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# **The Mobility Patterns of Women in Denmark**

Mapping Out-Migration and Commuting Distance between 2013-2023

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## **Abstract**

This thesis investigates the out-migration patterns of women from major municipalities in Denmark from 2013 to 2023, focusing on the impact of the COVID-19 pandemic. It addresses three key topics: 1) changes in out-migration patterns during the pandemic and the subsequent two years, 2) differences in these patterns among the four large municipalities, and 3) the effects of the pandemic on remote work and commuting distances among women.

The rapid adoption of digital communication tools and flexible work policies has transformed modern employment, with the COVID-19 pandemic significantly accelerating the shift towards remote work. This change has been particularly pronounced in the Nordic countries, where remote and hybrid work arrangements have become prevalent. This study leverages extensive data on migration and work patterns to explore how these shifts have influenced the mobility of women in Denmark.

The findings reveal a notable increase in the out-migration of women from Aalborg, Aarhus, Odense, and Copenhagen/Frederiksberg during and after the pandemic.

Copenhagen/Frederiksberg saw a significant rise in out-migration in 2023 compared to 2019. The data suggests that the pandemic and the rise of remote work may have influenced this trend, as other studies have indicated that women sought better work-life balance and more flexible living arrangements, though this cannot be definitively concluded from the Danish context alone.

In terms of commuting distances, there was an increase in the number of women commuting more than 10 kilometres to work from 2013 to 2021. However, the data does not conclusively indicate that the pandemic significantly altered commuting behaviours. Instead, the trend towards longer commutes appears to be part of a broader pattern of relocation and changing work dynamics.

This thesis contributes to understanding the short-term and medium-term effects of remote work on migration patterns and commuting behaviours, providing insights into the evolving landscape of women's employment and mobility in Denmark. The implications of these findings are significant for policymakers and urban planners aiming to address the challenges and opportunities presented by the post-pandemic labour market.

Key words: Mobility, Out-migration, Feminist geography, Remote work, Commuting Distance

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## Introduction

The last two decades have witnessed a transformative shift in work, primarily driven by the rapid implementation of digital communication tools, flexible work policies, and the globalisation of labour markets (Aksoy et al., 2022). Remote work, once considered a novel and niche arrangement, has become a widespread and defining feature of modern employment. The rise in remote work accelerated by the COVID-19 pandemic. In the United States, for example, approximately 60% of the US labour force was engaged in remote work during May 2020 according to data from the Survey of Working Arrangements and Attitudes (SWAA). The remaining segment, unable to transition to remote work, comprised individuals in fully onsite roles, such as those in service industries, healthcare, and entertainment (Maria Barrero et al., 2023).

The pandemic prevailed a significant shift for many workers, tracking the trends between 2019 and 2023 of remote, hybrid (working remotely one or two days a week), and onsite work, surveys suggest there has been an extensive change (Wigert, et. al., 2023). In 2019, before the COVID-19 pandemic, 60% of workers in the US capable of remote work were primarily onsite. By 2023, this number had dropped to just 20%. Conversely, the percentage of fully remote workers saw a dramatic increase during the pandemic, peaking at 70% in 2020 before decreasing to 29% by 2023. A notable trend emerging in 2023 was the adoption of hybrid work, where employees split their time between home and the office. Approximately 52% of workers embraced this hybrid model, with many transitioning from fully onsite roles (Wigert, et. al., 2023). The shift in labour market structures, enabled by remote work, has led researchers to predict changes in migration patterns, with people moving from urban centres to suburbs, smaller cities, and rural areas. Remote work provides the freedom to live anywhere, liberating workers from the need to commute. This allows for a more affordable lifestyle, improved quality of life, and increased living space. As a result, the growing prevalence of remote work is reshaping the economic landscape of suburbs, smaller or rural cities, enhancing their competitiveness against larger urban areas (Florida & Ozimek, 2021).

For the Nordic countries, the change in remote work has also been noticeable. Before the pandemic remote work was not unusual in the Nordic countries. They already had a higher rate of workers working from home compared to the rest of Europe. Yet, between 2019 and 2020 the number of people working from home almost doubled. Recent data shows that the

number of people working remotely has not returned to pre-pandemic levels, and the most popular work arrangement is a form of hybrid work. For instance, in Norway, 79% of the labour force reported working from home one to two days a week in 2021 (Randall et al., 2022). In Denmark, over 50% of members belonging to one of the largest unions expressed a preference for a hybrid work model, allowing them to work from home for 1 to 2 days in 2021. This desire for flexibility arose as a response to the changing landscape of workplaces in Denmark, with many envisioning a departure from the traditional daily office commute. Prior to the pandemic, only 12% of members worked remotely for 1 to 2 days, while 28% occasionally worked from home 1 to 3 times a month (Bøgelund, 2021). According to DM (2021), another union in Denmark, female members have shown a higher desire for remote work due to better work-life balance. Women with children desired working from home 12% more than men with children. These trends worry union workers, as they could have significant implications on women's wages.

How this rapid change in the workplace has affected people and workplaces in the long-term is still unknown. We do know some of the short-term effects, including economic effects, psychological effects, mobility effects, and gender effects, thanks to extensive studies during the pandemic a literature review of approximately 150 academic publications solely focused on remote work, COVID-19, and its effects on the labour market, maps the positive and negative effects of the rapid change to remote work during the pandemic (Obdržálková & Moravcová, 2022). They found the most common positive effects mentioned in the studies were 'time flexibility', 'the elimination of commuting and associated savings', and 'health concerns regarding COVID-19'. The most common negative effects from remote work were 'social isolation', 'imbalance between professional and personal life', and 'lack of equipment' (Obdržálková & Moravcová, 2022). However, opportunities to work remotely are not distributed evenly; individuals with higher education and income levels are more likely to work remotely, and the group that has benefited the most from increased remote work consists mainly of white Caucasian men in white-collar professions (Kaplan et al., 2022). According to PWC's Women in Work Index 2021, the pandemic was expected to set back progress in gender equality and employment assessment, particularly for women. In 17 OECD countries analysed, women experienced a larger unemployment compared to men. This trend can be attributed to women taking on more childcare responsibilities during lockdowns, leading to potential setbacks in their careers and earnings. On average, women spent approximately 7.7 more hours per week on unpaid domestic work than men during COVID-19 (PwC, 2021).



## Research question:

With the desire to work from home some days a week, especially for women, how has the new normal in work standards affected women's out-migration patterns and distance to work in Denmark. Has the number of women working remotely increased, have the increase of remote work led women to out-migrate from urban cities and has there been a shift in distance to work because of the new labour market structures. In this thesis on gender and migration, the focus remains only on the female gendered aspects of migration experience. While migration intersects with various axes of identity such as class, race, and ethnicity, this thesis concentrates specifically on how gender norms, roles, and inequalities shape migration patterns and outcomes for women. By highlighting the discussion on gender, the focus is on the unique challenges and opportunities that women encounter during the migration process.

- *How did out-migration patterns of women from major municipalities in Denmark change from 2013 to 2023? Did the COVID-19 pandemic change migration patterns, during and in the two years after the pandemic?*
- *How did out-migration patterns differ between the four large municipalities?*
- *How did the COVID-19 pandemic affect levels of remote work and commuting distances among women in Denmark?*

This thesis aims to investigate out-migration patterns from the four major municipalities in Denmark: Aalborg, Aarhus, Copenhagen/Frederiksberg<sup>1</sup>, and Odense - and their impact on women from 2013 to 2023. Specifically, it aims to map out where women have relocated from these cities in 2019-2021, during the pandemic and short-term effects; and 2021-2023, after the pandemic, which is here considered as medium-term effects.

The thesis starts with a section on conceptual foundations, building on feminist geography and different experiences of migration, followed by an account of previous research on migration and flexible work with a specific focus on remote work and how it has changed before and after the COVID-19 pandemic. After this follows a methods section where Denmark, the empirical context used in this thesis, is presented. This section also identifies the datasets and the methods used to answer the research questions. The results section is

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<sup>1</sup> Copenhagen and Frederiksberg are combined in this paper as Frederiksberg is a municipality within the municipality of Copenhagen (see image 5, page 50).

organised by research question and presents findings in the form of maps, graphs, and tables. The thesis concludes with a discussion of future research avenues prompted by these findings.

## **Conceptual foundations**

This thesis is anchored in conceptual foundations of feminist geography and builds on previous studies regarding migration for women and the use of flexible work, with focus on remote work.

### **Feminist geography**

Feminist geography emerged from the lack of a female perspective in geography, both in terms of female representation in the field and the study of the female perspective on space and place. Women in the 19<sup>th</sup> and mid-20<sup>th</sup> century were not mentioned or acknowledged for the work they were doing in the field of human geography, hindered by institutional barriers. Excluded from academic institutions, women struggled to gain visibility in the field. This exclusion was not due to a lack of desire to contribute, but rather systemic barriers preventing their entry into institutions (Cresswell, 2013). One of the first books solely focused on feminist geography was published in 1984 by the Women and Geography Study Group of the IBG & Explorations in Feminism Collective, with scholars such as Gillian Rose, Linda McDowell, Doreen Massey with more: "Geography and Gender: An Introduction to Feminist Geography." This influential work delved into how gender shapes and is shaped by spatial relationships, landscapes, and place. It introduced the feminist perspective on the challenges posed by traditional notions of space, power, and identity within geographical contexts. Key themes included the importance of incorporating diverse voices and experiences in geographic research, the impact of gendered spaces on social dynamics, and the role of feminist geography in advocating for social justice and equity. Through case studies and theoretical frameworks, the book highlights the complexities of gendered geographies and provides valuable insights for understanding and addressing gender inequalities in various geographical settings (Women and Geography Study Group of the IBG & Explorations in Feminism Collective, 1984).

Feminist geography is not just one theory but a collection of diverse feminist theories. Geographies of fear, feminist geography of nature, geography of mobility, and geography of development are four different subsections covering aspects of feminist geography (Cresswell, 2013).

In the forthcoming sections of this thesis, emphasis will be placed on interpreting the domains of mobility and development within feminist geography, offering insights into the factors driving research inquiries concerning women's out-migration experiences.

### **Feminist geography of mobility**

Feminist geography of mobility explores the intricate relationship between mobility patterns and social factors, challenging the conventional view of mobility as a universal freedom. This perspective reveals how societal structures influence individuals' comfort levels in public spaces based on gender, race, ability, sexuality, and class (Cresswell, 2013).

Historically, women and men have exhibited different mobility patterns. Female mobility patterns have been both universal and central in space, whereas men have been more universally mobile. Female mobility has historically been more restricted compared to men, with women tending to move shorter distances, between municipalities or regions. Men, on the other hand, have typically made larger movements, spanning across countries. This is attributed to women's traditional ties to households, whereas men are more connected to work. This societal structure gives men control over public spaces, while women are confined to private spaces (Hayford, 1985). A more challenging and dynamic understanding of space is as interconnected and relational. A shaped space by social relations of power and inequality. Within this framework, women's mobility and moving patterns emerge as crucial sites for understanding the intersection of gender with spatial processes. Women's mobility is deeply embedded within social and cultural contexts, influencing their access to and navigation of physical spaces. Their movement through space is not merely a matter of physical transportation but is intricately linked to their roles, identities, and power relations within society (Massey, 1994).

The male perspective of mobility and spatial practices contrasts with the experiences of women. While traditional geographical discourse often privileges the male experience, there is a need to deconstruct and challenge these entrenched narratives to fully understand the complexities of gendered mobility. Men, benefiting from societal norms and power structures, often enjoy greater freedom of movement and access to public spaces compared to women (Rose, 1993).

Incorporating gender-sensitive perspectives into geographic research can lead to more accurate and comprehensive analyses of human interactions with their environments. This may involve using feminist methodologies, such as participatory research approaches that prioritise the perspectives and experiences of women, as well as examining how gender intersects with other social factors to shape spatial behaviour (Monk & Hanson, 1982).

### **Gendered experience of migration**

Migration is not a gender-neutral phenomenon, it is rather deeply intertwined with prevailing gender norms, power dynamics, and social inequalities. Married women have tended to traditionally, 'sacrifice' for the male work cause. Married women traditionally moved for their husbands' careers, and single women moved for their own career or education. A study from 1991 found that in Aberdeen, Scotland, only 3% of married women migrated for their own career or education, while 69% migrated due to their partner's work (Bonney & Love, 1991). These numbers remained consistent even when women had access to well-paid job opportunities. When the married women moved for their husbands' careers, the move did not result in a better job opportunity than before, nor did it help women socially or emotionally. Instead, the 'sacrifices' made by women often resulted in stress, anxiety, loneliness, and a lack of social connections connected to the move (Bonney & Love, 1991). In many contexts, gender norms dictate women's roles and responsibilities within migration processes, influencing their decision-making, access to resources, and opportunities for advancement. By centring the voices and experiences of migrant women, it calls for women's attention to the intersecting forms of oppression and resilience that shape their lives, ultimately advocating for more inclusive and equitable approaches to migration policy and practice (Domosh & Seager, 2001).

For many women, internal migration represents both a quest for autonomy and a struggle against entrenched patriarchal structures. Rural-to-urban migration, for instance, often reflects women's aspirations for economic independence and social mobility (Domosh & Seager, 2001). Reasons for moving from urban to rural areas, for both men and women, rarely stem from labour market opportunities or economic independence. Factors such as lifestyle preference, moving back to a hometown or prioritising other environmental factors and costs of living falls more in line with the move from urban areas to rural areas (Young, 2013).

Internal migration frequently intersects with other axes of identity, such as class, race, and ethnicity, worsening the marginalisation experienced by certain groups of women. Indigenous

women, for example, may confront intersecting forms of discrimination and exclusion as they migrate from rural areas to urban centres, facing with both gender and ethnic inequalities in their quest for better opportunities. Despite these challenges, internal migration also offers women avenues for resistance and empowerment. Migrant women often demonstrate remarkable resilience and agency as they negotiate their identities and forge new pathways in unfamiliar environments. They form grassroots organisations, build solidarity networks, and challenge oppressive gender norms, contributing to the transformation of urban landscapes and the assertion of women's rights within public spheres (Domosh & Seager, 2001).

### **Geography of Development**

The feminist geography of development highlights women's significant contributions to economic development, encompassing both paid labour in formal employment sectors and unpaid work within households. This perspective addresses issues such as gender-segregated data, a concern actively addressed by feminist geography (Cresswell, 2013). Throughout history, women's participation in the labour market has been marked by struggles against societal norms, legal barriers, and cultural prejudices. Yet, their perseverance and resilience have gradually transformed the landscape of employment, shaping the trajectory of economies worldwide. The Industrial Revolution, spanning the late 18th and early 19th centuries, brought significant changes in labour practices and economic structures. With the mechanisation of industries, opportunities for employment expanded beyond traditional domestic roles. Women, previously confined to household tasks, began to enter factories and mills in increasing numbers, particularly in textile production (Scott & Tilly, 1975).

Miller (Miller, 1982) looked at wives in three suburban areas in the US during the mid to late 19th century in a time-geography perspective to see how the unpaid domestic labour and mobility pattern were connected. He reconstructed how five hypothetical households with different socioeconomic status (middle and upper class), using census data and qualitative information. He found that the women's mobility depended on the socioeconomic status and the household's ability to pay servants and others to conduct the domestic labour. His research shed light on the extent of unpaid domestic work performed by women in their homes. Women with a higher socioeconomic household status that could afford a household servant to take care of the house chores could travel further distances and spend their days outside their homes doing something else. With women entering the paid labour market one could believe that the unpaid domestic work had been divided between women and men or that

more had servants doing those kind of work chores. But data from UN Women (United Nation Women, 2016) shows that women still make up for the most part of domestic work. In developing countries women make up for approximately 4 hours while men spend 1.5 hours of unpaid domestic labour, and in developed countries women approximately spend 3.5 hour and men spend 2 hours. Even though women today participate in paid labour, it is still uneven between the women and men, making it harder for women to participate equally in the paid labour. With the pandemic, the labour market has changed even more. As governments implemented lockdown measures and businesses shuttered in response to the pandemic, the labour market experienced unprecedented upheaval. Industries such as hospitality, retail, and tourism, where women are disproportionately represented, were hit hardest by job losses and layoffs. The closure of schools and daycare facilities further exacerbated the burden on working mothers, forcing many to leave the workforce or reduce their hours to accommodate caregiving responsibilities (Alon, et.al, 2020).

Despite the setbacks brought about by the pandemic, women have demonstrated remarkable resilience and adaptability in navigating the evolving labour market landscape. Entrepreneurial ventures led by women have surged, with many launching businesses in response to emerging market needs and opportunities. Moreover, the crisis has spurred conversations around the importance of gender equality in the workforce, prompting employers to reevaluate policies and practices to support women's career advancement and well-being (Global Entrepreneurship Monitor, GEM, 2022).

The COVID-19 pandemic has laid bare the systemic inequalities that persist within the labour market, with women bearing a disproportionate burden of its socio-economic repercussions. Yet, amidst the challenges, opportunities for positive change have emerged, fostering greater awareness of the importance of gender equality and flexibility in the workplace. By leveraging the resilience, creativity, and determination of women, societies can work towards building more inclusive and equitable labour markets that empower women to thrive in the post-pandemic era (McKinsey, 2021).

### **Internal migration and mobility trends**

The decision to migrate can stem from various reasons, including voluntary, involuntary, or "forced" circumstances. While many migrations are voluntary, termed as such because they are driven by personal choice, "forced" moves can occur due to factors such as marriage,

divorce, long-distance job opportunities, or family illness or death. Interestingly, from the mover's perspective, these "forced" moves can often be rationalised as voluntary, driven by personal motivations such as love or a desire to improve work-life balance (Knox and Pinch, 2010).

