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Back to the countryside? Remote work and counterurbanisation in Denmark and Sweden

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ABSTRACT

This study examines migration from Copenhagen and Stockholm's capital city areas (CCA) to rural destinations (2014–2023), focusing on migrant characteristics, COVID-19's impact, and the role of remote work. Utilising longitudinal micro-register data and logistic regression, we analyse counterurbanisation patterns in two Nordic countries sharing cultural similarities but differing markedly in population density and geography. The findings reveal fundamental cross-country differences. Denmark exhibits strong socioeconomic stratification, where highly educated, high-skilled workers avoid rural migration, whilst high earners drive a "wealthy rural exodus" seeking amenity-rich lifestyles. Sweden demonstrates spatial flexibility, with rural migration broadly distributed across social groups, though migration distances increase with workers' level of education regardless of destination. A key finding is remote work's divergent role as a mobility shock. In Denmark, higher work-from-home (WFH) probability paradoxically reduces CCA-to-rural migration, reinforcing metropolitan attachment, a pattern intensified during the pandemic. Sweden shows the opposite, where remote work gradually expanded the feasible migration radius, with higher WFH probabilities associating with notably longer distances to both rural and urban destinations, particularly post-pandemic. Understanding these dynamics provides crucial insights for policymakers managing population redistribution and sustainable rural development, where remote work increasingly drives residential preferences. Rural municipalities can proactively leverage the counterurbanisation trend, which is driven by desires for improved well-being and affordability, by investing in digital infrastructure and emphasising local amenities such as environmental sustainability, cultural offerings, and social inclusivity to attract and retain new residents.

1. Introduction

The COVID-19 pandemic profoundly reshaped labour markets, accelerating flexible work adoption and challenging traditional assumptions about work and residence. Remote and hybrid models renewed interest in counterurbanisation, i.e. the internal migration from cities to rural areas, reminiscent of the 1970s trend (Beale 1975) but debated as temporary or lasting (Andersen et al., 2022; Tammaru et al., 2023; Correa, 2025; Eliasson et al., 2025; Javakhishvili-Larsen and Andersen, 2024; Westlund et al., 2024; Schröpf and Kovalenko, 2026). Between 2020 and 2022, many countries experienced net city outflows, exemplified by the U.S. "Donut Effect" (Ramani and Bloom, 2021) and similar rural gains in Australia, Germany, and Sweden (Borsellino et al., 2022; Stawarz et al., 2022; Correa, 2025; Schröpf and Kovalenko, 2026). Nordic capitals, including Helsinki, Reykjavik, Copenhagen, and Stockholm, also saw outmigration, particularly among remote workers (Randall et al., 2022; Bogason et al., 2024; Correa, 2025; Bjerke and Mellander, 2017). Whether these shifts represent enduring decentralisation or short-term disruption remains uncertain.

The aim of this study is to examine migration patterns from the capital regions of Copenhagen (Denmark) and Stockholm (Sweden) to rural destinations, with a focus on migrant characteristics and the impact of the COVID-19 pandemic. Using longitudinal micro-register data from Denmark and Sweden covering the period 2014–2023, combined with logistic regression analysis, the study conducts an exploratory comparative analysis of migrants originating from the Capital City Area (CCA). It compares individuals relocating to rural areas with those remaining within the CCA or moving to other urban locations, also

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assessing whether these movements occur over shorter or longer distances. Furthermore, the study explores how the COVID-19 pandemic and the expansion of remote work opportunities have influenced the migration decisions and destination choices of CCA out-migrants, distinguishing between relocations to rural and urban municipalities. As noted by Spilthoven and Merlevede (2025, p.3), most scholars define remote work as work-related activities performed partly or mainly outside the traditional workplace. This definition serves as a broad term encompassing teleworking, homeworking, work-from-home and other flexible arrangements. Given that, in both countries, remote work typically represents a flexible and informal arrangement between employer and employee, this paper uses the terms remote work and work-from-home interchangeably.

This study makes three key contributions to the literature on migration, counterurbanisation, and the geography of remote work. It first enhances contextual understanding by comparing counterurbanisation trends in Denmark and Sweden, revealing how differences in population density and geography shape migration motivations and the role of remote work. Second, it advances migration theory by systematically integrating remote work, linking migrant profiles and rural attractors while showing how ICT has shifted from centralising to enabling spatial dispersion. Third, using longitudinal register data from 2014 to 2023, it assesses the pandemic-induced migration trends, distinguishing lasting decentralisation from temporary relocation. Although post pandemic period (2022–2023) provides a vital baseline for early normalisation after the COVID-19 shock, it may be too brief to confirm lasting structural change, as ongoing adjustments in housing, labour markets, and policies indicate an evolving trajectory.

Together, these contributions provide a detailed, empirically grounded account of contemporary counterurbanisation in the Nordic context. Additional to scientific contributions, the comparative analysis has practical implications, as understanding of these dynamics are valuable to inform policymakers and planning practitioners to manage population redistribution and rural development in an era where remote work and emerging possibility of work-life balance increasingly drive residential preferences.

Before the pandemic, urban resurgence was driven by knowledge economies, where agglomeration economies and face-to-face interactions concentrated activity in large cities (Santos and Fernández, 2023). Initially, Information and Communication Technology (ICT) reinforced this centralization, but its diffusion into smaller towns and rural regions has since shifted some advantages toward virtual connectivity (Westlund and Borseková 2025). ICT now potentially facilitates dispersed innovation and collaboration, reducing geographic dependency and reframing agglomeration through networked externalities.

Remote work has emerged as a transformative force in migration dynamics. The rise of "telemigration," "digital nomadism," and widespread work-from-home (WFH) practices enables high-skilled professionals to access employment independent of residential location (Baldwin, 2019; Hannonen, 2020; Sostero et al., 2023; Behrens et al., 2024; Dyba and Di Maria, 2024; Spithoven and Merlevede, 2025; Yahmed et al., 2025; Correa, 2025). These developments have begun to reshape urban structures and labour markets (Behrens et al. 2024; Javakhishvili-Larsen et al. 2026), favouring rural areas as the pandemic altered the perceived value of urban versus rural amenities (Westlund et al., 2024).

Remote work feasibility largely depends on occupational characteristics, i.e., non-manual, knowledge-intensive jobs, flexible for remote working (Dingel and Neiman, 2020; Faber et al., 2020; Sostero et al., 2023). Across the EU, about 37% of dependent employment is technically suitable for remote work (Sostero et al., 2023; Behrens et al., 2024), influencing residential preferences toward quality of life, nature, and affordability. As urban costs rise and amenities lose appeal, rural areas can attract migrants by promoting sustainability, connectivity, and liveability (Andersen et al., 2022; Javakhishvili-Larsen and Andersen, 2024). Counterurban migrants often combine economic and lifestyle motivations, seeking proximity to nature, family ties, and community attachment (Javakhishvili-Larsen and Andersen, 2024; Andersen et al., 2011).

This article is structured into five main sections. The second section reviews recent literature and highlights existing research gaps. The third section outlines the Danish and Swedish micro-register data, geography and the empirical approach employed in this study. The fourth section presents the results of the analysis, and the final section offers concluding remarks of the findings.

2. Literature review

Counterurbanisation, defined as internal migration from urban towards rural or peripheral areas, has long been a focus in economic geography and regional studies. First identified in the 1970s as a "population turnaround," it reflected metropolitan decline alongside rural growth (Beale 1975; Berry, 1976). The concept encompasses both rural growth within urbanisation processes and direct migration from large cities to less dense regions, including suburbs and exurbs (Bijker and Haartsen, 2012; Champion, 1989; Mitchell, 2004). Net migration intensity remains the key indicator of counterurbanisation (Cheng et al., 2024; Mitchell, 2004). While prominent during industrial crises and a cultural shift toward preferences for living close to nature in the 1970s (Westlund et al., 2024), this trend was succeeded in the 1980s by reurbanisation linked to knowledge economy expansion and metropolitan innovation (Eliasson et al., 2025; Westlund et al., 2024).

