



## RESEARCH ARTICLE

# Dynamics in Patterns of Internal Migration in Poland Between 2017 and 2023 – What Are the Impacts of COVID-19?

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## ABSTRACT

The COVID-19 pandemic had a profound spatial impact on economic, cultural and social life, notably altering mobility, including internal migration. Many studies to date looked into various aspects of internal migration patterns after the pandemic outbreak. However, little research has been focused on the area of Central and Eastern Europe. The aim of the paper is to empirically examine the quantitative perspective of registered inter-municipal migrations in Poland between 2017 and 2023. Specifically, the study sought to determine how the scale and directions of internal migrations in Poland changed across three distinct periods: (1) pre-pandemic (2017–2019); (2) during the initial COVID-19 response (2020); (3) post-restrictions period (2021–2023). We ask to what extent the dominant internal migration trends (depopulation of rural areas and growth in metropolitan areas fuelled by strong suburbanisation trends) were affected during COVID-19 compared to preceding years. We examine this through analysis of migration intensity, net-migration rates and the predominance of urban and rural origins and destinations, using population register data on annual flows between municipalities. We discover that the COVID-19 pandemic resulted in a decrease of migration intensity in 2020 as well as in the following years compared to 2017–2019, with lower net-migration rates in suburban areas and greater in non-metropolitan peripheries.

## 1 | Introduction

Since the very first days of the COVID-19 pandemic, established mobility trends were disrupted in almost every dimension and on an unprecedented scale. Widespread lockdowns led to a reduction in personal contacts, a hiatus in the normal functioning of many institutions, and the widespread adoption of remote work and learning. Initial speculations about the long-term impact of the pandemic on lifestyle patterns, including internal migration patterns, began to emerge in public debate and the mainstream media (Kellerman 2020). It was anticipated that the partial decoupling of work and education from specific geographical locations, combined with the

popularisation of a healthy lifestyle and contact with nature, might trigger an exodus of people from large cities to suburbs or further non-metropolitan areas. Some early perspective studies suggested these changes will affect broader patterns of urbanisation and will have profound consequences to organisation of local and regional urbanised systems (Florida, Rodríguez-Pose, and Storper 2023). Researchers suggested that it should be considered whether the urbanisation march (Cotella and Brovarone 2020; Kajdanek 2020) has been irreversible and desirable. Some asked if this was the end of urbanisation as we know it (Batty 2020; Nathan and Overman 2020; Wexler and Oberlander 2021). As the pandemic progressed, more nuanced analyses emerged, showing that the nature and extent of the

pandemic's impact depended on the dynamics and duration of the pandemic (Nathan and Overman 2020) and more general characteristics of the preceding local urbanisation trends (McManus 2022; Rowe et al. 2023; Tammaru et al. 2023). Studies so far identified significant, yet geographically varied, changes in internal migration, beginning in 2020. The analyses focused on the countries from the global North (e.g., OECD countries) and connected the intensity of internal migration to expanding or shrinking opportunities in labour and housing markets (Alvarez, Bernard, and Lieske 2021; Champion, Cooke, and Shuttleworth 2017). Early empirical evidence from the developed countries confirmed these trends, for example, in Germany (Stawarz et al. 2022; Wolff and Mykhnenko 2023), the UK (Gallent, Stirling, and Hamiduddin 2023; Rowe, González-Leonardo, and Champion 2023), Spain (González-Leonardo, Rowe, and Fresolone-Caparrós 2022), Switzerland (Pagani et al. 2021) and Australia (Argent and Plummer 2022; Borsellino et al. 2022; Perales and Bernard 2023). Other studies pointed to accelerated counter-urbanisation and higher demand for short-term rentals and second homes throughout Europe (Colomb and Gallent 2022), increase in net-migration rate in peripheral rural areas in Spain (González-Leonardo, Rowe, and Fresolone-Caparrós 2022), deglomeration of Tokyo (Kotsubo and Nakaya 2023) and political efforts to create momentum for counter-urbanisation in Japan (Dilley, Gkartzios, and Odagiri 2022).

Therefore, all the more notable was the limited number of studies on post-pandemic internal migrations in Central and Eastern Europe, with some exceptions of recent studies based on small scale, qualitative data limited to selected social categories such as youth in Poland (Kajta, Pustulka, and Radzińska 2022; Maleszyk 2021), students (Slipchuk et al. 2021) or focused on long-term trends without a particular focus on pre- and post-pandemic dynamics (Baláž, Lichner, and Jeck 2023).

Poland, with almost 37.6 million inhabitants as of 2023 (Statistics Poland 2023) is one of the largest countries in the CEE region. Its spatial structure is characterised by a lack of significant spatial barriers and very high ethnic homogeneity. In the 2021 census, 89% of participants declared Polish national identity (Statistics Poland 2023). In subsequent years, however, the share of the non-Polish population almost certainly increased, most notably after 24 February 2022, when many war migrants from Ukraine arrived. As of January 2024, there were 956,635 of them in the country (UNHCR 2023). Poland had also long been free of internal migration disruptions caused, for example, by wars and natural disasters. The most recent of such developments was the mass migration associated with the shift of borders after the Second World War. The last significant change in the socio-economic determinants of internal migration occurred as a result of the post-1989 political transformation. Therefore, for at least the last 35 years, Polish internal migrations have been shaped by relatively constant socio-economic pull and push factors (Heffner 2019; Śleszyński 2018; Ministerstwo Rozwoju Regionalnego 2012). Thus, it was assumed that such conditions allow for relatively easy identification of changes in internal migration trends caused by new disturbances. In addition, large diversity of settlement units and structures made it

possible to observe the studied phenomena in different spatial contexts.

The aim of the paper is to empirically examine the quantitative perspective of registered inter-municipal migrations in Poland between 2017 and 2023 across three distinct periods: pre-pandemic (2017–2019), pandemic onset (2020), and post-restrictions (2021–2023). The study sought to determine how the scale and directions of internal migrations in Poland changed in 2020 and the following years as a result of COVID-19 pandemics, compared to the average for 2017–2019. We specifically examine: changes in migration intensity and net-migration rates across different types of municipalities; shifts in urban–rural migration flows and spatial patterns of internal migration across metropolitan, suburban and peripheral areas. Our analysis employs a three-period framework to capture the evolution of internal migration patterns before, during, and after the COVID-19 pandemic. We define 2017–2019 as the pre-pandemic period to establish a robust baseline that accounts for short-term fluctuations in internal migration trends. The year 2020 is treated as a distinct period due to its unique circumstances, while 2021–2023 is considered the post-pandemic period, aligning with the global end of the pandemic in 2023, although in Poland, the state of epidemic officially ended in May 2022. Through this temporal framework, we seek to identify whether COVID-19 triggered temporary disruptions or potentially lasting changes in Poland's internal migration patterns. This analysis is particularly significant as it provides insights into migration dynamics in a Central and Eastern European context, where such studies during the COVID-19 period have been limited.

The study used data on registered inter-municipal internal migration collected by the Central Statistical Office (pol. Główny Urząd Statystyczny). The analysis focused on the temporal variation in the number of migrations since 1995 as well as the spatial and temporal (between 2017 and 2023) variation in migration intensity, net-migration rate and urban/rural origins and destinations.

It should be noted that the COVID-19 pandemic may not have been the sole cause of the current changes in the nature of internal migrations, nor the only factor determining their longevity. Overlapping or multiple crises (Martin, Martinelli, and Clifton 2022; Westman et al. 2022) could have been of great significance. In the context of Poland since 2022, the full-scale war in Ukraine and resulting large-scale refugee immigration from that country were particularly important. The interdependencies of these and other factors are exceptionally challenging to identify and require further in-depth research in the coming years.