In 2009, a significant global milestone was reached as more people worldwide resided in urban areas than in rural ones. This marked a pivotal moment in human settlement patterns, reflecting the accelerating pace of urbanisation. According to the World Economic Forum (WEF, 2019), this trend was fuelled by burgeoning work opportunities and the allure of urban life. The transition from rural to urban living not only reshaped demographic landscapes but also underscored the profound impact of urbanisation on societies globally. The onset of the pandemic triggered a notable shift in migration dynamics in the western world, as urban residents increasingly sought a change of scenery in rural areas. This reversal occurred from widespread job losses, dwindling livelihood opportunities, and economic uncertainties. The World Economic Forum (WEF, 2020) coined this phenomenon as part of the 'Great Reset,' envisioning a recalibration towards more sustainable urban environments. With the reset aiming to foster greener, more resilient, and inclusive cities, addressing the challenges of pre-pandemic urbanisation trends that strained resources and infrastructure.

During the pandemic, big western cities experienced an out-migration. For instance, in the US, San Francisco and Manhattan had an out-migration bigger than most cities. From being the two most dense and expensive cities in the US, to have rental cost drop during the pandemic. With the pandemic and lockdowns, new social patterns came alive and predictions on what was going to happen in urban cities after the pandemic was made, having four main forces for the out-migration of big urban cities. Predictions including economic restructuring, spatial reorganisation, social fragmentation and governance and policy recommendations. This included different new structures such as social distancing, the new experimental employment, classrooms, workplaces and shopping patterns and urban environments that could possibly be the driving force for people to move to suburbs or rural areas. With the world as they described as a social experimentation, how the future would look like post-COVID determines on many different aspects (Florida et al, 2021). In today's post-COVID society, we know that the migration patterns in the US did not change drastically, many of the people that out-migrated decided to move back to the large cities after the pandemic. One

thing that did change was the way of working and remote work, but mainly in the urban cities. A reason for this could be the extent of co-working spaces existing in larger cities (Florida, 2023).

With the rise of remote work, Nordic countries witnessed new migration patterns characterised by multilocality, internal migration, and mobility for work. Remote work enabled individuals to commute longer distances while still enjoying the benefits of rural living, leading to a shift in migration trends from urban to rural areas. With one quarter of the Nordic population residing in just six municipalities, including the capital cities and Sweden's second and third largest cities, there has been a noticeable shift in urbanisation trends since 2021. Rather than the previous pattern of rural-to-urban migration, there is now an increase in urban-to-rural migration. Consequently, the populations of large municipalities are decreasing while popular rural holiday destinations are seeing an influx of permanent residents. While this shift may suggest a decline in international immigration, data also indicates growth in medium to smaller cities across the Nordics. This suggests a deviation from the previous trend and implies that the decrease in population in the six largest cities cannot be solely attributed to immigration (Randall et al, Nordregio, 2022).

One who studied internal migration in Sweden in 2001 is Karina Nilsson (Nilsson, 2001). She researched how the dynamics of migration, gender roles, and household economics within Sweden were connected. By investigating young adults, the study uncovered the nuanced effects of migration on earnings while highlighting continuous gender disparities and shifts in household structures. Migration had multiple impacts on young adults' earnings, considering different factors, such as immigration status, region of origin, and educational background. For women, moving once had a negative effect on earnings, while moving multiple times had a positive effect. For men, both moving once, and multiple times had a positive effect on earnings. In household structures, moving as partners had a positive effect for both women and men. With children, migration was positive for men's earnings but had significantly negative effects on women's earnings. These findings underscore the importance of policy interventions aimed at addressing gender inequalities and promoting economic integration among migrant populations. By considering the intersecting factors of migration, gender dynamics, and household structure, policymakers can design more effective strategies to address socioeconomic disparities within migrant communities.



Sweco (Sweco, 2021) published a report on the Swedish geography and how it has, and will, change with the pandemic. They collected data on how Swedes moved during the years 2020-2021 and how it could be compared to from before the pandemic. First 2020, then 2021 hit records in most internal moves for the last 20 years. The three biggest cities in Sweden, Stockholm, Gothenburg, and Malmö have had a negative net migration the last 15 years, and they have lost population to the municipalities closest to them, this even before the pandemic. The municipalities that had an increased population are “pendlingskommuner” (commuting municipalities). A commuting municipality is classified as a municipality where 40% of the inhabitant’s commute to the large neighbour municipality. Examples included Huddinge municipality close to Stockholm, Partille municipality close to Gothenburg or Lomma municipality close to Malmö. In 2020 and 2021, the migration pattern changed. Commuting municipalities had a negative migration and a new set of municipalities had positive net migration, including Norberg municipality (+23 per 1000 inhabitants), Åsele municipality (+20,7 per 1000 inhabitants) and Åre municipality (+15,6 per 1000 inhabitants) (Sweco, 2021). The total number of people moving into Norberg, Åsele and Åre in comparison to Stockholm, Gothenburg and Malmö are still much smaller. The number of moves to the three largest municipalities in Sweden are still bigger, but the out-migration has for the last 20 years, been greater giving Stockholm and Gothenburg a negative net migration (Sweco, 2021). In general, where the smaller municipalities and rural areas where people tend to move during the pandemic. But already 2022 and 2023, the shift from rural area to urban area was facts. Looking at the regions in Sweden, a lot has changed with the pandemic. Regions like Värmland, Jämtland and Kalmar where the big winners during the years of pandemic. But with 2023, they now have a negative migration (SVT, 2023). The projected trends following the pandemic indicate that rural areas will experience fewer people moving out, although there won't be a significant influx into municipalities. One suggestion is that municipalities with a strong tourism industry, such as Åre or Båstad, where some individuals own second homes, may see a decline in popularity over time. Conversely, municipalities slightly further away from commuting hubs, like Vaxholm and Kungsbacka, are expected to become more popular. The estimation suggests that tourist-dependent municipalities may see a decrease in demand for fully remote work, thus impacting their attractiveness. On the other hand, municipalities like Vaxholm and Kungsbacka, which are within reasonable commuting distance of larger job opportunity municipalities, may experience increased popularity due to the growing acceptance of hybrid work models, allowing for commuting some days a week (Sweco, 2021).

### **Flexible work opportunities for women**

Remote work and flexible work opportunities existed before the pandemic hit; trends of increased remote work were already studied before 2020. The Nordic countries were not unfamiliar with the concept of remote work, having a small population already working remotely. In Sweden, the number of people usually working remotely nearly doubled from before the pandemic to the start of the pandemic. In start to mid-2021, approximately 40% of the workforce reported that they usually worked from home. Sweden did not have a lockdown, but it was recommended from the Swedish government to work from home (Randall et al, Nordregio, 2022).

However, the Nordic countries are not the only ones that have been working remotely before the pandemic. In the US, remote work had more than doubled between 1980s labour market, to the 2000s. The increase in remote work was a response to the increasing and the advancement in information technology (IT) and the employment cost of having employees working from home (Oettinger, 2011). To have flexibility in the workplace could be of a larger benefit for women, than for men. With a larger workplace flexibility (being the hours worked, places to work at etc.), women could more easily handle the work-life balance. Examining high-end professions from different fields such as business, technical, health and science to look at the wage differences between women and men, the observations of wages differed and men had a higher wage than women, mainly driven by the flexible workhours and places. Without flexible workplace arrangements, women tended to fall behind in wage and in need of childcare. The results from the study of high-end professions were that the wage and hours worked were lower for women, heavily connected to pregnancy and maternity-leave. The impact of maternity leave extends to whether women return to work fully, partially, or not at all afterward. (Goldin & Katz, 2011). Three years later, Goldin (2014) published the essay "*A Grand Gender Convergence: Its Last Chapter*" trying once and for all to explain why the pay gender gap still exist and how to close it. Women had increased their human capital and their education, but the gender pay gap still existed. She did a comprehensive retrospective analysis of gender dynamics in the labour market, spanning the 20th century. The historical examination delved into the evolution of gender roles, educational attainment, and occupational segregation, shedding light on the drivers behind the narrowing gender wage gap and the convergence of gender roles in the workforce. The analysis underscored both the progress made in achieving gender equality and the persistent challenges, including occupational segregation and the motherhood penalty, that continue to

impede full gender parity in the labour market. Goldin's suggestions were to stop rewarding the flexible workhours, because of firms favouring work hours. The idea that women would be able to handle work-life balance better, ended in men working more hours and still get the higher wage. The increased workhours led to a raise. But in her meaning, flexible work hours were not good for either women or men. When flexible workhours are made possible, people tend to work to many hours which can result in stress. Evidently, explaining the gender pay gap of a result of how flexible workhours plays out between women and men, in the member countries in the European Union, flexible workhours were also the cause. The still existing gender gap is because of flexible workhours and that women take them as a chance to balance work-life and take care of their children. While men use the possibility of flexible workhours as an opportunity to work more hours (European Institute for Gender Equality, 2019).

When COVID-19 came, previous experiences with different work arrangements was tested with data looking at different flexible work opportunities between 2012 to 2018. From 2012 to 2018 people chose to work in an office instead of remote to a larger extent. To understand the effects the pandemic possibly could have and the suggestions for policymakers to do regarding the pandemic. They found that higher education levels of the employer had, the more likely he or she was to work flexible work hours and remotely. They also found, when comparing the genders, that more men than women tended to work from home. The different work arrangements being able to work whenever and wherever stressed people, especially women. It made their work-life relation feel more stressful (Mas & Pallais, 2020).

The relationship and balance between work-life during the pandemic is affected women and men different. For childless women and men, working remotely gave them a better work-life balance, suggesting having flex time and flexplace gave them a more satisfied work-life balance. For women and men that had children, remote work had a negative impact on the work-family conflict. The idea of "women having it all"<sup>2</sup> were easier to achieve when you didn't lose time commuting to work or being in an office. If both parents worked from home, the childcare was more equalised between women and men. The domestic work increased for men, but more for women. The unpaid work gap didn't change just because men started to do more domestic work, it stayed the same (Kaplan et al., 2022).

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<sup>2</sup> "Having it all" is the so-called balance between being a career driven and successful women and being married, have kids, and take care of the domestic work. In other word "having it all" (Hewlett, 2002).

Contrastingly, Goldin's (Goldin, 2022) more recent research looking at the economic impact of COVID-19 on women shifted the focus to the contemporary context of the pandemic and the implications for working mothers. In this analysis she highlighted the positive changes and adaptations in work arrangements brought by the pandemic, particularly in terms of increased flexibility, remote work options, and flexible scheduling. The changes during the pandemic had proven to provide working mothers with newfound agency in balancing career aspirations with familial responsibilities, thereby fostering a more inclusive and equitable workplace environment. For women in the United Kingdom, flexible workhours and remote work have helped mothers stay in the labour market. Both new mothers, and mothers for the second time, could with the help from flexible workplace and workhour still stay in the labour market and not leaving it completely while having children (Chung & van der Horst, 2018). In a Nordic context, it has also been argued that flexible workplaces and workhours have been beneficial. In the Nordic countries, a higher number in general compared to other European countries have worked remotely before the pandemic, with good results in work-life balance (European Foundation for the Improvement of Living and Working Conditions, 2017). During the pandemic, the Nordic countries labour market outcome resulted in a decrease in overall work activity level. But the decrease was quite balanced between men and women. It was, equal to the US, the white-collar workers that got the best outcome who were able to work from home and that remote work increased for the ones having a job where remote work was possible (Flam & Nordström, Nordregio, 2022). But with the increased remote work, new tendencies showed an increase of stress amongst the workers and a difficulty with work-life balance to distinguish between the working hours and the private hours. Especially younger workers disliked the increased remote work. Younger workers wished for more networking and had a harder time find the balance of work-life, than older and more experienced workers (Mortensen, 2021).

In summary, women's experiences with flexible work opportunities are multifaceted and influenced by various factors, including family structure, age, and socioeconomic status. While flexible work arrangements can offer benefits such as improved work-life balance and increased career continuity for some women, they may also exacerbate work-family conflicts and perpetuate gender disparities in the labour market for others. Contextual factors, such as access to resources and workplace support, further shape women's experiences with remote work and flexible scheduling. Recognising these complexities is essential for developing inclusive policies and practices that address the diverse needs and challenges faced by women

in the evolving landscape of work. With this theory and previous background, the thesis will investigate Denmark and see if the pandemic has had any effect on the migration patterns for the women in Denmark as well as the choice for traveling distance to work. Seen from previous research, both mobility patterns and labour market has changed with the COVID-19 pandemic. Women's labour market participation has reacted differently depending on family status.

## **Methodology**

This section starts with an introduction to how the pandemic affected Denmark. It then describes the data used, and the process of analysis.

### **Empirical context: Denmark**

Since the start of the global pandemic, COVID-19. outbreak in early 2020, the labour market in Denmark has undergone substantial transformations. On 11 March 2020, the Danish government strongly recommended that all employees, except those involved in maintaining essential utilities and necessary public services, should work from home to mitigate the spread of COVID-19 (Regeringen, 2020). This led to a shift in working patterns, with 830.000 Danes working from home during the first lockdown (April 2020), and 680,000 continuing to work remotely during the second lockdown (January 2021). By September 2021, even though full lockdowns had ended, approximately 200.000 workers remained working remotely, double the pre-pandemic number. Copenhagen and its neighbouring areas had the highest number of remote workers, benefiting from robust remote work infrastructure and a high concentration of sectors like finance, information, and communication, including knowledge hubs (Dansk Industri, 2021).

Post-pandemic, Danish companies have favoured hybrid work models. Employers recognise benefits such as improved work-life balance, better recruitment, increased trust in the company, and more efficient use of employee time. A survey revealed that eight out of ten companies in Denmark support hybrid work as the new normal labour structure (Dansk Industri, 2022). This aligns with employee preferences, as more than half of remote workers in the Nordic countries expressed reluctance to return to pre-pandemic work routines. Specifically, 52% of union members in Denmark preferred working from home one to two days per week (Randall et al., Nordregio, 2022).

In 2023, the Center for Ledelse (CLF) reported that while Danes had largely returned to their workplaces, they typically did so for only three to four days a week. According to the report, 60% of respondents worked from home one to two days per week, and 70% emphasised the importance of workplace flexibility in a new job (Center for Ledelse, CLF, 2023).

Between 2012 and 2021, commuting distances for Danish workers increased by 12%, driven primarily by geographical factors. In 2021, commuting patterns varied: workers living closest to the capital had the shortest commutes, while those in western and southern Jutland, and municipalities such as Lolland, Falster, and Møn, had the longest commutes, with differences of up to 20 kilometres (Styrelsen for Arbejdsmarked og Rekruttering, 2021).

Despite the increase in commuting distances, Danish workers' willingness to commute did not rise between 2018 and 2023. Surveys indicated that the majority of Danish workers were willing to commute up to 45 minutes in both years. However, those willing to commute longer distances declined: in 2023, only 77% were willing to commute up to 45 minutes, compared to 88% in 2018. Similarly, willingness to commute up to an hour dropped from 70% in 2018 to 45% in 2023, and for commutes up to an hour and a half, it fell from 31% in 2018 to 11% in 2023 (Dansk Erhverv, 2023).

In conclusion, the COVID-19 pandemic has catalysed enduring changes in Denmark's labour market, particularly in terms of remote and hybrid work arrangements. The sustained preference for remote work, combined with shifts in commuting patterns and worker preferences for flexibility, indicates a significant transformation in the Danish working landscape. These changes highlight the need for continued adaptation by both employers and employees to navigate the evolving post-pandemic work environment.

## **Data**

The thesis focuses on Denmark and the 98 Danish municipalities. The data will only investigate municipality level and not the whole of Denmark or the 5 regions. However, the regions are added to easier locate where the municipalities are located.

There are three main data sets for this thesis: (1) how many that work remotely at least once in four weeks, (2) moving patterns and (3) women's commuting distance between home and work. The data is for (1) and (3) not divided by gender. For (2) data is collected on men's

moving patterns, to estimate the number of out-migrated men from the four big municipalities. The data is only separated in ages for number of women working remotely. All other data sets look at women from 20 years old to 69 years old.

This thesis uses data from Statistics Denmark (Dansk Statistik), Danish statistics central authority. Their mission is to collect data, compile it and publish it to the Danish society. Their data collection is meeting the requirements set from European Statistics “European Code of Practice” (Dansk Statistik, 2024, a).

### **Remote work**

Remote work (1) is two different data sets. One looking at number of women working remotely at least once the last four weeks. Data set one is consisting of 110 variables. Divided by age groups 15-24, 25-34, 35-44, 45-54, 55-64 from year 2013-2023 and using the two choices ‘yes, at least once the last four weeks’ or ‘no, not in the last four weeks’ (Dansk statistik, b, 2024).

The second data set had 15 different variables, only going from 2021 to 2023. The data set only looked at women working at least once from home the last four weeks and was divided in five different municipality categories Capital, Metropolitan, Provincial, Inland and Rural municipalities <sup>3</sup> (Dansk statistik, c, 2024).

### **Internal out-migration**

The data sets for moving patterns (2) have two main variables, moving from a municipality and to what municipalities. For this thesis four different data sets have been downloaded. The

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<sup>3</sup> Capital municipalities: København, Frederiksberg, Ballerup, Brøndby, Dragør, Gentofte, Gladsaxe, Glostrup, Herlev, Albertslund, Hvidovre, Høje-Taastrup, Lyngby-Taarbæk, Rødovre, Ishøj, Tårnby, Vallensbæk, Furesø, Allerød, Hørsholm, Rudersdal, Egedal, Greve and Solrød.