In recent years, digitalization and the spread of remote work, accelerated by the COVID-19 pandemic, have revived counterurbanisation debates, enabling people to live rurally while maintaining urban-based jobs (Andersen et al., 2022; Delventhal et al., 2022; Ramani and Bloom, 2021; Tammaru et al., 2023; Javakhishvili-Larsen and Andersen, 2024). Hybrid work models increasingly support this flexibility (Dyba and Di Maria, 2024; Bogason et al., 2024; Eliasson et al., 2025). The degree of flexibility, i.e., how suitable different occupations are for remote work, has become central, varying by sector, digital infrastructure, and job tasks (Dingel and Neiman, 2020; Sostero et al., 2023; Javakhishvili-Larsen et al. 2026; Yahmed et al., 2025). Professions well suited to remote work, such as finance and management, contrast with manual and service jobs requiring physical presence (Eurofound 2022). According to Javakhishvili-Larsen et al. (2025), while many sectors experienced sharp increases in unemployment, others (such as finance, real estate, and information) where remote work was possible, grew by 2% in Denmark during the first year of the pandemic, providing opportunity to relocate. Rising demand for rural housing and second homes highlights growing appreciation for nature and amenities beyond cities (Westlund et al., 2024). This aligns with the "post-urban hypothesis," which suggests technological advances and declining interaction costs are weakening the traditional link between residence and workplace, fostering more dispersed settlement patterns (Westlund and Borseková 2025; Javakhishvili-Larsen and Andersen, 2024; 2025).

The Nordic countries provide a valuable context for examining contemporary counterurbanisation due to their distinct urban hierarchies, economic structures, and welfare models. Theories rooted in Anglo-American contexts often overlook the nuances of Nordic migration, including diverse migrant motivations and the regionally varied role of remote work (Grimsrud, 2011; Andersen et al., 2022; Bijker and Haartsen, 2012; Bjerke and Mellander, 2017). Nordic municipalities increasingly view digital and remote work as tools to attract and retain residents by investing in digital infrastructure and quality of life (Bogason et al., 2024). Even before the pandemic, the region led Europe in remote work adoption owing to flexible work cultures, high digital competence, and the strong presence of knowledge- and IT-intensive sectors supported by high social trust (Randall et al., 2022).

In Denmark, about 35% of the workforce regularly works remotely (Javakhishvili-Larsen et al. 2026). Since the pandemic, migration from

Copenhagen to suburban and provincial areas has increased, primarily involving younger, employed men with tertiary education (Andersen et al., 2022; Javakhishvili-Larsen and Andersen, 2024; Nørgaard et al., 2023). Rural destinations attract distinct groups: secondary towns draw higher-income, university-educated professionals in knowledge-intensive sectors, while smaller villages attract lower-income individuals with vocational backgrounds (Javakhishvili-Larsen and Andersen, 2024; Nørgaard et al., 2023). Additionally, public decentralization policies have promoted the migration of highly educated workers to rural areas since 2015 (Andersen et al., 2022; Nørgaard et al., 2023).[2]

In Sweden, Stockholm's long-term trend of net out-migration intensified during the pandemic, with most movers relocating to other metropolitan or large urban regions, while tourism-oriented rural municipalities experienced strong relative inflows (Eliasson et al., 2025). Counterurban migrants are typically aged 30–44, university-educated, and employed in occupations well suited to remote work, often attracted to amenity-rich destinations (Eliasson et al., 2025). Swedish counterurbanisation includes both "open" migration visible in registers and "hidden" migration through increased second-home use, both contributing to rural growth (Westlund et al., 2024). Return migration of educated families to their home regions also plays a key role (Sandow and Lundholm, 2023). Similar but context-specific dynamics occur across other Nordic countries, supported by decentralization policies, co-working facilities, and youth retention initiatives (Bogason et al., 2024; Olafsen et al., 2023).

Cross-country comparative research on counterurbanisation and remote work remains limited, primarily due to variations in data availability and inconsistencies in urban-rural classifications and remote work definitions (Eliasson et al., 2015; Javakhishvili-Larsen et al. 2026; Westlund et al. 2024). To date, no comparative study has systematically examined these dynamics across the Nordic countries in this context. Further research is needed to evaluate the long-term effects of remote work capabilities and the effectiveness of future policies aimed at promoting sustainable rural development. This paper addresses key gaps in recent counterurbanisation research, particularly the uncertainty surrounding the persistence of pandemic-induced migration trends and the need for context-specific, cross-country analysis. While working from home (WFH) has emerged as an important determinant of residential choice, most studies on the geography of remote work remain descriptive. This study advances the field by systematically linking migrant profiles, including those maintaining employment in capital regions, with the characteristics of rural destinations, thereby assessing whether recent migration shifts represent enduring decentralisation or temporary adjustment, and whether there are a notable common trend or differences between two countries.

3. Data, hypothesis and empirical strategy

Denmark and Sweden are two Nordic countries in Scandinavia with many similarities in e.g. culture, living standard and social security, but also with great differences in e.g. population density. Agriculture has by tradition had a strong position in Denmark but today its share of GDP is less than 1 % in both Denmark and Sweden. Sweden has a population of ca 10.6 million and a land area of 407 284 km^2. The population density is 26 inhabitants per km^2. Denmark's population is 6.0 million, with a land area of 42 952 km^2 and a population density of 141 inhabitants per km^2, which makes it one of the most densely populated countries in Europe. In both countries there are big differences in population densities between the biggest cities and peripheral rural areas. However, the capital regions are fairly similar in population size. The Copenhagen Capital Region has a population of about 1.8 million and the Stockholm Capital Region (Stockholm County) has a population of close to 2.5 million. Also, despite the difference in area, the length of public roads per 1000 inhabitants are almost similar: 13.6 km in Sweden and 12.5 km in Denmark. However, one difference that stands out is the number of second homes per 1000 inhabitants. In Sweden, it is 59.2 while in Denmark the number is 37.5, i.e. almost 60% higher in Sweden. One possible explanation can be found in that Swedish second homes are denominated "leisure houses", of which a substantial part is used during winter as well, while the Danish second homes are called "summer houses", indicating their use mainly during the summer.

By comparing counterurbanisation patterns in Denmark and Sweden after 2014, this study examines whether trends and determining factors are similar or differ between the two countries, which share many similarities but have markedly different population densities and urban-rural geography. Although Santos and Fernández (2023) argue that the urban-rural dichotomy does not adequately represent current patterns of peri-urbanisation, the following sections summarise country-specific heuristics for urban-rural classification to facilitate comparative analyses.

3.1. Municipality classification (DK and SE)

3.1.1. Urban-rural divide in Denmark

Denmark's 98 municipalities function as local government units comprising a main city and surrounding settlements. Despite sharing similar administrative structures, they differ in their level of urbanisation. Statistics Denmark developed a formal classification dividing municipalities into five groups based on two dimensions: the size of the largest city and accessibility to jobs. Job accessibility serves as a key indicator of both employment opportunities and broader access to economic activity and services.

These five distinct groups are the ***Capital City Area (CCA)*** that includes Copenhagen and its surrounding municipalities with job accessibility exceeding 200,000. ***Metropolitan*** municipalities have accessibility below 200,000 but include cities with at least 100,000 inhabitants, such as Aarhus, Aalborg, and Odense. ***Provincial*** municipalities, though smaller, retain urban characteristics and have a largest city of at least 30,000 inhabitants. ***Commuter (Hinterland)*** municipalities have cities under 30,000 inhabitants but relatively high job accessibility of at least 40,000. Finally, ***Rural*** municipalities are characterized by small population centres (under 30,000) and low job accessibility below 40,000 (Figure A1 in the Appendices).

In this study, we define migration flows from the CCA as the place of *origin*. We include both Commuter (hinterland) and Rural areas as *destination* municipalities because of their similar socioeconomic characteristics - one serving as the hinterland of urban centres and the other as peripheral, remote, or historically rural communities. The second and third groups -Metropolitan and Provincial municipalities are classified as *other urban areas* in this study. In 2023, approximately 902,000 people were employed in the Capital City Area (CCA), representing a 4% increase in its share of total Danish employment since 2014. Rural areas, including Commuter and Rural municipalities, employed about 1 million people, but their employment share declined by 10% over the same period. Meanwhile, other urban areas, comprising Metropolitan and Provincial municipalities, employed around 1.1 million people, with their share increasing by 6% since 2014 (see Table 1).