The following content of the paper is divided into five parts: a review of the research on internal migration in the contexts of the COVID-19 pandemic and Poland, a detailed description of the data used and the research procedure, presentation of the results, discussion of the data to point out potential (in)consistencies with post-pandemic patterns of internal migration reported for other European countries and a conclusion section.

## 2 | Literature Review: Shifting Patterns of Internal Migration? Theoretical Perspectives in the Context of COVID-19

The discussion on internal migration has been framed by the assumption of increasing hypermobility (Cresswell 2006). However, evidence suggests that this framework does not apply to all mobilities and geographical contexts (Champion, Cooke, and Shuttleworth 2017). Factors such as the decline of industrialisation (Dietz, Li, and Castañeda 2023), demographic transition, rise of dual-income households, and remote working contribute to falling internal mobility rates (Cooke 2013). Conversely, growing share of foreign-born populations within a country may contribute to increased internal mobility, as a result of migrants' adjustment to local housing and labour markets (Alvarez, Bernard, and Lieske 2021). The intertwining of the COVID-19 pandemic and internal mobility has led to broader societal shifts as individuals and communities adapt to new norms and reconsider geographic locations in response to evolving public health dynamics.

The concepts of counter-urbanisation (Berry 1980; Mitchell 2004) and differential urbanisation (Geyer and Kontuly 1993) provide valuable frameworks for understanding shifting patterns of internal migration. Counter-urbanisation refers to the movement from urban to rural areas, driven by a desire for increased quality of life, affordable housing, and natural amenities. Differential urbanisation posits that urban systems undergo cyclical phases of concentration and deconcentration, with migration flows varying across the urban hierarchy. The theme of counter-urbanisation in a form of residential mobility to peripheral, marginal areas has attracted attention of international scholars who point to the need of more fine-grained and diverse conceptualisation of counter-urbanisation (Gkartzios and Scott 2010). Such conceptualisations should accommodate not only lifestyle/amenity oriented residential mobilities to rural areas (e.g., seasonal tourists to coastal or mountain regions who decide to move; rural idyll seekers; bourgeois bohemians) (Novotná et al. 2013) but, more importantly, those who are residentially mobile in a result of constraints and restrictions, and not choice (Adamiak, Pitkänen, and Lehtonen 2017; Benson and Osbaldiston 2016; Neyse and Lundholm 2024). The pandemic has also highlighted the role of place attachment in shaping migration decisions. While some studies suggest that lessened place attachment contributes to increased mobility (Cresswell 2006), others argue that the pandemic has strengthened emotional bonds to places, particularly in rural and natural settings (Kalemba et al. 2022).

Research on internal migration conducted since the beginning of the COVID-19 pandemic in 2020 revealed changes in migration patterns, compared to previous years. Some of these changes were rather universal, while others were specific to certain areas. In most studies, a decrease in the overall intensity of internal migrations was identified, especially in 2020, although it varied significantly among different age groups, with the largest decrease observed among young adults (Gonzalez-Leonardo et al. 2022; Stawarz et al. 2022). There was also a common trend of lower net-migration rates in the largest cities (Gonzalez-Leonardo et al. 2022; Wolff and Mykhnenko 2023). Overall, out-migration from cities has been driven by people relocating to more remote and affordable places; at the same time, high-income households were able to leave cities by

relocating to their second homes in the countryside (Pitkänen et al. 2020). The in-migrations were more diverse. Suburbanisation played the most significant role (Kotsubo and Nakaya 2023; Vogiazides and Kawalerowicz 2023), as did counter-urbanisation, understood as mobility downwards the settlement hierarchy, including peripheral areas (Gil-Alonso, Bayona-i-Carrasco, and Pujadas-Rúbies 2023; Gonzalez-Leonardo et al. 2022; Tammaru et al. 2023). Nonetheless, there was a consensus that the observed changes were not large-scale, and did not foreshadow a fundamental restructuring of settlement structures (Gonzalez-Leonardo et al. 2022).

Numerous indirect evidence pointed to the particular popularity of areas with abundant amenities (Argent and Plummer 2022), regions with high natural and scenic values (Vogiazides and Kawalerowicz 2023), and popular second home locations (Gonzalez-Leonardo et al. 2022) as migration destinations. Some authors highlighted potential conflicts of interest between new and existing residents, increased competition for limited housing resources in small towns, and the risk of degradation of local identity and environmental pressure. In this context, it was recommended to minimise these potential problems through mechanisms within regional and local policies (Colomb and Gallent 2022; Gkartzios and Halfacree 2023).

The most important question is the temporality of the changes identified. Some authors anticipated that it is a short-term shift and the trends will return to their pre-pandemic state within one or 2 years (Gonzalez-Leonardo et al. 2022; Perales and Bernard 2023). Other studies do not offer any predictions on this matter, although they point out the importance of this question (Kotsubo and Nakaya 2023; Stawarz et al. 2022). Most recent studies suggest that while the pandemic may have temporarily amplified pre-existing counter-urbanisation trends in some contexts (Tammaru et al. 2023; Zöldi, Ligeti, and Csányi 2024), the evidence for a significant, long-term, COVID-induced "rural renaissance" remains mixed (Schorn, Barnsteiner, and Humer 2024). Critically examining how counter-urbanisation is constructed in public discourses, research highlights the role of specific actors, such as the real estate sector and media, in shaping these narratives (Schorn, Barnsteiner, and Humer 2024). As the pandemic's long-term impacts on urban-rural mobilities continue to unfold, understanding the complex interplay between crisis events, representations, and actual migration patterns becomes increasingly important.

Patterns of internal migration in Central and Eastern Europe have been studied to assess the similarities and differences in postsocialist economies to its western counterparts (Hamilton, Andrews, and Pichler-Milanović 2005; Hirt 2013; Kulu and Billari 2006; Stanilov 2007). Due to the complexity of the migration processes that could be explained in terms of historical, structural, cultural and economic forces (Bell et al. 2015), general long-term differences are still observed, for example, in effectiveness and intensity of internal migration (Rowe et al. 2019) as well as demographic, social and economic factors underpinning them (Alvarez, Bernard, and Lieske 2021).

Despite a large number of works on internal migrations during and after the COVID-19 pandemic, Central and Eastern Europe was significantly underrepresented. It is particularly worth noting because of the specific characteristics of internal

migration in that region. Wolff and Mykhnenko (2023) showed that unlike in the other parts of the continent (with the exception of southern Italy), population of most big cities in CEE were in decline both before and during the pandemic. This continuous decline makes the impact of the pandemic more difficult to identify in a large-scale quantitative study, although the existence of such impact is nonetheless undoubted. A general approach of that study, although justified for identifying trajectories in a continental scale, omits significant and specific categories of settlements, such as suburban and peripheral rural areas or small towns. Taking a wider range of settlement types into consideration could significantly affect the conclusions.

The other relevant characteristic of the region is structurally and culturally determined high levels of home ownership, which could be one of the causes of low intensity of internal migration (Champion, Cooke, and Shuttleworth 2017; Rees and Kupiszewski 1999). Since 1990, many countries in Central and Eastern parts of Europe have had significantly lower levels of state-led housing provision. In the face of housing shortages, housing became a significant nexus of family financial support, strong cultural norms towards ownership, and also informality in housing provision (Polese et al. 2014). In 2022, 31% of people in the EU lived in rental housing, while 69% of people lived in households that owned their homes. The countries with the largest ownership percentages were Romania (95%), Slovakia (93%) and Croatia (91% of the population lived in a household that owned their home).

