

**PATTERNS OF INTERNAL MIGRATION DURING THE  
FIRST YEAR OF THE COVID-19 OUTBREAK IN LATVIA****IEKŠZEMES MIGRĀCIJAS IEZĪMES LATVIJĀ COVID-19  
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**Abstract**

The COVID-19 pandemic has profoundly changed our daily lives in ways that might have far-reaching effects on societal norms and human behaviour. However, little research has yet been devoted to the pandemic's impact on internal migration. In this article, we analyse the interconnection between COVID-19 and internal migration in Latvia. This article aims to evaluate internal migration patterns during the first year of the COVID-19 outbreak in Latvia, using available data at the municipality level. We compare migration flow statistics from the 2011–2019 period and the single year of 2020, which marked the start of the COVID-19 outbreak in Latvia. The analysis identifies similar patterns regarding internal migration activity among observed geographical units. In both time periods, the highest migration levels around Riga have been witnessed and several other large cities. Comparing these time periods highlights slightly higher migration intensity in 2020 than before COVID-19.

**Keywords:** internal migration, COVID-19, net-migration, crude migration intensity, municipalities

**Introduction**

The novel coronavirus (SARS-CoV-2) disease (COVID-19) has spread quickly throughout Europe. In Latvia, the first case was confirmed on 2 March 2020 and reached all the municipalities by the end of the month (Disease Prevention and Control Center 2020). The COVID-19 pandemic has affected health care, education, labour markets and economies in unprecedented ways. Geographical mobility was significantly interrupted in March 2020 as several restrictions on population movement were imposed in the wake of the pandemic. However, less is known about how the COVID-19 pandemic has influenced the patterns of internal migration. This study aims to address this gap by exploring how the rates, intensity and spatial patterns of internal migration changed in 2020 compared with the pre-pandemic period between 2011–2019 in Latvia. Internal migration underpins the functioning of the national economy and is widely acknowledged as an integral part of human development (Bell et al. 2015a). Thus, the COVID-induced global economic recession is expected to affect internal migration (Bernard et al. 2020).

In the wake of the COVID-19 pandemic, the Latvian government also introduced restrictive measures, national lockdowns, and border closures, resulting in a disruptive shock to human mobility (State Chancellery 2022). International migration and tourism were discouraged, while countries selectively applied politics to the local daily mobility patterns (Duque-Calvache et al. 2021). Latvia registered as the only EU country not to impose movement restrictions or restrictive recommendations during 2020 on internal migration (Hale et al. 2021). The extent to which imposed restrictions and policy interventions have impacted internal migration is less understood. During the early phases of the pandemic, numerous studies assess the impact of internal migration on the overall spread of COVID-19 (e.g. Fielding & Ishikawa 2021; Matrin & Bergmann 2021; Shi & Lui 2021; Wankhede et al. 2021). While some other evidence has emerged reporting large out-migration flows from cities with speculations that this trend of ‘urban exodus’ would persist in the post-pandemic times (Nathan & Overman 2020). Drawing on administrative population register data, we aim to analyse the extent of change in the patterns of internal migration across the municipalities in Latvia during 2020 compared to the pre-pandemics. We specifically seek to address the following questions: how the internal migration patterns have changed over the first year of the pandemic (1), and how did these patterns vary across municipalities (2).

In the following section, we outline the data and methods. Section three briefly presents the research context of internal migration in Latvia, and the fourth section describes the empirical results. We conclude the paper with a summary and discussion of the key findings.

### **Data and methods**

Internal migration research has long been a challenge for researchers in terms of how data is collected, the time intervals over which migration is measured, and the spatial frameworks employed (McCollum et al. 2021). An important distinction with data collection is between capturing migration events associated with population registers and data on migration transitions, derived by comparing place of residence at two points in time (Rees et al. 2016). Events count migrations and are usually measured over a single year, while migration transitions can be measured over any time interval, although the most common are one and five years (Bell et al. 2015b). To investigate the impact of the COVID-19 pandemic on internal migration in Latvia, we used and compared the annual data on internal migration between 2011–2019 (yearly) and 2020. Migration data were retrieved from the Population Register, where migration was measured as an address change covering inter-urban and inter-municipal migration flows (CSB 2021). Migration was thus measured as an event

rather than a transition. Event-based statistical systems better capture the full extent of population mobility, and its complexity as multiple migration events per person can be measured. Moreover, the extraction of inter-urban flows from the total migration at the municipal level also provides the flexibility to aggregate and reaggregate the data for different functional and hierarchical units of the settlement system. Our data capture all registered changes of residence across urban and municipal boundaries, containing information about the number of moves between urban areas and for all 119 municipalities in each observed year. The migration data is considered reliable and robust for the analysis, even though it is voluntary for a person to declare their residence in Latvia and there is no legal obligation to register a move to another place of residence. However, our data only covers the moment of registration and not the date of the actual move. Therefore, a time lag is possible, especially in the context of the COVID-19 pandemic in the spring of 2020, when the availability of public services was restricted due to the lockdown.