Metropolitan municipalities: Odense, Aarhus and Aalborg

Provincial municipalities: Helsingør, Hillerød, Køge, Roskilde, Slagelse, Næstved, Esbjerg, Fredericia, Horsens, Kolding, Vejle, Herning, Holstebro, Randers, Silkeborg and Viborg

Inland municipalities: Fredensborg, Frederikssund, Halsnæs, Gribskov, Holbæk, Faxe, Ringsted, Stevns, Sorø, Lejre, Middelfart, Assens, Faaborg-Midtfyn, Kerteminde, Nyborg, Nordfyns, Vejen, Syddjurs, Favrskov, Odder, Skanderborg, Ikast-Brande, Hedensted and Rebild

Rural municipalities: Odsherred, Kalundborg, Lolland, Guldborgsund, Vordingborg, Bornholm, Svendborg, Langeland, Ærø, Haderslev, Billund, Sønderborg, Tønder, Fanø, Varde, Aabenraa, Lemvig, Struer, Norddjurs, Samsø, Ringkøbing-Skjern, Morsø, Skive, Thisted, Brønderslev, Frederikshavn, Vesthimmerlands, Læsø, Mariagerfjord, Jammerbugt and Hjørring

data had four different outcomes for the question move from. It was 'Aalborg', 'Aarhus', 'Copenhagen and Frederiksberg' and 'Odense'. With move to, all Denmark's 98 municipalities were collected. The data was also divided into age groups, for all the four data sets, age was set between 20 to 69. It was also possible to choose for what gender one wanted to see the data, the data was divided between women and men. The last thing to decide was for what time-period. This was set for all the years starting with 2013 and the last year being 2023. The data sets Aalborg, Aarhus and Odense added up to 5445 values. The data set for Copenhagen and Frederiksberg 10890 values, this data set had double the value as the other three. This was because two municipalities were chosen as the moving from municipalities, instead of one.

For men the same data is taken but switched to men instead of women, making it 5445 variables for Aalborg, Aarhus, and Odense and 10890 for Copenhagen/Frederiksberg. (Dansk Statistik, d, 2024)

### **Commuting distance to work**

Looking at women's commuting distance data (3), it is only kilometres that is shown. Hours spend on traveling distance is determined which vehicle that is being used. Public transportation options also look different for the four big cities. In Copenhagen/Frederiksberg they have S-tog going out of the municipalities, Metro lines inside the municipality, Aarhus and Odense has Letbane and all four of them have buses (Trafikstyrelsen, 2022). But it also differs between the four cities. Aalborg, Aarhus, and Odense one can get 10 kilometres in 14-16 minutes using a car (with not any specific traffic) while in Copenhagen/Frederiksberg it is approximately 16 to 20 minutes to drive 10 kilometres.<sup>4</sup> It also differs depending on traveling hour, and from which way one travels with car. Therefor the data estimate stays at only look at distance in kilometres.

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<sup>4</sup> To estimate time, Google maps where used set to have a drive time 03:00, 16<sup>th</sup> of April 2024.

Aalborg: Elisabeth Kellmer, Østerågade, 9000 Aalborg - Klarupvej 74-78, 9270 Klarup. Estimated time 14-16 minutes. Distance 10,0 Kilometres.

Aarhus: Ny Munkegade 65, 8000 Aarhus - Høgemosevej 27, 8380 Trige. Estimated time 16-18 minutes, Distance 10,0 Kilometres.

Odense: H. C. Andersens House, H.C. Andersen Haven 1, 5000 Odense C - Korsgade 14, 5270 Odense. Estimated time: 16 miuntes. Distance 10,0 Kilometres.

Copenhagen/Frederiksberg: Rådhuspladsen, København - Kettevej 2, 2650 Hvidovre. Estimated time: 16-20 minutes. Distance 10,0 Kilometres (Google maps. 2024).



Having to travel at least 12 kilometres between home and work is in Denmark considered commuting to work. Therefore the data starts to look at distances 10-20 Km and then continues with 10+ Kilometres per data set (20-30 Km, 30-40 Km, 40-50 Km and 50+ Km).

The data set consists of 4455 variables, commonly using women commuting distance. The data is set between 2013 to 2021<sup>5</sup> and looks at the 5 different categories of distance 10-20k, 20-30k, 30-40k, 40-50k, +50k from all 98 municipalities (Dansk Statistik, e, 2024).

For distance to work, a data set looking at number of women living in the municipality was used to calculate how many women that was commuting in percentage from the female population aged 20-69 in the municipality. For this data set, 4455 variables were used. Using all 98 municipalities, between the first quarter of 2013-2021 (Dansk Statistik, f, 2024).

## **Analys**

Feminist geography has not always supported quantitative research using data to answer research questions, often critiquing the production of knowledge from secondary data and standardised measurements for neglecting social relations such as power, privilege, and gender representation. Feminist geographers have specifically critiqued positivism and the notion of situated knowledge that uses numbers and data to claim universal truths, arguing that such approaches often ignore feminist and humanist ideologies or politics (England, 2006).

The research questions in this thesis focus on "where" and "how many," which are inherently quantitative, and data driven. Geographic Information System (GIS) is used to visualise these answers. Historically, GIS and feminist geography have been treated as separate scientific domains with little interaction or connection (McLafferty, 2002).

However, more recent studies and feminist geographers have highlighted the benefits of using GIS, particularly in examining gender experiences across different spatial contexts and empowering feminist researchers by providing maps and analyses of gendered patterns of spatial inequality and discrimination. Linking women's everyday lives to geographic contexts can be crucial for policymaking and planning. Visualising and mapping women's experiences,

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<sup>5</sup> 2021 being the last available year for data.

usage of space, and mobility patterns can significantly aid in understanding their spatial dynamics (Kwan, 2002).

Nevertheless, GIS has been criticised as a male-dominated field where biases and assumptions might exclude or marginalise female perspectives (Kwan, 2002). This criticism largely stems from epistemological differences, with GIS traditionally adopting a more positivist approach that prioritises objectivity and universality, while feminist geography often draws on critical and poststructuralist theory, questioning the neutrality of knowledge. GIS has roots in fields like geography and computer science, which have historically overlooked gendered perspectives and privileged certain forms of knowledge and expertise (Kwan, 2002). Despite this, using GIS in feminist geography presents innovative opportunities for integrating quantitative spatial data with qualitative knowledge of lived experiences, offering a more comprehensive understanding and stronger basis for policy recommendations (McLafferty, 2002).

In this thesis, GIS is utilised to provide visual information about women's mobility patterns, specifically highlighting where women who have out-migrated from larger municipalities have moved. Previous research suggests that women's reasons for moving have historically been linked to men's job opportunities, resulting in different experiences for women. Not all women have benefited from such moves; some have reported increased stress and unease. Additionally, literature suggests that during the pandemic, women faced greater challenges in balancing work and life and had more difficulty adapting to remote work. However, this thesis does not investigate these issues in depth. Instead, it serves as an initial indication of which municipalities may warrant further investigation regarding work-life balance and policy recommendations.

## **GIS**

To answer the research questions, geoinformatics and spatial analysis are utilised. Spatial analysis is a powerful tool for combining data and geography. With the help of GIS (Geographic Information System), the spatial analysis will be visualised, showing the patterns of the data and how they change from municipality to municipality in Denmark. Spatial analysis involves examining the relationships between different geographic features and understanding their interactions. GIS serves as the primary tool for capturing, storing,

manipulating, analysing, and presenting spatial and geographic data, providing a comprehensive platform for conducting spatial analysis (Rocha, 2023).

GIS is an excellent tool for spatial analysis and covers various concepts. Some key functions of GIS include general mapping of distances, such as measuring how far two categories are from each other and understanding the implications, known as “Tobler's First Law of Geography.” GIS can also analyse the density of a place, such as how many people live in a specific location and the amount of green space available. Additionally, GIS is valuable for urban planning, for example, by mapping the accessibility of facilities like schools (Ballas, et al. 2017).

For this thesis, both density and distance are of interest. Density is relevant in understanding moving patterns across different municipalities and labour market participation within those municipalities. Distance is important when examining remote work data, particularly how the interest in working from home varies based on the municipality's location relative to larger municipalities.

### ***Out-migration from the four big municipalities***

The data was then infused in the program ArcGIS pro where an analysis was conducted. To visualise the data using GIS, a shapefile of Denmark's 98 municipalities was downloaded and inserted to the map. Two different GIS maps were made to show the result. The first map from 2013-2023 showed the four data sets being joined together with the shapefile, using pie charts to visualise where women had moved from the most to the new municipality. This to get an idea of the general trends of women moving.

The second GIS maps had the four data sets separately joined with the shapefile of the municipalities, to visualise how women moved from all the four large cities specifically. When the data and shapefile was joined, the results were visualised using gradual symbols, drawing quantities using circles representing the size and percentage moving.

### ***Distance to work***

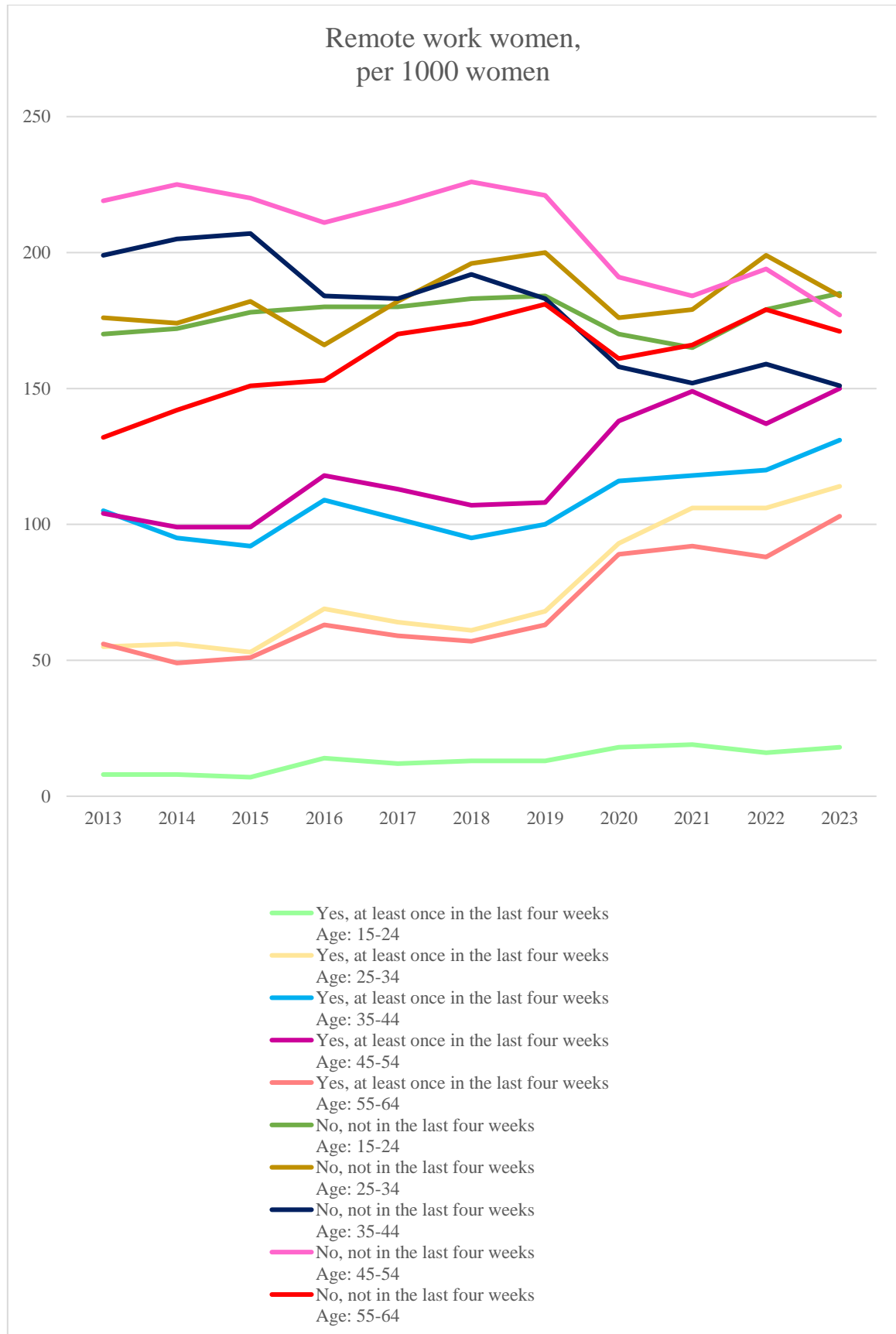
For this GIS analysis, the shapefile of all the municipalities were used again. This time the mapping was to visualise the municipalities difference in commuting distance from 2013-

2023. The dataset for commuting distance was joined together with the shapefile and symbolised through graduated colours. The colours were set in four different classes manually. The four classes were 0-25%, 25-50%, 50-75% and 75-100% respectively. Classes were set manually to not change between the different years, whereas with natural breaks the colours could have different meaning from one year to another. A colour scheme was also chosen to make a clear distinction between the four different classes.

## **Findings**

Previous research has consistently shown a significant increase in remote work since the beginning of the pandemic. This trend is evident not only in the United States, but also across the European Union countries and in research conducted by Nordregio focusing on the Nordic Countries. This thesis examines the female perspective of internal out-migration and commuting distance to work in a Danish context. Therefore, it is essential to first analyse to what extent remote work for women in Denmark has been between 2013 and 2023.

Figure 1. How many women per 1000 women in Denmark that works at least once in the last four weeks remotely vs. who have not worked remotely the last four weeks.



For women, a notable movement emerged in 2016, with nearly 100 per 1000 more women choosing to work from home. Subsequently, from 2020 to 2021, the number of women engaging in remote work increased steady, peaking in 2021. However, by 2022, there was a slight decline compared to the previous year, but not to the same extent as before the pandemic erupted. When examining the age demographics of individuals working remotely, a distinct disparity becomes apparent. Younger individuals aged 15 to 24, typically at the outset of their careers, show a lower propensity for remote work. This could be attributed to their employment in sectors where remote work is less feasible, a phenomenon intensified during the pandemic-induced economic downturn.

Remarkably, women aged 35-44 demonstrated a consistent upward trend in remote work engagement since the onset of the pandemic. While this age group did not experience a sharp increase in remote work participation post-2020, their engagement remained stable, with slight annual rises.

Conversely, the age groups of 45 to 54 and 25 to 34 experienced an uptick in remote work participation. Analysis of available data indicates that remote work did not decline during the pandemic, although the frequency of remote work, such as how many days per week, remains unspecified. Insights from previous studies in Denmark and other European and US regions suggest a shift towards hybrid work models rather than exclusively remote setups.

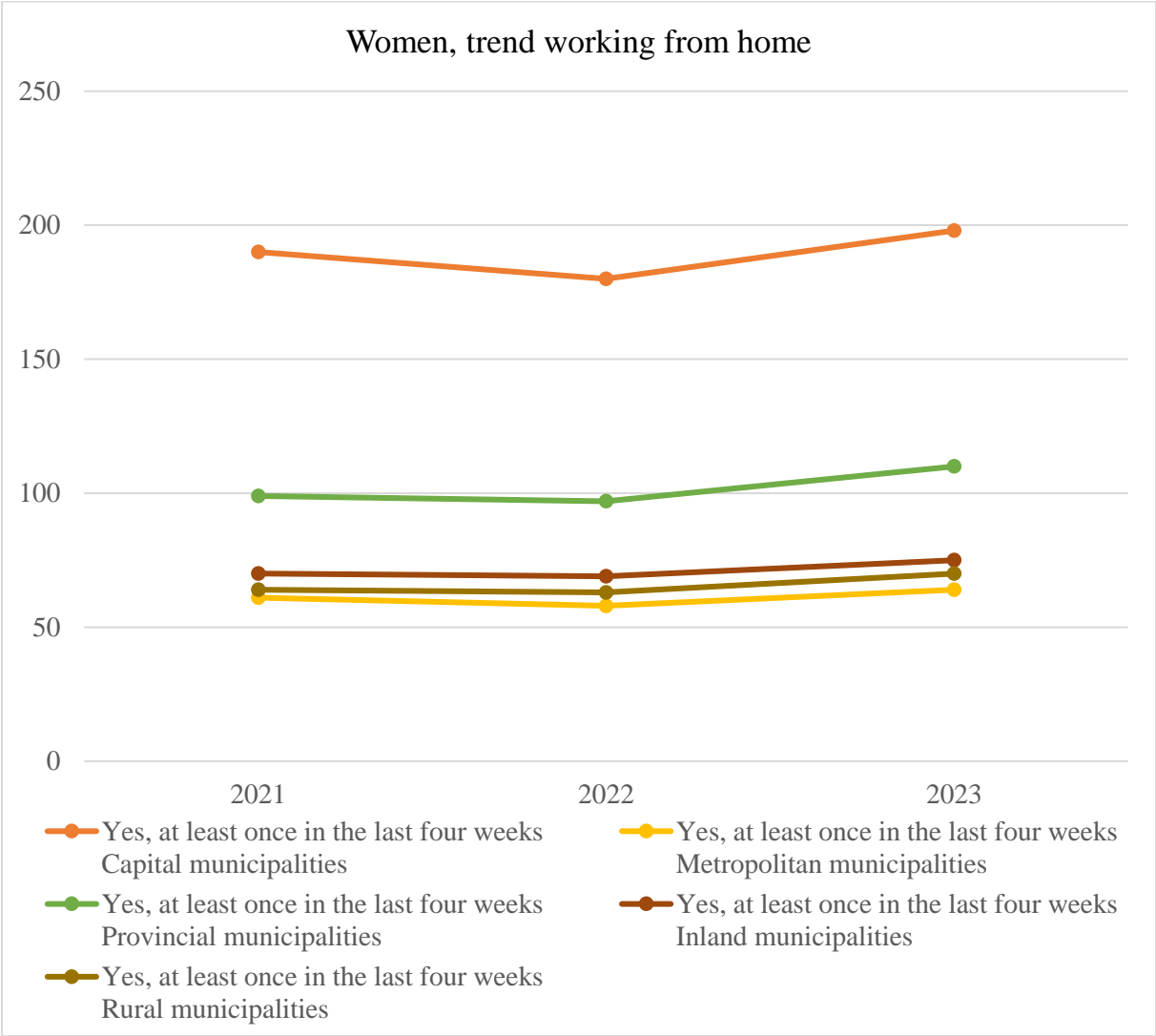
Notably, women aged 15 to 24 and 55 to 64 appear to engage in remote work less frequently. The study conducted by Mortensen (2021) came to the conclusions that younger individuals in Denmark expressed a preference for office environments, citing the social interactions and learning opportunities inherent in physical workspaces. Conversely, older individuals, particularly those aged 55 and above, faced challenges adapting to remote work, with feelings of loneliness and a preference for traditional office settings being prominent factors (Institute of Workplace and Facilities Management, 2023).