Today Poland has more over 87% ownership, placing it in sixth place (Eurostat 2023), with small municipal housing sector (8%) and underdeveloped private rental market (3%–4%). A number of factors, such as housing price cycles, housing poverty and the COVID-19 pandemic's effects on the housing market, can be used to analyse Poland's housing dilemma after 2020. The overall trend of growing home prices continued even though there was a significant decline in long-term rent prices between March and December 2020, particularly in centrally located metropolitan neighbourhoods, due to an infusion of new housing supply from the short-term rental market. The limited long-term effects of the COVID-19 pandemic on Poland's primary housing market were examined by Augustyniak et al. (2021). In addition to stabilising the market, structural factors (monetary and fiscal interventions, developer sector production capacity, and increased demand for housing for investment purposes) also contributed to the ongoing issue of housing affordability as prices continued to rise due to demand driven by investments. The other major factor could be the full-scale war in Ukraine started in 2022, which resulted in millions of war migrants from that country seeking refuge abroad, predominantly in Central and Eastern Europe (UNHCR 2023). Resulting higher demand on real estate markets can modify the internal migration patterns even further and more long-term. The outcomes of the multiple crises are yet to be fully captured.

To determine the extent of change in patterns early before and soon after COVID-19, we review the main pre-existing driving forces of internal migration in Poland. The current trends were initiated with the political transformation after 1989. In particular, the shift from a planned economy to a free market economy played a major role. As a direct consequence,

industrialisation declined (Marciniczak and Sagan 2011) and the previously dominant migration from the countryside to the cities started to decelerate (Kupiszewski, Durham, and Rees 1998). Over the course of the 1990s, the intensity of internal migration steadily declined. At the same time, the emergence of the free market economy increased interregional disparities in living standards and socio-economic development. This contributed to a renewed intensification of internal migration from cities to their suburban fringes in 2001–2008, followed by a period of relative stabilisation (Haase 2011; Steinführer et al. 2010; Śleszyński 2018) (Figure 2).

In the years directly preceding the main temporal scope of the study described in the paper, two trends prevailed. The first was the depopulation of peripheral areas, which affected around 70% of the territory of Poland. The main push factors were structural deficiencies and lower living standards in these areas, as well as better availability of goods and services in large cities (Heffner 2019; Śleszyński 2018). The second trend was suburbanisation, driven by lifestyle changes, increased wealth and concurrent overpopulation in large cities as well as improved transport accessibility of the suburbs, also through the increased importance of individual car ownership (Śleszyński 2018; Zborowski and Raźniak 2013). This resulted in Poland being the only EU country with a significant downward trend in internal migration (measured at the level of 16 provinces) between 1996 and 2018 as studied by Alvarez, Bernard, and Lieske (2021). This trend was least pronounced compared to other counties with decreased levels in internal migration.

### 3 | Methods and Data

The study was based on data on population and internal migrations in Poland measured by the number of residence registrations and obtained from the Central Statistical Office (pol. Główny Urząd Statystyczny, GUS) for the years 2017–2023 (updated based on the 2021 National Census data). An internal migration is therefore defined as a change of registered place of residence from one municipality in Poland to another. The data were divided by registrations (in-migrations) from urban and rural areas as well as de-registrations (out-migrations) to urban and rural areas. While our study utilises the most recent and comprehensive data available from the National Census, it is important to acknowledge a significant limitation inherent in the Polish population registration system. Despite that the residence registration is compulsory in Poland, it is not sufficiently enforced, and not all internal migrations are officially registered, which may lead to an underestimation of actual mobility patterns. Śleszyński (2018) suggested a nationwide underestimation by approximately by 10%–15%. Previous studies have indicated that this underestimation mainly concerns migration to large urban agglomerations (Korcelli 1997). Attempts have been made to estimate population on the basis of other data sources, for example, data on persons registered in the social security system (Śleszyński 2011). Such methods allowed a reliable determination of the population of municipalities in particular years, but did not account separately for the migration component of population changes. The aim of this study is primarily to examine the dynamics of internal migrations in the specified period. Assuming that possible underestimations are similar for areas with comparable socio-spatial characteristics and do not change significantly in the



following years, the data used can be considered sufficiently reliable. All the more so, as there are currently no other data sources allowing for a spatial study of internal migrations in Poland and the data sets in question have been successfully utilised in comparative studies (Ghio et al. 2023).

The study covered the entire territory of Poland. The basic unit of the study was a municipality (pol. gmina). Additionally, in urban–rural municipalities, data for urban and rural areas were taken into account separately. The exceptions were those urban–rural municipalities for which there were no separate data for towns and rural areas available for the entire period under study. This was particularly the case for rural municipalities that were converted into urban–rural municipalities between 2018 and 2023. In such cases, the internal division of municipalities was not applied. The districts of Warsaw were also taken into account as separate units.

Municipalities in Poland were significantly diversified in terms of population (Table 1). There were also several types of municipalities: urban (comprising a single town or city), rural (with no towns) and urban–rural (comprising one town and several rural settlement units). In addition, some (generally large) towns and cities had the status of municipality and county (pol. powiat; a unit of a higher level of administrative division) at the same time. There were no clearly defined rules on the basis of which the status of an urban, urban–rural or urban with county rights municipality was granted. In many cases, it depended on local conditions and the decisions of local authorities.

The data obtained for 2017–2019 and 2021–2023 were aggregated into 3-year averages. The year 2020 was taken into account separately, as in other similar works on the internal migration during the COVID-19 pandemic (González-Leonardo et al. 2022), because of the specific conditions in that year and significant data variations in comparison to the preceding and following years. For each unit, the net-migration rates for each year were calculated. The change in migration dynamics defined as the difference in total number of in- and out-migration per 1000 inhabitants was calculated for 2020 and 2021–2023 in comparison to the average from 2017 to 2019.

The units were also classified by population density into five classes of a similar population of ~7.5 million people. The reason behind it was a long-established relation between population density and internal migration (Rees et al. 2017) and the increased migration

into less densely populated areas during volatile periods (Borsellino et al. 2022). Additional classification was based on the functional typology proposed by Śleszyński (2018) and used by the Government Population Council (an advisory body of the Prime Minister of Poland). The classification does not follow the administrative division but focuses on the functional diversity with five main categories: regional core areas, other large and mid-sized cities, suburban, urbanising non-suburban and agricultural municipalities (Table 2).

Net-migration rates were calculated for the areas defined above. Data on internal migrations since 1995 were used for historical perspective.

## 4 | Results

So far, the most important phenomena in contemporary internal migrations in Poland have been suburbanisation and depopulation of peripheral rural areas (Śleszyński 2018; Zborowski and Raźniak 2013). At the turn of the 20th and 21st centuries, the number of migrations to administratively rural areas (in fact becoming increasingly urban in the functional sense) exceeded the number of migrations to cities (Figures 1 and 2). In later years, the dynamics of migration underwent successive changes. The most significant were its decreases occurring during the crises of 2008 and 2020 (Figure 2). However, beginning from Poland's accession to the European Union in 2004, relations between particular directions of migration did not undergo significant transformations (Figures 1 and 2). This changed in 2020, when for the first time out-migrations to rural areas exceeded out-migrations to cities. What is particularly important, the predominance of out-migrations to rural areas not only persisted in the following years, but increased substantially in 2021 and 2022. Therefore, this shift was not merely a short-term anomaly caused by the COVID-19 pandemic, but potentially a long-lasting change. The resulting increased predominance of overall registered migration to rural areas (Figure 1) could be interpreted as the largest increase in counter-urbanisation, broadly defined as movement down the settlement hierarchy (Champion 1989; Mitchell 2004), in Poland since 2004.

