.84)
Share of population with tertiary education	15.42 (4.77)	17.93 (5.89)	16.92 (5.60)
Retired share of population	30.71 (7.82)	27.21 (6.95)	28.61 (7.51)
Foreign-born share of population	2.21 (1.50)	2.82 (2.48)	2.58 (2.16)
Distance in km to nearest city (population > 100,000)	121.62 (78.81)	75.73 (56.16)	94.11 (69.88)
N	3,510 (40.1%)	5,250 (59,9%)	8,760 (100.0%)

Note: Standard deviations in parentheses.

Figure 2 shows the average net migration rate in eastern and western municipalities from 1995 to 2024. As described in the data section, most municipality-year observations have negative net migration rates, which is also why the average net migration rates in the East and the West are mostly negative throughout the period. The West does however have a positive average net migration rate in years 2003, 2004 and 2007. Western municipalities also have, on average, less negative net migration rates than eastern municipalities throughout the period. This difference is quite large from 1995 until 2012, after which the average net migration rate in western municipalities becomes more negative. In the late 1990s, there was the most pronounced difference in average net migration rates, with the eastern average becoming more negative, and the western average becoming more positive. In the 21st century, the average net migration rates in the East and the West have converged significantly, with the eastern average net migration rates becoming less negative and the western average net migration rates becoming more negative.

In figure 2 it can also be seen that during the COVID-19 pandemic, in 2020 and 2021, average net migration rates in both the East and the West became less negative, with the average net migration rate in the West moving from approximately -5.5 to very close to zero in 2021, while the average NMR in the East moved from approximately -7.5 in 2019 to approximately -2 in 2021. This thesis does not dive deeper into the impacts of the COVID-19 pandemic on internal migration, but previous research has suggested that during the pandemic, internal migration became directed from urban areas to rural areas (Lehtonen & Kotavaara, 2021; Tervo, 2023), which may be a reason for the patterns observed in figure 2, since the volume of internal migration in Finland did not decline during the pandemic. The impact of the COVID-19 pandemic does not however seem long-lasting as the average net migration rate became more negative again in both western and eastern municipalities in 2022, 2023 and 2024.

Figure 2. Average net migration rate per 1,000 in the East and the West, 1995-2024

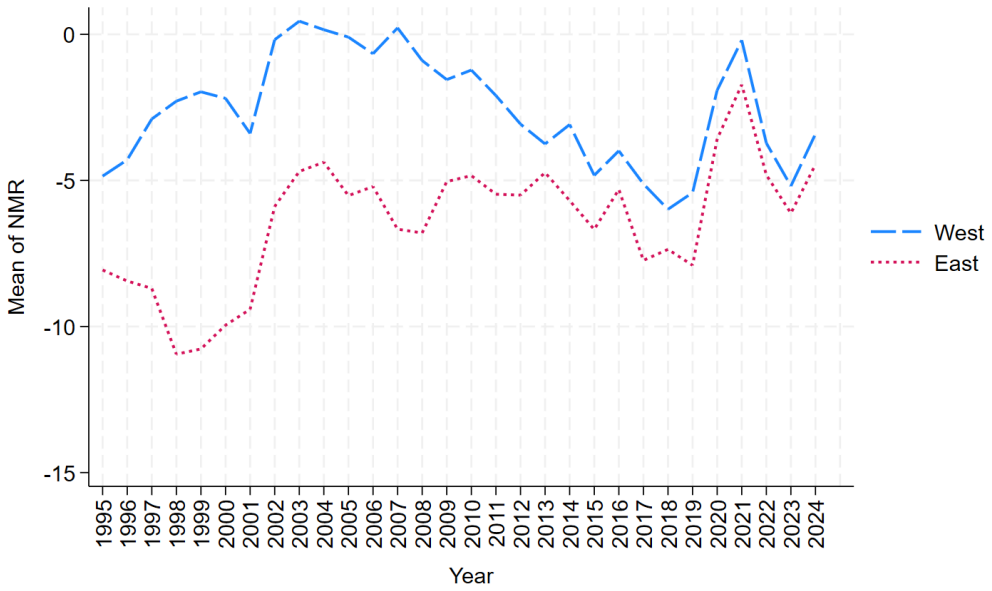
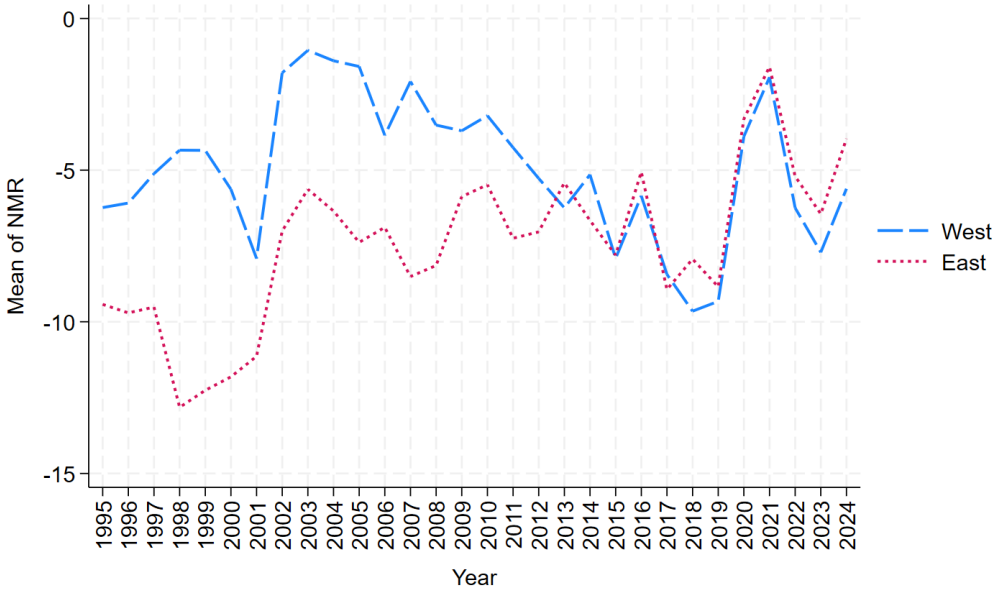


