

DID THE COVID-19 PANDEMIC CHANGE INTERNAL RURAL MIGRATION PATTERNS IN SERBIA?

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With 5 figures and 4 tables

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Summary: Recent empirical research on internal migration has focused on the change in migration volume, before and after the outbreak of the COVID-19 pandemic, by the degree of urbanization. Less is known about the types of rural areas that are attracting internal migrants. This study aims to explore the changes in internal rural migration patterns in Serbia due to the COVID-19 pandemic, focusing on the types of rural settlements as places of destinations and types of urban settlements as places of the origin of migrants. Relying on the additionally processed official national annual statistical data for the period 2018–2021, we offer findings on the differences in volume and socio-demographic characteristics of migrants across six internal migration flows (from small towns, medium-sized towns, and large cities, to suburban and non-suburban rural settlements). The results reveal that the pandemic affected an increase of rural–rural migration as well as rural in-migration from medium-sized towns. We also find that after an initial drop in values for in- and out-migration rates in 2020, relocation intensity exceeded the pre-pandemic level in 2021, with a positive net migration rate for all age groups except 15–30. The unfavorable economic characteristics of rural in-migrants shifted slightly in pandemic years since the share of active and population with personal means rose in non-suburban settlements, while the percentage of dependent population decreased. The opposite holds for suburban settlements.

Zusammenfassung: Jüngste empirische Untersuchungen zur Binnenmigration haben sich auf die Veränderung des Migrationsaufkommens vor und nach dem Ausbruch der COVID-19-Pandemie mit Fokus auf urbane Räume konzentriert; Veränderungen in ländlichen Räumen wurde bisher hingegen wenig Beachtung geschenkt. Diese Studie zielt darauf ab, die Veränderungen der internen ländlichen Migrationsmustern in Serbien im Kontext der COVID-19-Pandemie zu untersuchen, wobei der Schwerpunkt auf ländlichen Siedlungen als Zielorte und städtische Räume als Herkunftsorte von Migranten liegt. Auf Basis der offizieller nationalen statistischen Jahresdaten für den Zeitraum 2018–2021 werden Erkenntnisse über die Unterschiede hinsichtlich Umfang und soziodemografischen Merkmalen der Migranten in sechs internen Wanderungsbewegungen präsentiert (von Kleinstädten, mittelgroßen Städten und Großstädten zu suburbanen und nicht suburbanen ländlichen Siedlungen). Die Ergebnisse zeigen, dass die Pandemie zu einem Anstieg der Migration innerhalb ländlicher Räume und einer Zuwanderung aus mittelgroßen Städten führte. Wir stellen außerdem fest, dass nach einem anfänglichen Rückgang der Werte für die Zu- und Abwanderungsraten im Jahr 2020 die Migrationsintensität im Jahr 2021 das Niveau vor der Pandemie überstieg, mit einer positiven Nettowanderungsrate für alle Altersgruppen außer den 15- bis 30-Jährigen. Die ungünstigen wirtschaftlichen Verhältnisse ländlicher Migranten haben sich in den Pandemie Jahren leicht verändert, da der Anteil der Erwerbstätigen und der Bevölkerung mit persönlichen Mitteln in nicht vorstädtischen Siedlungen stieg, während der Anteil der abhängigen Bevölkerung abnahm. Das Gegenteil gilt für Vorstadtsiedlungen.

Keywords: Internal migration, COVID-19 pandemic, rural–urban hierarchy, rural areas, age-sex differences, Serbia

1 Introduction

Migration is one of the major drivers of today's demographic and socio-economic processes in Europe. Besides international migration, which is most often the focus of both researchers and political actors, internal migration is a part of the development processes related to a certain space and time, too. Positive and negative impacts of the dynamics of internal migration on demographic change and socioeconomic development are usually more pronounced at the local level than the effects of international migration.

Internal migration can play an important role in poverty reduction and economic development (Sustainable Development Goals (SDG) 1 and 8, <https://sdgs.un.org/goals>), since poorer populations are generally thought to move over shorter distances (INTERNATIONAL ORGANIZATION FOR MIGRATION 2005). It is particularly important for achieving the SDG 11 - Sustainable cities and communities, given that, according to LUCCI et al. (2016), internal migration most often takes place between rural and urban settlements, especially in underdeveloped countries.

Globally, internal migration outnumbers international by a factor of four to one and is one of the most important processes causing changes in the settlement structure (BELL et al. 2015). However, the main attention has been on international migration while, as FARWICK (2009: 5) point out “studies on internal migration remain on the scientific frontier.” Similarly, migration from urban to rural areas gains less attention compared to rural–urban migration. Thus, most of the interest in internal migration focuses on interlinkages between internal migration and urbanization, given that a rising share of the world’s population lives in urban settlements of various sizes. Today, more than 50 % of the world’s population lives in cities. By 2050, an estimated seven out of ten people will live in urban areas (UN 2022).

Little attention is given to cross-national comparisons in the level of internal migration, probably because of the absence of data on internal migration in international statistical databases. This has been recognized to be a result of the data harmonization issue and missing commonly agreed statistical indicators (BELL & CHARLES-EDWARDS 2014). However, variations in Europe regarding the scope of internal migration generally show high mobility in Northern and Western Europe, but lower mobility in South and East Europe (BERNARD 2017).

The shrinking of rural areas has been a long-term phenomenon in many post-socialist rural regions, driven by diverse socioeconomic processes (COPUS et al. 2021). The rural–urban migration flows further contribute to the depopulation of rural areas while the selectivity of the migrants disrupts the population structure. This can adversely affect overall rural sustainability. What MEMBRETTI et al. (2022: 9) refer to as “the role that migrations to rural and mountain areas can play for European rural and even remote regions, among other things, by contributing to the revitalization of social and economic local milieus, reducing territorial inequalities and taking part in urban–rural interconnections” is a phenomenon that certainly calls for additional research. Internal migration is an excellent indicator of the functional relationships among settlements. Given wide variations in the spatial patterns of internal migration across the settlement system, ROWE & PATIAS (2020) are calling for nuanced investigations at a country-specific level. Thus, the study of internal migration in Serbia could provide useful insight into relations between migration, population redistribution, population size, demographic structures, and settlements, as they exist today in a small

post-socialist country in Europe, answering questions relevant to the populations and places.

Having in mind out-migration as a rural challenge and the need “to transform the new long-term vision for rural areas into a concrete policy framework – The Rural Agenda” (EUROPEAN COMMITTEE FOR THE REGIONS 2020: 3), this article seeks to address three main research questions and link them to the analysis in the following manner:

- Has the COVID-19 pandemic affected internal migration volume to rural settlements in Serbia?
(The analysis of the total annual volume of in-, out- and net migration at the national level and regional features of internal migration, based on calculated rates);
- How have the migration flows varied during and after the pandemic across the rural–urban hierarchy and in relation to the large city’s proximity to a rural settlement of destination?
(The analysis based on origin–destination migration matrices with migratory dynamics from different types of urban settlements of origin (large cities, medium-sized towns, and small towns) to suburban and non-suburban rural settlements);
- How have these patterns differed according to the main socio-demographic characteristics of internal migrants? (The analysis of age, sex, and economic structure of internal migrants.)