### 4.1 | Changes in Internal Net-Migration Rates Between 2017 and 2023

The general character of the spatial differentiation of the net-migration rates did not change significantly in the period under

**TABLE 1** | Population of the administrative types of municipalities in Poland in 2023.

Type	Population		Minimum population	Maximum population	Share of population (in %)	Count
Urban	17,923,509		1165	1,861,599	47.6	302
Rural	10,598,528		1309	43,967	28.2	1498
Urban–rural	Total	9,114,471	1518	97,293	24.2	677
	Urban areas	4,453,038	308	51,971	11.8	
	Rural areas	4,661,433	368	45,322	12.4	
Sum	37,636,508		—	—	100	2477

Note: Own analysis based on Statistics Poland data; <https://bdl.stat.gov.pl>.

**TABLE 2** | General characteristics of the functional types of municipalities under study in 2023.

Type name	Description	Population	Area (in km <sup>2</sup> )	Count
Regional core areas	Regional capitals and main cities of the Upper Silesian Agglomeration	9,473,965	5,005,663	33
Other large and mid-sized cities	Subregional urban centres (district-level cities) and mid-sized cities with developed transport-related functions	7,650,553	13,675,938	239
Suburban	Suburban areas of regional capitals and other district-level cities	7,660,180	49,014,805	600
Urbanising non-suburban	Municipalities located outside of metropolitan areas, with developed mining, manufacturing or tourism	3,129,657	53,773,829	475
Agricultural	Municipalities located outside of metropolitan areas, with predominance of agriculture, forestry or environmental protection	9,722,153	191,035,954	1775
Sum		37,636,508	312,506,189	3122

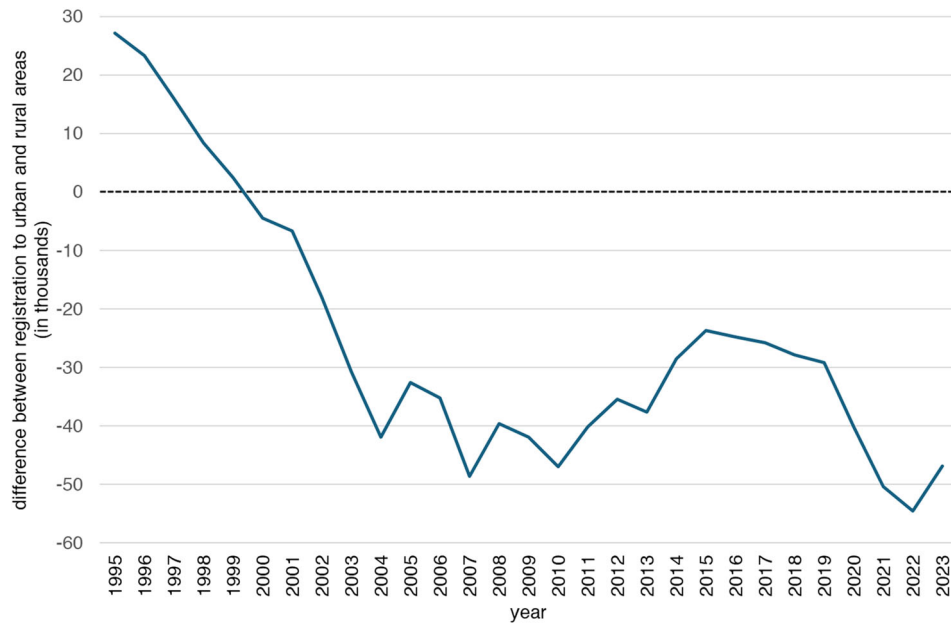
Note: Own analysis based on Sleszyński (2018) and Statistics Poland data; <https://bdl.stat.gov.pl>.

study (Figure 3). The highest values occurred in the suburban zones of the largest cities and in several highly developed industrial districts, mainly related to mining. Negative values prevailed in peripheral areas, mainly in the northern and eastern parts of the country. However, the changes became apparent in the differences in net-migration rates values in 2020 and 2021–2023 compared to 2017–2019 (Figure 4). The largest decrease in values occurred in the suburban areas of metropolitan cities, primarily Warsaw, Wrocław, Gdańsk and Poznań. An increase, on the other hand, occurred in peripheral areas, mostly in the northern part of the country. Thus, there is an indication of a slight modification of previous trends. The Pearson's correlation coefficient between the net-migration rates in 2017–2019 and the difference with respect to it in subsequent years was  $-0.31$  in 2020, but only  $-0.15$  in 2021 and  $-0.24$  in 2022.

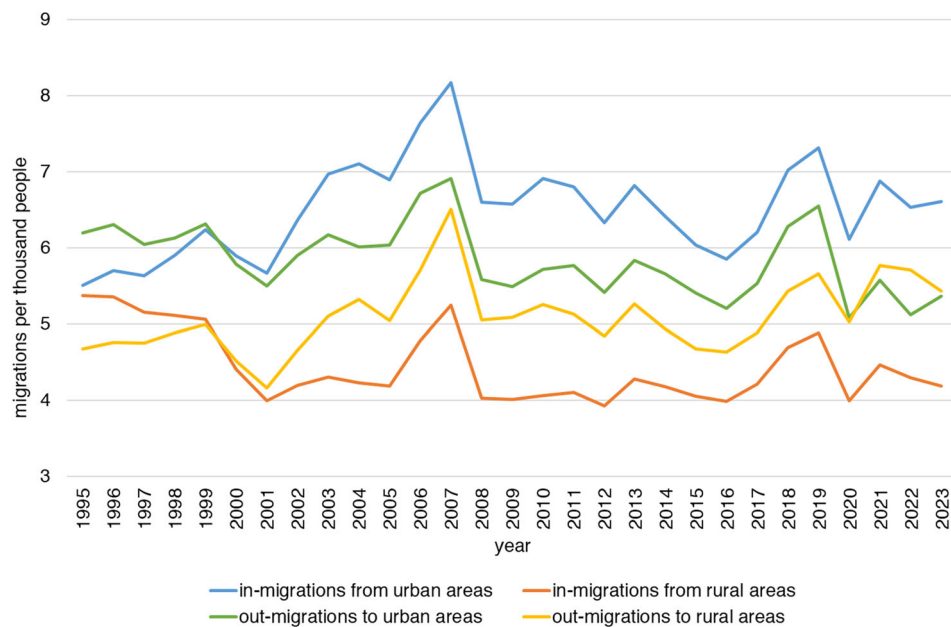
This observation was supported by the values of the net-migration rates by population density and functional types (Figure 5).