The methods employed were descriptive, given the nature of the aggregated tabular datasets available from the Central Statistical Bureau of Latvia. However, the time lag in registration and the nature of the available datasets did not affect the accuracy of the annual migration numbers or the applied scene-setting analysis used in this paper. To analyse internal migration patterns, we calculated widely used migration indicators (Bell et al. 2002). First, the overall level of population mobility is conventionally measured by the Crude Migration Intensity (CMI), computed as:

$$CMI = M/P \times 100 \quad (1)$$

where  $M$  represents the total number of registered migration events, and  $P$  represents the population at risk. We specify the population at risk in each municipality/urban area as the average annual population. The CMI indicates the percentage or level of internal migration and allows us to compare how the migration rate changed from the year before the COVID-19 to the first year of the pandemic when various restrictions and lockdowns were in place. Second, to identify changes in the impact of internal migration on the redistribution of the population across counties and between urban and rural areas, we compute the net internal migration rate (*NMR*):

$$NMR_i = (D_i - O_i)/P_i \times 1000 \quad (2)$$

where  $D_i$  are the total inflows (in-migration),  $O_i$  is the total outflows (out-migration), and  $P_i$  is the population at risk of the municipality or urban area  $i$ . Given the extent of the comparable time periods, we convert 2011–2019 statistics to yearly

values dividing them by 9. For both indicators, we visualise the changes in the spatial pattern of internal migration between 2011–2019 and 2020. In addition to these basic indicators, we also computed in-migration and out-migration rates per 1000 inhabitants.

**Research context: Internal migration in Latvia**

Internal migration can be considered a key catalyst in affecting population change and distribution within Latvia. In order to assess internal migration statistics and connection to COVID-19 pandemic in 2020, the pre-pandemic context should be provided beforehand.

The migration pattern within the country historically has been rather heterogeneous (Fig. 1) and mostly related to economic and political occurrences at that instant. The internal migration statistics mostly divide into two eras: before 2003 and after it. During the former period approximately 37,000 migrants were registered annually, whereas the latter period has seen considerably higher migration activity: 53,000 migrants. The pre-2003 era can be explained by a less organised and more bureaucratic residence declaration process. However, in 2002, the government of Latvia passed a law (Dzīvesvietas deklarēšanās likums 2002) that made the process easier and less time-consuming with less documentation needing to be provided. The system came in effect in July 2003 and resulted in the highest total migration Latvia has witnessed.

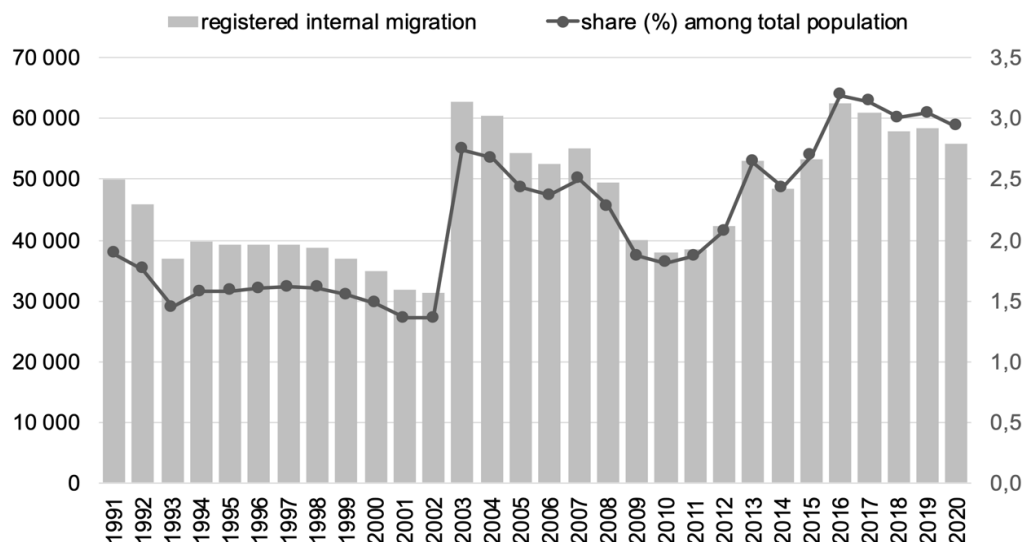


Figure 1. **Total registered internal migration in Latvia and share of migrants in total population** (authors’ figure based on data from Central Statistical Bureau of Latvia)

Since 2003, there have been similar smaller-term fluctuations that can be explained by the several amendments to the 1998 Law on Real Estate Taxation (Par nekustamā īpašuma nodokli 1997). The most notable difference from previous years was in 2012 when the amendment provided benefits via lower tax rates to persons who did not own uninhabited properties (Grozījumi likumā “Par nekustamā īpašuma nodokli” 2012), thus economically motivating residents to declare.