2 Internal migration and COVID-19 crisis - background

The COVID-19 pandemic affected national education systems and the world economy by closing schools, colleagues, and universities, and included an economic downturn (NICOLA et al. 2020, EVERS et al. 2022a, 2022b). The socio-economic implications of the pandemic modified the internal migration of students and workforce, due to the opportunity of remote studying and homeworking but could also affect the internal migration trend of other populations. Namely, according to BATTY (2020) the COVID-19 pandemic resulted in changes in location choices and travel behavior. The recent COVID-19 pandemic has shown the vulnerability of urban life in densely populated cities which have become the epicenter of the pandemic (ROCKLÖV & SJÖDIN 2020, TAKASHAHI et al. 2021, UN 2020). For example, the areas most affected by the COVID-19 crisis in Serbia were precisely large cities and re-

gional centers (LOVIĆ OBRADOVIĆ et al. 2022b). The various challenges posed on the urban population's living and working patterns during the pandemic provided the background that has led researchers to wonder whether the COVID-19 crisis can accelerate new internal migration trends i.e., cause an "urban exodus" (ROWE et al. 2022), considering "cities as losers and rural areas as winners" (GONZÁLEZ-LEONARDO et al. 2022a), while hoping for a "renaissance of rural and remote places" in Europe (MEMBRETTI et al. 2022).

The literature review on the relation between migration and COVID-19 pointed out that the first studies focused on issues such as managing international migration at the time of the COVID-19 pandemic as well as COVID-19's crisis implications on international migrants. The overall impression is that COVID-19 had a profound impact on migration flows at every scale, leading to the disruptions of the previously existing migration and mobility patterns worldwide (MCAULIFFE et al. 2022). When it comes to internal migration, various research studies have covered this topic in relation to COVID-19. In terms of spatial scope, empirical country-level studies on the changes in internal migration upon the COVID-19 outbreak and the urban exodus have been made. This issue has been researched in the following regions and countries:

- Southern Europe: Spain (GONZÁLEZ-LEONARDO et al. 2022a, GONZÁLEZ-LEONARDO et al. 2022b), Italy (LICARI et al. 2022), and Serbia (LUKIĆ et al. 2022);
- Western Europe: Germany (STAWARZ et al. 2022);
- Northern Europe: United Kingdom (ROWE et al. 2022), Norway (TØNNESSEN 2021), and Sweden (VOGAZIDES & KAWALEROWICZ 2022); but also
- Non-European countries, such as Japan (FIELDING & ISHIKAWA 2021), and Australia (PERALES & BERNARD 2022).

Many scholars compared the internal migration trends for the first year of the COVID-19 pandemic (2020) and one or more years preceding it (GONZÁLEZ-LEONARDO et al. 2022a, GONZÁLEZ-LEONARDO et al. 2022b, LUKIĆ et al. 2022, STAWARZ et al. 2022). Recent studies, such as ROWE et al. (2022), LICARI et al. (2022), and GONZALES-LEONARDO & ROWE (2022), investigated the most recent period at the time, while including also the 2021 data. The use of official statistical data on internal migration prevails. However, the study by ROWE et al. (2022)

is based on Facebook data, while WANG et al. (2022) used Twitter data to monitor internal migration patterns during the COVID-19 pandemic. A few studies (GONZÁLEZ-LEONARDO et al. 2022b, LICARI et al. 2022, PERALES & BERNARD 2022, TØNNESSEN 2021, STAWARZ et al. 2022, VOGAZIDES & KAWALEROWICZ 2022) have focused on socio-demographic characteristics of internal migrants who moved before and after the pandemic.

Previous studies point to the short-term effects of COVID-19 on the intensity of internal migration, reflected in a decrease in intensity in 2020 and a rebound in intensity in 2021 (GONZÁLEZ-LEONARDO et al. 2022a, LICARI et al. 2022, PERALES & BERNARD 2022, STAWARZ et al. 2022). Besides the decrease in the intensity of internal migration, the change in spatial patterns has been noticed in many European countries such as a rise in the number of internal migrants from the capital city (VOGAZIDES & KAWALEROWICZ 2022) or towards nonmetropolitan regions (STAWARZ et al. 2022), or an increase in out-migration coupled with a decrease in inflows towards large cities (GONZÁLEZ-LEONARDO et al. 2022a). During the pandemic, suburban areas have been the main destinations for in-migrants from densely populated areas (GONZÁLEZ-LEONARDO et al. 2022b; STAWARZ et al. 2022; VOGAZIDES & KAWALEROWICZ 2022). From the viewpoint of the age of internal migrants, the findings on changes in migration behavior of young adults appear to be different (PERALES & BERNARD 2022; STAWARZ et al. 2022). According to TØNNESSEN (2021) individuals with occupations that could be performed remotely were overrepresented among internal migrants who moved out of Oslo during the first year of the pandemic.

The studies on the relation between internal migration and COVID-19 in Europe have covered almost exclusively the European Union (EU) countries, whereas this topic remains under-researched in non-EU countries. Even though novel, the research on the pandemic oriented internal migration flows manages to incorporate the rural–urban hierarchy, differentiating between the largest cities, cities, hinterland, and rural areas (STAWARZ et al. 2022), cities, towns and suburbs, and rural areas (LICARI et al. 2022), and core-cities, suburbs, towns, and rural areas (GONZÁLEZ-LEONARDO et al. 2022b) while looking to identify changes in internal migration before and after the outbreak of the COVID-19 pandemic by a degree of urbanization. Still, a deeper look leads to the conclusion that except GONZÁLEZ-LEONARDO et al. (2022b), little in-

terest has been centered on the types of rural areas that attract internal migrants.

3 The context and overview of internal migration in Serbia

According to ŠANTIĆ & TRNAVČEVIĆ (2022), the evolution of Serbian internal migration took place through migration from smaller to larger urban and economic centers since the 1980s, while in the 20th century, the capital city of Belgrade, as well as three other large regional centers with more than 100,000 inhabitants (Niš, Novi Sad, and Kragujevac) and their suburban settlements were the main destinations of internal migration and the zones of population concentration. The long migration activity exhausted most of the demographic potential of the rural areas in Serbia. The exceptions are suburban rural settlements (near larger regional centers) that have become attractive for internal migrants in the last two decades, due to low real estate prices or illegal housing. In the suburbs of the City of Belgrade, illegal construction has been most evident (DJUKIĆ et al. 2017). Furthermore, internal migrants from the rural settlements near larger regional centers primarily commute to work in the neighboring city center (FILIPOVIĆ et al. 2022).

The decades-long negative natural increase in Serbia, with large-scale emigration and small-scale immigration (LUKIĆ 2013), is reflected in the increased impact of internal migration on population distribution, as well as on the settlement system. The internal migrants' prevailing affinity for certain destinations in Serbia influences the growing differences in the number and structure of the population at the regional level, but also at lower territorial ones. The regional dimension of demographic change can be noticed through the fact that between the 2002 and 2011 Censuses only the Belgrade Region recorded an increase in the number of inhabitants while the Region of South and East Serbia lost the largest number of inhabitants (LUKIĆ 2013). According to LUKIĆ & ANĐELKOVIĆ-STOILKOVIĆ (2017), internal migration affects population redistribution, reflected in spatial (south–north) and hierarchical (rural–urban) demographic, and economic polarization with population decline, especially in rural and border areas of Serbia. This led to severe population ageing, and a spatial dimension analysis pinpointed the vast areas of Serbia with heavily modified age structures (DEVEDŽIĆ & STOJILKOVIĆ GNJATOVIĆ 2015). According to SORS

(2022a) estimates, out of the total of 6,834,326 inhabitants, in 2021 4,193,809 (61.4 %) lived in urban settlements. The main effects of the spatial demographic polarization of Serbia can be seen in the fact that 36 % of the population is concentrated in only 17 settlements with more than 50,000 inhabitants (LUKIĆ 2013).