The greatest changes were observed in 2020. In the most densely populated and the subregional core areas the values fell and remained below zero. Other large and mid-sized cities experienced an increase in 2020, followed by relatively intense decline in 2021. The most dynamic negative change in the second most densely populated class was also observed in 2021. The highest values were observed in the suburban areas (the only type of unit with positive net-migration rates since 2020) and units with moderately low (relatively to the national average) population density. In terms of the dynamics, the biggest change in these two categories was the increase in 2021, when the highest values throughout all categories and the whole study period (exceeding the pre-pandemic period) were observed. The biggest increase happened in the peripheries (although the values remained consistently below zero) and in the least densely populated areas, where the net-migration rates have become net-positive since 2021. This change in migration trends, although not particularly intense, persisted especially in the metropolitan and peripheral areas until 2023, when the dynamics returned to the pre-pandemic state. However, it is too early to conclude, whether it was the end of a 3-year-long temporary shift or merely an anomaly in the long-term post-pandemic trends of internal migration dynamics. A general increase in net-migration rates in the lower population density areas and its decrease in the high density ones between 2020 and 2022 indicated a more intense deconcentration of the population, not only into moderately low-density suburban areas, as in the previous years, but also in the more remote and less populated peripheries. It corresponds with a general tendency of people to migrate further from large urban areas in the times of crisis, particularly economic distress (Tammaru et al. 2023).

It is most likely that the changes identified above were significantly influenced by a general decline in migration intensity, particularly due to the pandemic restrictions in 2020. Above all, it applied to the migrations from peripheral areas to the regional core centres. Hence the aforementioned



**FIGURE 1** | Difference between inter-municipal internal migrations into urban and rural municipalities in Poland, 1995–2023. *Source:* Own analysis based on Statistics Poland data; <https://bdl.stat.gov.pl>.

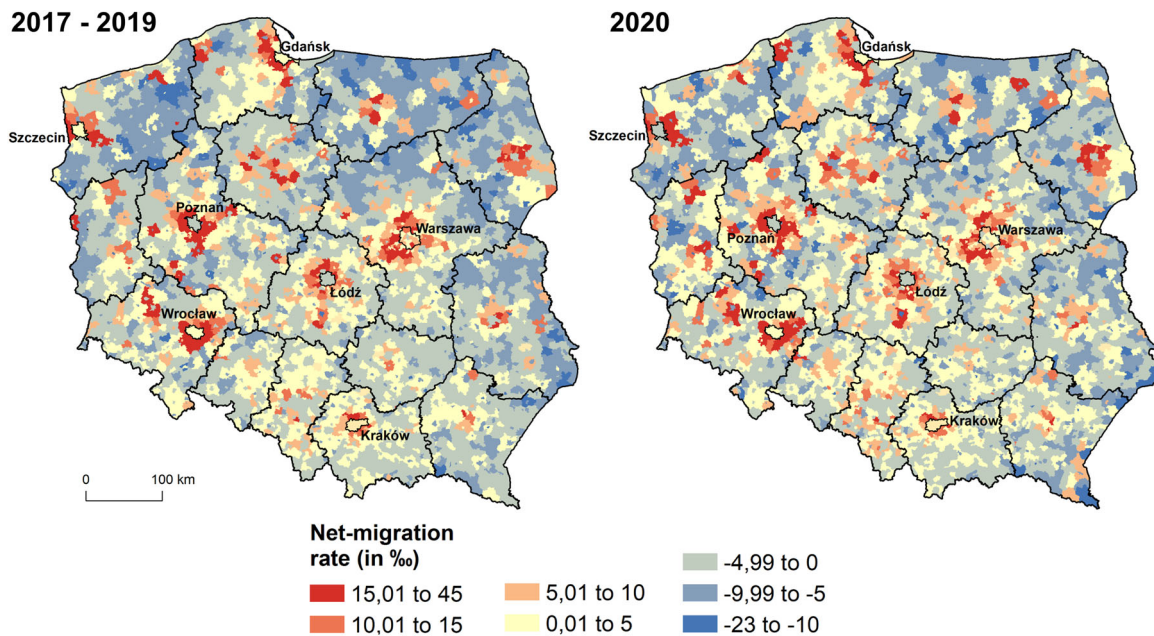


**FIGURE 2** | Internal in-migrations and out-migrations to urban and rural municipalities in Poland, 1995–2023. *Source:* Own analysis based on Statistics Poland data; <https://bdl.stat.gov.pl>.

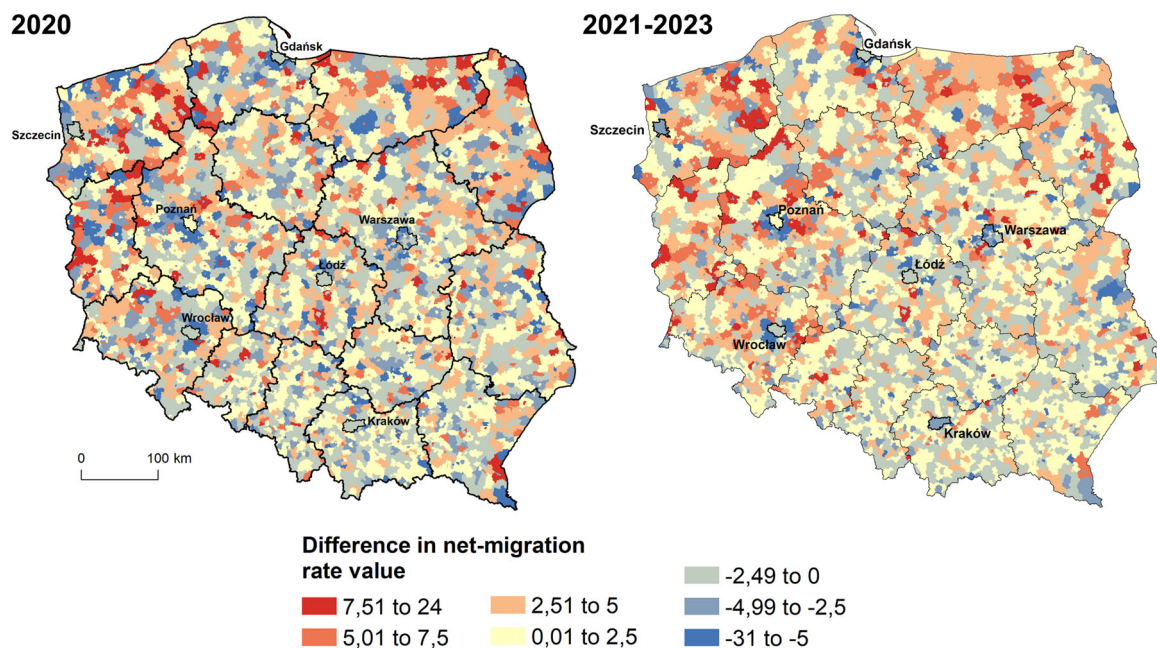
decrease in the net-migration rate values in the regional cores and its increase in the periphery. Although the suburbanisation remained intense, the overall decrease in migration intensity caused lower net-migration in parts of some metropolitan functional areas in comparison to the previous years. This process was similarly explained in other works (Stawarz et al. 2022). In 2020, the number of registered migrations fell by more than 12% compared to the 2017–2019 average, but in the years 2021–2023 it returned almost to pre-pandemic levels nationwide. On the other hand, registered migration intensity (defined as the total number of in- and

out-migrations per capita) has not decreased everywhere. In some, mostly peripherally located municipalities, its value in 2020 was higher than in 2017–2019 (Figure 6). In addition, the decrease in the net-migration rate in large cities and its increase in peripheral areas continued in the following years despite very limited pandemic-related restrictions. As the areas with the lowest intensity remained some metropolitan suburbs, particularly areas surrounding Poznań and Wrocław. This may indicate the occurrence of a permanent change in mobility trends in Poland resulting from deeper socio-economic transitions in labour and housing markets.