Despite the challenges, the proportion of women aged 55 to 64 engaging in remote work has remained stable or even increased since pandemic-related restrictions eased. This aligns with broader trends indicating a rise in remote work among women during the pandemic. However, it's worth noting that the data only captures remote work activity once per week, making it difficult to differentiate between fully remote and hybrid arrangements. This uncertainty

parallels findings from Wigerts, et. al. (2023) analysis of the US labour market, suggesting a shift towards hybrid work models in recent years.

Analysing remote work trends among women across Danish municipalities over the past three years (2021-2023), both during and after the pandemic, reveals intriguing insights. Notably, the capital municipalities, including Copenhagen, Frederiksberg, and the 22 municipalities belonging to Region Hovedstaden, exhibited the highest rates of remote work among women, with just under 40% engaging in remote work.

Figure 2. How many women per 1000 women in Denmark that works at least once in the last four weeks remotely vs. who have not worked remotely the last four weeks divided into municipality areas of living.



The provincial municipalities, as well as municipalities on the outskirts of Sjælland and larger municipalities in Jylland, also reported considerable levels of remote work participation among women. On the contrary, metropolitan municipalities such as Aalborg, Aarhus, and Odense demonstrated lower rates of remote work engagement. Why the metropolitan municipalities are not the second most remote working municipality group is outstanding since it is the three largest municipalities after Copenhagen/Frederiksberg. Comparing it with two other Nordic countries Sweden and Norway they show other results. In Norway Oslo, the capital municipality is the top municipality with remote workers. Oslo is followed by Norway's subsequent municipalities Bergen, Stavanger, and Trondheim (Holgersen, Jia & Svenkerud, 2020). And equally as Norway, in Sweden it is Stockholm and neighbouring municipalities followed by Gothenborg and Malmö (Bergström, Franklin & Lindell, 2021).

A nuanced analysis of yearly variations indicates a shift in remote work patterns among women. While 2021 saw higher rates of remote work compared to 2022, there was a revival in remote work participation among women in 2023. This trend was consistent across all municipality groups. One plausible explanation for this revival could be the relaxation of restrictions in Denmark in 2022, allowing for a return to office-based work without constraints. Consequently, women may have reconsidered their workplace preferences.

Among municipality groups, provincial municipalities experienced the most significant increase in remote work participation from 2021 to 2023, rising from 99 to 110 out of 1000 women. Remarkably, the capital municipalities showed the largest decrease in remote work engagement between 2021 and 2022, followed by the most substantial increase between 2022 and 2023.

These findings underscore the dynamic nature of remote work trends among women in Denmark's municipalities and highlight the need for further exploration into the underlying factors driving these shifts.



### **Internal out-migration**

The out-migration trends from Denmark's four major municipalities exhibit notable similarities, particularly in the aftermath of the pandemic. Across Aalborg, Aarhus, Copenhagen/Frederiksberg, and Odense, there was a consistent pattern of increasing out-migration in 2020 and 2021, followed by a decrease in 2022.

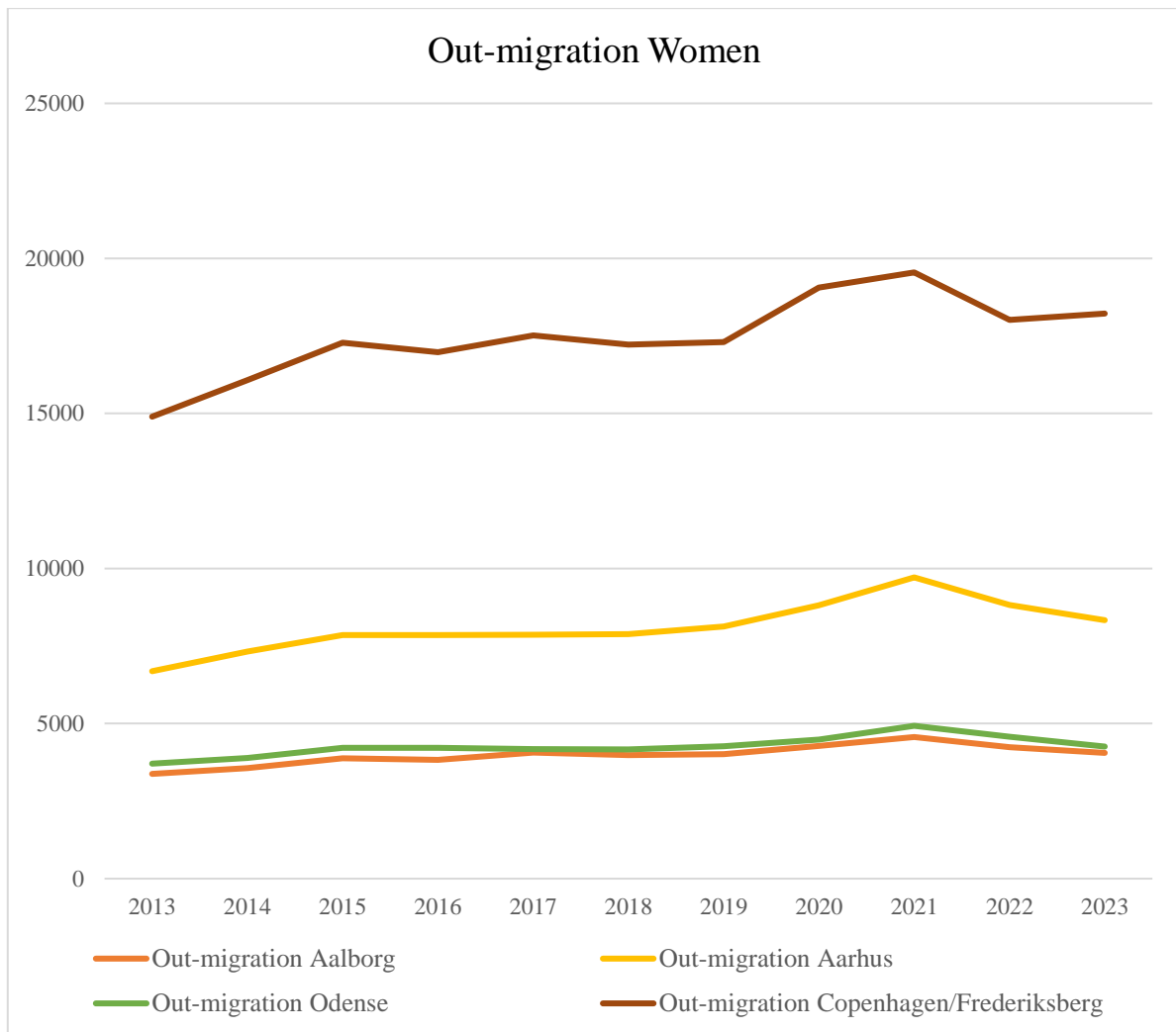
During the peak pandemic years of 2020 and 2021, one can notice an increase of women moving out from the larger cities, with Copenhagen/Frederiksberg and Aarhus experiencing particularly noteworthy shifts. In Copenhagen/Frederiksberg, the out-migration rate among women has yet to return to pre-pandemic levels, evidenced by a 5.33% increase in 2023 compared to 2019. This equates to nearly 10,000 more women relocating from Copenhagen/Frederiksberg to other municipalities.

Similarly, in Aarhus, the out-migration rate among women rose by 2.45% in 2023 compared to 2019. Prior to 2019, the out-migration trend in Aarhus was gradually increasing at a steady pace. However, the onset of the pandemic in 2020 disrupted this trend, resulting in a peak in out-migration during 2020 and 2021.

Aalborg and Odense present slightly different out-migration patterns compared to Copenhagen/Frederiksberg and Aarhus. While they too experienced peak out-migration in 2020 and 2021, the subsequent years saw varying trends. In Aalborg, the out-migration rate continued to rise in 2023, showing a 1.05% increase compared to 2019. Conversely, Odense bucked the trend by experiencing a slight decrease in out-migration (-0.21%) from 2019 to 2023. Both Aalborg and Odense displayed more fluctuation in their out-migration trends, lacking the clear linear progression observed in the other municipalities.

The out-migration trends from Denmark's major municipalities reveal the impact of the pandemic, with varying degrees of recovery and stability observed across different regions.

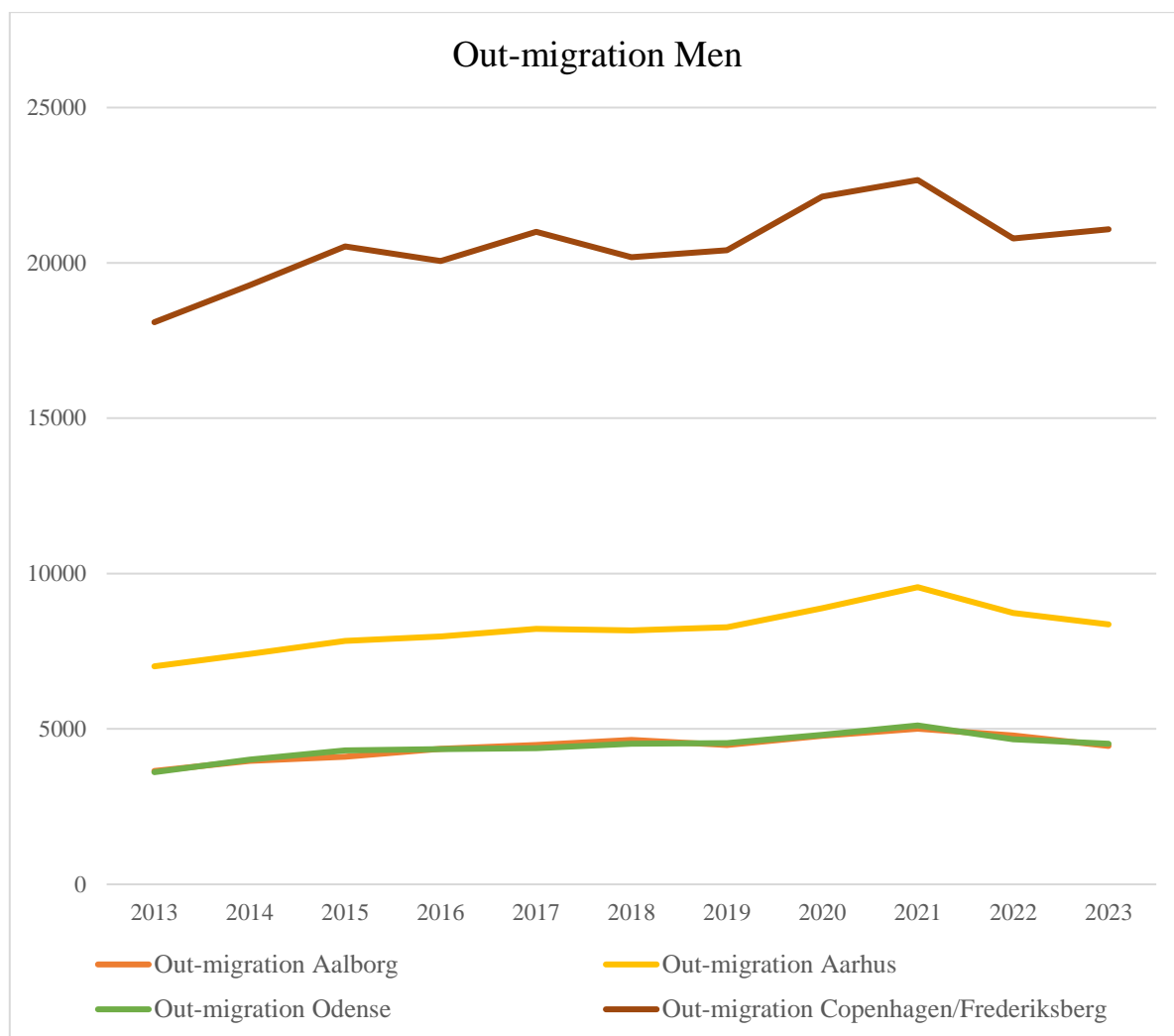
Figure 3. Graph showing how women have out-migrated from the four big municipalities from 2013 to 2023.



When comparing the out-migration trends of women and men, striking similarities emerge. Both genders experienced a notable exodus from the four major municipalities during the pandemic years, followed by a decrease in 2022.

However, comparing *Figure 3.* and *Figure 4.* differences occur, particularly in the out-migration from Copenhagen/Frederiksberg. Notably, a larger number of men migrated out from this region compared to women. Moreover, the variations in out-migration rates over the years display more pronounced peaks for men, with notable spikes in 2015, 2017, and a substantial peak during the pandemic years of 2020 and 2021.

Figure 4. Graph showing how men have out-migrated from the four big municipalities from 2013 to 2023.



Aalborg also presents a noteworthy difference in out-migration between genders, although on a smaller scale. While there is a slightly higher number of men migrating out from Aalborg compared to women, the difference is minimal and may not be readily noticeable.

In general, both women and men demonstrated similar out-migration patterns from 2013 to 2023. The pandemic years witnessed a surge in out-migration for both genders, followed by a gradual return to pre-pandemic levels. However, the data suggests a slight upward trend in out-migration from Copenhagen/Frederiksberg for both women and men, indicating a potential shift in relocation preferences in this area.

### Distribution of out-migrated women

To provide geographical context for the municipalities, an image depicting Denmark's five regions is included. Additionally, for each subsection, maps illustrating the regions where the four largest municipalities are situated are provided to aid in spatial orientation. For Copenhagen/Frederiksberg, two regions are depicted: Region Hovedstaden, encompassing Copenhagen and Frederiksberg, and Region Sjælland, comprising the remaining municipalities on Sjælland.

Figure 5. Denmark's five regions



Examining the destinations where women primarily relocate from the four major municipalities reveals a consistent trend, *Figure 6 – 9* show an overview over chosen municipalities for the out-migrated women. Women mainly move to neighbouring municipalities or to one of the other major urban municipalities. Notably, Aalborg stands out as the exception in the four examined municipalities, there many women relocate from Aarhus

in a larger extent than the other two municipalities. The same goes with moves to Aarhus, where women relocating from Aalborg makes up to approximately half of the moves.

Near Copenhagen/Frederiksberg, little change is observed from 2013 to 2023, with women primarily migrating from Copenhagen/Frederiksberg to these surrounding municipalities. A similar pattern is observed on Sjælland, although with some diversification towards Odense, Aarhus, and Aalborg.

On Fyn, there is a general scarcity of women relocating from Copenhagen/Frederiksberg, Aarhus, and Aalborg. However, the island of Ærø shows slightly more variation in origin.

Southern Jylland witnesses a significant inflow of women relocating from Odense and Aarhus. In the central regions of Jylland, particularly around Aarhus, most women relocating originate from Aarhus. Conversely, in northern Jylland, women migrating from Aalborg dominate, with neighbouring municipalities predominantly receiving migrants from Aalborg.

Municipalities along the west and south coasts of Jylland exhibit the greatest variation in women's origins from the four major municipalities. Although the majority originate from Aarhus and Odense, there is still notable representation from Copenhagen/Frederiksberg and Aalborg.

When comparing the different years, it becomes evident that the tendency to relocate to nearby or neighbouring municipalities has remained consistent from 2013 to 2023. To detect any significant shifts, a closer examination of women's destinations from each municipality is warranted.