3.1.2. Urban-rural divide in Sweden

Sweden has in total 290 municipalities that vary considerably in population, area and population density. There are a number of different divisions of the municipalities. One example is the organisation Swedish Municipalities and Regions' (SKR) division in nine group of municipalities after population size in the municipality and its biggest central place, share of workforce commuting to other municipalities, and function as centre for tourism (and combinations of these factors). In this

[2] Examples of such policies are out-location of governmental agencies to regional centres in both countries, and establishment of new universities and colleges in all regions in Sweden.

Table 1
Employment in Danish municipalities by urbanisation type and their growth between 2014 and 2023.

Municipality Classification Groups	No. of mun.	2014	2023	Growth	2014	2023	Growth
		No. of employed			% of employed		
1. CCA	24	755970	902534	19%	28.1	29.2	4%
2. Metropolitan	3	342009	416700	22%	12.7	13.5	6%
3. Provincial	16	617907	707940	15%	23.0	22.9	0%
4. Commuter	24	436023	491118	13%	16.2	15.9	-2%
5. Rural	31	540219	570000	6%	20.1	18.5	-8%
Total in DK	**98**	**2692128**	**3088292**	**15%**	**100**	**100**	**0%**

Source: Statistics Denmark. Authors' calculations.

study, where we focus solely on the urban-rural divide, we use a definition used in several previous Swedish studies (Westlund et al., 2014; Naldi et al., 2021; Rex and Westlund, 2024) in which the municipalities are classified into four municipality types (MT): (MT 1) metropolitan areas (N = 46), (MT 2) urban areas (N = 47), (MT 3) rural areas/countryside (N = 164), and (MT 4) sparse populated rural areas (N = 33) (See Table 2 and Appendix for a map of the four groups).

The four types are defined in the following way: Metropolitan areas (MT 1) include municipalities where 100 % of the population lives within cities or within a 30 km distance from the cities. Based on this definition, there are three metropolitan areas in Sweden: Stockholm, Gothenburg and Malmö, containing in total 46 municipalities. Urban areas (MT 2) are defined as municipalities having more than 30,000 inhabitants and where the largest city has a population of at least 25,000. Smaller municipalities neighbouring these urban municipalities are included in a local urban area if more than 50 % of the labour force in the smaller municipality

commutes to the neighbour municipality. In practice, this group consist of Sweden's regional centres and a few satellite municipalities. Rural areas (MT 3) are defined as municipalities not included in the metropolitan areas or urban areas, if they have a population density of at least 5 people per square kilometre. Sparse populated rural areas (MT 4) consist of the rest; municipalities not included in the three categories above and having less than 5 people per square kilometre.

In this study, we merge the two rural groups to one group, consisting of in total 197 municipalities.

3.2. Data and dependent and independent variables

This study uses detailed longitudinal data from Danish and Swedish statistical agencies covering all residents in both countries. Focusing on migration patterns before, during, and after COVID-19 and the influence of remote work, we restrict our sample to individuals aged 24–74 in primary employment, excluding secondary jobs.

We begin at age 24 because, although labour market entry typically starts at 18, most people remain in their parental home until their mid-twenties. By 24, individuals have likely established independent households and make autonomous residential decisions. The upper limit of 74 accounts for substantial labour market participation beyond the statutory retirement age of 69 in both countries, reflecting increased longevity and healthy aging.

Our panel dataset spans 2014–2023. We begin in 2014 when both economies had recovered from the 2008–2009 financial crisis, providing a baseline of normal migration behaviour (2014–2019). This allows us to identify changes during the pandemic lockdown (2020–2021) and post-pandemic period (2022–2023), as restrictions ended by late 2021 and life largely normalized by 2022.

We address two research questions. First, what distinguishes individuals who migrate from capital city areas (CCAs) to rural municipalities from those who remain in CCAs and those who move to other urban areas? Second, have there been observable changes in remote working patterns among CCA out-migrants across the three periods: pre-pandemic (2014–2019), pandemic (2020–2021), and post-pandemic (2022–2023)?

To examine these patterns, we employ dependent variables capturing migration decisions and independent variables reflecting Remote Working probability, supplemented by demographic and socioeconomic controls to understand migrant heterogeneity.

3.2.1. Dependent variables: "shall i stay or shall i go…"

To examine outmigration from Capital City Areas (CCAs) to rural municipalities and distinguish counterurban migrants from other movers, we define four dependent variables capturing migration status and spatial patterns. The first, DV1: Migration Status (CCA vs. Rural), differentiates individuals who remain in the CCA (0) from those relocating to rural areas (1). This variable identifies the socio-demographic and employment factors distinguishing counterurban migrants from stayers, offering insight into the drivers of rural migration.

In Denmark, most individuals (approximately 84–88%) remain in capital city area (CCA) municipalities, while 11–15% out-migrate from CCA. Among all movers, only 6–8% undertake counterurban migration from CCA to rural areas. As shown in Figure A4:1 in Appendix, both groups have grown gradually since 2014. A distinct COVID-19 effect emerged: outmigration to rural areas rose by 14% in 2020 and by about 30% in 2021 compared to 2019. Following the lifting of restrictions, this trend reversed, with rural outmigration falling by 14% in 2022 and a further 19% in 2023, returning to a normalised, steady growth pattern (Figure A4:1 in the Appendix).

In Sweden, both stayers in the CCA and counterurban migrants increased steadily between 2014 and 2023, with marked rural growth in the late 2010s and a peak around 2021. Although most residents remained in the CCA, the surge and subsequent decline in rural moves suggest that counterurban migration intensified during the pandemic before stabilising. Overall, it has become more common but remains a minor share of the metropolitan population (Figure A4:2 in the Appendix).

The second dependent variable, DV2, distinguishes individuals migrating from CCA municipalities to other urban areas (0) from those relocating to rural municipalities (1). This measure assesses whether counterurban migrants differ systematically from those moving to other urban centres, revealing whether rural migration reflects distinct socio-demographic or employment characteristics compared to CCA-to-urban moves.

DV1 and DV2 are both binary variables and they measure the last[3] residential movement to the destination municipality during the migration year.

Schröpf and Kovalenko (2026) provide evidence of a negative and highly significant distance gradient, arguing that, regardless of the destination, firms prefer to stay close to their origin to minimise costs. This pattern may also apply to individual's migration decisions, thus we

[3] To minimize the influence of temporary relocations within a calendar year, we consider only the last recorded residential move for each individual. This approach is further validated by cross-checking the residential address in the subsequent year to ensure the move reflects a permanent change in residence.

Table 2
Employment in Swedish municipalities by urbanisation type and their growth between 2014 and 2023.

Municipality Classification Groups	No. of mun.	2014	2023	Growth	2014	2023	Growth
		No. of employed			**% of employed**		
Stockholm MA (CCA)	24	1058843	1249039	18%	22.7	23.1	1%
Gothenburg MA	11	438095	530730	21%	9.4	9.8	4%
Malmö MA	11	299685	378729	26%	6.4	7.0	9%
Urban areas	47	1356034	1593696	18%	29.1	29.5	1%
Rural areas	164	1370534	1519296	11%	29.4	28.1	-5%
Sparse rural areas	33	132609	139674	5%	2.8	2.6	-9%
Total in Sweden	**290**	**4655800**	**5411164**	**16%**	**100.0**	**100.0**	**0%**

Source: Statistics Sweden. Authors' calculations.

also include two continuous measures of migration distance: DV3, Log Distance to Rural, and DV4, Log Distance to Urban, representing the logarithmic transformations of distances from origin to rural and urban destinations, respectively. The transformation normalises skewed distributions and reduces the influence of extreme values. In both countries, distance is measured as the shortest travel distance between the centres of origin and destination municipalities, based on official definitions.

In Denmark, counterurban migrants from CCA municipalities to rural areas travel shorter distances on average than those relocating to urban municipalities. The mean distance for rural migration (DV3) is about 79 km, compared with 85 km for urban migration (DV4) (Figure A4:3 in the Appendix). This difference reflects Denmark's geography: the CCA, located on Zealand, is surrounded by nearby rural municipalities, while major urban centres are primarily situated on the more distant Jutland peninsula (Figure A1 in the Appendix).

In Sweden, migration distances from the CCA between 2014 and 2023 show a consistent pattern: urban migrants (DV4) travel substantially farther than rural migrants (DV3). Urban migration distances average 280–300 km, peaking at around 300 km in 2016 and dipping to about 275 km during 2020–2021, likely due to COVID-19 restrictions, before rising again to roughly 295 km by 2023. Rural migrants travel shorter distances, averaging 225–240 km, with only minor fluctuations. The persistent 50–60 km gap between urban and rural migrants suggests a systematic difference in relocation range. Overall, both streams remain stable over time, with the pandemic causing only modest, temporary changes (see Figure A4:4 in the Appendix).