Figure 3 shows the average net migration rate in the East and the West, but only for municipalities classified as rural. Here, it is evident that there was an East-West difference in average net migration rates especially in the latter part of the 1990s, and in the early 2000s in rural municipalities as well. Figure 3 also shows that eastern average net migration rates in rural municipalities have stayed on a similar level since becoming less negative in the early 2000s, but the average net migration rates in the western rural municipalities have become more negative since the early 2000s. In the 2010s and 2020s, eastern and western average net migration rates in rural municipalities have been on a similar level. The West even has a more negative average net migration rate than the East in some years in the 2010s. In 2020, and 2021, the impact of the COVID-19 pandemic is also visible for rural municipalities, where average net migration rates came closer to neutral both in the East and the West. Based on this figure it also seems that the differences in net migration rates between the East and the West in the late 1990s and early 2000s were not only driven by the fact that the West has more large cities, which tend to have positive net migration rates in Finland.

Figure 3. Average net migration rate per 1,000 in rural municipalities in the East and the West, 1995-2024



6.2 Year Fixed Effects Results

The results from the year fixed effects regression for 1995 to 2024 are displayed in table 5. The results show that a higher share of the labour force being unemployed is negatively associated with net migration rates. This association remains statistically significant after holding population composition and distance to the nearest large city constant (Table 5, Column 7). In the association between average labour income quintiles and net migration rates, the reference category is quintile 5, which is the quintile with the highest average labour incomes. The results show that being in a lower average labour income quintile is negatively associated with net migration rates, however the association is not linear, as those municipalities in the 2nd and 3rd quintile have the most negative association with net migration. Adding the average labour income variable in the model also reduces the coefficient in the association between the urban-

rural classification variable and net migration rates (Table 5, Column 3). Table 5 also shows that after controlling for population composition, the explanatory power of the average labour income somewhat weakens, which is probably due to the population composition impacting the average labour incomes in municipalities.

The dummy variable that indicates whether a municipality is in the East or the West uses the East as the reference category. In the first three model specifications being located in the West is positively associated with net migration rates. This association however becomes smaller when the share of the labour force unemployed is added to the model in the second model specification, which may point to that unemployment differences between the East and the West explain a part of the East-West difference in net migration rates. The association between the East-West dummy variable and the net migration rate becomes statistically insignificant in the fourth model specification, where the share of population with tertiary education is added, which may suggest that the East-West difference is partly driven by population concentration differences. The association between the East-West dummy and net migration becomes statistically significant again, when the foreign-born share of the population is added, but, when the distance to the nearest large city is added in the last model specification, the association becomes statistically insignificant again, which may be because distances to larger cities are much larger in the East.

The reference category in the urban-rural classification is rural, which means that the coefficients of the urban and semi-urban category are in comparison to the rural category. In the baseline model (Table 5, Column 1), urban municipalities are significantly more positively associated with net migration rates. There is also a positive association between semi-urban municipalities and the net migration rate. The association between the urban-rural classification -variable and the net migration rate outcome becomes statistically insignificant when the share of population with tertiary education is controlled for (Table 5, Column 4). This may suggest that the differences in net migration rates between the different types of municipalities are largely explained by the population composition. The educational composition of municipalities is also positively associated with net migration rates and suggests that areas with more highly educated people have more positive net migration outcomes. It may be the case that urban municipalities draw many people due to better job opportunities for highly educated people. Semi-urban municipalities close to urban centres may also attract many in-migrants due to lower housing costs but good commuting opportunities to the cities. This however cannot be proven with this model, since neither the characteristics of the individual migrants nor the direction of moves can be identified with the data used in this study.

Table 6 displays the year fixed effects regression results for the period between 2007-2023 and adds the sector-share variables in the fourth and fifth model specifications. It also adds all control variables in the last model specification, instead of adding them one by one. The period between 2007 and 2023 differs from the period 1995-2024 in that less municipality-year observations are included in the model. As was seen in the figures 2 and 3, the East-West difference in net migration rates was also significantly smaller in this period. Higher unemployment remains negatively associated with net migration rates, even though the coefficients are somewhat smaller. The association between average labour income quintiles and the net migration rates remains similar to the results displayed in table 4, but in the fifth model specification, most average labour income quintiles are statistically insignificant in

association to the outcome. Only the 3rd average labour income quintile is statistically significant in association with net migration rates, and in comparison to the reference category, it is negatively associated with the net migration rate. A higher share of jobs in agriculture is negatively associated with net migration rates, as is the higher share of jobs in manufacturing. These variables being added to the model also reduce the coefficients of the urban-rural classification variable, as is to be expected, since urban, semi-urban and rural areas tend to be characterized by different economic structures.

In comparison to table 5, in table 6 the association between the East-West dummy and the net migration rate does not become statistically insignificant. The coefficient does however become smaller when the share of labour force unemployed is added in the second model specification. The association also loses some statistical significance, when controls have been added in the fifth model specification. When the sector-shares are added in the fourth model specification, the association between the East-West dummy and the outcome becomes larger. As in table 5, the association between the urban classification variable becomes statistically significant in the fifth model specification in table 6 when controls for the population composition and distance to the nearest large city are added to the model.