Figure 6. The distribution of out-migrated women from the four big cities Aalborg, Aarhus, Copenhagen/Frederiksberg, and Odense 2013

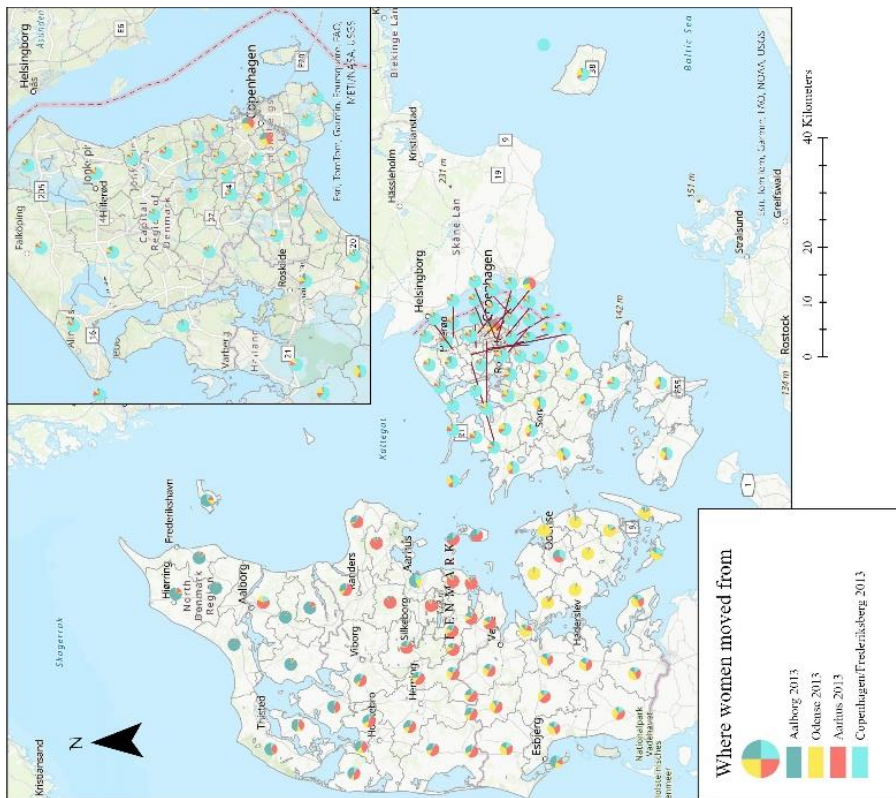


Figure 7. The distribution of out-migrated women from the four big cities Aalborg, Aarhus, Copenhagen/Frederiksberg, and Odense 2019

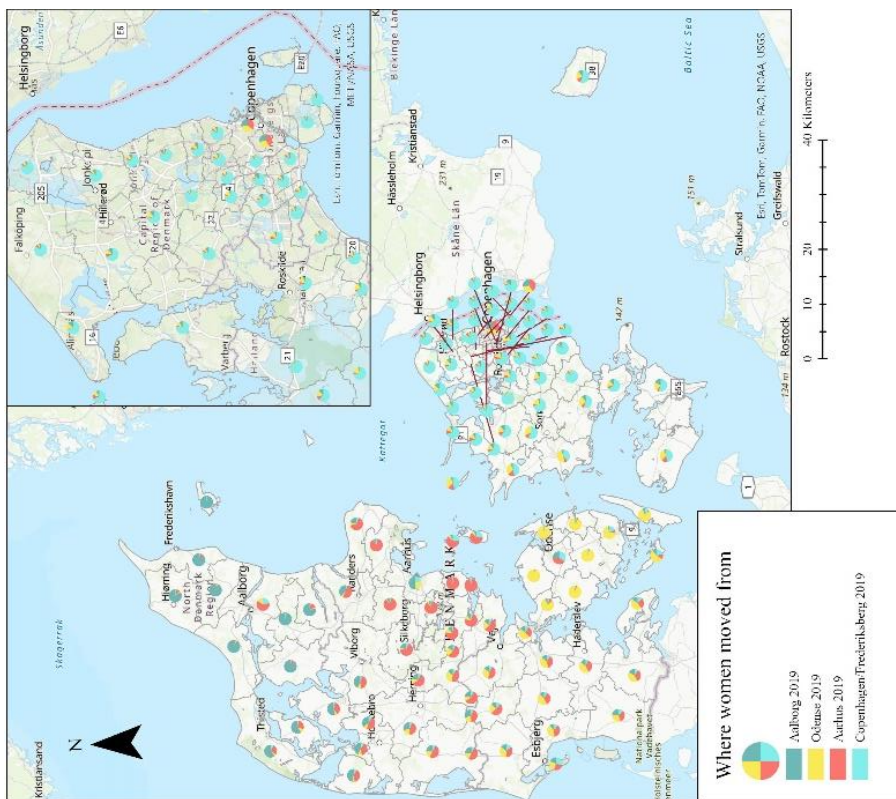




Figure 8. The distribution of out-migrated women from the four big cities Aalborg, Aarhus, Copenhagen/Frederiksberg, and Odense 2021.

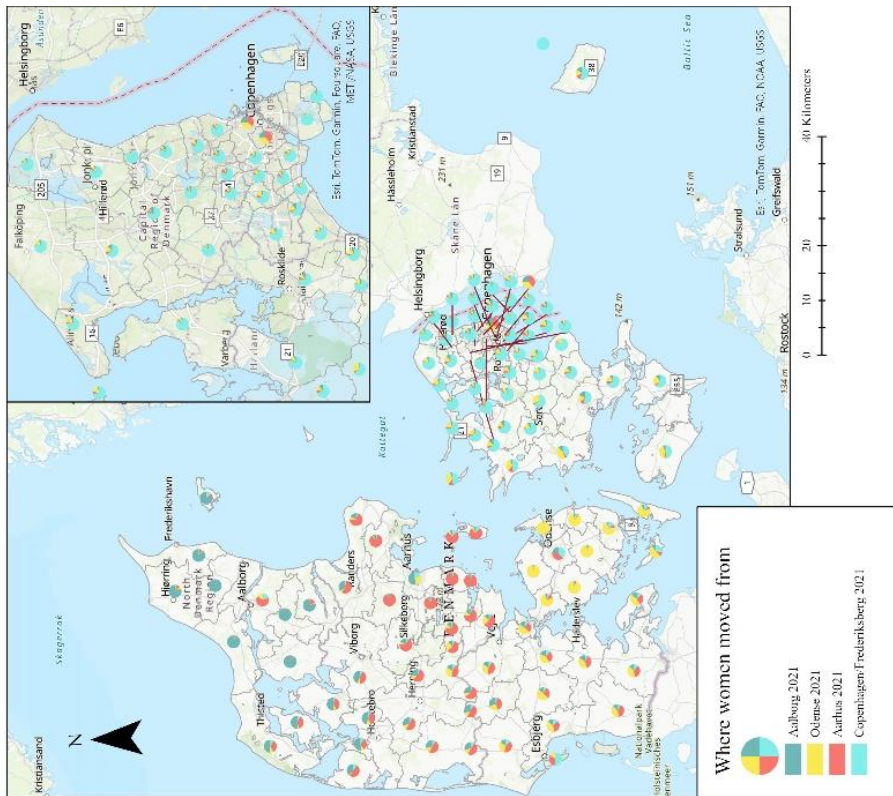
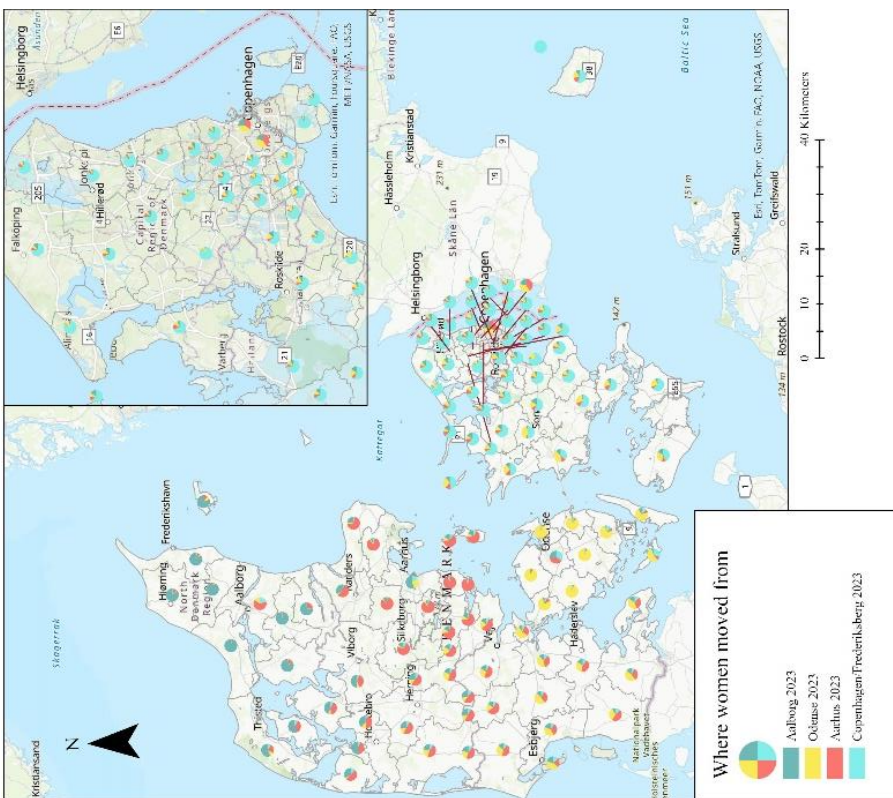
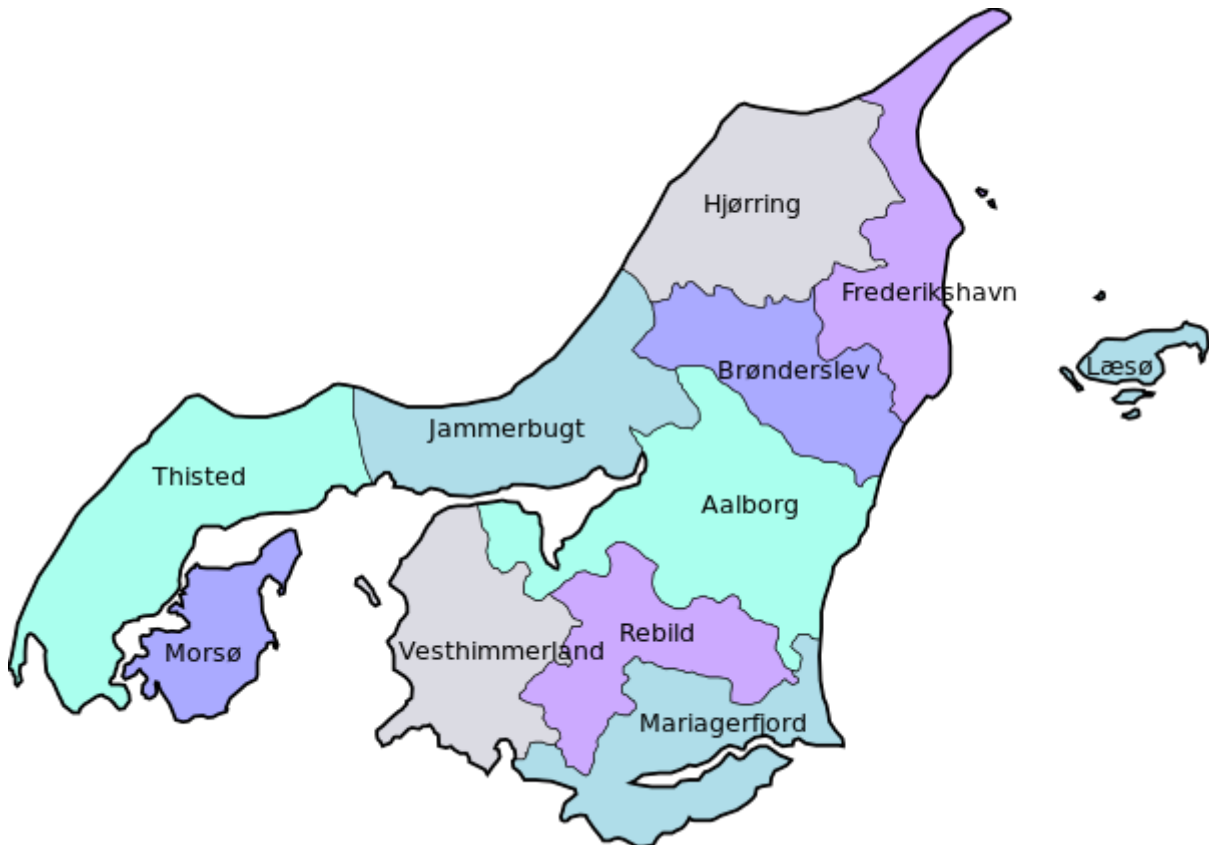


Figure 9. The distribution of out-migrated women from the four big cities Aalborg, Aarhus, Copenhagen/Frederiksberg, and Odense 2023



## *Aalborg – Region Nordjylland*

*Figure 10. Region Nordjylland*



In Aalborg, the municipalities most favoured by out-migrating women, as depicted in *Figure 11-14*, include Aarhus and Copenhagen, followed by those in proximity in Northern Jylland. Notably, this pattern remains consistent over the 10-year period analysed. However, two nearby municipalities experienced significant increases during the pandemic years of 2020 and 2021. Brønderslev saw a 34% rise in women migrating to the area compared to pre-pandemic levels, while Vesthimmerland experienced a 44% increase. Although Aarhus and Copenhagen continued to attract women from Aalborg during the pandemic, the magnitude of change was less pronounced. Following the pandemic, most municipalities closest to Aalborg experienced a decrease in women moving in, with only Læsø, Morsø, and Thisted experiencing higher migration rates than during the pandemic. However, when compared to pre-pandemic levels, the numbers reverted to previous trends, with all three municipalities experiencing negative net migration of women from Aalborg during the pandemic.



Figure 11. Where women that out-migrated from Aalborg moved to 2013



Figure 12. Where women that out-migrated from Aalborg moved to 2019

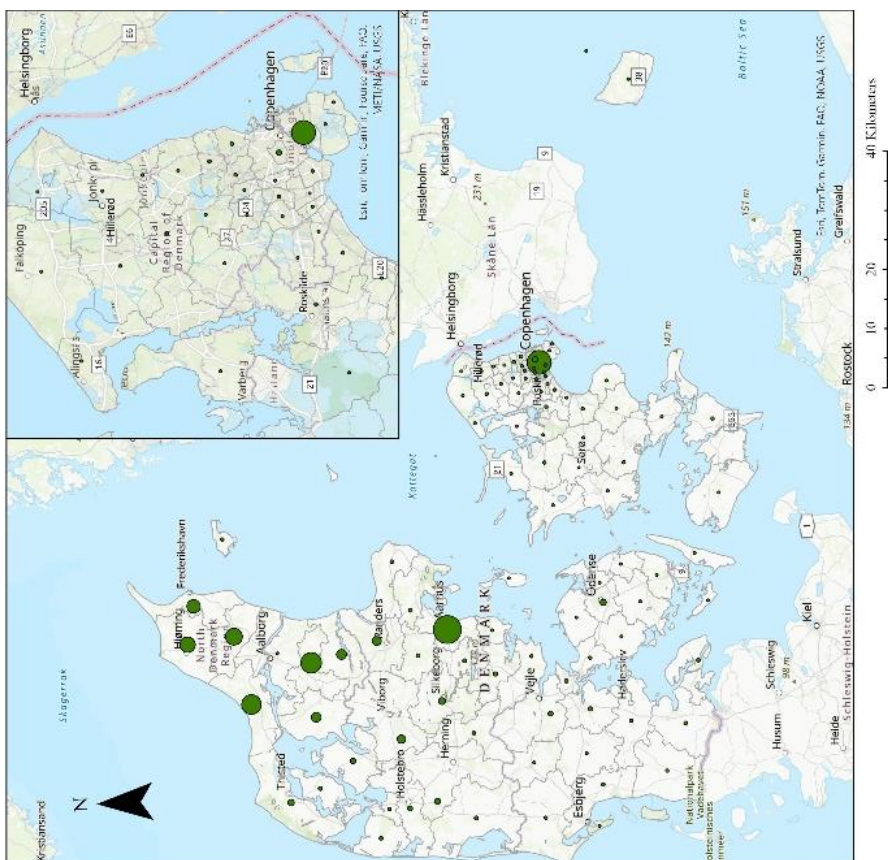


Figure 13. Where women that out-migrated from Aalborg moved to 2021

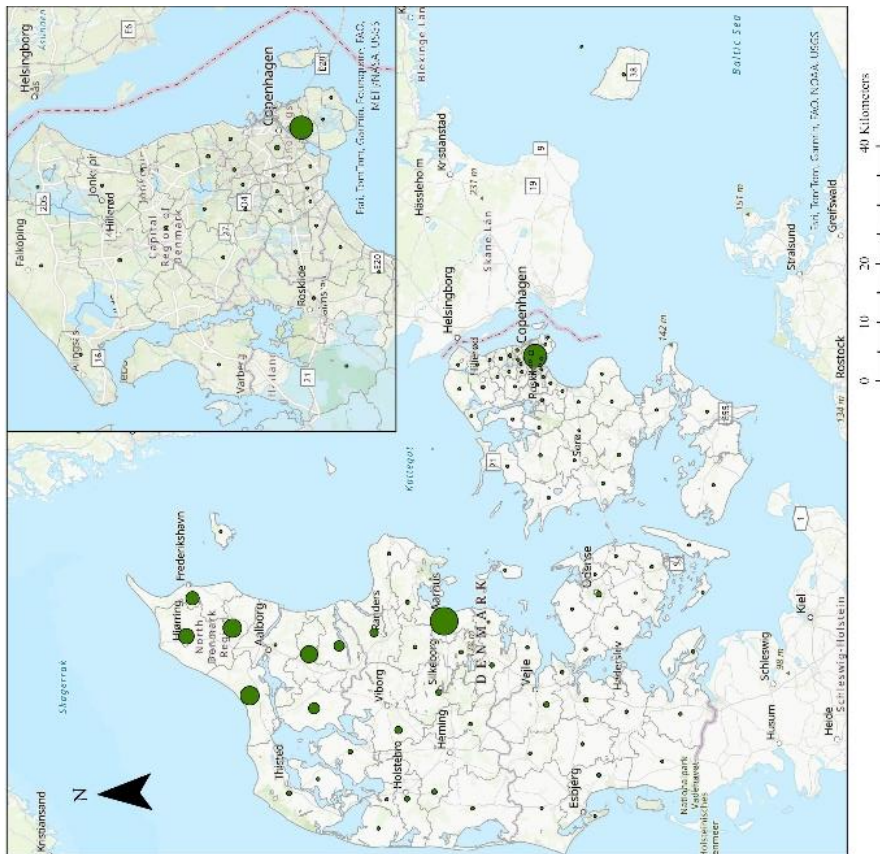


Figure 14. Where women that out-migrated from Aalborg moved to 2023





The municipalities with the most significant percentage change in women moving from Aalborg before, during, and after the pandemic are listed in *Table 1*. It's important to note that this table does not rank municipalities in order of women moving into them, but the ones that has experienced the largest percentual change during and after the pandemic. The changes between 2019 and 2021 shows the short-term effects of the pandemic, while 2021 to 2023 shows the medium-term effects. For the long-term effects of the pandemic on out-migration, more years must pass.