The refugees from Bosnia and Herzegovina (B&H) and Croatia who arrived in the 1990s in Serbia mainly settled within the Belgrade and Vojvodina Region, which attract population anyway by internal migration (LUKIĆ 2013). According to LUKIĆ (2016) although the mobility of forced migrants was not high in the first years of refugeeism due to the strong influence of social networks on the place of immigration, the data show that over time, the refugees from B&H and Croatia became more mobile. For the refugees from B&H and Croatia who participated in internal migration after arriving in Serbia, urban settlements were more attractive on account of providing better employment opportunities (LUKIĆ 2016). Thus, they did not contribute to the reduction of depopulation in rural areas of Serbia.

Serbia has a long tradition of emigration, primarily with an economic background, while during the turbulent 1990s, the population also emigrated due to political and security reasons. According to estimates by NIKITOVIĆ (2019), the average annual migration balance of Serbia was –20,700 in the 2011–2018 period. The data on internal migration show us that its volume is five to six times larger than the volume of international migration in Serbia. When it comes to internal migration, for the years before the onset of COVID-19 (in the period 2011–2019), the number of internal migrants in Serbia was between 120,000 and 127,000 annually (LUKIĆ et al. 2022). Continuously, more than half of internal migrants have been female (55 %), whereas 70 % of internal migrants settle in cities (THE GOVERNMENT OF THE REPUBLIC OF SERBIA 2012, 2019).

The COVID-19 pandemic influenced the change of attitudes of the population in Serbia regarding various forms of mobility, such as travel (ZELJKOVIĆ 2022) or changing the place of residence (LUKIĆ et al. 2022). These decisions were in line with the continuous increase in the number of infected and deceased, which reached a peak in December 2020, as well as the strict measures implemented by the relevant authorities, such as lockdown, reducing the volume of public transportation, closing educational institutions, promoting working from home, etc. (LOVIĆ OBRADOVIĆ et al. 2022a). According to LUKIĆ et al. (2022), the mobility of the population was limited

during the first year of the pandemic, which led to a decrease in the volume of migratory flows. Belgrade, as a central point in the system of internal migration in Serbia, has retained its position in attracting the population from other parts of the country, but with a decrease in migration intensity. Migration gains noted in other parts of Serbia occurred primarily as a result of a decrease in outflow rather than an increase in inflow.

4 Data and methodology

“The pandemic reminded the world of the importance of formal demography” (ZAGHENI 2021: 81), as well as of the temporal and spatial scales at which demography operates. To identify the changes in the Serbian internal migrations’ volume and patterns in the context of the COVID-19 pandemic, we used additionally processed official national annual statistics on internal migration for the period 2018–2021 (SORS 2023). The data source contains changes in usual residence during the year. A detailed analysis is enabled by using additionally processed data at lower territorial levels (regions and groups of settlements by settlement type), and data related to the sex, age, and economic activity of the internal migrants. Rates were calculated using population estimates by age, sex, and type of settlement (SORS 2022a). We compared the data for 2020 (the first year of the pandemic) and 2021 (the second year of the pandemic) to the average of aggregated data for 2018 and 2019 (the pre-COVID-19 phase).

The research included four regions of Serbia with a focus on their regional centers: Vojvodina Region (Novi Sad), Belgrade Region (Belgrade), the Region of South and East Serbia (Niš), and the Region of Šumadija and West Serbia (Kragujevac). The Autonomous Province of Kosovo and Metohija, the territory under United Nations Security Council Resolution No. 1244/99 (UN 1999), was not included in the analysis, given that the SORS has not disposed of this data since 1998.

A quantitative statistical approach and descriptive method have been used in researching the internal patterns of migration to rural settlements in Serbia. Aiming to perceive the most accurate picture of the impact of the pandemic on internal migration to rural settlements, we have divided the research into five phases.

The first phase involved analyzing overall migratory flows, then out-, in-, and net migration for urban and rural settlements, and in-migration rates

(in-migrants per thousand population of rural settlements) to rural from urban and rural settlements. The analysis was conducted at the national level, to gain insight into changes in general internal migration dynamics over time.

Next, regional patterns were studied. Internal migration to rural settlements, using calculated in-, out-, and net migration rates, for each region in 2018–2019, 2020, and 2021, were examined.

The third phase involved exploring internal migration patterns to rural settlements based on origin–destination migration matrices for gaining more disaggregated data at the spatial level. Accordingly, more profound research on internal migration flows across the rural-urban hierarchy was enabled. Migratory dynamics from different types of urban settlements of origin to rural settlements was analyzed.

The fourth phase included the analysis of the internal migration patterns to rural settlements which administratively belong to cities with more than 100,000 inhabitants—suburban rural settlements, as well as the analysis of the internal migration patterns to non-suburban rural settlements.

To analyze the change in the demographic profile of the population that has moved to and out from rural settlements before and during the pandemic four broad age groups of the population were singled out: under the age of 15, 15–30, 31–64, and population aged 65 and over, for both males and females in the final phase of research. The age and sex specific in- and out-migration rates of rural settlements, as well as net migration are used in order to incorporate the structural intensity of migration flows. Due to the challenging working conditions during the COVID-19 pandemic, data on economic activity (for the persons aged 15 years and over) i.e., active population, persons with personal income, and supported population (dependents) that has moved to rural settlements within the analyzed 2018–2021 period across the rural-urban hierarchy were considered as well. These categories are those used by official statistics in Serbia, so the active population are those who perform paid activity at least one hour a week before the data collection (but also the unemployed that were seeking for a job), the supported are those who do not engage in the labor market (children, students, housewives, etc.), and persons with personal income are pensioners and other that do not have gainful employment but live off other means (rent, dividends). Also, we analyzed the in-migrants occupation status in order to further highlight their economic potential.

The Serbian settlement system is characterized by a large number of settlements (4,709), which are subject to dichotomous classification, and divided into urban and other type (SORS 2022b). The urban status was assigned through a legal act of the local self-government units and based on demographic criteria, the urban settlements are divided into three groups:

- Large cities, include urban settlements of more than 100,000 inhabitants;
- Medium-sized towns, include urban settlements of 20,000–100,000 inhabitants; and
- Small towns, with up to 20,000 inhabitants (ŽIVANOVIĆ 2015).

Out of the urban settlements (167), the most numerous (127) are small towns with up to 20,000 inhabitants and medium-sized towns (36) with 20,000–100,000 inhabitants. Only four towns have more than 100,000 inhabitants. Those are the capital city of Belgrade, and three other large regional centers.

The category of ‘other’ settlements according to the administrative-legal criteria (SORS 2012) is denoted as rural settlements throughout the study. For the purpose of this research, we singled out two types of rural settlements:

- Suburban rural settlements (278), that administratively belong to the cities with more than 100,000 inhabitants: Belgrade, Kragujevac, Niš, and Novi Sad (LUKIĆ 2012); and
- Non-suburban rural settlements (4,408).