Table 5. Linear regression results, 1995-2024

VARIABLES	(1) Net migration rate	(2) Net migration rate	(3) Net migration rate	(4) Net migration rate	(5) Net migration rate	(6) Net migration rate	(7) Net migration rate
Urban-rural classification = 1, Urban	6.024***	5.623***	3.632***	0.281	0.376	0.956***	0.462
	(0.236)	(0.228)	(0.271)	(0.307)	(0.310)	(0.311)	(0.311)
Urban-rural classification = 2, Semi-Urban	2.790***	2.226***	1.235***	0.313	0.344	0.036	-0.156
	(0.224)	(0.217)	(0.235)	(0.233)	(0.234)	(0.233)	(0.232)
East-West classification = 1, West	3.114***	0.471**	0.465**	0.275	0.258	0.402**	-0.239
	(0.185)	(0.206)	(0.203)	(0.198)	(0.198)	(0.197)	(0.202)
Share of labour force unemployed		-0.603***	-0.431***	-0.401***	-0.400***	-0.407***	-0.399***
		(0.024)	(0.027)	(0.027)	(0.027)	(0.026)	(0.026)
Average labour income quintile (within-year) = 1			-4.550***	-0.687*	-1.719***	-0.975	-0.989*
			(0.382)	(0.414)	(0.595)	(0.594)	(0.589)
Average labour income quintile (within-year) = 2			-4.985***	-1.703***	-2.453***	-1.829***	-1.572***
			(0.338)	(0.363)	(0.478)	(0.477)	(0.474)
Average labour income quintile (within-year) = 3			-4.996***	-2.394***	-2.914***	-2.295***	-1.882***
			(0.300)	(0.317)	(0.383)	(0.384)	(0.382)
Average labour income quintile (within-year) = 4			-3.089***	-1.210***	-1.530***	-1.039***	-0.610*
			(0.282)	(0.289)	(0.318)	(0.318)	(0.317)
Average labour income quintile (within-year) = 5, ref.			-	-	-	-	-
Share of population with tertiary education				0.616***	0.612***	0.700***	0.646***
				(0.029)	(0.029)	(0.029)	(0.030)
Retired share of population					0.062**	0.027	0.024
					(0.026)	(0.026)	(0.025)
Foreign-born share of population						-0.619***	-0.455***
						(0.053)	(0.054)
Distance in km to nearest city (population > 100,000)							-0.016***
							(0.001)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-9.813***	4.529***	5.095***	-4.357***	-5.326***	-5.218***	-3.056***
	(0.506)	(0.743)	(0.741)	(0.846)	(0.936)	(0.929)	(0.939)
Observations	8,760	8,760	8,760	8,760	8,760	8,760	8,760
R-squared	0.142	0.202	0.230	0.268	0.269	0.280	0.292

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6. Linear regression results, 2007-2023

VARIABLES	(1) Net migration rate	(2) Net migration rate	(3) Net migration rate	(4) Net migration rate	(5) Net migration rate
Urban-rural classification = 1, Urban	5.799***	5.760***	3.910***	2.166***	0.354
	(0.303)	(0.300)	(0.350)	(0.414)	(0.459)
Urban-rural classification = 2, Semi-Urban	2.739***	2.395***	1.448***	0.953***	0.111
	(0.287)	(0.286)	(0.304)	(0.329)	(0.326)
East-West classification = 1, West	1.902***	0.574**	0.593**	1.210***	0.523*
	(0.237)	(0.267)	(0.262)	(0.264)	(0.269)
Share of labour force unemployed		-0.382***	-0.139***	-0.257***	-0.200***
		(0.037)	(0.044)	(0.046)	(0.046)
Average labour income quintile (within-year) = 1			-4.648***	-3.041***	0.408
			(0.513)	(0.568)	(0.876)
Average labour income quintile (within-year) = 2			-5.131***	-3.801***	-0.668
			(0.438)	(0.463)	(0.680)
Average labour income quintile (within-year) = 3			-5.524***	-4.376***	-1.565***
			(0.394)	(0.408)	(0.536)
Average labour income quintile (within-year) = 4			-2.973***	-1.964***	0.216
			(0.368)	(0.371)	(0.425)
Average labour income quintile (within-year) = 5, ref.			-	-	-
Share of jobs in agriculture				-0.194***	-0.087***
				(0.023)	(0.024)
Share of jobs in manufacturing				-0.161***	-0.085***
				(0.013)	(0.014)
Share of population with tertiary education					0.610***
					(0.041)
Retired share of population					-0.017
					(0.034)
Foreign-born share of population					-0.427***
					(0.061)
Distance in km to nearest city (population > 100,000)					-0.008***
					(0.002)
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Constant	-5.431***	-0.922	0.999	8.112***	-4.953***
	(0.499)	(0.658)	(0.664)	(0.857)	(1.476)
Observations	4,964	4,964	4,964	4,964	4,964
R-squared	0.122	0.141	0.177	0.207	0.253

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

6.3 Two-Way Fixed Effects Results

Table 7 displays the results of the two-way fixed effects analysis for the whole period 1995-2024, where the results reflect within-municipality variation in independent variables and their association with within-municipality variation in net migration rates over the 30 years. Table 8 does the same for the period between 2007-2023, where the 292 municipalities are analysed for 17 years. As mentioned in chapter 5, the two-way fixed effects model holds unobserved time-invariant municipal characteristics constant, so the time-invariant independent variables are not included separately in the model. The two-way fixed effects model also includes the year fixed effects, which means that the model holds both time-invariant municipality-specific characteristics, and time-variant factors affecting all municipalities constant. This essentially means that the model shows on average, how a municipality's net migration rate changes, when there is a change in an explanatory variable.