**FIGURE 3** | Net-migration rate of internal migrations in municipalities in Poland in 2017–2019 (average) and 2020. *Source:* Own analysis based on Statistics Poland data; <https://bdl.stat.gov.pl>.



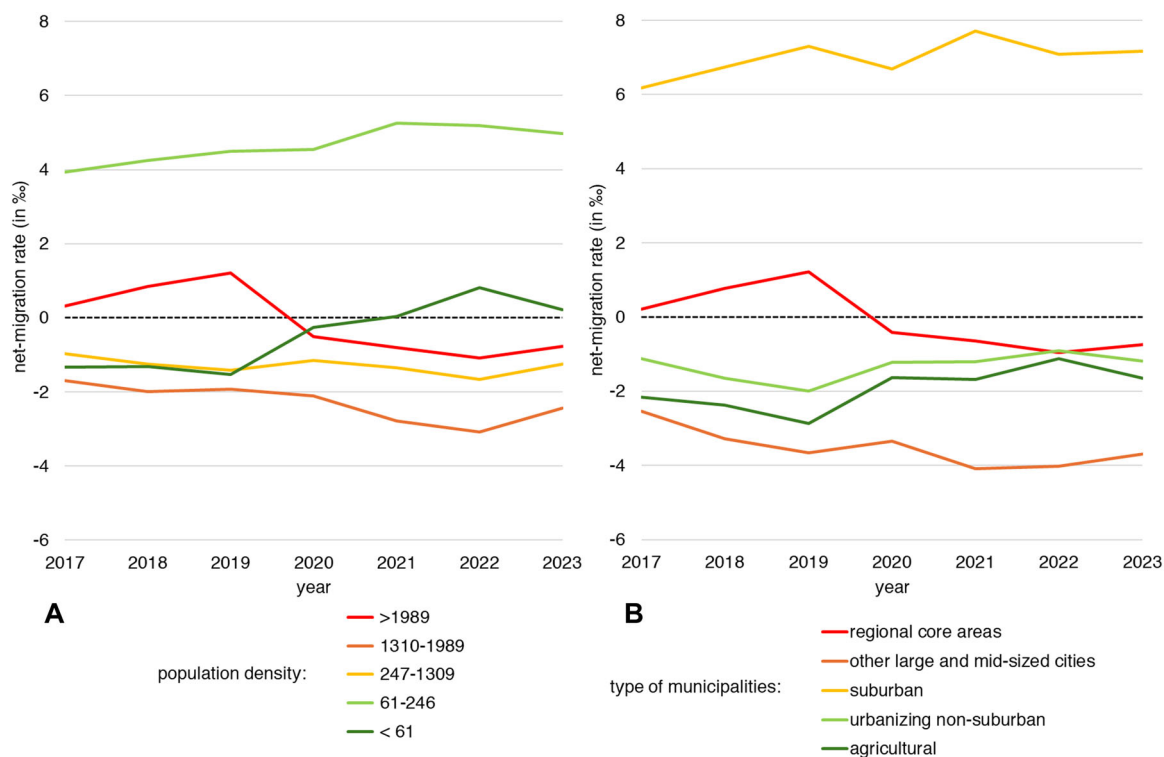
**FIGURE 4** | Difference between net-migration rate of internal migrations in municipalities in Poland in 2020 and 2021–2023 (average) in relation to 2017–2019 (average). *Source:* Own analysis based on Statistics Poland data; <https://bdl.stat.gov.pl>.

## 4.2 | Predominant Origins and Destinations of Registered Internal Migrations Between 2017 and 2023

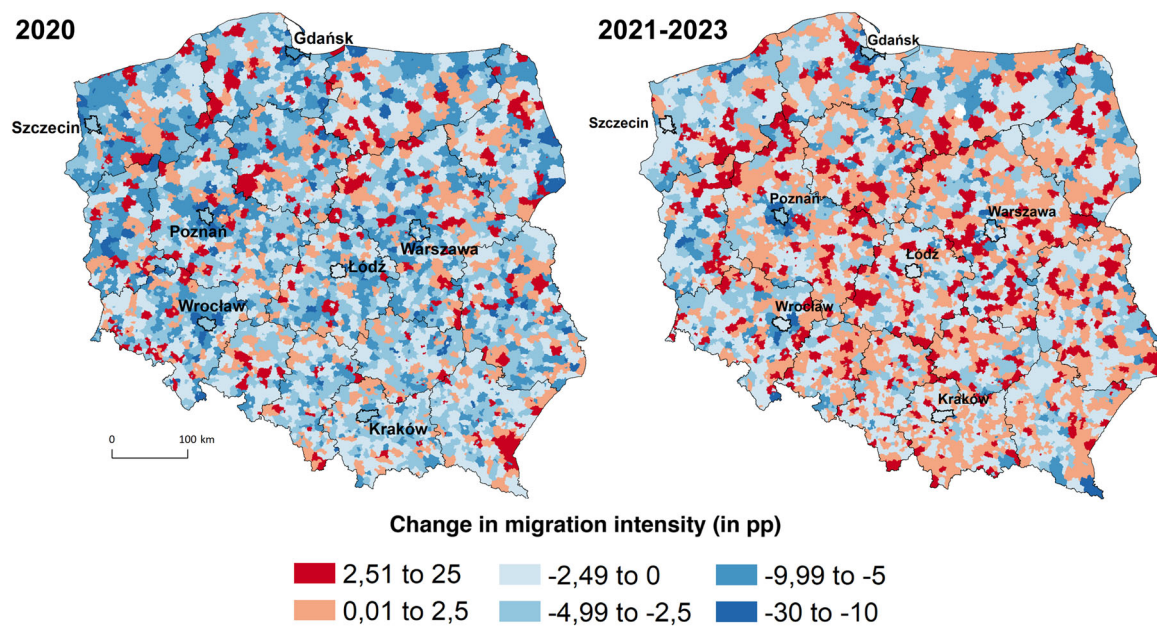
To characterise the spatial variation of urban and rural origins for in-migrations and destinations for out-migrations, we examined changes in dominant destinations in municipalities during the periods of 2017–2019, 2020 and 2020–2023 (Figure 7). The study found that for the entire period in question, there were more municipalities with a persistent dominance of either in-urban or out-urban origins and directions. In

the case of in-migrations, extensive areas with the predominance of migration from urban areas existed around the largest cities. They reached up to about 50 km from their centres. In-migrations from urban areas were also predominant in most regional capitals. In-migrants from the countryside, on the other hand, dominated in smaller towns and peripheral areas, mainly in central and south-eastern Poland. Throughout the period under study, there was no significant change in the proportion between the number of municipalities with a predominance of either of the origins. The most changes occurred in the central and eastern parts of the country.