The data limitation refers to a widespread phenomenon that not all citizens in Serbia register their usual residence address on time, affecting the coverage and quality of internal migration statistics. The societal effects of the pandemic further contributed to untimely registration, given that official institutions limited access to face-to-face inquiries and services. Therefore, it is assumed that the number of internal migrants is underestimated (LUKIĆ et al. 2022). The extent of under registration in March 2020 was 53 %¹⁾. Namely, the state of emergency in Serbia was declared on March 15, 2020. Institutions dealing with registration of internal migration were closed. Therefore, March is an exception when it comes to data collection. Furthermore, a potential limitation of the data is related to the settlement typology based on the 2011 Census population

numbers. Although there have been no changes in the settlement typology we assume that since then, there have been some changes at the settlement level due to fertility, mortality, and migration rates.

5 Results

5.1 Internal migration volume of rural settlements in Serbia before and during the pandemic

As can be seen in Table 1, the volume of internal migration in the first year of the pandemic (2020) decreased by 13.7 % compared to the pre-COVID-19 phase. In the second year of the pandemic (2021), the volume increased by 23.2 % compared to the previous year and 8.3 % compared to the pre-COVID-19 phase. The same trend was recorded in urban and rural settlements. The beginning of the pandemic (2020) affected the reduction of in-migration to urban settlements by 16.1 % compared to the earlier period (2018–2019). In the second year of the pandemic, the pre-pandemic in-migration was surpassed by only 3 % and the pandemic (2020) by 19.6 %. Out-migration from urban settlements was also constrained at the beginning of the pandemic—13.8 % less out-migration compared to the period before the pandemic. The growth of out-migrations in 2021 compared to the pre-COVID-19 phase by 7.9, and 22.8 % compared to 2020, is more significant compared to the growth of in-migrations, which also affected the reduction of the net migration rate.

In 2020 compared to the pre-COVID-19 phase, a decrease (8 %) in the inflow to rural settlements was observed. However, in 2021, the volume of rural in-migration showed signs of revitalization, with an increase compared to 2020 (30.5 %) and the pre-COVID-19 phase (20.6 %). Furthermore, the pre-COVID-19 phase was characterized by a negative net migration, with a registered loss of almost 6,000 people in rural settlements of Serbia, at the annual level. In 2020, negative net migration was nearly 40 % lower compared to the pre-COVID-19 phase. The drop in migration dynamic was characterized by a reduced volume of both out-migration and in-migration, where the decrease was somewhat larger when it comes to the volume of out-migration. In 2021, an increase, and simultaneously the highest values of both internal out-migration and in-migration compared to the pre-COVID-19 phase and 2020, were recorded. As a consequence of the increased volume of in-migration in 2021, the recorded negative values

¹⁾ The information has been gained upon request from the Statistical Office of the Republic of Serbia.

of net migration of rural settlements in Serbia were the lowest, being 65% lower than the average for 2018 and 2019 (Tab. 1).

The population of urban settlements showed less interest in in-migration to rural settlements in 2020 compared to the period before the pandemic, as evidenced by the data in Table 2. However, the in-migration rate to rural from urban settlements increased by 33.3% in 2021 compared to 2020, indicating an increase in interest in moving to the countryside in the second year of the pandemic. The rise is also noticeable concerning the average values of the two years preceding the pandemic, but it is not pronounced. Nevertheless, based on the data obtained after a request for special processing (SORS 2023), in-migration to rural from urban settlements in 2021 is about 8% higher compared to the average values in the ten-year pre-pandemic period (2010–2019). Rural–rural migration recorded a successive increase in 2020 and 2021 compared to the pre-COVID-19 phase. Out-migration from rural settlements fell in 2020 compared to the pre-pandemic period. Subsequently, an increase occurred in 2021, surpassing both the numbers from the pre-COVID-19 phase and those from 2020.

Regional patterns of the migration flows of rural settlements, displayed in Figure 1, also followed the trend of the overall internal migration. Only the Belgrade Region experienced significant changes. A slight decrease in in-, out-, and net migration rates in 2020 compared to the pre-COVID-19 phase replaced a considerable increase in in- and net migration rates in 2021. Thus, the in-migration rate of rural settle-

ments in the Belgrade Region increased by more than 50% and the net migration rate by more than six times in 2021 compared to the pre-COVID-19 phase. When the rates for 2021 are compared to the rates for 2020, the difference is even more pronounced. The in-migration rate increased by almost two times, and the net migration rate as much as nine times. A more detailed analysis revealed that over the studied period, the in-migration to the rural settlements of the Belgrade region from the same region's urban settlements was successively increasing. In other regions, no significant changes in migration patterns due to the pandemic were recorded.

5.2 The importance of the rural–urban hierarchy and proximity of a large city for rural in-migration

Among rural in-migrants, the largest share continuously comes from medium-sized towns (42.6% on average), then from large cities (32.4%), while the smallest share comes from small towns (25%). As can be noticed in Figure 2, in the first year of the pandemic, there was a decrease in rural in-migration from all categories of urban settlements, which was in line with the reduced volume of internal migration. During the second year of the pandemic, there was an increase in the share of rural in-migration from medium-sized and small towns in the total number of in-migrants from urban settlements compared to the pre-COVID-19 phase, while the share of inflow from large cities decreased.

Tab. 1: Internal migration in the pre- and COVID-19 phase

Period		Total	Rural		
			In-migration	Out-migration	Net migration
Pre-COVID-19 phase	2018–2019	124,807	38,956	44,703	–5,747
	2020	109,747	35,843	39,380	–3,537
COVID-19 phase	2021	135,194	46,770	48,783	–2,013

Tab. 2: In- and out-migration rates (in- and out-migrants per thousand population) to rural settlements of Serbia

Period		In-migration to rural	In-migration to rural	Out-migration from rural
		from urban settlements	from rural settlements	settlements rate
Pre-COVID-19 phase	2018–2019	10.0	4.3	16.4
	2020	8.1	5.3	14.7
COVID-19 phase	2021	10.8	6.9	18.5

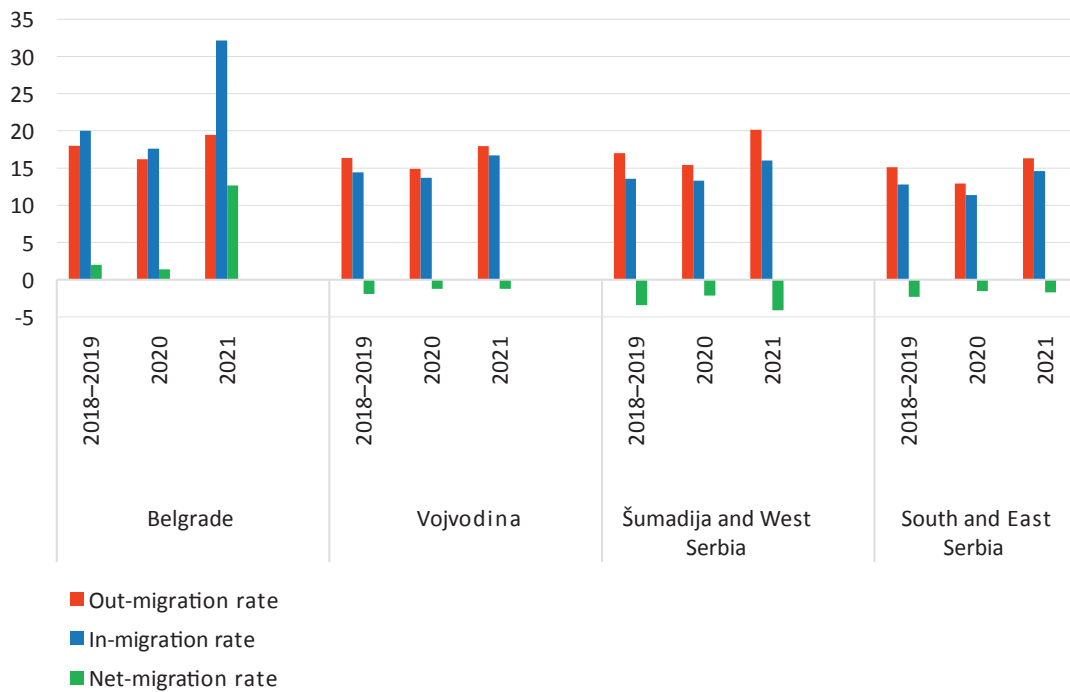


Fig. 1: In-, out-, and net migration rates (in-, out-, and net number of migrants per 1,000 population) of rural settlements at the region level