The two-way fixed effects results in table 7 show that the share of labour force unemployed is negatively associated with net migration rates within municipalities over time. The coefficient for this association is quite large and statistically significant even after controlling for population composition. The association is stronger than what was found in the year fixed effects model (Table 5). This points to unemployment being an important factor in internal migration patterns, as higher unemployment is negatively associated with net migration rates in the year fixed effects model and in the final two-way fixed effects model.

In table 7, before controls have been added, it seems that a relatively lower average labour income is positively associated with net migration rates. This association however becomes statistically insignificant after holding the share of retired people constant. The population composition of municipalities is controlled for, as the population composition partially affects the average labour incomes in the municipalities. If a significantly large share of the population is retired, the average labour income will be lower in that municipality. This means that before adding the population composition controls, the average labour income quintile variable is also reflecting the differences in population composition. After adding the necessary controls that affect the average labour incomes in municipalities, the relative average labour income quintile seems not to have a significant association with net migration rates. It may be that municipalities do not have much variation in their relative labour income levels over time, which is very likely the case, since municipalities with the highest average labour incomes tend to have higher average labour incomes throughout the period of study. This would also result in the average labour income variable not having showing a statistically significant association with net migration rates within municipalities. It may also be that an increase in the relative labour income quintile does not significantly improve or worsen the net migration rates of municipalities, but that net migration rates are mainly determined by other factors.

Table 7 also shows that having a higher share of population with tertiary education is positively associated with net migration rates. Having a higher share of population with tertiary education in comparison to other years may reflect that opportunities for educated people have increased, which could draw more in-migrants or decrease incentives to out-migrate. The retired share of population is also positively associated with net migration rates, unlike in the linear regression

models, where it was not statistically significant. This could have something to do with older people deciding to move back to their origin, or that as population ages, there is also less people out-migrating, as older people have been found to be less mobile. Since net migration and population composition affect each other, it is not possible to draw conclusions on the mechanisms that contribute to this association. It may also be the case that more positive net migration rates have contributed to growth in the share of educated people.

Table 8 displays the results of the two-way fixed effects analysis for the period between 2007-2023, and in the 3rd and 4th model specifications, the sector-shares are added. The association between the share of labour force unemployed and net migration rates is also significant in this model, where only the period between 2007-2023 is analysed. In the earlier model it may have been that the significantly higher net migration rates and high unemployment in many municipalities in the 1990s and early 2000s following the early 1990s economic recession were driving the results. Since the association remains significant when analysing only 2007-2023, the results in the previous model were not driven only by the deep unemployment in the late 1990s. The coefficients of the association between unemployment and net migration rates are, however, somewhat smaller than in table 7. The association between unemployment and net migration rates remains statistically significant when population composition is held constant. In contrast to the year fixed effects results, the two-way fixed effects results show that a higher share of jobs in agriculture is positively associated with net migration rates, but the association between share of jobs in manufacturing and the net migration rate is not statistically significant. This may imply that when municipalities are compared with each other in the year fixed effects model, a higher share of jobs in agriculture is negatively associated with net migration rates, because the sector-shares reflect differences between urban, semi-urban and rural municipalities, since urban municipalities tend to have the highest shares of jobs in services, while rural municipalities tend to be characterized by a higher share of jobs in agriculture. In the two-way fixed effects model, the results show that within a municipality over time, a higher share of jobs in agriculture results in more positive net migration outcomes.

What is interesting in these results is that the average labour income quintiles are not associated with net migration rates in any of the model specifications. The only exception to this is that the fourth average labour income quintile is positively associated with net migration rates in comparison to the fifth quintile in the 2nd and 3rd model specifications, but the strength of the association is not very strong. The p-value is less than 0.05 in the 2nd specification, and less than 0.1 in the 3rd specification. After population composition is controlled for, the average labour income quintile is no longer statistically significant. This result somewhat contrasts the result in table 7, where a longer period is analysed. This possibly reflects that average labour income quintiles, without controlling for population composition, possibly had more variance over time when a longer period was analysed, or that the average labour income quintile was more important in the earlier period in association with net migration rates. However, in both table 7 and 8, the association is statistically insignificant after population composition is controlled for.

Table 7. Two-way fixed effects results, 1995-2024

VARIABLES	(1) Net migration rate	(2) Net migration rate	(3) Net migration rate	(4) Net migration rate	(5) Net migration rate
Share of labour force unemployed	-0.743*** (0.039)	-0.764*** (0.039)	-0.766*** (0.039)	-0.615*** (0.042)	-0.628*** (0.043)
Average labour income quintile (within-year) = 1		3.048*** (0.809)	3.549*** (0.822)	-0.794 (0.925)	-0.934 (0.931)
Average labour income quintile (within-year) = 2		2.353*** (0.700)	2.762*** (0.710)	-0.746 (0.788)	-0.862 (0.793)
Average labour income quintile (within-year) = 3		1.988*** (0.620)	2.316*** (0.627)	-0.036 (0.666)	-0.152 (0.672)
Average labour income quintile (within-year) = 4		1.391*** (0.538)	1.579*** (0.540)	0.416 (0.549)	0.320 (0.554)
Average labour income quintile (within-year) = 5, ref.		-	-	-	-
Share of population with tertiary education			0.329*** (0.095)	0.533*** (0.096)	0.533*** (0.096)
Retired share of population				0.509*** (0.051)	0.521*** (0.052)
Foreign-born share of population					0.115 (0.088)
Constant	9.339*** (0.907)	7.999*** (0.989)	3.748** (1.573)	-11.816*** (2.205)	-11.905*** (2.206)
Observations	8,760	8,760	8,760	8,760	8,760
R-squared	0.091	0.093	0.094	0.105	0.105
Number of groups	292	292	292	292	292