These patterns suggest that counterurban migration is shaped by lower relocation costs and greater accessibility of rural destinations compared with urban alternatives. Shorter distances reduce both financial and social barriers, making rural moves more feasible for those seeking lifestyle changes without severing ties to the capital region. In contrast, moves to other urban municipalities typically involve longer travel and crossing regional boundaries, implying stronger economic or employment motivations. Overall, the data underscore the role of spatial structure and transport accessibility in shaping migration decisions.

Together, DV1 and DV2 capture migration choices, while DV3 and DV4 reflect spatial variation in relocation. Figure A3 in the Appendix illustrates the structure and rationale of these dependent variables.

3.2.2. Independent and control variables

The key independent variables capture temporal and work-related factors shaping migration decisions. *WFH Probability* measures each individual's likelihood of remote work (0.02–0.915), reflecting occupational flexibility based on Javakhishvili-Larsen et al. (2026) using Labour Force Survey data and actual work-from-home claims.

Demographic controls include gender, age group (24–34, 35–49, 50–64, 65 +), and family structure (married/cohabiting, or single), accounting for life-course and household effects on mobility. Socioeconomic controls capture educational attainment (primary to long higher), employment sector (public or private), industry (NACE-based), and wage quartiles (1st-4th), reflecting economic resources and job characteristics influencing relocation feasibility. Locational control variables include municipal house prices (2023-adjusted), representing housing market conditions in the CCA and their influence on migration incentives. While our model accounts for the economic incentives of relocation through average housing prices per square meter, it does not explicitly control for housing types (e.g., detached houses versus flats). Given that the pandemic may have altered household preferences for different residential forms, we use prices as a proxy to partially capture such qualitative shifts in demand. The pandemic likely increased the appeal of detached housing and private outdoor spaces, rendering rural destinations attractive not only for their lower relative costs but also for the lifestyle amenities unavailable in dense urban apartment settings.

Descriptive statistics for all variables are presented in Tables A1 (Denmark) and A2 (Sweden) in the Appendix. Together, these variables provide a comprehensive framework linking pandemic context, occupational flexibility, demographic structure, and spatial economic conditions to migration behaviour.

3.3. Empirical strategy

The empirical strategy examines the characteristics of individuals migrating from the capital region (CCA) and how these differ by destination and distance. The analysis first compares rural migrants with stayers in the CCA (DV1), then contrasts rural movers with those relocating to other metropolitan or urban municipalities (DV2). It also incorporates spatial dimensions by analysing migration distances by destination type (DV3 and DV4). Binary outcome models are used for migration choices and continuous models for distance measures, enabling a comprehensive assessment of behavioural and spatial aspects of migration. The following section details the modelling approach, variable operationalisation, and estimation techniques. The research question (RQ) and sub-questions are as follows:

RQ1: What characterizes migrants from the Capital City Area?

What distinguishes rural migrants from CCA stayers? (DV1)

What distinguishes rural migrants from urban migrants from CCA? (DV2)

How does migration distance differ by destination type, such as Rural (DV3) vs. Urban (DV4)?

We estimate the models for all years, introducing time fixed effects for migration year *t*. Migration patterns are compared across demographic and socioeconomic characteristics for each dependent variable: DV1 and DV2 (Eq. 1) using logistic models, and DV3 and DV4 (Eq. 2) using linear regression models.

(Eq. 1)

$$\log\left(\frac{P(DV_{it}=1)}{1-P(DV_{it}=1)}\right) = \beta_0 + \beta_1 WFH_{it} + \sum_{k=1}^{K}\gamma_k IV_{kit}^{demographic} + \sum_{m=1}^{M}\delta_m IV_{mit}^{soc.econ.} + \theta Locational_{zt} + \omega_t + \varepsilon_{it}$$

Where,

Table 3
Movers from the CCA to rural areas vs. stayers in the CCA (DV1 in Average Marginal Effects (AME)) in Denmark and Sweden.

	Denmark	Sweden
	2014–2023	2014–2023
WFH Probability	-0.0088***	0.00008***
Gender: Female vs. Male	0.0003***	0.00003*
Reference: Age 24–34		
Age: 35–49	-0.0133***	-0.00016***
Age: 50–64	-0.0146***	-0.00010***
Age: 65 <	-0.0123***	0.00007
Reference: Single		
Family: Married	-0.0036***	-0.00012***
Family: Living Together	0.0012***	0.00000
Reference: Primary Education		
Edu: Upper Secondary	-0.0013***	-0.00002
Edu: Vocational	-0.0022***	0.00005*
Edu: Short Higher	-0.0026***	-0.00001
Edu: Middle Higher	-0.0027***	-0.00001
Edu: Long Higher	-0.0070***	0.00000
Reference: Private Sector		
Sector: Public	-0.0010***	0.00001
Reference: Primary and Industry		
NACE: Service	0.0003*	0.00010***
NACE: Business Services	-0.0003	0.00007**
NACE: Public	0.0037***	0.00008**
NACE: Other Private	0.0037***	0.00005
Reference: Manual Skilled Occupations		
High Skilled Occupation	-0.0020***	0.00001
Service Skilled Occupation	-0.0004**	-0.00006**
Reference: 1st Quartile Wage		
Wage: 2nd Quartile	0.0060***	-0.00005
Wage: 3rd Quartile	0.0112***	-0.00006
Wage: 4th Quartile	0.0272***	-0.00003
House Price (fixed 2023)	-0.0000***	-0.00001***
Observations	4686,932	9061,281

Note: The table shows the Average Marginal Effects (AME) extracted from the post-Logistic regression model. The coefficients should be interpreted as times 100, i.e. in percentage points. The tables with Odd Ratios and Robust Standard Errors can be provided on request.
***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

Table 4
Movers from the CCA to rural areas vs. movers from the CCA to urban areas (DV2 in AME) in Denmark and in Sweden.

	Denmark	Sweden
	2014–2023	2014–2023
WFH Probability	-0.0742***	-0.0085***
Gender: Female vs. Male	0.0009	0.0267***
Reference: Age 24–34		
Age: 35–49	0.0785***	0.0471***
Age: 50–64	0.1637***	0.1200***
Age: 65 <	0.2282***	0.1615***
Reference: Single		
Family: Married	0.0314***	0.0450***
Family: Living Together	0.0106***	0.0484***
Reference: Primary Education		
Edu: Upper Secondary	-0.0602***	-0.0346***
Edu: Vocational	-0.0275***	-0.0069*
Edu: Short Higher	-0.0578***	-0.0554***
Edu: Middle Higher	-0.0595***	-0.0698***
Edu: Long Higher	-0.1012***	-0.0977***
Reference: Private Sector		
Sector: Public	0.0134**	-0.0293***
Reference: Primary and Industry		
NACE: Service	-0.0144**	-0.0156***
NACE: Business Services	-0.0150**	-0.0281***
NACE: Public	-0.0024	-0.0059
NACE: Other Private	0.0033	-0.0160***
Reference: Manual Skilled Occupations		
High Skilled Occupation	-0.0451***	-0.0463***
Service Skilled Occupation	-0.0408***	-0.0367***
Reference: 1st Quartile Wage		
Wage: 2nd Quartile	0.0168***	-0.0258***
Wage: 3rd Quartile	0.0247***	0.0066
Wage: 4th Quartile	-0.0028	0.0102
House Price (fixed 2023)	-0.0000	-0.0002***
Observations	95,039	145,852

Note: The table shows the Average Marginal Effects (AME) extracted from the post-Logistic regression model. The coefficients should be interpreted as times 100, i.e. in percentage points. The tables with Odd Ratios and Robust Standard Errors can be provided on request.
***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

DV_{it}: the binary dependent variable (DV1 or DV2), for individual i observed at time t.

WFH_{it}: work-from-home probability, for individual i observed at time t.

$IV_{kit}^{demographic}$: demographic controls, for individual i observed at time t, such as age, gender, family type.

$IV_{mit}^{soc.econ.}$: socioeconomic controls, for individual i observed at time t, such as education level, sector of workplace, skills at the job, wages.