Migration flows of suburban and non-suburban rural settlements are shown in Figure 3. After a slight decrease in 2020, the positive net migration for suburban rural settlements rose to plus 30% when compared to the pre-COVID-19 phase. Non-suburban rural settlements recorded almost identical in-migration in 2020, as in the 2018–2019 period, so the decreased outflow led to a reduction in the negative net migration. In 2021, a revival of migration dynamics took place, so an increase in inflow and outflow was recorded, compared to both previous periods. Thus, if we compare 2021 with the pre-COVID-19 phase, the increase in inflow amounted to 21.4%, and outflow to 10.8%. When comparing 2021 with 2020, an even greater increase is observed, with the inflow increasing

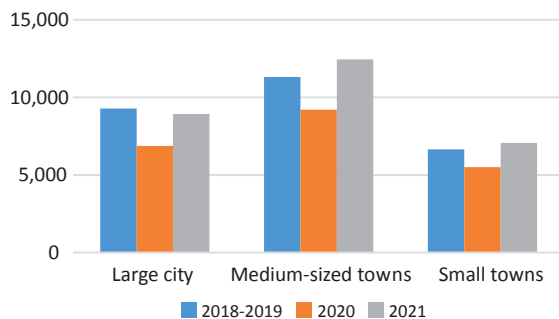


Fig. 2: In-migration to rural settlements by type of urban settlement of origin

by 22.8%, and outflow by 18.3%. The net migration had negative values during all three periods, with the highest negative value in the pre-COVID-19 phase, and the lowest in 2020.

Certain patterns can be identified when it comes to rural in-migration, depending on the distance from towns/cities and the size of the towns/cities in question. Suburban rural settlements receive an approximately equal share in the total number of in-migrants from large cities and medium-sized towns, while the smallest amount of inflow originates from small towns. There is a slight difference in the redistribution of the inflow share to suburban rural settlements from large cities and medium-sized towns, while the share of in-migrants remained almost the same in the researched period. Furthermore, within the same categories of settlements there was a decrease in 2021 compared to the pre-COVID-19 phase and an increase compared to 2020. At the same time, an increase in the share of in-migrants from medium-sized towns in 2021 compared to both periods is noticeable. The number of in-migrants to suburban rural settlements from this category of urban settlements exceeded the pre-pandemic number.

Slightly less than three-quarters of the migrating population of urban settlements (74.3%) migrated to non-suburban rural settlements. The volume of this inflow in 2020 was reduced compared to the aver-

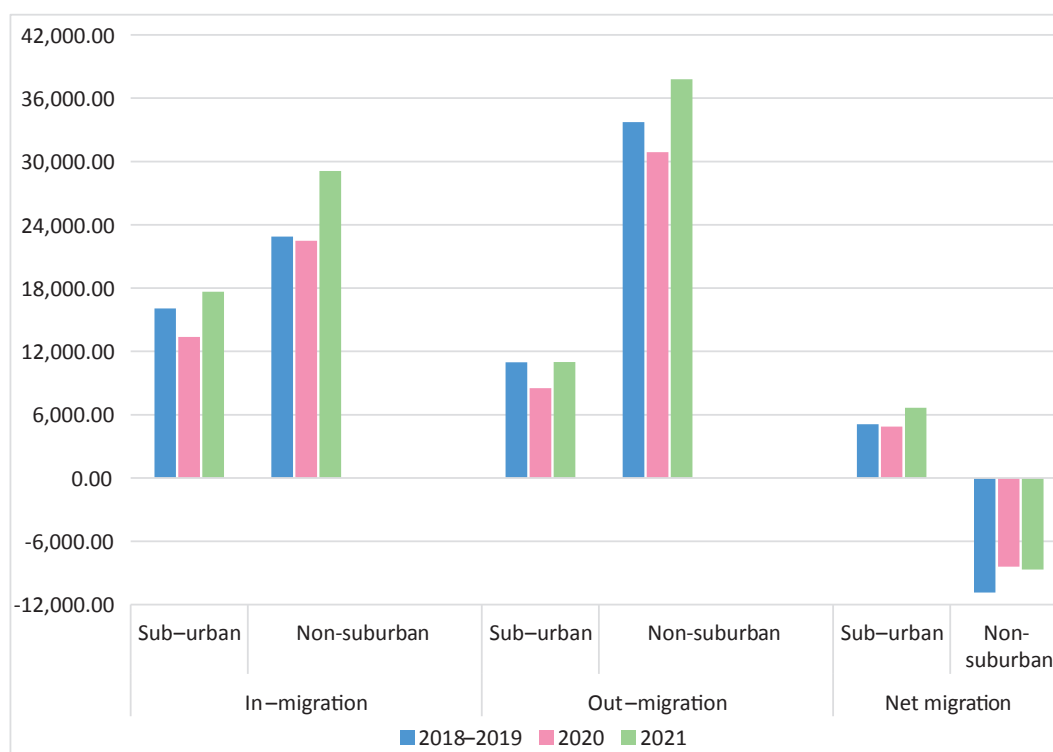


Fig. 3: In-, out-, and net migration of suburban and non-suburban rural settlements

age value for the two years preceding the pandemic. However, there was an increase in 2021 compared to both these years, with the pre-pandemic number being exceeded. Non-suburban rural settlements recorded a decrease in inflow from and outflow to urban settlements of large cities in the first and the second years of the pandemic, compared to the average values in the two years before the pandemic. Regarding medium-sized and small towns as origins, there was a noticeable decrease in the inflow to non-suburban rural settlements in 2020, followed by an increase in 2021, compared to the pre-COVID-19 phase. In addition, in the second year of the pandemic, the volume of in-migrants from these two categories of settlements surpassed the pre-pandemic level, and when it comes to large cities, the pre-pandemic level has not yet been reached.

5.3 Demographic profile of the rural settlements in-migrants

In order to gain deeper insight into the demographic characteristics of rural migrants, we analyzed migration features of the total, male, and female population in relation to age structure. On average, the rural internal migrant's sex structure portrays

quite a diverse picture highlighting a slight feminization tendency: the out-migrants have a slightly greater share of females (58%), compared to in-migrants (56%), but variations exist in relation to the settlement of origin. An equal number of men and women are coming to rural settlements from large cities, while more women move from medium-sized towns (53%) and small cities (55%). Even though the net migration rate was negative in all periods we covered, a more detailed look into various age groups reveals a particular tendency of lesser negative values in the COVID-19 period (Tab. 3). While in 2020 all age groups except older than 65 had a negative migration rate, the second year of the pandemic was marked by a positive net rural migration rate for all population groups except those aged 15–30.