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 8. Two-way fixed effects results, 2007-2023

VARIABLES	(1) Net migration rate	(2) Net migration rate	(3) Net migration rate	(4) Net migration rate
Share of labour force unemployed	-0.411*** (0.071)	-0.411*** (0.072)	-0.450*** (0.073)	-0.415*** (0.075)
Average labour income quintile (within-year) = 1		1.196 (1.408)	0.208 (1.437)	-0.086 (1.509)
Average labour income quintile (within-year) = 2		1.380 (1.247)	0.550 (1.272)	0.096 (1.318)
Average labour income quintile (within-year) = 3		1.632 (1.089)	1.056 (1.101)	0.699 (1.118)
Average labour income quintile (within-year) = 4		1.839** (0.928)	1.541* (0.930)	1.269 (0.934)
Average labour income quintile (within-year) = 5, ref.		-	-	-
Share of jobs in agriculture			0.271*** (0.079)	0.242*** (0.080)
Share of jobs in manufacturing			-0.041 (0.045)	-0.019 (0.045)
Share of population with tertiary education				1.064*** (0.188)
Retired share of population				0.301*** (0.102)
Foreign-born share of population				0.324** (0.159)
Constant	1.366* (0.780)	0.152 (1.110)	-1.424 (2.226)	-27.395*** (4.938)
Observations	4,964	4,964	4,964	4,964
R-squared	0.058	0.059	0.062	0.070
Number of groups	292	292	292	292

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

6.4 East-West Interactions with Explanatory Variables

Table 9 adds interaction terms between the East-West dummy and explanatory variables in the year fixed effects model which includes controls. All models include the controls for the share of population with tertiary education, the share of retired people, the share of foreign-born people and the distance to the nearest city with at least 100,000 inhabitants, but the coefficients for these variables are not reported in the table, since they did not significantly change in comparison to the coefficients they had in tables 5 and 6.

In column 1, the East-West dummy is interacted with the share of the labour force unemployed. These results show that unemployment is more negatively associated with net migration outcomes in the East than in the West and thus may be a potential determinant of the East-West differences in net migration rates that were observed to be quite large from 1995 to approximately 2010. When this interaction is included, the coefficient for West in association with net migration rates is statistically significant and negative, in comparison to the reference category which is East. In table 5, where interactions were not included, the coefficient was statistically insignificant. This further shows that unemployment seems to be an important determinant of differences in net migration rates between the East and the West.

Column 2 includes an interaction between the East-West dummy variable and the average labour income variable and shows that lower relative average labour incomes are more negatively associated with net migration rates in the West than in the East. It should also be noted that in columns 1 and 4, where interaction terms are statistically significant, the coefficient of the East-West dummy variable becomes statistically significant. This is probably because the interaction between unemployment and the East-West dummy, and the interaction between the share of jobs in manufacturing and the East-West dummy, explain a part of the East-West difference in net migration rates, and thereafter the East-West dummy becomes statistically significant again. This however is not the case when the East-West dummy is interacted with the average labour incomes, which further shows that the findings of the association between average labour incomes and net migration rates are inconclusive. The coefficient for the association between average labour incomes and net migration rates are also not statistically significant. These results may point to that in the West, being in a lower average labour income is more negatively associated with net migration rates than in the East, but the overall impact of labour incomes on net migration rates are unclear.

Column 3 includes an interaction between the East-West dummy variable and the share of jobs in agriculture. This association is not statistically significant, and points to the size of the primary sector not being an important determinant in the East-West differences in net migration rates. Interestingly, the share of jobs in manufacturing, which is interacted with the East-West dummy in column 4, shows to be statistically significant and associated with net migration rates. This association shows that a higher share of jobs in manufacturing is less negatively associated with net migration rates in the West than in the East. The overall association between the share of jobs in manufacturing and net migration rates is however quite small, at least in comparison to the association between unemployment and net migration rates. The East-West difference in the association between the share of jobs in manufacturing and net migration rates is also not as large as the difference in the association between unemployment and net migration rates.

Table 9. Year fixed effects with interaction terms

VARIABLES	(1) Net migration rate	(2) Net migration rate	(3) Net migration rate	(4) Net migration rate
Urban-rural classification = 1, Urban	0.303	0.446	0.336	0.286
	(0.313)	(0.314)	(0.460)	(0.458)
Urban-rural classification = 2, Semi-Urban	-0.190	-0.164	0.100	0.017
	(0.232)	(0.232)	(0.327)	(0.327)
East-West classification = 1, West	-2.454***	0.796	0.710	-2.118***
	(0.520)	(0.521)	(0.435)	(0.657)
Share of labour force unemployed	-0.469***	-0.398***	-0.202***	-0.204***
	(0.030)	(0.026)	(0.046)	(0.045)
Average labour income quintile (within-year) = 1	-1.143*	0.132	0.450	0.944
	(0.589)	(0.744)	(0.879)	(0.883)
Average labour income quintile (within-year) = 2	-1.765***	-0.416	-0.632	-0.224
	(0.475)	(0.679)	(0.683)	(0.686)
Average labour income quintile (within-year) = 3	-2.095***	-1.180*	-1.514***	-1.178**
	(0.385)	(0.614)	(0.545)	(0.542)
Average labour income quintile (within-year) = 4	-0.819**	0.343	0.247	0.455
	(0.320)	(0.598)	(0.429)	(0.428)
Average labour income quintile (within-year) = 5, ref.	-	-	-	-
Share of jobs in agriculture			-0.080***	-0.079***
			(0.028)	(0.024)
Share of jobs in manufacturing			-0.085***	-0.135***
			(0.014)	(0.018)
West * Share of labour force unemployed	0.168***			
	(0.036)			
West * Average labour income quintile = 1		-1.487**		
		(0.641)		
West * Average labour income quintile = 2		-1.425**		
		(0.630)		
West * Average labour income quintile = 3		-0.667		
		(0.636)		
West * Average labour income quintile = 4		-1.105*		
		(0.644)		
West * Share of jobs in agriculture			-0.015	
			(0.028)	
West * Share of jobs in manufacturing				0.105***
				(0.024)
Population composition and distance controls	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Constant	-2.066**	-3.817***	-5.028***	-3.707**
	(0.962)	(1.020)	(1.482)	(1.500)
Observations	8,760	8,760	4,964	4,964
R-squared	0.293	0.292	0.253	0.256