$Locational_{zt}$: average depleted house prices (2023-fixed) in origin municipality z

ω_t: year fixed effects.

ε_{it}: error term.

To capture temporal factors affecting outcomes, year fixed effects ω_t are included in the model. These dummies absorb year-specific shocks such as macroeconomic changes, policy shifts, or broader societal trends. Controlling for these time-varying influences allows the estimates to reflect associations between explanatory variables and outcomes net of common yearly fluctuations.

The logistic regression produces odds ratios (ORs), which are less intuitive; therefore, post-estimation Average Marginal Effects (AMEs) are reported for clearer interpretation in percentage points. Only AME results are presented in Tables 3 and 4, while OR estimates from Eq. 1 are available upon request.

(Eq. 2)

$$\ln(Dist_{od,it}) = \beta_0 + \beta_1 WFH_{it} + \sum_{k=1}^{K} \gamma_k IV_{kit}^{demographic} + \sum_{m=1}^{M} \delta_m IV_{mit}^{soc.econ.} + \theta Locational_{zt} + \omega_t + \varepsilon_{od,it}$$

Where, $\ln(Dist_{od,it})$ is the logged distance between origin o and destination d for individual i observed at time t.

As the dependent variable is log-transformed, the coefficients can be interpreted approximately as percentage changes: $100 \cdot \beta_1 \approx$ percent change in distance associated with a one-unit increase in WFH (as WFH is continuous). For example, if $\beta = -0.5$, then $e^{-0.5} \approx 0.61$, which is interpreted as "A one-unit increase reduces the odds of the outcome by 39% (1 – 0.61)."

As we are particularly interested in whether COVID-19 pandemic had caused any differences in the migration pattern due to the widespread remote working possibilities in the working population, we specify the second main research questions as following:

RQ2: How has the pandemic and the expansion of remote work opportunities influenced out-migrants from the Capital City Area (CCA) to rural and to urban municipalities? (DV1 to DV4)

The empirical strategy examines how migration patterns evolved across three periods: pre-COVID (2014–2019), during COVID (2020–2021), and post-COVID (2022–2023). While Denmark implemented four cycles of mandatory lockdowns and reopenings between 2020 and 2021, Sweden pursued a comparatively less strict, largely voluntary mitigation strategy that kept most sectors open, differences that may also have had implications for migration decisions, although

this cannot be examined within the scope of the present analysis.[4]

This temporal dimension assesses the pandemic's impact on residential mobility and location choices, comparing rural movers with stayers and urban migrants. The following section outlines the model specifications, estimation methods, and interpretation approach. Equation 3 presents the logistic regression model for DV1 and DV2.

(Eq. 3)

$$\log\left(\frac{P(DV_{it}=1)}{1-P(DV_{it}=1)}\right) = \beta_0 + \beta_1 WFH_{it} + \sum_{k=1}^{K}\gamma_k IV_{kit}^{demographic} + \sum_{m=1}^{M}\delta_m IV_{mit}^{soc.econ.} + \theta Locational_{zt} + \varepsilon_{it}$$

for $t \in [t_{start}, t_{end}]$

where t changes depending on the model is for pre, during or post pandemic years, for example, for the Pre-COVID model start year is 2014 and end year is 2019, indicating the pooling of the data between these years.

Similarly, for the DV3 and DV4, we introduce these three time periods in the linear regression as well, as shown in Equation 4.

(Eq. 4)

$$\ln(Dist_{od,it}) = \beta_0 + \beta_1 WFH_{it} + \sum_{k=1}^{K}\gamma_k IV_{kit}^{demographic} + \sum_{m=1}^{M}\delta_m IV_{mit}^{soc.econ.} + \theta Locational_{zt} + \varepsilon_{od,it}$$

for $t \in [t_{start}, t_{end}]$

This method restricts the dataset to the specific years pooled for the designated time periods.

4. Results and analyses

This section presents the empirical findings on migration from the Capital City Area (CCA) to rural and urban destinations in Denmark and Sweden between 2014 and 2023. The analysis proceeds in two parts. The first examines three research questions. Cross-country comparisons highlight both shared and context-specific patterns in spatial mobility.

The second part explores how the COVID-19 pandemic and the rise of remote work reconfigured migration from the CCA across all four move types (DV1 - DV4). Covering three periods, i.e., pre-pandemic (2014–2019), pandemic (2020–2021), and post-pandemic (2022–2023), the analysis traces changes in both migration probabilities and distances to rural and urban destinations. By combining work-from-home (WFH) probabilities with detailed migration outcomes, it assesses whether remote work spurred an "urban exodus," reinforced attachment to metropolitan centres, or enabled new long-distance relocation patterns within and beyond national urban hierarchies.

4.1. Individual characteristics of the outmigrants from CCA

4.1.1. Migration to rural areas vs. staying in CCA (DV1)

Migration models comparing movers from the CCA to rural areas with stayers (2014–2023) reveal distinct and country-specific patterns. In Denmark, individual characteristics strongly influence the likelihood of rural migration, whereas in Sweden these effects are weak, suggesting less socioeconomic selectivity. Remote work is particularly revealing: a higher probability of working from home significantly reduces the likelihood of leaving the CCA for rural destinations in Denmark, indicating that remote work reinforces metropolitan residence rather than enabling rural relocation. In Sweden, its effect is negligible. This Danish "WFH paradox" implies that flexible work arrangements enhance urban lifestyles instead of facilitating moves to the countryside (Table 3).

As shown in Table 3, the Danish results reveal clear life-course, family, and human-capital gradients. Young adults (24−34) are the main group leaving the CCA for rural areas, whereas middle-aged and older adults are far less likely to do so, suggesting a youth-driven rural migration that may fade later in life. Married or cohabiting individuals, public-sector employees, highly educated and high-skilled workers, particularly those with long higher education, are less likely to migrate, reflecting dual-career constraints, urban-centred knowledge-economy jobs, and metropolitan public-sector opportunities anchoring these groups in the capital. Conversely, there is a strong positive income gradient: higher-earning Danes, especially those in the top wage quartile, are markedly more likely to move to rural areas than low-income residents, indicating a "wealthy rural exodus" driven by financially secure individuals seeking amenity-based, lifestyle-oriented relocation. Similar findings reported by Spithoven and Merlevede (2025) in other capital cities in Europe.

In Sweden, by contrast, covariates such as age, family status, education, skills, income, sector, and WFH probability show minimal influence on the likelihood of leaving the CCA for rural areas (Table 3). Rural migration is broadly distributed across social groups, with only minor occupational variation, suggesting a more egalitarian and culturally embedded pattern of rural living that transcends socio-economic divides. Overall, these results support the view that individual characteristics strongly shape rural migration in Denmark but do so only weakly in Sweden. This implies that Danish rural areas face a dual challenge, i.e., losing educated, high-skilled residents while attracting affluent lifestyle migrants, whereas Swedish rural regions experience more socially diverse in-migration, calling for context-specific policy responses.

4.1.2. Migration from CCA to rural areas vs. urban areas (DV2)

Models of migration destination with year fixed effects for 2014–2023 show that the choice between rural and urban destinations after leaving the CCA is strongly shaped by life-course, education, skills, and work arrangements (Table 4).

Table 4 shows that older adults, especially those aged 65 and above, are much more likely to move to rural than urban destinations in both Denmark and Sweden, while young adults (24−34) predominantly choose urban areas, reflecting career-driven mobility. Family formation strengthens rural preferences: married and cohabiting individuals in both countries show higher propensities to move to rural areas, highlighting the influence of housing space, nature, and family-oriented lifestyles. By contrast, higher education and skills strongly predict urban moves. A near-parallel education gradient in both countries indicates that the most highly educated and high-skilled workers are about ten percentage points less likely to choose rural destinations, pointing to spatial sorting and a potential rural brain drain.

Sectoral and occupational patterns reinforce this urban bias among knowledge workers. Those in service and business services, and high- or service-skilled occupations, are consistently less likely to choose rural

[4] Denmark's COVID-19 response followed four cycles of lockdown and reopening between March 2020 and late 2021, combining renewed restrictions with gradual easing. The first nationwide lockdown began in March 2020, closing schools, public workplaces, and much of the service sector. In January 2022, the pandemic was officially declared no longer a critical threat to society (Javakhishvili-Larsen et al. 2026).