When broken down by age and sex, the specific migration rates of rural migrants by type of movement point to the various features, depicted in Figure 4. The obtained results highlight that females are more prone to rural in- and out-migration, since in every analyzed year and both types of movements women exhibit more intensive migratory characteristics. The most important is the changing intensity of migration in pre- and COVID-19 periods given that all age groups and both sexes display the same pattern: the noticeable mobility reduction in 2020 and

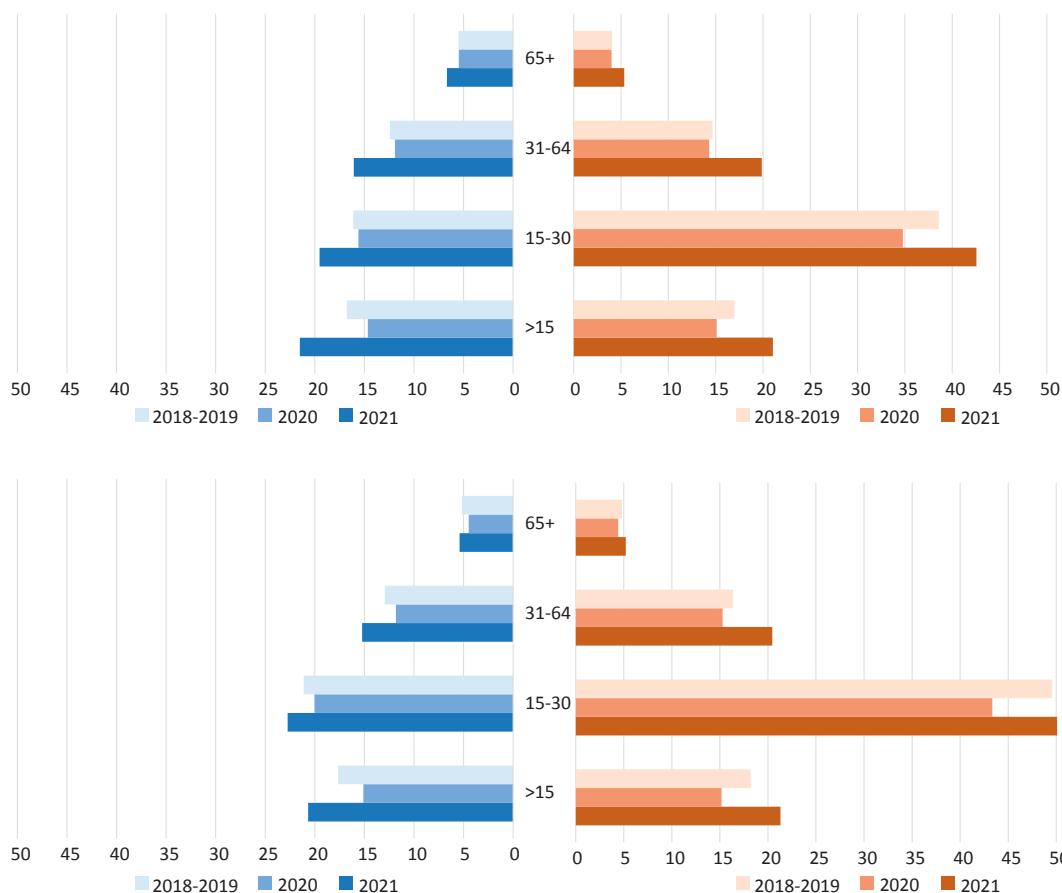


Fig. 4: Age and sex specific rates for (in- and out-migrants per thousand in age and sex group) in- (top) and out-migrants (bottom) of rural settlements

subsequently greater rural related migration intensity in 2021, even compared to pre-pandemic years. The asymmetry is visible between sexes in different age groups, where women aged 15–30 most intensively engage in in- and out-rural settlement relocations with rates being more than twofold compared to males. The greatest sex uniformity is for the youngest (both in- and out-migration rates) and out-migration of older than 65, as the older men have a more prominent tendency to relocate to rural settlements than their female counterparts.

Net migration rates, by age and sex, in rural settlements are presented in Figure 5. While the absolute net migration to rural settlements is positive in

all age groups except in 15–30 years old, the net rate of rural migration reveals the opposite, with significant sex differences in pre- and COVID-19 periods. For women, only older than 65 in 2021 had a slight positive net rate, but still the overall tendency is the convergence of differences between in- and out-migration rates in all age groups, with the least negative rate in 2021 (only younger than 15 deviate from this trend in 2021). The net migration rates for men aged 15–30 are negative as for women, but other age groups show less uniform characteristics, given that all men older than 31 years had a positive net rural migration rate in COVID-19 period, with rising positive values as the pandemic continued. There was

Tab. 3: Net migration rate of in-rural migration (net migrants per thousand in age group) for different age groups

	Total	<15	15–30	31–64	65+
2018–2019	–2.11	–1.05	–7.85	–1.08	–0.25
2020	–1.32	–0.27	–6.39	–0.42	0.22
2021	–0.76	0.31	–5.73	0.16	0.64

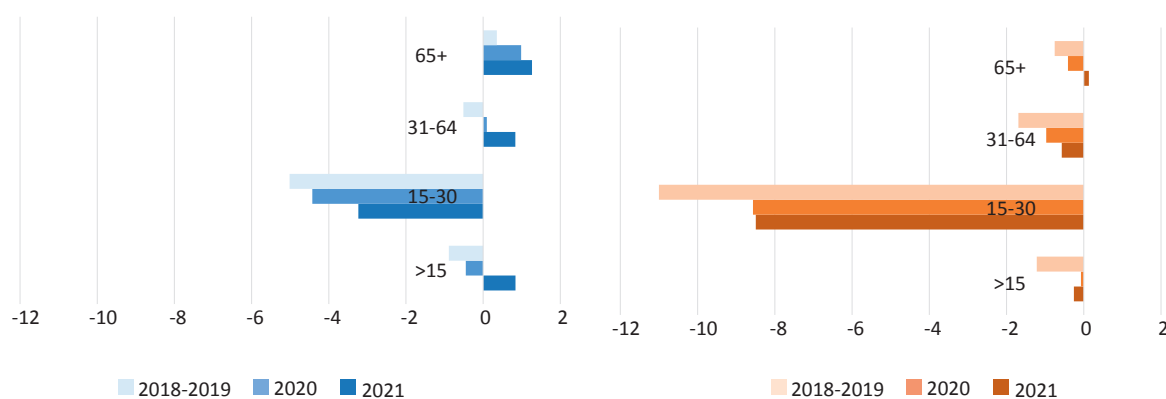


Fig. 5: Age and sex specific net migration rates (net migration per thousand in age and sex group) for males (left) and females (right) of rural settlements

even a positive net migration rate for rural settlements recorded in age group 0–15 for men in 2021.

Looking deeper into the age and sex differentiation of in-rural migration processes, we noticed that more than half of all in-migrant population was 31–64 years old regardless of sex. When we look closer at the age structure of in-migrants, men exhibit much more uniform migration behavior in relation to the rural–urban hierarchy movement according to the type of urban origin and proximity of rural destination to a large city compared to women. On the other hand, women express much more randomness when it comes to the size of urban settlements they migrated from and the period when the migration took place. Suburban rural settlements attracted the largest shares of the female in-migrants aged 31–64

from large cities while non-suburban settlements have been receiving more both male and female in-migrants older than 65 from large cities, which reveals that more distant rural settlements are also appealing for the older urban population.