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

6.5 Discussion

6.5.1 Municipal Characteristics and Net Migration Rates

Based on both year fixed effects analyses (Table 5, Table 6), urban municipalities are positively associated with net migration rates in comparison to rural municipalities. Semi-urban municipalities are also positively associated. The statistical significance of the urban classification variable does however disappear after the share of population with tertiary education is controlled for. Previous studies have found that internal migration in Finland is characterized by rural-urban migration (Karhula et al, 2020; Pekkala, 2003). Previous research has also found that migrants to urban areas tend to be positively self-selected for education (Eggert et al., 2010; Lundholm et al., 2004; Pekkala, 2003).

Based on the year fixed effects and two-way fixed effects analyses, it is evident that higher unemployment is negatively associated with net migration rates, and the association is statistically significant after controlling for population composition. Between 2007-2023 unemployment, however, did not have as large of an association in the year fixed effects model (Table 6). This may in part be due to unemployment levels becoming lower in this period in comparison to the period 1995-2024, when there were larger regional differences in unemployment levels, especially in the late 1990s. Despite this, unemployment does seem to be significantly associated with net migration rates. According to theory, migration occurs when expected wages or expected lifetime earnings are higher elsewhere than in the origin (Harris & Todaro, 1970; Sjaastad, 1962). Unemployment plays a part in shaping expected wages and expected lifetime earnings, which is why unemployment was hypothesized to be associated with intermunicipal migration. The finding is also similar to what previous research has found. Laamanen (2014) found that unemployment had been the most important push factor in interregional migration, which may explain why the share of people unemployed is negatively associated with net migration rates in the two-way fixed analysis in this study (Table 7, Table 8). Differences in unemployment between regions have also been found in other studies to be associated with internal migration (Eggert et al., 2010; Pissarides & McMaster, 1990; Poghosyan, 2018). Although specific mechanisms cannot be determined in this study, it may be that an increase in unemployment over time within a municipality creates an incentive to migrate to a municipality with better chances of employment.

A higher share of jobs in agriculture, and a higher share of jobs in manufacturing are negatively associated with net migration rates in the year fixed effects model (Table 6). This finding is expected from the year fixed effects model, which compares units of observation with each other, as previous studies have found that people tend to migrate from agricultural areas to areas with a larger service sector (Lehtonen & Tykkyläinen, 2018). This result may reflect differences between urban, semi-urban and rural areas, as urban areas tend to draw more in-migrants for various reasons and have lower shares of jobs in agriculture. Therefore, it may be the case that this result is driven by rural-urban differences and does not reflect people preferring locations

directly because of the economic composition of the municipalities. In the two-way fixed effects analysis (Table 8) it was found that a larger share of jobs in agriculture is positively associated with net migration rates, which shows that within municipalities, a higher share of jobs in agriculture results in more positive net migration outcomes. Muilu & Rusanen (2003) found in their study that in Finland, areas with a large primary sector are drawing some in-migration of young people, which could be why the higher share of jobs in agriculture is positively associated with net migration rates in within-municipality variation. This may reflect that having a larger primary sector can in some cases be beneficial for a municipality.

The results for whether average labour incomes are associated with net migration rates are inconclusive. In the year fixed effects model, between 1995 and 2024 being in a lower average labour income quintile was negatively associated with net migration rates. The association was weaker for the period between 2007 and 2023. In both cases the variable's explanatory power weakens as population composition is controlled for, possibly due to the population composition impacting the average labour income in municipalities. These results may reflect differences in urban and rural areas, as the highest average labour incomes can usually be found in urban areas. This variable does not directly measure wage differentials, as it is impacted by the population composition. Previous studies on wage differentials have, however, found that on the micro-level, wage differentials impact migration decisions in that people usually move to areas with higher wages than in their origin (Kennan & Walker, 2011), or to areas where they expect the largest growth of incomes (Pekkala, 2002). In Finland, however, wage differentials may not matter as much, since according to Poghosyan (2018), the wage differences between regions are not very pronounced possibly due to centralized wage bargaining. In the two-way fixed effects model for 1995-2024 (Table 7), the average labour income quintiles become statistically insignificant as population composition is controlled for. In table 8 however, where only 2007-2023 is analysed, the average labour income is not statistically significant even before controls have been added to the model. It might be that there is little variation in a municipality's relative labour income between different years, since those municipalities that have the highest average labour incomes also tend to have the highest labour incomes throughout the whole period. It may also be the case that the average labour incomes are not important determinants of net migration rates in Finland, and that in the year fixed effects model, the results were only reflecting differences between rural, semi-urban and urban municipalities.