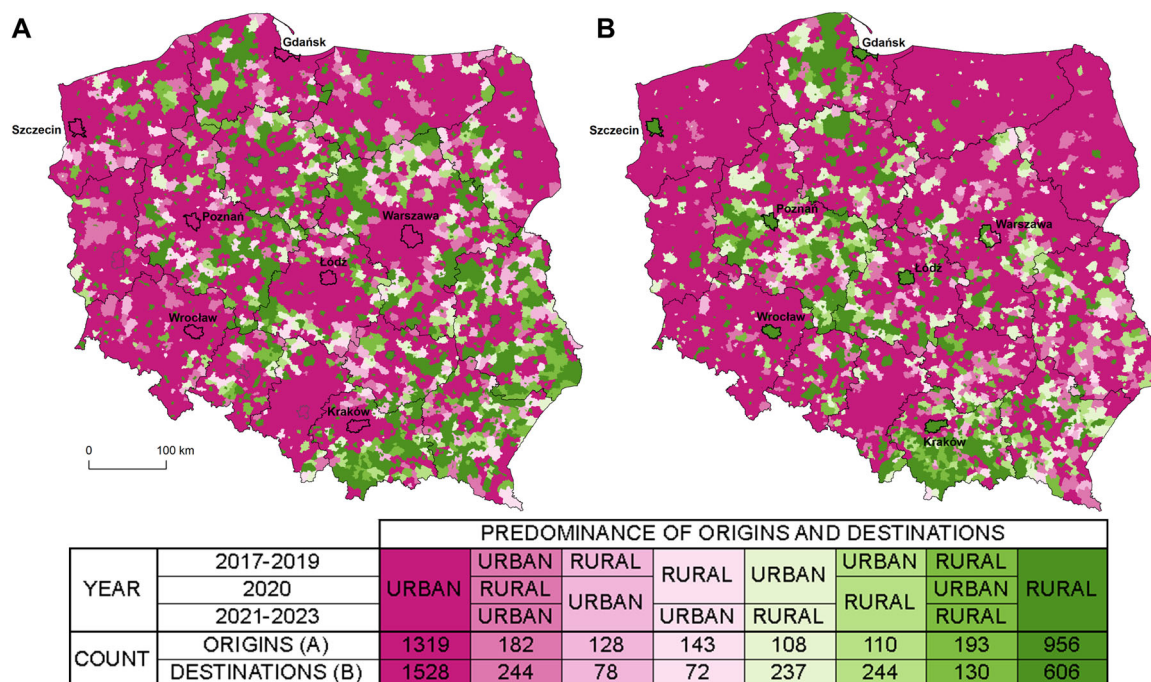
**FIGURE 5** | Net-migration rates of internal migrations in Poland in 2017–2023 by population density (A) and functional types of municipalities (B). Source: Own analysis based on Śleszyński (2018) Statistics Poland data; <https://bdl.stat.gov.pl>.



**FIGURE 6** | Change in migration intensity in municipalities in Poland in 2020 and 2021–2023 (average) in relation to 2017–2019 (average). Source: Own analysis based on Statistics Poland data; <https://bdl.stat.gov.pl>.

In the context of nationwide changes, the dominant destinations of out-migrations exhibited a more complex pattern. First, the continuous predominance of out-migration to rural areas occurred in all regional capitals with the exception of Katowice, i.e. the capital of the most urbanised region and largest conurbation. Consequently, surrounding smaller cities and towns are there the most popular destinations of suburbanisation. Second, the prevalence of out-migration to the countryside was identified

in many other urban municipalities throughout the country. In addition, there were several other less urbanised areas with a concentrated predominance of out-migrations to rural areas. These were located in the central part of the Pomeranian Voivodeship, the south of Greater Poland and the south-eastern part of the country, in particular Lesser Poland. Incidentally, these were the areas with the deep-rooted rural traditions, with a relatively high share of small farms, and high level of employment



**FIGURE 7** | Predominant origins of internal in-migrations (A) and destinations of out-migrations (B) in municipalities in Poland in 2017–2019 (average), 2020 and 2021–2023 (average). *Source:* Own analysis based on Statistics Poland data; <https://bdl.stat.gov.pl>.

outside agriculture (Kowalski 2004). The number of municipalities that changed the dominant destination of out-migration from urban to rural between 2017 and 2023 was more than 3.2 times greater than the number of municipalities where the dominant destination of out-migration changed from rural to urban. It mostly took place in municipalities close to peripheral areas, where out-migration to the countryside was already dominant.

## 5 | Discussion

This study aimed to determine how the scale and directions of internal migrations in Poland changed in 2020 and 2021–2023 as a result of COVID-19, compared to the average for 2017–2019. The results fill the gap of a Polish case study in the analyses of stability and change in the patterns of internal migration pre- and after pandemics (Rowe, González-Leonardo, and Champion 2023).

The key results pointed that, first, in a historical perspective, the shift towards the rural areas (visible in urban to rural moves outnumbering rural to urban moves) may be more stable in time. This is consistent with studies pointing to the important role of suburbanisation, or generally deconcentration in settlement patterns, globally (Lisowski, Mantey, and Wilk 2014; Mantey and Sudra 2019; Phelps 2018). Poland, in a comparative context of other countries was the only EU country with a significant downward trend in internal migration between 1996 and 2018, but this trend was almost close to flat trend as compared to other counties by Alvarez, Bernard and Lieske (2021).

However, second, in the early post-pandemic period there was a comparative decrease in in-migration to suburban areas and

increase of in-migration to more peripheral, yet scenic and attractive areas in north-east peripheries of Poland. This may suggest that, similarly as it was pointed by Argent and Plummer (2022), Rojo-Mendoza (2022), and considered by Tammaru et al. (2023), pandemic in Poland may have triggered some new interest in amenities of more peripheral areas, contributing to selective counter-urbanisation. In addition to the increased interest in amenities, the ongoing affordable housing crisis likely plays a significant role in the observed counter-urbanisation trend. The recent multiple crises of post-pandemic realities, the war in Ukraine, immigration, and climate change have exacerbated housing affordability challenges across Europe. According to Eurostat (2023), the house price index has risen in most European countries, with the highest increases recorded during the second quarter of 2024 in Poland (+17.7%), followed by Bulgaria (+15.1%) and Lithuania (+10.4%). As urban housing becomes increasingly unaffordable, more residents may be compelled to seek alternative living arrangements in suburban or rural areas where real estate prices are comparatively lower. Thus, the interplay between amenity-seeking preferences and housing price pressures likely contributes to the complex dynamics of counter-urbanisation in the contemporary European context. However, lack of fine-grained data on socio-demographic characteristics of the movers does not allow to discuss who decided to leave cities and towns for areas located much lower in settlement hierarchies (cf. Andersen et al. 2022; cf. Lindgren 2003).

Third, the migrations registered in 2020 fell by 12%, and it was the biggest change in internal migration patterns in Poland caused by the COVID-19. This was however a rather short-lived change as internal migration returned to pre-pandemic levels in 2021, and remained stable in the following years. These results are in line with studies of internal migration during the COVID-19 pandemic in other European countries, and also

outside Europe (Rowe, González-Leonardo, and Champion 2023). These studies also showed an overall reduction in internal migration rates during the early days of COVID, but to a lesser degree than expected. Rebound in the inter-regional migration in 2021 may suggest that the impact of COVID-19 is short lived and less pronounced than in previous recessions (Perales and Bernard 2023). A significant decrease in the net-migration rate in large cities occurred in most European Union countries (Wolff and Mykhnenko 2023). This was confirmed, among others, by independent studies in Spain (González-Leonardo, Rowe, and Fresolone-Caparrós 2022) and Germany (Stawarz et al. 2022). In addition, Spain experienced an increase net-migration rate in peripheral areas, albeit much more intense than the one in Poland. Similarly, flows between capital cities and regional areas in Australia were progressively returning to pre-pandemic levels (Perales and Bernard 2023). Due to the limited data and its different characteristics in the case of Poland, more detailed comparisons are severely hampered. This is especially visible in lack of data for Poland to study impacts of COVID on socio-demographic determinants (such as age, occupation or economic position) of internal migration. In Estonia (Tammaru et al. 2023) pandemic migration intensity of young people increased and they were the only group contributing to urbanisation while entire families were moving to countryside fuelling counter-urbanisation trends.