Even before the COVID-19 outbreak, the economic characteristics of rural in-migrants were unfavorable (Tab. 4) since the share of the inactive at the time of migration was around 69%, roughly 24% belonged to the group of the economically active population, while the rest had their independent means of financial sustenance (pension, rent, etc.). Differences exist between the suburban and non-suburban migrants, since 1/3 of those who relocate to suburban rural settlements are active, as opposed to only 1/4 of non-suburban rural in-migrants. The

Tab 4. Economic structure of out- and in-rural migrants

	Out-migration			In-migration		
	Active population	Personal means	Dependent population	Active population	Personal means	Dependent population
2018–2019	25.74	7.14	67.12	23.93	7.06	69.02
2020	26.31	7.32	66.37	25.75	7.66	66.59
2021	25.01	6.79	68.20	24.58	7.49	67.94
Suburban rural settlements						
2018–2019	34.84	5.85	59.31	34.80	7.93	57.27
2020	31.94	5.96	62.10	33.03	8.60	58.37
2021	30.20	6.17	63.63	31.36	8.18	60.45
Non-suburban rural settlements						
2018–2019	25.74	7.14	67.12	23.93	7.06	69.02
2020	26.31	7.32	66.37	25.75	7.66	66.59
2021	25.01	6.79	68.20	24.58	7.49	67.94

highest activity rate is identified among the rural in-migrants from large cities in suburban settlements (around 37%). The bigger is the urban settlement of origin, the smaller is the percentage of dependent in-migrants. During the pandemic years, the share of active rural in-migrants overall increased, but the share of dependents and persons with personal means in suburban settlements rose. It is peculiar that the share of active in-migrants in non-suburban settlements was higher in pandemic years, compared to the previous period. Additionally, an important finding concerns the occupation characteristics of the internal distribution of active in-migrants, as half of them were professionals and artists.

6 Discussion

“The global pandemic has increased the attraction of rural living” (TAMMARU et al. 2023: 354) and accelerated internal migration from the urban environment (PILEVA & MARKOV 2021). This is a topic that captures the attention of both researchers in new and old EU member states, as well as overseas countries. To facilitate understanding of a broader picture when it comes to the relation between internal migration and COVID-19 in Europe, this article aims to add to the knowledge about the effects of the COVID-19 pandemic on internal migration in European countries, using Serbia that has the status of an EU accession candidate as the example. We highlight not only the changes in the volume, but also in the socio-demographic characteristics of internal migrants over time and between various types of rural and urban settlements (the ‘where’ and the ‘who’ of the migration) that could have a significant role in the rural demographic revival.

Overall, our results reveal changes in the volume of internal migration in the two compared periods, before (2018–2019) and after the COVID-19 outbreak, from the initial disruption to the subsequent surge in the volume. Trends in migratory flows of rural settlements during the pandemic relative to the pre-pandemic period coincided with the overall trend. In the first year of the pandemic, the recorded intensity of internal migration to rural settlements was lower than in the pre-pandemic phase. This has been in line with the reduced overall population mobility in Serbia, especially in the period from mid-March to the beginning of May, during the state of emergency (LUKIĆ et al. 2022). A drop in migration dynamics in 2020 was also recorded in Italy (LICARI et al. 2022), Germany (STAWARZ et al. 2022), and Japan

(FIELDING & ISHIKAWA 2021). Given that our research also included the second year of the pandemic, the results show that the decline was temporary and the numbers from 2021 surpassed the pre-COVID-19 level. The same short-term variations in the trend were observed in other European countries, e.g., Spain (GONZÁLEZ-LEONARDO et al. 2022b), Britain (ROWE et al. 2022, WANG et al. 2022), and Sweden (VOGAIZIDES & KAWALEROWICZ 2022), as well as in Australia (PERALES & BERNARD 2022). Despite the fact that rural settlements in Serbia, within the researched time frame had a negative net migration rate, in 2021 an increase in the number of in-migrants was recorded. In the second year of the pandemic, rural settlements became more attractive to the population. The rural–rural migration was rising steadily in all researched periods, while the urban–rural migration, after the interruption in 2020, exceeded pre-COVID-19 volume in 2021. The population was caught off guard in 2020 with the COVID-19 onset, hoping that it would not take long, but given the way that the events unfolded, continuing into 2021, there was a migratory behavior adjustment. The limitations of urban life during the pandemic, coupled with teleworking possibilities, lower real estate prices, and the countryside’s lack of restrictions played a certain non-exclusive role in these changes.

During the two decades preceding the pandemic, rural settlements of the Belgrade Region were the focal point of internal migration. The only region whose rural settlements recorded positive net migration rates during the pandemic, with a significant increase of in-migration and net migration rates is the Belgrade Region, not resembling the weakening of the “one-point concentration” of the capital city as documented in Tokyo (FIELDING & ISHIKAWA 2021). Drops in migration intensity in 2020, followed by an increase in 2021 were recorded between the counties and federal states in Germany (STAWARZ et al. 2022), regions in Italy (LICARI et al. 2022), and federal states in Australia (PERALES & BERNARD 2022). A more detailed analysis showed that during the pandemic, the attractiveness of the suburban rural settlements of the Belgrade Region condensed in terms of inter-regional migration, compared to the pre-COVID-19 phase. That is, the intensity of long-distance migration to the capital has decreased, which has been also documented by researchers in Italy (LICARI et al. 2022) and Japan (FIELDING & ISHIKAWA 2021). While the ‘pull force’ of the rural settlements in the Belgrade Region has lessened for in-migrants outside of this region, migration flows from the core of the city to the suburbs have been initiated.

In order to more thoroughly examine the nature of demographic polarization in Serbia, this research enables the identification of changes in the intensity of the migration flows across the rural–urban hierarchy, and in the origin of in-migrants to rural settlements. Namely, in the pre-COVID-19 phase, a significant share of those who moved to rural settlements originated from urban settlements. During the pandemic the number of rural–rural migrants increased. In fact, the data shows that the average number of rural-to-rural migrants for a ten-year period (between 2010 and 2019) was 16,190 (SORS 2023). The number of rural-to-rural reached 18,328 in the second year of the pandemic. Furthermore, data from 2022 reveal that this number is considerably higher—21,830, indicating that the trend of moving from rural-to-rural settlements has not halted, but intensified. The first assessment from Italy showed different trends of rural migration across the country. Thus, for example, rural areas as a destination attracted the population only from the cities of the North (LICARI et al. 2022).

When it comes to changes across the urban hierarchy (urban settlement as origin), we provide evidence revealing a decrease in the inflow from urban settlements of large cities, as densely populated areas, to rural settlements during the COVID-19 phase compared to the period before the pandemic. Identification of the reduced attractiveness of rural settlements for the population of large cities, especially from the inner (core) city, is contrary to previous findings and references to the possibility of the urban exodus (GONZÁLEZ-LEONARDO et al. 2022b, VOGIAZIDES & KAWALEROWICZ 2022, WANG et al. 2022). At the same time, the inflow of population to rural settlements from the other two categories of urban settlements (small- and medium-sized towns) increased.