6.5.2 East-West Differences in Net Migration Rates

The trends of average net migration rates in eastern and western Finland show that there was a large difference in the late 1990s and early 2000s, but the average net migration rates in eastern and western municipalities have since then converged significantly. The widest gap between net migration rates in the East and the West was in the late 1990s, when the East had a significantly lower net migration rate. As previous research (Enflo, 2018; Mäki-Arvela, 2003) notes, Finnish regions did not equally recover from the economic recession of the early 1990s, and in the late 1990s, there was an economic boom driven by high-tech industries, which contributed to economic growth. Since the East had lower levels of employment then (Mäki-Arvela, 2003), the relatively lower levels of employment levels may have acted as a push-factor

for people or as a factor disincentivising in-migration to eastern Finland. The relative economic growth of southern Finland during the late 1990s may have also drawn migrants to the largest cities in the West. Both factors may have played a part in the trends, since during the late 1990s, the average net migration rate in the East became more negative, while in the West the average net migration rate became less negative.

When focusing only on rural municipalities, there was a significant difference in eastern and western average net migration rates until approximately 2010, with the eastern rural municipalities consistently having a lower average net migration rate, although both eastern and western rural municipalities have had on average a negative net migration rate throughout the period. This is not completely unexpected, as previous research suggests that in Finland, internal migration is heavily oriented towards cities. After 2010 however, eastern and western rural municipalities have had very similar average net migration rates, and the western rural municipalities have in some years had a slightly more negative net migration rate than the East. This may reflect further urbanization that has also influenced rural municipalities in the West.

Based on the year fixed effects analysis, it seems that part of the East-West difference in net migration rates is explained by unemployment, as the coefficient for the East-West dummy variable becomes smaller when the unemployment share variable is added to the baseline model (Table 5, Table 6). As discussed above, previous research has found that regional differences in unemployment contribute to internal migration in that labour tends to flow from regions with high unemployment to regions with low unemployment. Previous research has also found that the East had relatively higher levels of employment after the early 1990s recession (Mäki-Arvela, 2003). The East-West dummy variable also becomes statistically insignificant in table 5 after population composition and distance to the nearest large city are controlled for. This result suggests that a large part of the East-West difference in net migration outcomes has been due to population composition differences. When the share of population with tertiary education is included, the East-West difference becomes statistically insignificant, which may relate to concentration of population with higher education into the West, and that the regional effect is in part due to differences in existing population compositions. This, however, is difficult to determine, as selective migration also impacts the population composition over time. Distance playing a part in the difference is also interesting. Previous research has found that regions located furthest away from growth centres tend to experience heavy out-migration (Muilu & Rusanen, 2003). As eastern municipalities have, on average, larger distances to the large cities, they might suffer from out-migration for this reason.

In table 9, the interaction terms between the East-West dummy and explanatory variables were included in the year fixed effects model. These results showed that unemployment is a key determinant of East-West differences in net migration rates, as unemployment has a more negative effect on unemployment in the East than in the West. As discussed in chapter 2, eastern municipalities have struggled with higher unemployment (OECD, 2025b). The results also show that average labour incomes are negatively associated with net migration rates more strongly in the West than in the East. This means that the observed difference between net migration rates between the East and the West is somewhat mitigated by the average labour incomes being a clearer determinant of more negative net migration outcomes in the West than in the East, while the East in general has more negative net migration rates. The share of jobs in agriculture is not a determinant of the East-West differences, as the coefficient of the

interaction is statistically insignificant. Lastly, the share of jobs in manufacturing is a determinant of the East-West differences in net migration rates, and the coefficient of the interaction shows that in comparison to western municipalities, in the eastern municipalities, having a higher share of jobs in manufacturing is more negatively associated with net migration outcomes. But as discussed earlier, in the year fixed effects model, it may be that the average labour income variable, and the sector-share variables reflect differences between rural, semi-urban and urban municipalities, and not the actual effect of those variables on net migration rates. These results do however imply that unemployment has been a key determinant of the East-West differences in net migration rates, as was hypothesized, since the East has had lower employment levels than the West, and the eastern municipalities have struggled with stronger out-migration. As discussed above, previous literature has found unemployment to be a key factor in migration decisions, and a factor that might push people to migrate from one region to another (e.g. Laamanen, 2014; Pissarides & McMaster, 1990; Poghosyan, 2018).

7 Conclusions

The results of this study of 292 Finnish municipalities between 1995 and 2024 suggest that net migration rates in intermunicipal moves are associated with a variety of municipal-level characteristics. The results suggest that on the municipal-level the determinants of net migration rates are similar to those found in regional-level studies. In Finland as in many other European countries, population is increasingly concentrating into urban areas (OECD, 2023; Rowe et al., 2019). This study found that urban municipalities, in comparison to rural municipalities, tend to have more positive net migration outcomes. This study also found significant associations between population composition and net migration rates. The variable for the share of population being tertiary educated seems to explain part of the urban-rural difference in net migration rates, which is likely not evidence of a higher share of educated people drawing in-migrants, but rather that educated people have tended to concentrate into urban areas. A higher share of tertiary educated people is also positively associated with net migration rates within municipalities.

Based on the year fixed effects and two-way fixed effects analysis, higher unemployment is clearly negatively associated with net migration rates in Finnish municipalities. This result is similar to the results found in previous studies (e.g. Eggert et al., 2010; Laamanen, 2014; Pissarides & McMaster, 1990; Poghosyan, 2018). Unemployment may create incentives for people to migrate to municipalities with better employment opportunities, or it may discourage people from migrating to a municipality with high unemployment.

This study found inconclusive results as to whether average labour incomes are associated with net migration rates. This is likely in part because the average labour incomes in different municipalities are in large part determined by the population composition. To shed light on how wage differentials and intermunicipal migration are associated, better data should be acquired to analyse whether regional wage differentials in Finland play a part in intermunicipal migration. Another limitation with this study is that there is no comprehensive data on housing prices in municipalities for the period 1995-2024. Housing prices have been found in previous studies to both vary a lot between areas (Poghosyan, 2018) and to be associated with migration decisions (Maczulskij & Böckerman 2023). A third limitation with the study is that it cannot separate between the effects of population composition on net migration, and the effects of net migration on population composition. Therefore, conclusions cannot be drawn on this issue.