Sweden confirmed its first COVID-19 case on 31 January 2020, and by 10 March the Public Health Agency deemed the risk of community transmission very high. Unlike many countries, Sweden did not implement a strict lockdown; most sectors remained open. Measures focused on recommendations, including social distancing, avoiding contact with older adults, working from home, when possible, along with limits on public gatherings and temporary closures of upper secondary schools and universities during the pandemic's peak. Restrictions were gradually eased through 2021, and most were lifted by 9 February 2022 (Eliasson, 2025).

areas, whereas manual and lower-skilled workers show greater rural propensity. Public-sector employment differs across countries: in Denmark, public employees are slightly more rural-oriented, reflecting a more dispersed service structure, while in Sweden they prefer urban locations, suggesting a concentration of public employment in larger regional centres. Income effects also diverge in Denmark, where middle-income earners (second and third wage quartiles) are more likely to move to rural vs. urban areas, consistent with housing affordability and family-related motives, whereas in Sweden lower-middle-income individuals prefer urban destinations. The highest earners in both contexts show no clear rural-urban preference.

A central and somewhat paradoxical finding concerns the role of remote work. Higher probabilities of working from home significantly reduce the likelihood of choosing rural over urban destinations, especially in Denmark, where remote workers are about 7.4 percentage points less likely to move to rural areas; the effect is smaller in Sweden. Rather than promoting remote rural living, remote work appears to encourage relocation to secondary cities and other urban areas that offer greater affordability, amenities, infrastructure, and professional networks. This suggests that workers use remote-work flexibility to pursue an "accessible urban" lifestyle, that maximizes access to both urban and rural amenities, rather than more isolated rural settings. Overall, migration destination choices differ systematically by age, education, skills, family status, sector, occupation, income, and remote-work capability, showing broadly similar structures in Denmark and Sweden but distinct cross-country nuances in remote work, public-sector, and income effects.

Table 5
Log migration distance for movers from the CCA to rural areas (DV3) in Denmark and in Sweden.

	Denmark	Sweden
	2014–2023	2014–2023
WFH Probability	-0.016	0.055***
Gender: Female vs. Male	-0.046***	-0.021***
Reference: Age 24–34		
Age: 35–49	-0.053***	-0.035***
Age: 50–64	-0.102***	-0.089***
Age: 65 <	-0.058**	-0.065***
Reference: Single		
Family: Married	-0.115***	-0.046***
Family: Living Together	-0.076***	-0.021**
Reference: Primary Education		
Edu: Upper Secondary	0.023	0.141***
Edu: Vocational	-0.026**	0.044***
Edu: Short Higher	0.014	0.175***
Edu: Middle Higher	0.071***	0.237***
Edu: Long Higher	0.111***	0.296***
Reference: Private Sector		
Sector: Public	0.044***	0.053***
Reference: Primary and Industry		
NACE: Service	0.052***	0.073***
NACE: Business Services	0.027**	0.078***
NACE: Public	0.050***	-0.006
NACE: Other Private	0.030	0.092***
Reference: Manual Skilled Occupations		
High Skilled Occupation	-0.007	0.162***
Service Skilled Occupation	0.015	0.089***
Reference: 1st Quartile Wage		
Wage: 2nd Quartile	-0.079***	-0.017
Wage: 3rd Quartile	-0.106***	-0.116***
Wage: 4th Quartile	-0.153***	-0.098***
House Price (fixed 2023)	0.000***	-0.001***
Constant	3.869***	6.320***
Observations	49,265	62,209
R-squared	0.054	0.448

Note: The table shows beta-coefficients from the linear regression model. The coefficients should be interpreted as percentage points. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

4.1.3. Close ties or distant opportunities? (DV3 and DV4)

According to Equation 2, the linear regression results with year fixed effects in Table 5 show logged migration distances from CCA municipalities to rural areas in Denmark and Sweden. Remote-work probability (WFH) is insignificant for migration distance in Denmark but significantly positive in Sweden, i.e., each unit increase in WFH probability corresponds to a roughly 5.5% increase in migration distance. In Sweden, therefore, the ability to work from home promotes longer-distance rural moves, as remote workers can live farther from the CCA while maintaining urban salaries and choosing amenity-rich rural locations.

In Denmark, by contrast, WFH capability has no significant effect on distance, likely reflecting the country's smaller scale and limited spatial variation. Danish rural migrants may still maintain periodic urban ties, with factors such as family or local networks overriding remote-work flexibility.

Demographic effects reveal that women in both countries move shorter distances to rural areas, with the effect nearly twice as strong in Denmark, possibly due to stronger local attachments or greater mobility constraints. Middle-aged adults (50−64) also migrate shorter distances (around 9–10% less than young adults), while those aged 24–34 consistently travel farthest, showing a common life-cycle pattern of distance-constrained mobility.

Table 5 shows that family ties constrain migration distance in both countries, though the effect is two to three times stronger in Denmark. Danish families appear less willing to move long distances to rural areas.

In Denmark, education has little effect on rural migration distance except among the most highly educated. In Sweden, by contrast, a clear education gradient emerges, i.e., more education corresponds to longer migration distances. This may reflect that highly educated Swedes seek amenity-rich rural areas (e.g. mountains, lakes, archipelagos) and show greater tolerance for commuting or remote work. Sweden's larger geography and active regional-development policies also expand opportunities for high-skilled employment in regional centres across Sweden, enabling migrants to "leapfrog" nearby localities for more desirable destinations. Public-sector employees in both countries also move farther to rural areas, likely because such jobs (e.g. teaching, healthcare, local administration) remain available in remote municipalities and often accommodate flexible or remote work arrangements.

Knowledge workers and service professionals in both countries migrate longer distances to rural areas, though this pattern is stronger in Sweden. Swedish skilled workers, particularly the high-skilled, migrate significantly farther to rural areas, whilst in Denmark skills do not affect distance. This "Swedish paradox", where high-skilled workers travel far to rural areas, may reflect remote work enabling urban salaries whilst living rurally, pursuit of high-amenity rural areas (summer cottages, nature), or cultural differences, with nature retreats being more common amongst Swedish professionals than Danish.

Table 5 reveals that higher earners in both countries migrate shorter distances to rural areas, contradicting the "wealthy lifestyle migration" hypothesis for long-distance moves. High earners likely purchase expensive rural properties near the CCA (rural-urban fringe) to maintain ties to urban workplaces and networks whilst seeking "accessible rurality" rather than remote wilderness.

For CCA out-migrants choosing urban destinations in Denmark and Sweden, Table 6 (based on Equation 2) presents linear regression results with year fixed effects (2014–2023), revealing that CCA-to-urban moves are strongly stratified by life-course, education, skills, family status and, in Sweden, remote work capacity.

A clear life-cycle gradient emerges, i.e., young adults (24−34) move farthest from the CCA, middle-aged individuals (50−64) migrate substantially shorter distances, and retirees occupy an intermediate position, especially in Denmark. Family formation acts as a powerful distance anchor in both countries, with married and cohabiting individuals migrating approximately one-fifth to one-quarter shorter distances than singles, consistent with dual-career constraints, children's schooling, and extended family proximity. Gender reinforces these

Table 6
Log migration distance for movers from the CCA to urban areas (DV4) in Denmark and Sweden.

	Denmark	Sweden
	2014–2023	**2014–2023**
WFH Probability	0.040	0.069***
Gender: Female vs. Male	-0.062***	-0.043***
Reference: Age 24–34		
Age: 35–49	-0.186***	-0.111***
Age: 50–64	-0.293***	-0.241***
Age: 65 <	-0.193***	-0.201***
Reference: Single		
Family: Married	-0.255***	-0.193***
Family: Living Together	-0.188***	-0.214***
Reference: Primary Education		
Edu: Upper Secondary	0.166***	0.126***
Edu: Vocational	-0.036**	0.011
Edu: Short Higher	0.106***	0.220***
Edu: Middle Higher	0.165***	0.316***
Edu: Long Higher	0.283***	0.382***
Reference: Private Sector		
Sector: Public	0.006	0.098***
Reference: Primary and Industry		
NACE: Service	0.129***	-0.015
NACE: Business Services	0.115***	0.027
NACE: Public	0.126***	-0.101***
NACE: Other Private	0.226***	0.004
Reference: Manual Skilled Occupations		
High Skilled Occupation	0.013	0.250***
Service Skilled Occupation	0.044***	0.138***
Reference: 1st Quartile Wage		
Wage: 2nd Quartile	-0.135***	0.025
Wage: 3rd Quartile	-0.221***	-0.167***
Wage: 4th Quartile	-0.230***	-0.158***
House Price (fixed 2023)	0.000***	-0.000***
Constant	3.605***	5.389***
Observations	45,774	83,643
R-squared	0.143	0.064

Note: The table shows beta-coefficients from the linear regression model. The coefficients should be interpreted as percentage points. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

proximity patterns, as women in both countries move shorter distances than men, suggesting greater sensitivity to local social and family networks.