Fourth, directions of migrations in municipalities have not changed significantly—there were more municipalities with a persistent dominance of either urban origins or urban destinations of internal migrations, and we consider it to be a more permanent change, persisting in 2021–2023. The predominance of out-migration rate to rural areas over out-migration to urban areas increased, thus deepening the predominance of migration to rural areas observed in Poland since the turn of the 20th and 21st centuries. This change occurred both in terms of the number of registered migrations and the number of municipalities with a predominance of out-migrations to the countryside. A significant decrease in the net-migration rate in large cities was observed. This corresponded with a number of previous studies in which, after the beginning of the pandemic, the largest decreases in net-migration rate were also observed in the biggest cities (Gil-Alonso, Bayona-i-Carrasco, and Pujadas-Rúbies 2023; Kotsubo and Nakaya 2023; Stawarz et al. 2022). This was due to an overlap between the outflow of people to suburbs or peripheral areas and the declining inflow from smaller settlements. During the period under study, average value of net-migration rate in large cities fell below zero. At the same time, there was a steady increase in the net-migration rate in peripheral, non-suburban and agricultural areas, although in this case negative values persisted. Despite the weakness of these signals, they are seemingly in line with observations by Ghio et al. (2023) that finer territorial classifications reveal how young parents and children are more attracted by towns and rural areas contributing to and leading counter-urbanisation tendencies. The net-migration rate also declined, although by a small margin and only in 2020, in the suburbs of large cities. Nevertheless, its values in these areas remained the highest, which was related to intensive suburbanisation. The change also affected only some of the large cities and probably depended on their individual specifics. The prevalence of origins of in-migrations varied primarily

according to distance from large urban areas. The predominance of out-migrations to rural areas, on the other hand, was mainly present in large cities and, additionally, in some parts of the country was probably related to more complex socio-economic factors. However, despite the decrease of net-migration rates below zero in the regional cores and the most densely populated areas, and their increase above zero in the least densely populated areas, the general characteristics of the spatial differentiation of migration did not change significantly during the period under study. The most important long-term trends, i.e. suburbanisation and depopulation of peripherally located rural areas, continued. Although there has been a weakening of these long-term trends, it has been very moderate and, in the case of suburbanisation, there has even been a temporary increase in 2021 compared to the pre-pandemic period.

An important issue is to what extent the observed changes, and especially their persistence, were caused by the COVID-19 pandemic and to what extent they were related to independent or only partially dependent socio-economic phenomena. This raises questions that a study based on statistical data alone cannot answer unequivocally. In this context, the values of the net-migration rate in the peripheral metropolitan suburbs deserved particular attention. Although they were negative throughout the study period, they were significantly higher than in areas more distant from large cities and steadily increasing. Municipalities in these areas were mostly characterised by a predominance of in-migrations from cities. This may have had some connection with the increased popularity of remote working and the desire for contact with nature. However, it is also possible that it was the steady increase in property prices closer to metropolitan centres that was pushing suburbanites further away, and increasingly efficient transport infrastructure only facilitated this.

An important contextual factor that likely influenced post-pandemic migration patterns in Poland was the overlapping housing affordability crisis. With Poland's exceptionally high home ownership rate (over 87%) and limited rental market (3%–4% private rentals), the housing market was particularly susceptible to price pressures. While rental prices in central metropolitan locations temporarily decreased during early 2020, the overall trend of rising home prices continued throughout the pandemic period (Augustyniak et al. 2021). This housing market dynamic, combined with the influx of war migrants from Ukraine since 2022, may have accelerated what could be termed 'crisis counter-urbanisation' (Gkartzios 2013; Tammaru et al. 2023), where moving down the settlement hierarchy becomes a coping strategy for housing affordability challenges. The persistence of negative registered internal net-migration rates in large cities post-2020, coupled with increased interest in peripheral areas, suggests that housing constraints may be playing a more significant role in shaping migration decisions than pandemic-related lifestyle preferences alone. This interpretation aligns with recent European findings showing how multiple crises—pandemic, housing and refugee accommodation—create compound pressures on urban housing markets that influence internal



migration patterns (Martin, Martinelli, and Clifton 2022; Westman et al. 2022).

We observed limitations to this study, related to the features of the data set, and to impacts of overlapping crises affecting patterns of internal migration in Poland.

While our analysis provides insights into overall internal migration patterns in Poland, our data do not allow for a distinction between short-distance (within-region) and long-distance (between-region) migrations, which can have markedly different drivers and implications. As scholars like Biagi, Faggian, and McCann (2011) and Halás and Klapka (2021) have demonstrated, the socio-economic motivations and spatial impacts of moving within a region often differ substantially from those of moving between regions. Short-distance moves may be more influenced by housing markets and local amenities, while long-distance migrations are typically driven by labour market opportunities or significant life course events. Future research utilising more granular data could build upon our work by examining how the COVID-19 pandemic may have differentially affected short-distance versus long-distance migration patterns in Poland, potentially revealing important shifts in mobility behaviours and their underlying causes.

The start of the full-scale Russian invasion in Ukraine in February 2022 resulted in the arrival of more than 1 million war migrants. This has led to significant demographic shifts in terms of number of inhabitants in Poland, especially in large cities (Astolfo et al. 2022). As these are international migrations, they were not taken into account in the study. However, it is possible that the persistence of a negative registered internal net-migration rate in large cities in 2022 had been at least partially caused by increased demand for housing and price rises, which discouraged many people from moving. Furthermore, both the pandemic and the ongoing war were linked to increased house and rents prices. These, in turn, may contribute to 'crisis counter-urbanisation' as one potential solution to housing affordability crisis in large urban centres (Gkartziros 2013; Tammaru et al. 2023). This is an example of a multiple crises (Martin, Martinelli, and Clifton 2022) which generates an additional degree of uncertainty regarding both expected and unexpected moves (Perales and Bernard 2023).

## 6 | Conclusion

In this paper we have shown that the intensity of registered internal migrations in Poland fell in 2020 but returned to pre-pandemic levels already in 2021–2023. Moreover, we did not observe significant changes in the general spatial differentiation of registered internal migrations, with further intensive migration into suburban zones and depopulation in north-eastern peripheries of Poland, with a slight increase of interest in the latter.

However, proving these observations to be a more permanent change in migration patterns in Poland requires further research, which due to limited statistical data available for Poland should be complemented with qualitative methods, such as individual in-depth and biographical interviews (Rowe, González-Leonardo, and

Champion 2023) to provide contextualised information on reasons for migration. This would allow to explore how factors such as employment opportunities, education, family dynamics, housing conditions, and lifestyle preferences intersect in shaping internal migration choices. Moreover, these methods are particularly useful in understanding how the COVID-19 pandemic has influenced migration motivations and experiences, a dimension that is not captured in the quantitative data.

The complexity of the processes shaping contemporary internal migration leads to two postulates. First, it is necessary to ensure the availability of more accurate and detailed data in this regard and, consequently, to implement a mechanism for the enforcement of the residence registration obligation in Poland. Second, it is necessary to enrich the state of the art with further in-depth studies of current migration processes conducted also with the use of qualitative methods, allowing for a better understanding of both relationships between multiple factors and local, context specific outcomes of internal migration in small-scale rural areas.

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## Conflicts of Interest

The authors declare no conflicts of interest.

## Data Availability Statement

The data that support the findings of this study are available in Statistics Poland at <https://stat.gov.pl/>. These data were derived from the following resources available in the public domain: Statistics Poland, <https://stat.gov.pl/>.

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