An implication of this study is that internal migration patterns in Finland are partly shaped by unemployment levels in municipalities. According to the OECD (2023) report, many OECD countries are struggling with shrinking rural populations and increasing regional income inequality. The implication of this study is that these differences persist in Finland, where unemployment is significantly associated with net migration outcomes in municipalities. Higher unemployment levels are negatively associated with net migration outcomes between municipalities. In the two-way fixed effects model this study found that even over time, within

municipalities, unemployment is negatively associated with net migration outcomes, which indicates that creating more job opportunities could be very beneficial in the effort to balance net migration in municipalities. This means that while rural municipalities are shrinking in many areas, there may still be ways in which to improve their net migration outcomes. Regional policy can for example aim to increase economic activity in declining regions.

The differences in net migration outcomes between eastern and western Finland had not been a focus of a previous study. This study finds that the average net migration rates in eastern and western Finland have converged in the 2010s. When looking at all mainland Finnish municipalities, eastern average net migration rates are still somewhat lower than those of the western municipalities in the 21st century, but when restricting the analysis only to rural municipalities, the East and the West have almost no difference in average net migration rates in the 2010s. This is a large change since the late 1990s and early 2000s, when the East consistently had lower average net migration rates than the West. The results of this study also suggest that this difference is partially contributed to by unemployment levels and partially contributed to by differences in population composition. Based on the interaction terms included in the regression, this thesis finds that both western and eastern Finnish rural municipalities have struggled with negative net migration rates, but that unemployment is a key determinant between their differences, as unemployment is more negatively associated with net migration rates in the East than in the West. It is, however, the case, that most municipalities in Finland have had negative net migration rates between 1995 and 2024, which may reflect that there are only a few municipalities that are net receivers of in-migrants, while others are mainly experiencing heavier out-migration.

To study the issue of municipal economic characteristics and their association with internal migration, further research could aim to obtain comprehensive data on housing prices in municipalities, which may be associated with internal migration patterns, since high housing prices can act as a barrier to migration. With more detailed data, further research could be conducted on the direction of the moves in order to establish if migrants tend to move within their own region, or if they mainly migrate to the largest cities in Finland. Further research could also aim to explain why the average net migration rates in western rural municipalities have declined since the early 2000s, while the average net migration rates of eastern municipalities have stayed on similar levels after the late 1990s.

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Appendix A: AI Statement

No AI-based tools were used in the completion of this master's thesis.

Appendix B

Table 10. Data sources

Variable	**Data source**
Net migration rate	StatFin database: Table 11a2 – Intermunicipal migration by age (5-year), sex, direction and area, 1990-2024. StatFin database: Table 11ra – Key figures on population by region, 1990-2024.
Share of labour force unemployed	StatFin database: Table 115b – Population by area, main type of activity, sex, age and year, 1987-2024.
Average labour income quintile	StatFin database: Table 118w – Income and income structure of household-dwelling units by region, 1995-2024.
Share of jobs in agriculture	Municipal key figures database: Municipal key figures 1987-2024.
Share of jobs in manufacturing	Municipal key figures database: Municipal key figures 1987-2024.
Share of population with tertiary education	Municipal key figures database: Municipal key figures 1987-2024.
Retired share of population	Municipal key figures database: Municipal key figures 1987-2024.
Foreign-born share of population	StatFin database: Table 11ra – Key figures on population by region, 1990-2024.
Distance in km to nearest city (population > 100,000)	Municipality-based statistical units, Statistics Finland.
East-West classification	Statistics Finland. (2025). The correspondence table between municipalities and regions in 2025.
Urban-rural classification	Statistics Finland. (2025). The correspondence table between municipalities and statistical grouping of municipalities in 2025.

Table 11. Summary statistics of continuous variables

Variable	Obs.	Mean	Std. Dev.	Min	Max
Net migration rate	8,760	-4.1	9.0	-56.4	60.7
Share of labour force unemployed	8,760	13.0	5.2	1.8	39.8
Share of jobs in agriculture	4,964	11.5	8.2	0.1	51.5
Share of jobs in industry	4,964	24.8	9.8	2.3	68.1
Share of population with tertiary education	8,760	16.9	5.6	5.4	50.6
Retired share of population	8,760	28.6	7.5	10.7	51.3
Foreign-born share of population	8,760	2.6	2.2	0.1	24.5
Distance to the nearest city (population > 100,000)	8,760	94.1	69.9	0.0	504.1

Table 12. Summary statistics of categorical variables

Variable	No.	%
Urban-rural classification		
Urban	57	19.5
Semi-Urban	66	22.6
Rural	169	57.9
Total	292	100.0
Region		
Uusimaa	26	8.4
Southwest Finland	27	8.8
Satakunta	16	5.2
Kanta-Häme	11	3.6
Pirkanmaa	23	7.5
Päijät-Häme	10	3.2
Kymenlaakso	6	1.9
South Karelia	9	2.9
South Savo	11	3.6
North Savo	19	6.2
North Karelia	13	4.2
Central Finland	22	7.1
South Ostrobothnia	18	5.8
Ostrobothnia	14	4.5
Central Ostrobothnia	8	2.6
North Ostrobothnia	30	9.7
Kainuu	8	2.6
Lapland	21	6.8
Total	292	100.0
East-West classification		
East	117	40.1
West	175	59.9
Total	292	100.0
Average labour income quintile (within-year)		
1	1,770	20.2
2	1,740	19.9
3	1,771	20.2
4	1,739	19.9
5	1,740	19.9
Total	8,760	100.0