However, when analyzing the in-migration flows to different types of rural settlements in Serbia, including the in-migrants of urban origin, an interesting pattern is identified. Suburban settlements are the only rural settlements that recorded net migration gains both in the pre-COVID-19 phase and during the pandemic, with the highest value of net migration in 2021. Furthermore, there has been a noticeable increase in migration flows from medium-sized towns toward these settlements during the pandemic. Previous European studies also revealed that, during the pandemic, suburban areas have been the main destinations for in-migrants from the densely populated areas of Spanish (GONZÁLEZ-LEONARDO et al. 2022b), and German cities (STAWARZ et al. 2022), as well as from the capital of Sweden (VOGIAZIDES & KAWALEROWICZ 2022). Since our results have already

revealed that the attractiveness of the suburban rural settlements of the Belgrade Region diminished in 2021, this further implies that the attractiveness of suburban rural settlements of other regional centers (Novi Sad, Kragujevac, and Niš) has increased within the studied time frame. Non-suburban rural settlements had a greater outflow than the inflow of population throughout the researched period. The difference between the outflow and the inflow decreased during the pandemic compared to the pre-COVID-19 phase. During the pandemic, the attractiveness of non-suburban settlements decreased for the urban population of large cities and increased for the urban population of medium- and small-sized towns.

Given that the age between 15 and 30 is marked by multiple transitions and decisions with implications for one's adulthood such as those related to education, employment, and marriage, it is expected that rural settlements cannot fulfill all the aspirations of the younger generation. Thus, it is not surprising that the negative net migration rate of rural settlements for this age group has persisted before and during COVID-19. Still, some turnover is more than evident. The rural settlements in the second year of the pandemic 'managed' to attract a population younger than 15 and older than 30, indicating that migration was related to entire families, an indication already found in Estonia (TAMMARU et al. 2023). Just as STAWARZ et al. (2022: 5) documented in Germany, comparing the net internal migration rates for the years 2019 and 2020 "the largest cities experienced lower (less positive or more negative) net migration across all age groups and even across young adults, whereas the opposite is true for cities, and particularly for hinterlands and rural areas", Serbian rural settlements have been receiving a male population younger than 15 and older than 30 during the pandemic years. In Serbia as elsewhere (example in VOGIAZIDES & KAWALEROWICZ 2022) the propensity to migrate decreases with age, since the most mobile population is between 15 and 30 years of age, as confirmed with age specific rates. Unlike the Spain experience (GONZÁLEZ-LEONARDO et al. 2022), the Serbian rural settlements did have palpable variation between sex specific net rates, as values for men older than 31 were positive.

As COVID-19 has had an impact on various societal systems, the ability to cope with the posed challenges was heavily limited by pre-pandemic geographic, socioeconomic, and political context. The various pandemic-related restrictions were country-specific (McAULIFFE et al. 2022) but had important economic consequences. The economic structure of Serbian rural in-migrants points to the unfavorable

pattern where more than 66% of the internal rural migrants are economically dependent. More economically active are rural in-migrants who have relocated to the suburban rural settlements and those coming from large cities, and more than half of them work as professionals or artists. In the pandemic period, there has been a slight change in the share of active rural in-migrants across all analyzed modalities of destination and origin settlements. Even the non-suburban rural settlements had slightly higher share of active in-migrants in pandemic years. The COVID-19 pandemic has accelerated the rise in teleworking thus affecting the need to live close to work which could influence migration patterns in the future leading to greater migration to rural areas. The analysis of ADASCAITELI et al. (2022) has shown that according to the European Labour Force Survey data in the EU-27, the trend of an increase in working from home had been present even prior to the pandemic. The share of remote work differed widely across member states, with much lower levels in Eastern European countries compared to other member states. A rise in the share of employees working from home in Serbia has been noted too, since 2019 (SORS 2021). The effect of the pandemic on internal migration patterns in Serbia is not limited to the pandemic period, given the rural–rural and urban–rural migration increase in 2022 when the largest number of the population moved to rural settlements since 2012 (SORS 2023).

7 Conclusion, limitations, and future work

Compared to the widely spread research on international migration, the topic of internal migration seemed unjustly neglected given its relative dominance in scope. As in other countries, the number of internal migrants in Serbia compared to the estimated emigration is roughly 5:1, calling for further and deeper understanding of the role of internal migration in the dynamics of population's quantity and quality on the settlement level. The decades-long direction of internal rural-to-urban migration has led to the deepening of the territorial, hierarchical, and structural disproportion within the settlement system of Serbia. As a result of the long period of out-migration before the COVID-19 pandemic, the demographic resources of the majority of Serbian rural settlements have already been depleted, and thus leaving a low capacity to cope with change and disruption.

The onset of the pandemic indicated the possibility of changing the direction of migratory movements, with the outcome that would potentially facilitate the

long-awaited demographic revitalization of rural areas. However, the increased interest in moving to rural settlements only slightly mitigated the decades of negative net migration. Rural settlements pulled the population of rural settlements more than the population of urban ones. The population of large cities did not flock to rural settlements in either the first or the second year of the pandemic. Medium- and small-sized towns have assumed the role of the main place of origin for the in-migrants to rural settlements, thus bearing the greatest demographic burden during the pandemic. The biggest profiteers in the pandemic have been suburban rural settlements that have pulled the urban population given their proximity to large regional centers. In view of the foregoing, it would be pretentious to talk about either rural revival or urban exodus in the pandemic conditions, but it may be said that a step has been made toward strengthening rural demographic sustainability. New opportunities for non-suburban rural settlements arise as the spatial economics and working behaviors are changing, while workers and employers are to a greater extent aware that, when it comes to certain occupations, work can be performed from any place with adequate infrastructure and services to support remote work.

The research revealed differences in migrants' socio-demographic characteristics according to the type of rural destination, but also the type of urban origin. The decrease in age and sex specific migration rates in the first pandemic year was followed by the revitalization of migration activity in 2021, but while women are more prone to migration, their overall net migration rate is negative in all ages, both in the pre- and COVID-19 periods. On the other hand, the net migration rate for men older than 31 was positive in both years marked by the pandemic outbreak. A reflection of the changing economic reality is visible in suburban rural settlement of destination, as well as in all three sizes of urban settlements of origin, since the activity rate decreased in all of them in the second year of the pandemic. Still, the most active rural in-migrants are those coming from large cities, and to the suburban settlements. The available data did allow us to frame the contours of overall changes in pre- and post-pandemic Serbia, but more detailed data dissemination on socio-economic structures could help us enhance our knowledge on gender and age structure, as well as economic characteristics of rural migrants.

Research on this subject has a wider relevance in reshaping regional and rural development policies and actions. Diverse in-migration patterns of rural settlements have differential impact across the rural–urban hierarchy with implications for a wide

range of policy areas (demographic, socio-economic, and environmental). For different types of rural settlements such as rural settlements distant from large regional centers, or suburban rural settlements that are the subject of transformation processes, different policy measures are needed aiming at creating positive effects of in-migration. Furthermore, diverse categories of internal in-migrants have a higher or lower potential to contribute to the development of rural settlements of destination, which is particularly important for strengthening the demographic and socio-economic sustainability of non-suburban rural settlements. A long-term research perspective on rural in-migration is needed for migration policy-making. Such an approach would show if these trends were temporary or not.

A potential limitation of our study is related to the data that we have used. Namely, the statistical data used cannot explain the driving forces that affected migrants' decision to move from certain types of urban into certain types of rural settlements in Serbia. Future research on this subject, by using mixed method research, or quantitative findings for targeting qualitative local case studies, can shed light on migrants' motives, thus highlighting the impact of the COVID-19 pandemic on the mobility of internal migrants across the rural–urban hierarchy in Serbia.

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