### Women moving from Aalborg per 1000 moves. <sup>6</sup>

*Table 1. Municipalities with the most significant percentage changes in women moving from Aalborg during and after the pandemic. It's worth noting that these figures represent the number of women moving into each municipality per 1000 total moves.*

Municipalities	2019–2021	Percentual change	Municipalities	2021–2023	Percentual change
<b>Nordfyns (I)</b> <i>Region Syddanmark</i>	<b>1,1</b>	+500%	<b>Vallensbæk (C)</b> <i>Region Hovedstaden</i>	<b>2,2</b>	+900%
<b>Faxe (I)</b> <i>Region Sjælland</i>	<b>0,8</b>	+400%	<b>Ringsted (I)</b> <i>Region Sjælland</i>	<b>2,2</b>	+900%
<b>Billund (R)</b> <i>Region Syddanmark</i>	<b>2,7</b>	+325%	<b>Tårnby (C)</b> <i>Region Hovedstaden</i>	<b>1</b>	+400%
<b>Sorø (I)</b> <i>Region Sjælland</i>	<b>0,7</b>	+300%	<b>Odsherred (R)</b> <i>Region Sjælland</i>	<b>1,3</b>	+250%
<b>Rudersdal (C)</b> <i>Region Hovedstaden</i>	<b>2</b>	+200%	<b>Fanø (R)</b> <i>Region Syddanmark</i>	<b>0,5</b>	+200%
<b>Lejre (I)</b> <i>Region Sjælland</i>	<b>0,4</b>	+200%	<b>Stevns (I)</b> <i>Region Sjælland</i>	<b>0,5</b>	+200%
<b>Slagelse (P)</b> <i>Region Sjælland</i>	<b>2</b>	+167%	<b>Dragør (C)</b> <i>Region Hovedstaden</i>	<b>0,5</b>	+200%
<b>Odder (I)</b> <i>Region Midtjylland</i>	<b>0,8</b>	+133%	<b>Greve (C)</b> <i>Region Sjælland</i>	<b>1,8</b>	+175%

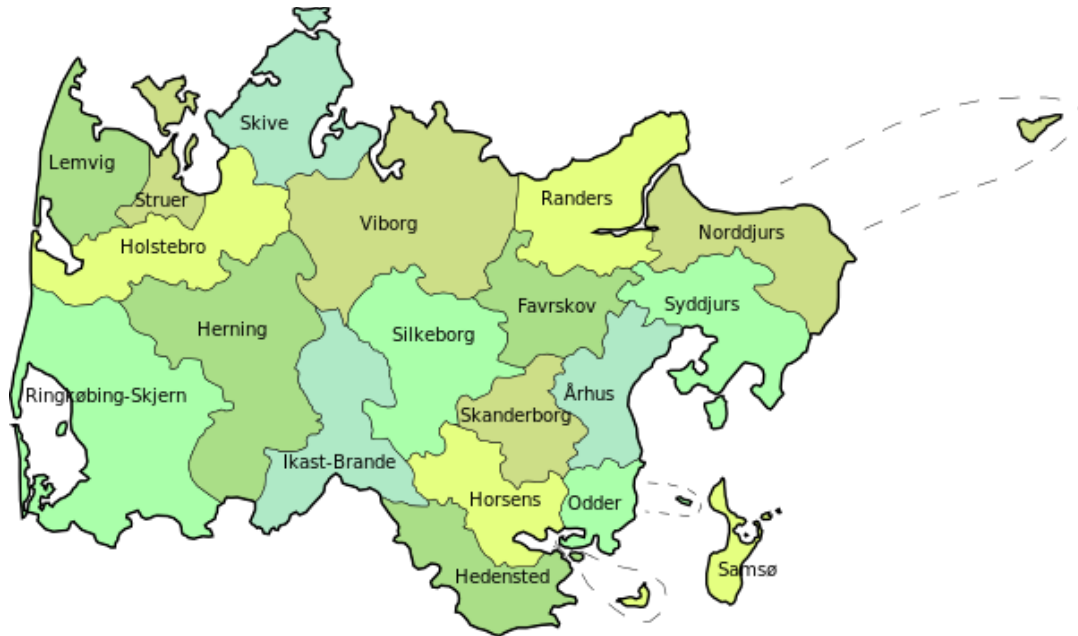
Notably, many of the municipalities that experienced the greatest gains during the pandemic were categorised as inland municipalities. Conversely, after the pandemic, many of the municipalities with the largest percentage changes were capital municipalities. Additionally, the medium-term effects, women showed a preference for municipalities neighbouring or close to Copenhagen/Frederiksberg.

$$^6 \%Change = \frac{New\ value - Old\ value}{Old\ value} * 100$$

$$Per\ 1000\ moves = \frac{Number\ of\ women\ moving\ that\ year}{Total\ number\ of\ moves} * 1000$$

## Aarhus – Region Midtjylland

Figure 15. Region Midtjylland



Analysing the movement of women from Aarhus between 2013 and 2023, depicted in *Figures 16 – 19*, reveals a consistent trend: neighbouring municipalities and Copenhagen are the most popular destinations.

From 2013 to 2019, there was a gradual increase in women relocating to nearby municipalities from Aarhus. Notably, Silkeborg, Odder, Skanderborg, Ringkøbing-Skjern, and Horsens experienced a significant in-migration from Aarhus, with all seeing a more than 50% increase in women moving from Aarhus.

During the pandemic, most municipalities surrounding Aarhus continued to attract more women than before. Exceptions were Holstebro, Ringkøbing-Skjern, and Struer, where the increase in women moving in was minimal. However, Favreskov, Lemvig, Hedensted, and even Samsø saw a rise in women relocating during the pandemic.

After the pandemic, all municipalities except Holstebro and Struer experienced a decrease in women moving in compared to during the pandemic. However, this decrease did not drop

below pre-pandemic levels. Instead, it remained consistent with the numbers seen in 2019 and preceding years.

The choice of Copenhagen as a destination for women from Aarhus showed a slight decline in 2019 compared to 2013, though not significant. However, during the pandemic, Copenhagen saw increased popularity among women from Aarhus, with a 25% rise in women moving to the city. This trend reversed after the pandemic, returning to pre-pandemic levels.

Figure 16. Where women that out-migrated from Aarhus moved to 2013

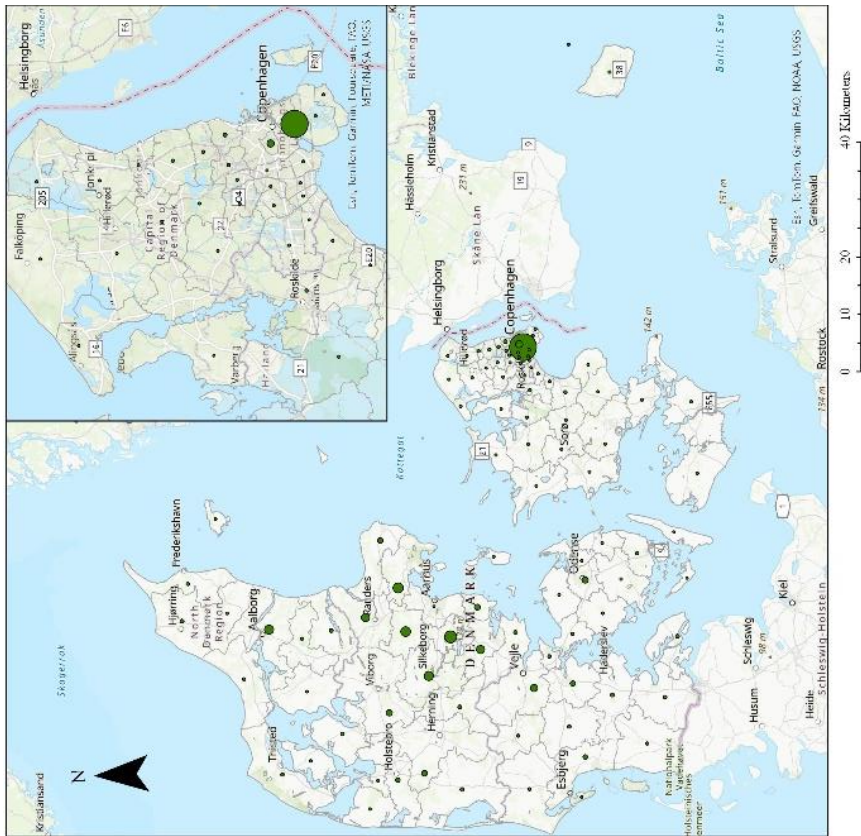


Figure 17. Where women that out-migrated from Aarhus moved to 2019





Figure 18. Where women that out-migrated from Aarhus moved to 2021



Figure 19. Where women that out-migrated from Aarhus moved to 2023



When examining the percentage change and its variations before, during, and after the pandemic, it's evident that the municipalities experiencing the most significant changes in women moving from Aarhus differ between the pandemic period and afterward. The municipalities with the largest percentage changes from previous years, as detailed in *Table 2*, are primarily located within Region Hovedstaden, Denmark's capital region. Halsnæs, Langeland, and Allerød recorded the highest percentage change during the pandemic, while Gribskov, Høje-Taastrup, and Helsingør saw the most significant changes after the pandemic.

### Women moving from Aarhus per 1000 moves.

*Table 2. Municipalities with the most significant percentage changes in women moving from Aarhus during and after the pandemic. It's worth noting that these figures represent the number of women moving into each municipality per 1000 total moves.*

Municipalities	2019–2021	Percentual change	Municipalities	2021–2023	Percentual change
<b>Halsnæs (I)</b> <i>Region Hovedstaden</i>	<b>0,3</b>	+300%	<b>Gribskov (I)</b> <i>Region Hovedstaden</i>	<b>1</b>	+400%
<b>Langeland (R)</b> <i>Region Syddanmark</i>	<b>0,5</b>	+250%	<b>Høje-Taastrup (C)</b> <i>Region Hovedstaden</i>	<b>2,5</b>	+250%
<b>Allerød (C)</b> <i>Region Hovedstaden</i>	<b>0,7</b>	+233%	<b>Helsingør (P)</b> <i>Region Hovedstaden</i>	<b>1,7</b>	+186%
<b>Ishøj (C)</b> <i>Region Hovedstaden</i>	<b>0,4</b>	+200%	<b>Ringstedt (I)</b> <i>Region Sjælland</i>	<b>0,9</b>	+175%
<b>Ballerup (C)</b> <i>Region Hovedstaden</i>	<b>1</b>	+157%	<b>Frederikssund (I)</b> <i>Region Hovedstaden</i>	<b>1,4</b>	+157%
<b>Samsø (R)</b> <i>Region Midtjylland</i>	<b>2,7</b>	+150%	<b>Læsø (R)</b> <i>Region Nordjylland</i>	<b>0,2</b>	+100%
<b>Herlev (C)</b> <i>Region Hovedstaden</i>	<b>0,8</b>	+150%	<b>Sorø (I)</b> <i>Region Sjælland</i>	<b>0,3</b>	+100%
<b>Brøndby (C)</b> <i>Region Hovedstaden</i>	<b>0,8</b>	+150%	<b>Stevns (I)</b> <i>Region Sjælland</i>	<b>0,3</b>	+100%

Aarhus exhibits distinct patterns compared to Aalborg in terms of the municipalities or classifications of municipality. During the pandemic, more capital municipalities experienced a larger percentage change compared to before the pandemic, whereas inland municipalities saw this change after the pandemic.



**Odense – Region Syddanmark**

Figure 20. Region Syddanmark



In Odense, the primary destinations for women's migration are Copenhagen and the surrounding municipalities on the island of Fyn. Analysis of *Figure 21-24* reveals that Copenhagen receives the highest number of women migrating from Odense. Among the municipalities surrounding Odense, Middelfart, Nyborg, and Kerteminde experienced the most significant increase in women moving from Odense to them, with growth rates ranging between 20% and 30% from 2013 to 2019. This trend continued with a steady increase in women relocating to these areas.

However, the pattern shifted during the pandemic, with all municipalities experiencing a surge in the number of women moving to them. Svendborg witnessed the most substantial increase, with a 40% rise in women compared to before the pandemic, followed by Kerteminde with a 20% increase. Interestingly, Copenhagen, which had seen a decline in the number of women migrating from Odense from 2013 to 2019, experienced a reversal during the pandemic. In 2021, it recorded the highest number of women moving there from Odense.

Similar to trends observed in Aalborg and Aarhus, there was a decrease in the number of women moving from Odense to nearby municipalities. Most municipalities on Fyn received fewer women from Odense, although the decline compared to 2019 was not significant.

Figure 21. Where women that out-migrated from Odense moved to 2013



Figure 22. Where women that out-migrated from Odense moved to 2019

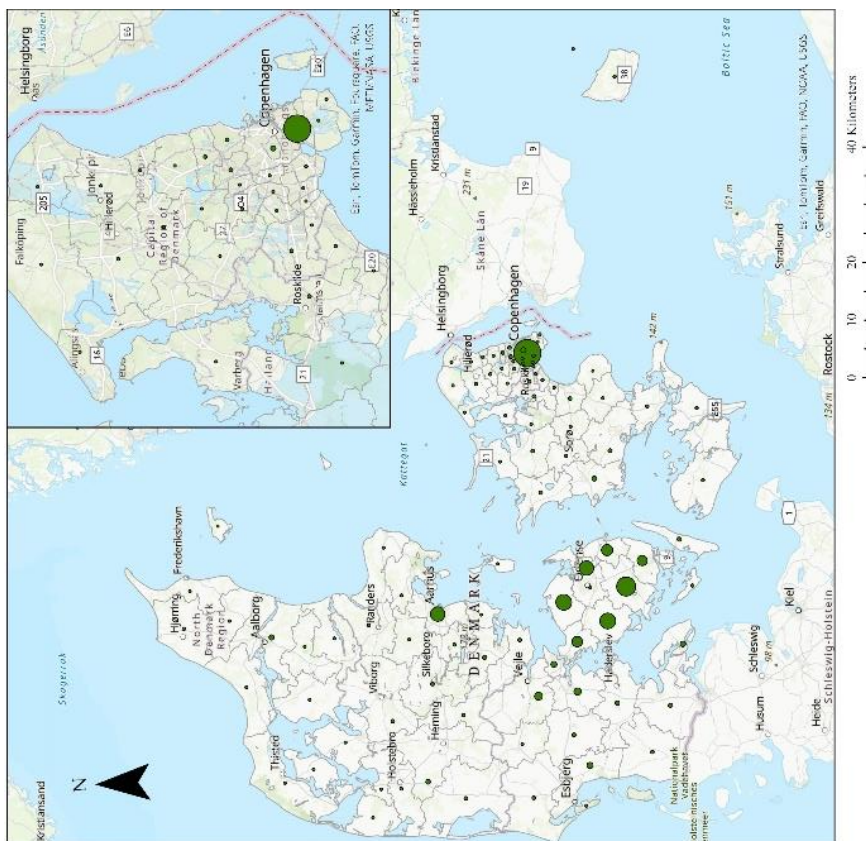


Figure 23. Where women that out-migrated from Odense moved to 2021

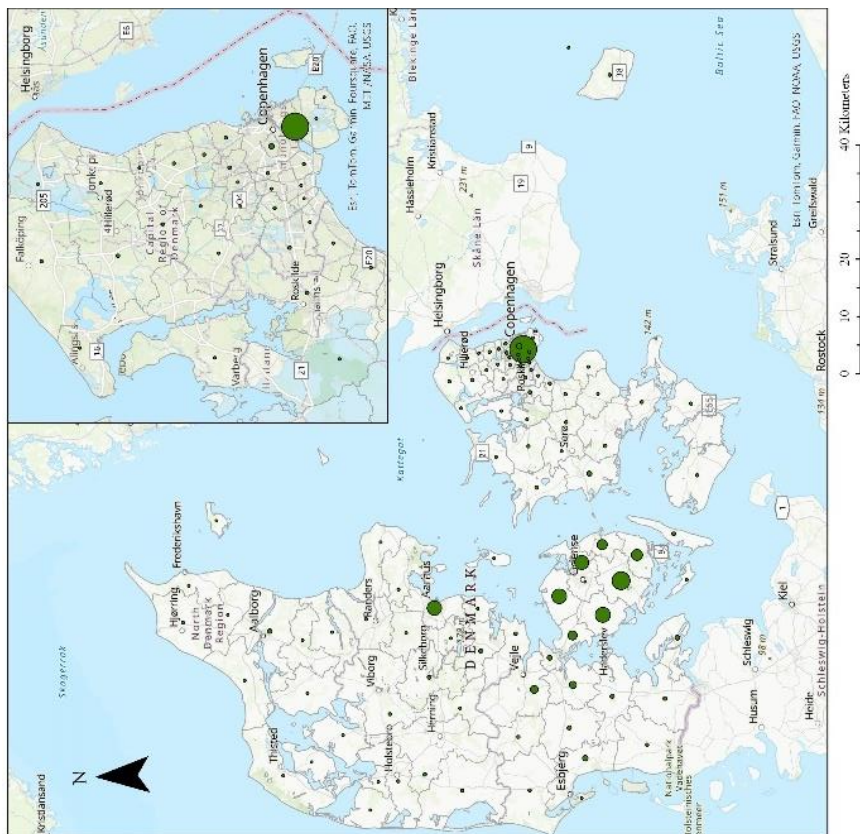


Figure 24. Where women that out-migrated from Odense moved to 2023





The municipalities with the largest percentual change in women's out-migration from Odense during the pandemic were Stevns, Gribskov, and Lejre, as indicated in *Table 3*. Notably, the top five municipalities consist of either Inland or Rural municipalities, followed by three Capital municipalities. It's worth mentioning that the rural and inland municipalities are situated outside of Region Syddanmark, where Odense is located.