However, the highest internal migration total of recent years has been registered in 2016. This could be explained by more amendments in the aforementioned Residence Declaration Law of 2002, firstly, allowing to declare in auxiliary buildings, and, secondly, made the process available remotely via online declaration (Grozījumi Dzīvesvietas deklarēšanas likumā 2015). In addition, 2016 had also registered the highest migration intensity (3.4%).

Politics have been crucial in facilitating internal migration statistics in Latvia post-2002; however, economic factors are also important. The lowest migration activity was registered from 2009 to 2012 due to the global financial crisis, which started slightly before, resulting in decreased employment opportunities and thus facilitating emigration flows from Latvia.

Overall, changes in legislation have created multiple statistical fluctuations in specific years; however, these seem to be short-term, only impacting the statistical outcome of the one or two years following. However, the long-term changes are adherent to economic factors and can be more seen when analysing inter- and intra-regional patterns on a territorial unit level.

Total migration patterns and intensity among territories can be mostly related to geographical differences (regional scale) and settlement pattern.

- a) Closer geographical proximity to Riga can result in higher migration rates. Thus, Pierīga municipalities have had the highest in- and out-migration totals, whereas migration intensity is lower in peripheral regions of Latvia.
- b) Considerable differences can be found between cities and rural territories. The lowest migration intensities are characteristic of large cities and towns with the highest population density, whereas rural territories with smaller population are more impacted by internal migration.

However, within the scope of this article, we examine the geographical patterns of internal migration on a municipality level.

### **Internal migration and COVID-19: the curious case of 2020**

In this section we compare the migration statistics of 2020 with those of 2011–2019. The major forces affecting patterns and overall levels of internal migration both

pre-COVID-19 and during the outbreak have usually operated over a longer time period and little change is expected within a single year. Therefore, we must bear in mind that during the first year of the pandemic migration will be primarily related to other reasons and only partially to the pandemic.

The total migration numbers confirm the notion above. In 2020, Latvia had 55,8000 internal migrants registered who had changed their residence to another municipality (Figure 1). In comparison, the total differs from the average for the pre-COVID-19 periods. For instance, in 2011–2019 there was an average of 52,500 migrants annually, while in 2015–2019 it was 59,300, whereas in 2019 58,300 migration cases were registered. It must be added that the period includes some of the fluctuations described in the previous chapter. Thus, the smallest difference can be witnessed between 2019 and 2020.