According to Table 6, education and skills drive long-distance mobility, especially in Sweden. A strong positive education gradient shows highly educated migrants travel substantially longer distances to urban destinations, with the effect strongest for those with long higher education, particularly in Sweden where distance premiums exceed one-third relative to primary-educated movers. Similarly, high-skilled and service-skilled Swedish workers migrate markedly farther than manual-skilled workers, whilst in Denmark workplace economic sectors matter more than skills per se, service, business service, public, and other private sector jobs all associate with longer urban migration distances. These results reveal an education-skills-distance nexus where Swedish knowledge workers exhibit high geographical mobility to match specialised labour markets, whereas Denmark's smaller national scale and centralised economic structure dampen distance effects.

Remote work introduces asymmetric effects across countries. In Denmark, work-from-home (WFH) probability does not significantly influence urban migration distance, whereas in Sweden higher WFH probabilities associate with notably longer distances, indicating Swedish remote workers use locational flexibility to access preferred urban labour markets and amenities regardless of CCA distance. Income gradients run oppositely, where higher earners move shorter distances in both countries (strongest in Denmark), implying low-income migrants must search more widely whilst high-income individuals select attractive urban destinations nearer the capital. These findings underscore that urban migration distances are shaped by life-course constraints, family anchoring, and socio-economic resources, with Sweden displaying particularly strong coupling between education, skills, remote work, and long-distance mobility, whilst Denmark shows more localised yet structured patterns around the CCA (Table 6).

To summarise the first part of the analyses addressing the first research question, the results reveal fundamental cross-country differences in CCA migration patterns. Denmark shows strong socioeconomic stratification, where high earners move to rural areas despite lower education levels, whilst remote work paradoxically anchors people in the CCA rather than enabling rural migration. Sweden demonstrates spatial flexibility, where individual characteristics barely predict rural migration probability, but highly educated workers migrate substantially longer distances regardless of destination type. Common patterns emerge in both countries around age and family constraints, with young adults (24−34) showing greatest mobility and middle-aged married individuals preferring shorter migration distances.

4.2. Remote work as a mobility shock? Outmigration from the CCA before, during and after COVID-19

Remote work effects on CCA outmigration evolve markedly differently in Denmark and Sweden across pre-, during, and post-pandemic periods. According to Table 7, in Denmark, work-from-home (WFH) probability consistently reduces the likelihood of moving from the CCA to rural areas, with the strongest negative effect during COVID-19 and only partial weakening afterwards. This indicates remote work primarily reinforces capital region residential attachment, where the remote-capable jobs anchored people in the CCA before the pandemic, the pandemic intensified this anchoring, and the post-pandemic period has not reversed the pattern. However, amongst those who do leave the CCA, higher WFH probability substantially increases rural over urban destination choice, a preference that strengthened during the pandemic and remained strong post-COVID. These Danish results suggest a two-step selection mechanism whereby most remote workers become more entrenched in the capital, whilst a small, self-selected subset undertake longer-distance lifestyle moves to rural rather than urban areas (Table 7).

In Sweden, conversely, remote work has a modest but increasingly positive effect on rural migration probabilities and a gradually neutralising effect on rural versus urban destination choice. Before and during COVID-19, WFH only slightly raised rural migration probability and modestly favoured rural over urban destinations, but both effects were small. Post-pandemic, however, WFH's positive impact on rural migration becomes more pronounced, even as remote work ceases to predict rural versus urban destination choice amongst movers. This suggests remote work institutionalisation after COVID-19 has enabled more Swedes to relocate from the CCA to rural areas without creating strong rural-urban bias amongst movers. These temporal and cross-

Table 7
Remote Work probability effect on outmigration from the CCA (DV1 and DV2) before, during and post COVID-19 pandemic in Denmark and Sweden (Average Marginal Effects (AME)).

	(1)	(2)	(3)
	2014–2019	2020–2021	2022–2023
WFH Probability in Denmark for DV1: Rural Movers vs. Stayers in CCA	-0.0076***	-0.0113***	-0.0064***
WFH Probability in Sweden for DV1: Rural Movers vs. Stayers in CCA	0.00011**	0.00015**	0.00046***
WFH Probability in Denmark for DV2: Movers from CCA to Rural vs. Urban	-0.0695***	-0.0847***	-0.0734***
WFH Probability in Sweden for DV2: Movers from CCA to Rural vs. Urban	-0.0150***	-0.0088*	-0.0006

Note: The table shows the Average Marginal Effects (AME) extracted from the post-Logistic regression model. The coefficients should be interpreted as times 100, i.e. in percentage points. The tables with Odd Ratios and Robust Standard Errors can be provided on request.
***, ** and * indicate significance at the 1%, 5% and 10% level, respectively.

country patterns show remote work does not generate uniform "rural revival", as in Denmark it largely stabilises the capital and only channels a minority of movers towards rural areas, whereas in Sweden it gradually increases rural migration whilst supporting more flexible, spatially diversified destination choices.

Regarding remote work's role in migration distance before, during and after the pandemic, Table 8 illustrates linear regression results.

Remote work effects on CCA migration distance differ markedly across countries, destination types, and time periods. Log distance coefficients show that in Denmark, WFH probability has no significant influence on rural migration distance in any period, with coefficients near zero before and during the pandemic and turning modestly positive but still small post-COVID. Conversely, Swedish remote workers moving to rural destinations consistently relocate over longer distances than non-remote workers across all three periods, with positive, highly significant coefficients remaining fairly stable over time. This indicates that in Sweden, remote work enables rural movers to settle in more distant locations, whereas in Denmark it does not systematically alter rural migration geography (Table 8).

Table 8 shows that for CCA-to-urban moves, remote work associates with longer migration distances in both countries, but far more strongly and persistently in Sweden. Danish WFH probabilities link to slightly longer urban migration distances only pre-pandemic, losing significance during and after COVID-19, suggesting remote work briefly facilitated longer-distance urban moves before this effect faded. In Sweden, however, coefficients for urban movers remain positive and highly significant throughout, with similar magnitudes before, during, and after the pandemic, implying remote workers consistently use spatial flexibility to access more distant urban labour markets and amenity-rich cities. Overall, these results suggest remote work has primarily extended the feasible migration radius for Swedish migrants, especially those heading to both distant rural and urban destinations, whilst in Denmark its influence on migration distance is weak and short-lived, reinforcing earlier evidence that the capital region remains a strong anchor even under expanded remote work opportunities.

Fig. 1 reinforces and nuances these patterns consistently with regression estimates. In Denmark, year fixed effects for log-distance are largely flat or slightly declining for both rural and urban movers up to 2019, indicating no clear tendency towards longer-distance migration pre-pandemic relative to the reference year. The modest dip around 2020–2021 and only slight uptick in 2023 for both destination types align with findings that remote work has, at most, weak and short-lived influence on CCA migration distances, and that the pandemic did not trigger a structural shift towards longer-distance moves.

According to Fig. 1, in Sweden conversely, a marked upward trend in log-distance for rural movers emerges from around 2016, with a sharp increase in 2020–2021 followed by an elevated, though somewhat reduced, level in 2022–2023. Urban movers also display gradual positive drift over time, remaining consistently above the 2019 reference in later years. This visual pattern strongly supports the interpretation that Swedish migrants, particularly those heading to rural destinations, have progressively moved farther from the CCA, consistent with positive, significant remote work coefficients for migration distance found in regressions. Together, the figure illustrates that distance profiles remain relatively stable in Denmark but lengthen substantially in Sweden, especially for rural movers, corroborating the conclusion that remote work has expanded the feasible migration radius far more in Sweden than in Denmark.