### Women moving from Odense per 1000 moves.

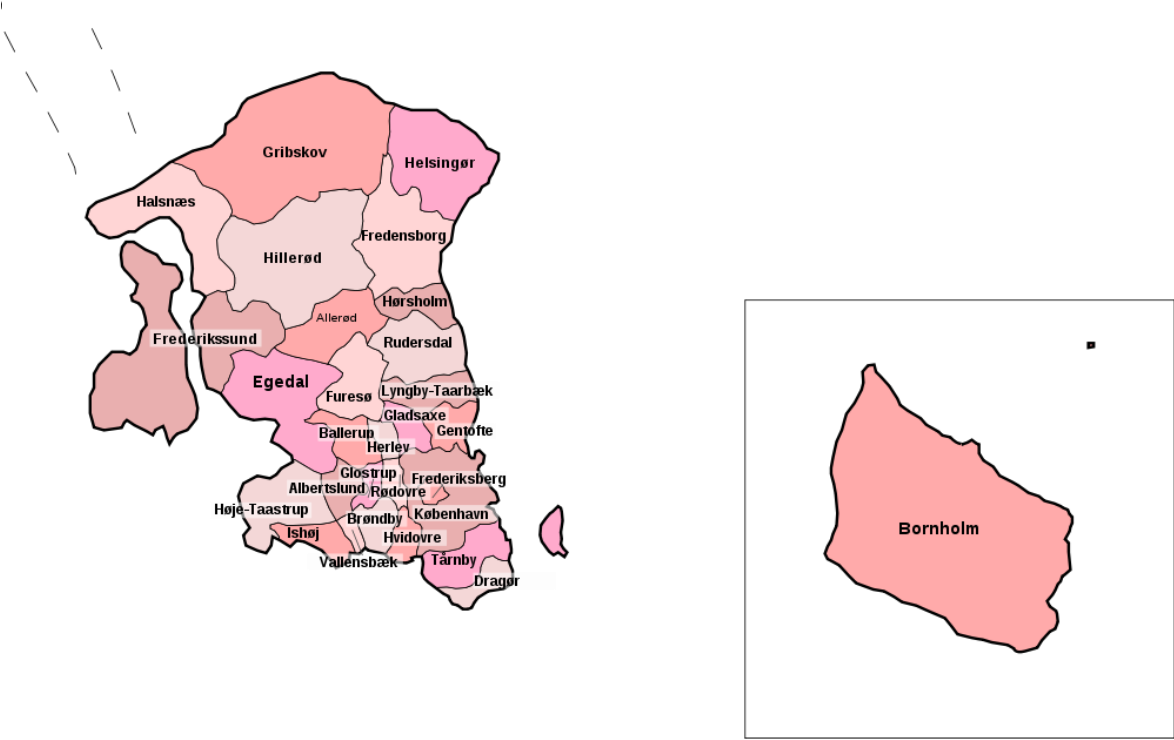
*Table 3. Municipalities with the most significant percentage changes in women moving from Odense during and after the pandemic. These figures represent the number of women moving into each municipality per 1000 total moves.*

<b>Municipalities</b>	<b>2019-2021</b>	<b>Percentual change</b>	<b>Municipalities</b>	<b>2021-2023</b>	<b>Percentual change</b>
<b>Stevns (I)</b> <i>Region Sjælland</i>	<b>1</b>	+500%	<b>Vallensbæk (C)</b> <i>Region Hovedstaden</i>	<b>3,1</b>	+650%
<b>Gribskov (I)</b> <i>Region Hovedstaden</i>	<b>1,7</b>	+300%	<b>Fanø (R)</b> <i>Region Syddanmark</i>	<b>0,7</b>	+300%
<b>Lejre (I)</b> <i>Region Sjælland</i>	<b>1</b>	+250%	<b>Sorø (I)</b> <i>Region Sjælland</i>	<b>3,7</b>	+250%
<b>Faxe (I)</b> <i>Region Sjælland</i>	<b>1</b>	+250%	<b>Odder (I)</b> <i>Region Midtjylland</i>	<b>0,5</b>	+200%
<b>Frederikshavn (R)</b> <i>Region Nordjylland</i>	<b>1</b>	+250%	<b>Brøndby (C)</b> <i>Region Hovedstaden</i>	<b>2,8</b>	+157%
<b>Ishøj (C)</b> <i>Region Hovedstaden</i>	<b>1,3</b>	+233%	<b>Herlev (C)</b> <i>Region Hovedstaden</i>	<b>1,3</b>	+125%
<b>Solrød (C)</b> <i>Region Hovedstaden</i>	<b>1,5</b>	+200%	<b>Furesø (C)</b> <i>Region Hovedstaden</i>	<b>2,1</b>	+114%
<b>Albertslund (C)</b> <i>Region Hovedstaden</i>	<b>1,4</b>	+133%	<b>Dragør (C)</b> <i>Region Hovedstaden</i>	<b>0,3</b>	+100%

After the pandemic, Capital municipalities account for five of the municipalities with the largest percentual change. Notably, Fanø, an island in Region Syddanmark outside of Esbjerg, experienced the second largest percentual change after the pandemic. Before the pandemic, it typically saw one to two women moving there, whereas during the pandemic, one woman moved in, followed by four in 2023.

**Copenhagen/Frederiksberg – Region Hovedstaden and Region Sjælland**

*Figure 25. Region Hovedstaden*



*Figure 26. Region Sjælland*



From the capital city of Copenhagen and the municipality within Copenhagen, Frederiksberg, the migration patterns of women who move out predominantly revolve around neighbouring municipalities such as Aarhus, with some to Aalborg and Odense. Seen in *Figure 27-30* Gentofte emerges as the most popular destination for women migrating from Copenhagen and Frederiksberg, closely followed by Gladsaxe and Aarhus.

Before the pandemic, most neighbouring municipalities experienced an increase in the number of women relocating from Copenhagen/Frederiksberg. Those that saw a decrease did so by -1% or less. Albertslund and Allerød recorded the highest increases. Additionally, Aalborg, Odense, and Aarhus also saw a slight uptick in women moving in from Copenhagen/Frederiksberg.

During the pandemic years, the migration patterns to neighbouring municipalities remained relatively stable. Herlev and Vallensbæk were among the few municipalities that experienced a decrease in the number of women moving in, albeit not significantly, with Herlev at -5% and Vallensbæk at -0.5%. Aalborg and Aarhus saw a slight decrease, while Odense witnessed an increase. Interestingly, most municipalities did not experience a decline in the number of women moving from Copenhagen/Frederiksberg. Out of 96 municipalities, only 20 had a decrease in women moving in from these areas. Notably, 2021 marked the year with the highest out-migration of women from Copenhagen/Frederiksberg during the 10-year period examined in this thesis.

After the pandemic, in contrast to the other three municipalities studied, around half of the neighbouring municipalities experienced an increase in the number of women moving there. However, for Aalborg, Aarhus, and Odense, the trend among neighbouring municipalities reversed from the pandemic years back to levels seen before the pandemic. This holds true for some municipalities in terms of out-migration from Copenhagen and Frederiksberg as well. Ishøj, Lyngby-Taarbæk, and Glostrup, for instance, saw a decrease post-pandemic but returned to pre-pandemic levels.

Figure 27. Where women that out-migrated from Copenhagen/Frederiksberg moved to 2013



Figure 28. Where women that out-migrated from Copenhagen/Frederiksberg moved to 2019





Figure 29. Where women that out-migrated from Copenhagen/Frederiksberg moved to 2021

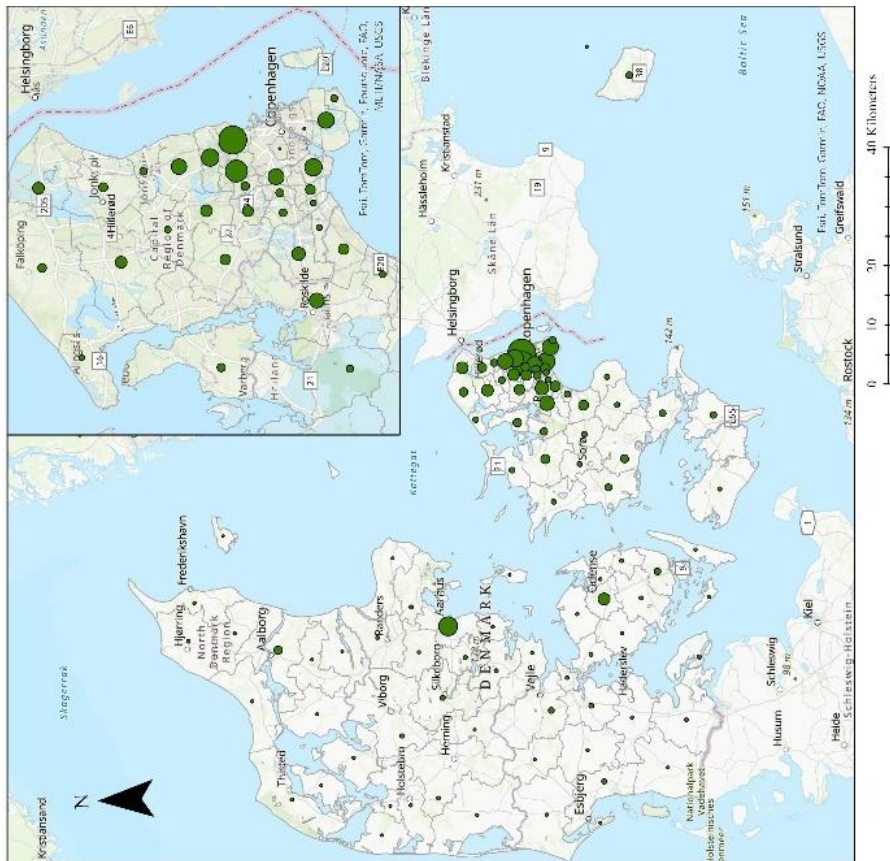


Figure 30. Where women that out-migrated from Copenhagen/Frederiksberg moved to 2023





During the pandemic, the top municipalities that experienced the largest percentual change were two islands located in Jylland: Læsø, situated outside Aalborg, and Morsø, positioned between Thisted and Skive. Seen in *Table 4* Læsø notably led the percentual change during the pandemic, showing a substantial increase from one to two women moving there to three women in 2020 and 2021. The other municipalities on the list witnessed a notable change in the number of women moving in during the pandemic, only to see a decrease back to pre-pandemic levels afterward.

Post-pandemic, two municipalities near Copenhagen/Frederiksberg made the list: Vallensbæk and Ballerup. Both municipalities exhibited a gradual change during the period before the pandemic, experiencing slight increases before decreasing again. However, during the pandemic, Ballerup witnessed a decrease, while Vallensbæk remained relatively stable. After the pandemic, both municipalities experienced an increase in the number of women moving in, surpassing any numbers seen in previous years and accounting for the highest number of women moving into the municipalities over the 10-year period examined.

### Women moving from Copenhagen/Frederiksberg per 1000 moves.

*Table 4. Municipalities with the most significant percentual change in women moving from Copenhagen/Frederiksberg during and after the pandemic. These figures represent the number of women moving into each municipality per 1000 total moves.*

Municipalities	2019-2021	Percentual change	Municipalities	2021-2023	Percentual change
<b>Læsø (R)</b> <i>Region Nordjylland</i>	<b>0,1</b>	+200%	<b>Vesthimmerlands (R)</b> <i>Region Nordjylland</i>	<b>0,4</b>	+55%
<b>Morsø (R)</b> <i>Region Nordjylland</i>	<b>0,2</b>	+80%	<b>Ikast-Brande (I)</b> <i>Region Midtjylland</i>	<b>0,6</b>	+50%
<b>Odder (I)</b> <i>Region Midtjylland</i>	<b>0,5</b>	+67%	<b>Morsø (R)</b> <i>Region Nordjylland</i>	<b>0,3</b>	+44%
<b>Nyborg (I)</b> <i>Region Syddanmark</i>	<b>1,1</b>	+63%	<b>Haderslev (R)</b> <i>Region Syddanmark</i>	<b>0,7</b>	+31%
<b>Assens (I)</b> <i>Region Syddanmark</i>	<b>0,6</b>	+58%	<b>Billund (R)</b> <i>Region Syddanmark</i>	<b>0,3</b>	+31%
<b>Syddjurs (I)</b> <i>Region Midtjylland</i>	<b>0,9</b>	+57%	<b>Tønder (R)</b> <i>Region Syddanmark</i>	<b>0,3</b>	+29%
<b>Langeland (R)</b> <i>Region Syddanmark</i>	<b>0,3</b>	+47%	<b>Vallensbæk (C)</b> <i>Region Hovedstaden</i>	<b>2,8</b>	+23%
<b>Hillerød (P)</b> <i>Region Hovedstaden</i>	<b>5,4</b>	+47%	<b>Ballerup (C)</b> <i>Region Hovedstaden</i>	<b>6,5</b>	+22%

In summary, the analysis of migration trends from Aalborg, Aarhus, Odense, and Copenhagen/Frederiksberg have showed that most women tend to move to one of the neighbouring municipalities and major urban centres seeking new living and working environments.

Aalborg, Aarhus, and Odense witnessed increased out-migration during 2020-2021, followed by a decline in 2022-2023. Meanwhile, Copenhagen/Frederiksberg consistently displayed high out-migration rates, particularly during the pandemic years.

The short-term and medium-term effects for the out-migrated women were similar for Aalborg, Aarhus and Odense. Women moved to Inland municipalities in Region Hovedstaden or Region Sjælland. For Copenhagen/Frederiksberg, the short-term percentage effects were on Inland municipalities around in Denmark and the medium-term effect were to rural municipalities around in Denmark. Why they did not have similar patterns as the other three examined municipalities could either be because the municipalities showing in *table 1 – 3* are the neighbouring municipalities and somewhere women out-migrating from Copenhagen/Frederiksberg already move to. Other explanations could be that the women came from the municipalities mentioned in *table 4*, wanted to move further away from Copenhagen/Frederiksberg.

### **Commuting distance**

From 2013 to 2021, there has been an increase in number of women commuting over 10 kilometres to work, particularly in region Sjælland and the municipalities surrounding Copenhagen and Frederiksberg. Similar trends are observed around Aarhus, Denmark's second-largest city. Notably, no municipality has shown a decrease in the percentage of women commuting long distances during this period.

Specifically, municipalities with under 25% of the female population commuting less than 10 kilometres to work include Odense, Copenhagen, Tårnby, Gentofte, and Rødovre. These areas, except of Odense, are predominantly situated around the Copenhagen/Frederiksberg region. Additionally, isolated islands with ferry connections to the mainland, such as Christiansø, Læsø, Samsø, Ærø, and Fanø, also exhibit low percentages of women commuting over 10 kilometres.

Examining the change between 2019 and 2021, a period spanning the time before and during the pandemic, reveals some shifts. Municipalities on Sjælland, such as Gribskov, Frederikssund, Furesø, Hørsholm, and Faxe, experienced increases in commuting distances among women. Notably, these municipalities had already shown a propensity for longer commutes since 2013.

Furthermore, municipalities with consistently high percentages of female workers commuting long distances since 2013 include Lejre, Solrød, and Egedal on Sjælland, as well as Rebild in Jylland.

Figure 31. Percentage of women living in the municipality commuting more than +10 kilometre between home and work. 2013.

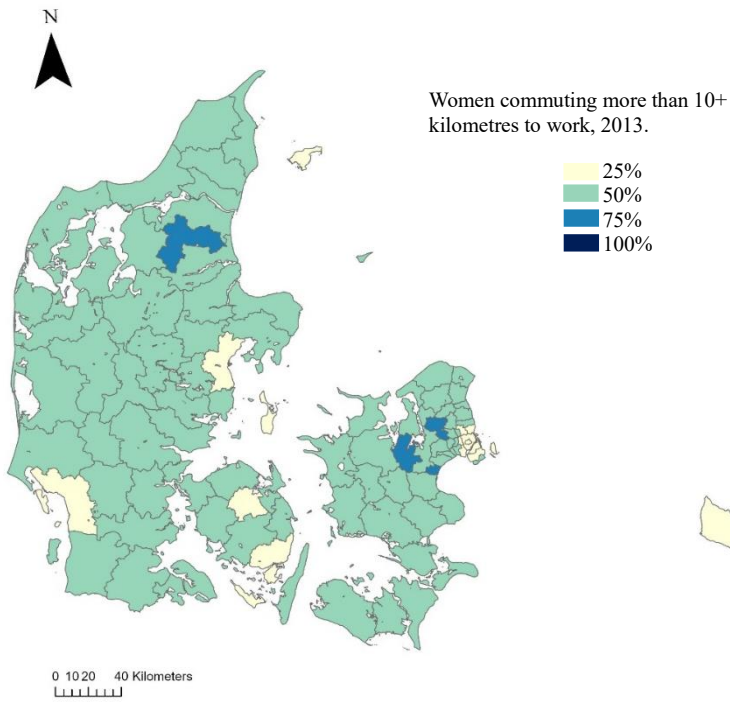


Figure 32. Percentage of women living in the municipality commuting more than +10 kilometre between home and work. 2016.