To summarise the second part of the study, the analysis shows that COVID-19 and remote work diffusion altered CCA migration in markedly different ways in Denmark and Sweden. Remote work primarily reinforced metropolitan attachment in Denmark, where it reduced rural outmigration and only weakly affected migration distances, even during the pandemic. In Sweden, conversely, remote work gradually expanded the feasible migration radius, especially after COVID-19, contributing to longer-distance moves to both rural and urban destinations. Overall, the results challenge simple "urban exodus" narratives and instead point to context-dependent, selective mobility responses to the rise of remote work.

Table 8
Remote Work probability effect on outmigration distance from the CCA (DV3 and DV4) before, during and post COVID-19 pandemic in Denmark and Sweden.

	(1)	(2)	(3)
	2014–2019	2020–2021	2022–2023
WFH Probability in Denmark for DV3: log Distance for Rural Movers	-0.001	-0.065	0.030
WFH Probability in Sweden for DV3: log Distance for Rural Movers	0.057***	0.039***	0.055***
WFH Probability in Denmark for DV4 log Distance for Urban Movers	0.061*	0.021	-0.013
WFH Probability in Sweden for DV4 log Distance for Urban Movers	0.068***	0.074***	0.070***

Note: The table shows beta-coefficients from the linear regression model. The coefficients should be interpreted as percentage points. ***, ** and * indicate significance at the 1%, 5% and 10% level, respectively

5. Conclusive remarks

This study enhances our understanding of contemporary Scandinavian counterurbanisation (2014–2023). It employs micro-register data and logistic regression to identify migrant characteristics and to evaluate the roles of COVID-19 and flexible work arrangements, revealing nationally specific dynamics that complicate stylised “urban exodus” narratives.

Denmark exhibits pronounced socioeconomic stratification: highly educated, high-skilled, and public-sector workers are less likely to leave the capital region, while a strong positive income gradient indicates a “wealthy rural exodus” among financially secure households seeking amenity-rich rural lifestyles. In Sweden, rural migration is more evenly distributed across social groups, although migration distances increase with workers’ level of education irrespective of destination type.

The probability of working from home operates as an asymmetric mobility shock. In Denmark, higher work-from-home (WFH) probability reduces the likelihood of capital-to-rural migration and strengthens residential attachment to the capital region, with only a small, self-selected subset using WFH to undertake long-distance lifestyle moves. In Sweden, higher WFH probabilities are associated with markedly longer migration distances to both urban and rural destinations, and this radius-expanding effect intensified post-pandemic as remote work became institutionalised, and more CCA-to-rural relocations became feasible. The fact that the length of public roads per capita is almost the same in both countries does not indicate that Swedish rural areas should have higher accessibility than Danish.

Common life-course mechanisms underpin these national patterns. Young adults (24−34) show the highest propensity to move and undertake the longest rural migrations in both countries, whereas partnership and family formation increase the likelihood of selecting rural destinations but at shorter distances, consistent with preferences for larger housing, access to nature, and family-oriented environments.

Overall, remote work reconfigures residential choices but does so through nationally specific institutional and spatial structures: in Denmark, it largely reinforces existing socioeconomic stratification and “enhanced urban” living close to the capital, whereas in Sweden it supports extensive spatial dispersion over longer distances. These findings underscore the need for differentiated policy responses to manage population redistribution, strengthen labour market resilience, and promote sustainable rural development in contexts where work-life balance and location flexibility increasingly shape residential preferences.

This study operates within methodological and conceptual limitations suggesting future research avenues. International comparative

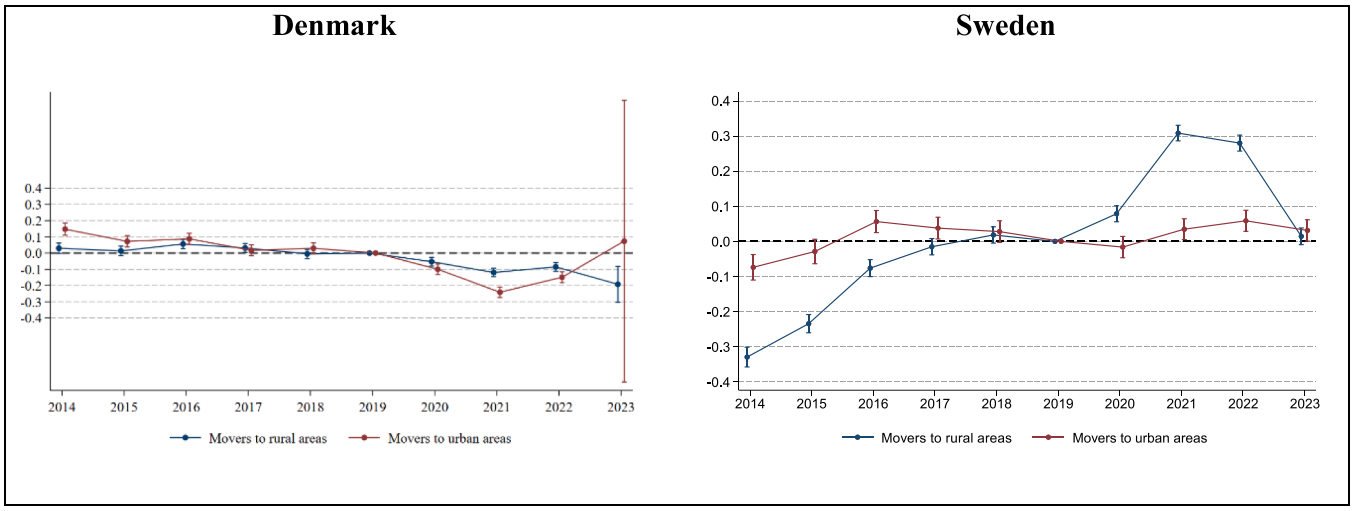

Fig. 1. Year FE of log distance trend for Rural and Urban migrants while 2019 is the reference year in Denmark and Sweden, *Note: The figure shows omega-coefficients with CI from the linear regression model based on Eq.2, where the reference year 2019 = 0. Details for all four DVs are provided in Table A3 and A4 in Appendices.*

work is complicated by data availability variance and unstandardised definitions, particularly concerning urban-rural classifications and remote work measures. Administrative micro-register data for registered residential moves provides strong foundations for observing counter-urbanisation but may not capture full spatial dispersion scope, such as increased second-home use or temporary relocations. Also, the fact that the number of second homes per capita is almost 60% higher in Sweden can possibly be interpreted as a sign of that Swedes have stronger preferences for rural amenities than Danes.

Despite extensive longitudinal data (2014–2023), fundamental uncertainty remains regarding pandemic-accelerated trends' long-term persistence (also suggested by Dyba and Di Maria 2024). However, it is important to note that the dynamics observed in 2022 and 2023 are still in a state of flux, shaped by adjustment lags in residential decision-making and ongoing labour market and policy restructuring. Consequently, the current findings should be interpreted as an assessment of an evolving trajectory. Further research should examine whether observed migration adjustments signal lasting decentralisation or temporary fluctuation, link detailed migrant profiles with successful receiving area characteristics, assess long-term impacts of human capital brought by counterurban migrants on regional economies, and evaluate policy measures designed to leverage remote work expansion for sustainable rural development.

The study makes three significant scientific contributions. First, it enriches contextual understanding of counterurbanisation in two Scandinavian countries through necessary context-specific analysis and cross-country comparison, addressing gaps where Anglo-American theories fail to capture Nordic migration subtleties. Second, it integrates remote work into migration theory by systematically linking detailed migrant profiles with rural area characteristics and investigating ICT's shift from centralising to dispersing economic activity. Third, it provides in-depth assessment of pandemic trends' temporal persistence through 2014–2023 longitudinal data across pre-, during, and post-pandemic periods. In summary, this study enhances understanding of contemporary counterurbanisation by providing detailed empirical comparison in the Scandinavian context, systematically linking migration outcomes to WFH probability, and examining dynamics over a period marked by significant exogenous shocks.

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CRediT authorship contribution statement

Nino Javakhishvili-Larsen: Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Software, Resources, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Kent Eliasson:** Writing – review & editing, Writing – original draft, Visualization, Validation, Software, Resources, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Hans Westlund:** Writing – review & editing, Writing – original draft, Validation, Supervision, Methodology, Investigation, Formal analysis, Conceptualization.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at doi:10.1016/j.rspp.2026.100297.

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