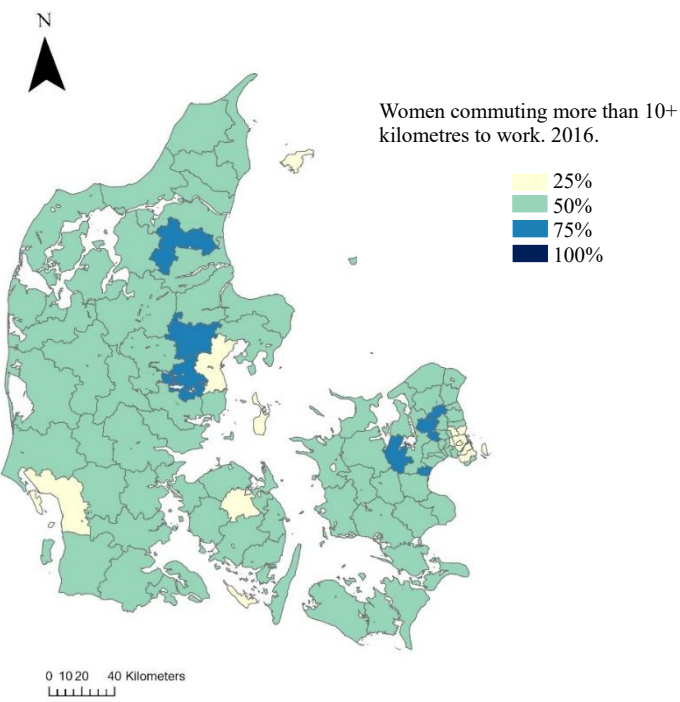


Figure 33. Percentage of women living in the municipality commuting more than +10 kilometre between home and work. 2019.

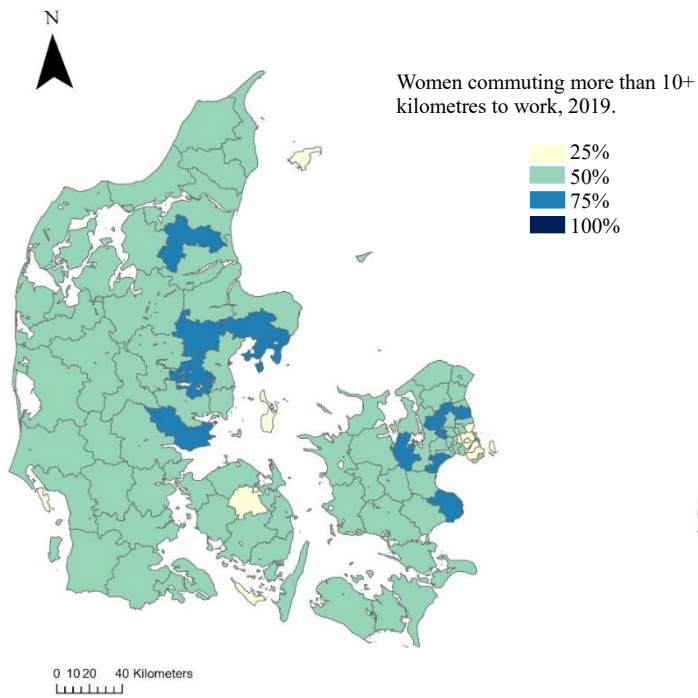
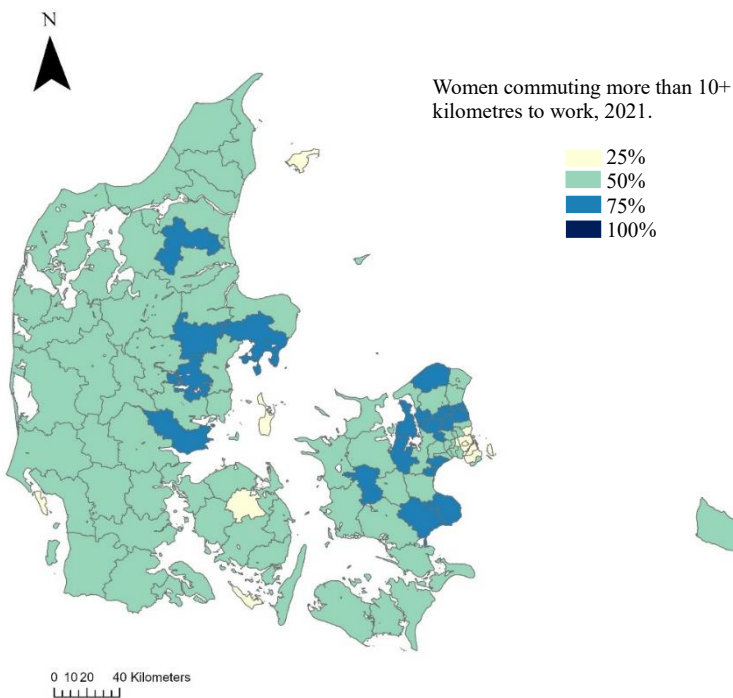


Figure 34. Percentage of women living in the municipality commuting more than +10 kilometre between home and work. 2021.



The largest percentage change in commuting distance over 10 kilometres for women was observed in Læsø, with a 25% increase. Læsø, an island without a bridge connection, requires ferry or private boat transport to the mainland (Visit Læsø, 2024). Following closely is Samsø, also an island without a bridge, necessitating ferry or private boat transportation (Visit Samsø, 2024). Ikast-Brande, located in southern Jylland, experienced a 12% increase, while Høje-Taastrup and Tårnby, neighbouring municipalities of Copenhagen, saw 9% increases. Stevns, further from the capital, experienced an 8% rise. Kerteminde and Middelfart, situated in Fyn, demonstrated 7% and 6% increases, respectively.

A closer examination of commuting distances ranging from 10 to 50+ kilometres reveal consistent trends across municipalities. Notably, remote work during the pandemic did not significantly alter commuting patterns. Hørsholm consistently tops the list for women commuting 20-30 kilometres, indicating proximity to Copenhagen/Frederiksberg. Similarly, Solrød, Roskilde, Fredensborg, and Hillerød are frequent contenders in the 30-40 and 40-50-kilometre categories, located within close range of major urban centres.

For women commuting over 50 kilometres, municipalities such as Ringsted, Faxe, and Holbæk are prominent, indicating long-distance travel for employment. Notably, the island of Christiansø appeared in 2016 statistics, despite its small population.

Table 5. The top five municipalities that has had the largest percentual change before the pandemic and during in number of women commuting 10-20 kilometre, 20-30 kilometres, 30-40 kilometres, 40-50 kilometres and +50 kilometres.<sup>7</sup>

<b>Municipalities</b>	<b>percentual change 2019-2021</b>
<b>Læsø</b>	+25%
<b>Samsø</b>	+18%
<b>Ikast-Brande</b>	+12%
<b>Høje-Taastrup</b>	+9%
<b>Tårnby</b>	+9%
<b>Stevns</b>	+8%
<b>Kerteminde</b>	+7%
<b>Middelfart</b>	+6%

<sup>7</sup> %Change =  $\frac{\text{New value} - \text{Old value}}{\text{Old value}} * 100$

Table 6. The top five municipalities with highest percentage of women living in the municipality (aged 20-69) commuting between 10 to 20 kilometres to work in 2013, 2016, 2019 and 2021.

	10-20K	10-20K	10-20K	10-20K	10-20K
<b>2013</b>	Vallensbæk 33%	Dragør 33%	Lyngby-Taarbæk 30%	Furesø 29%	Rudersdal 28%
<b>2016</b>	Vallensbæk 35%	Dragør 34%	Lyngby-Taarbæk 30%	Furesø 30%	Rudersdal 29%
<b>2019</b>	Vallensbæk 36%	Dragør 36%	Furesø 31%	Lyngby-Taarbæk 31%	Ballerup 29%
<b>2021</b>	Vallensbæk 37%	Dragør 35%	Lyngby-Taarbæk 33%	Furesø 32%	Rudersdal 31%

Table 7. The top five municipalities with highest percentage of women living in the municipality (aged 20-69) commuting between 20 to 30 kilometres to work in 2013, 2016, 2019 and 2021.

	20-30K	20-30K	20-30K	20-30K	20-30K
<b>2013</b>	Hørsholm 23%	Egedal 23%	Greve 22%	Allerød 21%	Odder 19%
<b>2016</b>	Hørsholm 25%	Egedal 24%	Allerød 23%	Greve 22%	Rebild 20%
<b>2019</b>	Hørsholm 26%	Egedal 25%	Greve 23%	Allerød 23%	Rebild 21%
<b>2021</b>	Hørsholm 28%	Egedal 27%	Greve 24%	Allerød 23%	Rebild 22%

Table 8. The top five municipalities with highest percentage of women living in the municipality (aged 20-69) commuting between 30 to 40 kilometres to work in 2013, 2016, 2019 and 2021.

	30-40K	30-40K	30-40K	30-40K	30-40K
<b>2013</b>	Solrød 18%	Roskilde 13%	Fredensborg 13%	Hillerød 12%	Frederikssund 10%
<b>2016</b>	Solrød 19%	Roskilde 14%	Fredensborg 13%	Hillerød 13%	Køge 11%
<b>2019</b>	Solrød 19%	Roskilde 15%	Fredensborg 14%	Hillerød 13%	Frederikssund 12%
<b>2021</b>	Solrød 20%	Roskilde 16%	Fredensborg 15%	Hillerød 14%	Frederikssund 13%

Table 9. The top five municipalities with highest percentage of women living in the municipality (aged 20-69) commuting between 40 to 50 kilometres to work in 2013, 2016, 2019 and 2021.

	40-50K	40-50K	40-50K	40-50K	40-50K
<b>2013</b>	Lejre 11%	Køge 9%	Helsingør 8%	Stevns 7%	Frederikssund 6%
<b>2016</b>	Lejre 13%	Køge 9%	Helsingør 9%	Stevns 7%	Frederikssund 7%
<b>2019</b>	Lejre 13%	Køge 10%	Helsingør 9%	Silkeborg 8%	Stevns 8%
<b>2021</b>	Lejre 13%	Køge 10%	Helsingør 10%	Silkeborg 9%	Stevns 9%

Table 10. The top five municipalities with highest percentage of women living in the municipality (aged 20-69) commuting 50+ kilometres to work in 2013, 2016, 2019 and 2021.<sup>8</sup>

	+50K	+50K	+50K	+50K	+50K
<b>2013</b>	Ringsted 13%	Faxe 12%	Holbæk 10%	Næstved 10%	Sorø 10%
<b>2016</b>	Ringsted 14%	Christiansø 14%	Faxe 13%	Holbæk 11%	Næstved 11%
<b>2019</b>	Ringsted 15%	Faxe 14%	Næstved 12%	Holbæk 12%	Sorø 12%
<b>2021</b>	Ringsted 15%	Faxe 14%	Næstved 12%	Holbæk 12%	Sorø 12%

The shifts in commuting patterns among women in Denmark has increased throughout the years. The pandemic did not lead to a substantial increase in the commuting distance compared to before the pandemic. Number of women commuting increased, but not noticeably much. The most notable change is the increases observed in municipalities lacking bridge connections to the mainland. Despite the pandemic and increased remote work opportunities, commuting distances remained largely unchanged. Key municipalities near major urban centres consistently feature in various commuting distance categories, reflecting regional employment dynamics and transportation infrastructure.

<sup>8</sup> % of women commuting =  $\frac{\text{Number of women commuting from municipality aged 20-69}}{\text{number of women living in the municipality aged 20-69}} * 100$



## Conclusion

The objective of this analysis is to explore the migration patterns of women from major municipalities in Denmark and how their commuting distances to work have changed from 2013 to 2021, with a particular focus on the impact of the COVID-19 pandemic.

Between 2020 and 2021, there was a noticeable increase in the number of women relocating from Aalborg, Aarhus, Odense, and Copenhagen/Frederiksberg compared to pre-pandemic levels. While previous studies indicated a stagnation in out-migration from large cities post-pandemic, data suggests that for Copenhagen/Frederiksberg, there was a resurgence in women leaving these areas in 2023. In 2023, more than 10,000 women relocated from Copenhagen/Frederiksberg compared to 2019. This trend indicates that the pandemic and the rise of remote work have influenced women to move to other municipalities.

Following Florida et al.'s (2020) post-COVID predictions, Denmark reflects a similar trend for Copenhagen/Frederiksberg, with more women out-migrating after the pandemic compared to before it. Although this thesis primarily focuses on out-migration, the data does not provide insights into whether those who out-migrated during the pandemic have since returned to the studied municipalities. Florida (2023) found that in the US, people who out-migrated during the pandemic tended to move back once it was over. Without data on return migration, the net migration for Aalborg, Aarhus, Odense, and Copenhagen/Frederiksberg is not analysed.

Examining migrating women across individual municipalities revealed a trend of movement towards nearby and neighbouring municipalities, as well as major urban centres. However, when examining the percentage change over short-term and medium-term periods, inland and capital municipalities emerged as the most popular destinations. Notably, Aalborg, Aarhus, and Odense saw an increase in women relocating to capital municipalities in Region Hovedstaden, while Copenhagen/Frederiksberg experienced a rise in migration towards rural and inland municipalities.

For short-term effects, the top 8 destination municipalities varied for each analysed municipality. Aarhus's top 8 included mainly capital municipalities such as Allerød, Ishøj, and Ballerup. In contrast, Aalborg, Odense, and Copenhagen/Frederiksberg's top 8 were predominantly inland municipalities. Specifically, most of Aalborg and Odense's top 8 were in

Region Sjælland, including Stevns, Sorø and Gribskov. While Copenhagen/Frederiksberg's top 8 were spread across Region Nordjylland, Midtjylland, and Syddanmark, including Odder, Nyborg and Syddjurs.

For medium-term effects, the trends shifted slightly. Aalborg and Odense's top 8 destination municipalities were mainly capital municipalities in Region Hovedstaden, with municipalities like Vallensbæk, Tårnby and Brøndby. Aarhus, however, had most of its top 8 as inland municipalities in Region Sjælland, including Gribskov, Ringstedt and Frederiksund. Meanwhile, Copenhagen/Frederiksberg's top 8 were primarily rural municipalities in Region Syddanmark, Vesthimmerlands, Morsø and Haderslev.

The data also indicates a rise in the number of women commuting more than 10 kilometres to work over the years. This increase may be attributed to either a deliberate choice to seek employment further from home or to relocation resulting in longer commutes. However, there is no conclusive evidence suggesting that the pandemic and the subsequent rise in remote work significantly impacted commuting behaviours. However, in some cases the pandemic resulted in an increase in commuting distances, such as in Læsø and Samsø.

In 2021, municipalities like Egedal and Lejre saw over 60% of their female residents commuting more than 10 kilometres to work, a trend observed in various communities across Sjælland and Jylland. Despite the overall increase in commuting distances, surveys made by Dansk Erhverv (2023) indicate that Danes are less motivated to undertake longer commutes compared to previous years. While the data only extends to 2021, trends suggest that commuting distances have either remained stable or increased marginally post-pandemic. Not following in line with Dansk Erhverv's survey.

The data revealed that capital municipalities and provincial areas were among those with the highest rates of remote work. This trend can be attributed to the greater availability of remote work opportunities in capital cities, while many provincial areas still require significant travel distances for work. However, metropolitan municipalities, Aalborg, Aarhus, and Odense, where the bottom municipalities with women working remotely at least once in four weeks. This does not go in line with other Nordic countries, for instance both Sweden and Norway's municipalities with most women working remotely was metropolitan municipalities. Why Denmark does not follow their neighbour countries trend with having metropolitan

municipalities being in the top municipalities of remote work could depend on different aspects. For instance, the work opportunities for remote work, the primary age of the work force or the infrastructure of the municipalities.

### **Future research**

This thesis has shed light on the shifting migration patterns of women from major municipalities in Denmark, it triggers to be answered for further research that delve to deeper into the dynamics of for example urban-to-rural migration, particularly in the context of increased remote work opportunities.

Previous studies have outlined common reasons for people moving out of large cities, such as a desire to return to their hometowns, retirement, or job prospects. However, with the emergence of new migration patterns and the rise of remote work, the relationship between urban and rural areas may be undergoing significant changes.

To explore these changes comprehensively, future studies should consider segmenting the data by age and family status. Previous literature suggests that women's experiences with flexible work arrangements often vary based on family status, highlighting the need for a nuanced examination of the impact of increased remote work on women's work-life balance in Denmark. As seen in the conceptual foundation section, the flexibility with remote work has as mentioned by Chung and van der Horst (2018) been beneficial for first- and second-time mothers to come back to the labour market after giving birth. On the contrast, Alon, et.al (2020) found proof that it was harder for women during the pandemic, taking on more responsibilities with domestic chores and childcare. Additionally, qualitative research could provide valuable insights into the motivations behind women's relocation decisions, how these relocations have impacted their lives, and whether easier access to remote or hybrid work played a role.

Furthermore, future research should extend its focus to migration trends in smaller municipalities. This entails assessing how women moving to these areas have been affected, whether positively or negatively, and the degree to which these relocations were driven by personal choice or external factors, such as familial decisions. Additionally, examining how smaller municipalities have responded to an arrival of newcomers, historically managed by

provincial municipalities and inland municipalities, would provide valuable insights into the social and economic implications of shifting population dynamics.

For future studies, inland municipalities such as Odder, Gribskov, and Stevns could be prioritised as central points for investigating how women in these areas navigate remote work opportunities and longer commutes to urban centres. In all three municipalities, there is a significant portion of the female population commuting over 10 kilometres one way to work. Odder is notable for its inclusion in the list of top municipalities experiencing the largest percentage change in short-term and medium-term effects, particularly as a destination for relocation among the four largest municipalities. Gribskov, during the pandemic, saw over 50% of its female population commuting more than 10 kilometres. Additionally, both Gribskov and Stevns have been among the top municipalities experiencing a percentage change in women relocating due to the pandemic. Stevns stands out as one of the top five municipalities where women commute between 40 to 50 kilometres for work. Another municipality of interest is Egedal, a capital municipality where over 60% of the female population commutes over 10 kilometres to work. Understanding how these communities adapt to the evolving landscape of work and migration is crucial for informing policy decisions and ensuring equitable opportunities for all residents across Denmark.

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### **Images:**

Image 1. Wikipedia (2024) Danmarks regioner  
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Image 2. Wikipedia (2024) Region Nordjylland  
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Image 3. Wikipedia (2024) Region Midtjylland  
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Image 5. Wikipedia (2024) Region Hovedstaden  
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