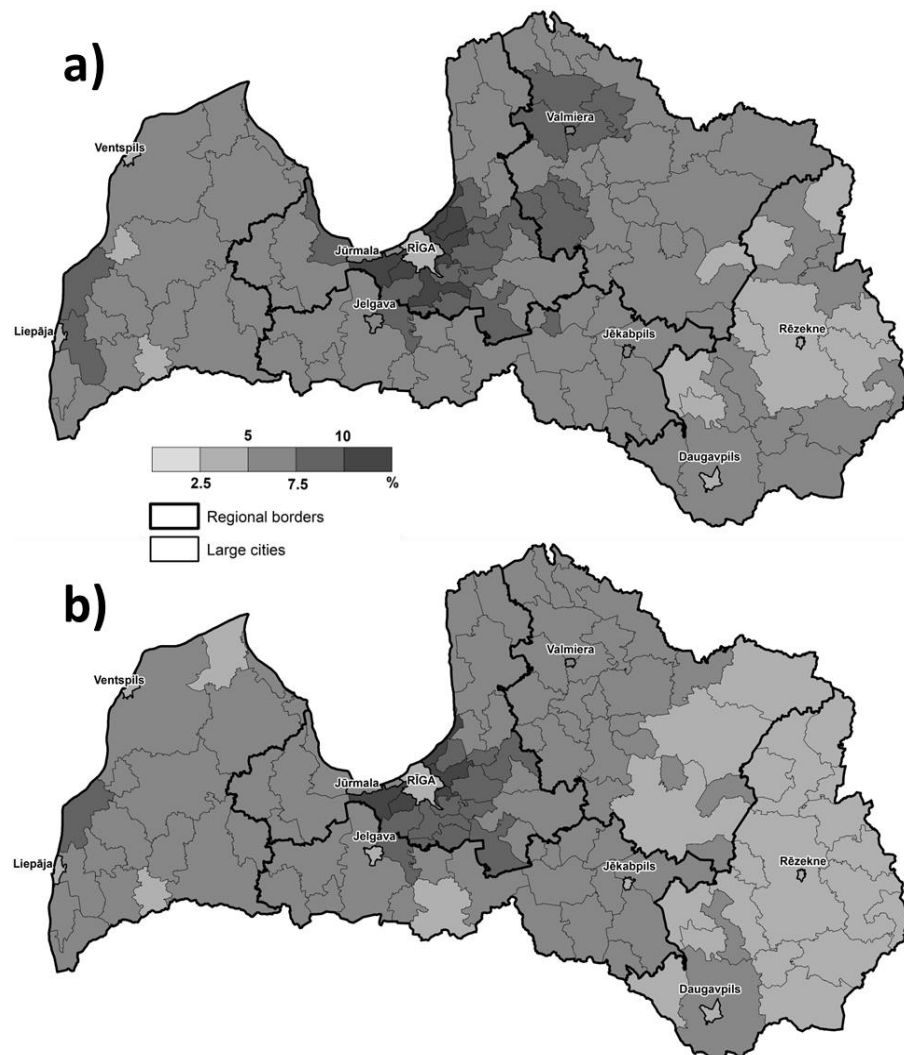


Figure 2. Yearly crude migration intensity in (a) 2020; (b) 2011-2019 among municipalities of Latvia (authors' figure based on data from Central Statistical Bureau of Latvia)

Riga, other large cities and other municipalities show the highest contrast with regards to net-migration rates. The capital city had positive net migration in the 2010s, whereas in 2020 it was negative, mostly at the expense of municipalities including the suburbs of Riga, regional and small towns, and rural areas. The suburbs have contributed most to Riga’s negative net migration.

The territorial factor plays a significant role in the overall development of migration pattern, with the municipalities closer to the capital city having positive net migration rates and the highest overall migration intensity (Bērziņš et al. 2019). Geographically net migration has registered as positive in administrative units in closer proximity to Riga (suburban area); whereas numerous peripheral municipalities had cumulative net migration below -500 in 2011–2020. This pattern of proximity as the main geographical determinant has not changed between the 2010s and the first year of COVID-19 pandemic. Therefore, it is necessary to examine the relation between Riga, other large cities and other municipalities (Table 1).

**Table 1. Yearly migration rates in Riga, and other large cities and municipalities in Latvia** (authors’ elaboration based on the data from Central Statistical Bureau of Latvia)

	2020			2011-2019 (yearly)		
	Riga	Other large cities	Other municipalities	Riga	Other large cities	Other municipalities
<b>Crude migration intensity (%)</b>	4.5	4.6	7.3	4.0	4.3	6.3
<b>Net-migration (per 1000)</b>	-3.4	1.5	1.7	3.3	0.4	-2.4
<b>In-migration rate (per 1000)</b>	21	24	37	22	22	30
<b>Out-migration rate (per 1000)</b>	24	22	36	18	21	33
<b>Total population (%)</b>	32.5	18.9	48.5	32.3	19.1	48.6

The aggregate crude migration intensity highlights the volume of registered in-migration and out-migration. Municipalities with higher inflow and outflow will most likely have the highest intensity rates. A higher intensity has been witnessed around Riga for both observed periods, whereas further away from the capital city migration has been less intense. The dependence of intensity on location was more evident for 2011–2019 (b in Fig 2.), with exceptions around Liepaja and Daugavpils, where the intensity for several municipalities is similar to those around Riga.

The yearly net migration rate allows us to compare all municipalities and assess relative population change due to internal migration (Fig. 3). This pattern of proximity as the main geographical determinant does not differentiate between the 2010s (b) and the first year of the COVID-19 pandemic (a). However, its extent has slightly changed, and 2020 has seen higher net migration rates. Especially around Riga and several other large cities, such as Liepāja, Valmiera and Jelgava.

Interestingly, rural municipalities around Latgale’s largest cities has had different patterns with regards to net migration and intensity rates. Daugavpils rural municipality has been an outlier for migration intensity among the easternmost units of Latvia, whereas Rēzekne rural area has considerably differentiated by net migration rate. In 2011–2019 (“(b)” in Fig 2.), Daugavpils *novads* has registered the highest rate in Latgale; whereas in 2020 (“(a)” in Fig 2), the overall intensity rate of peripheral municipalities had risen and equalled Daugavpils *novads*. In 2020, the outliers were rural municipalities with smaller populations in regions such as Vidzeme and Zemgale.

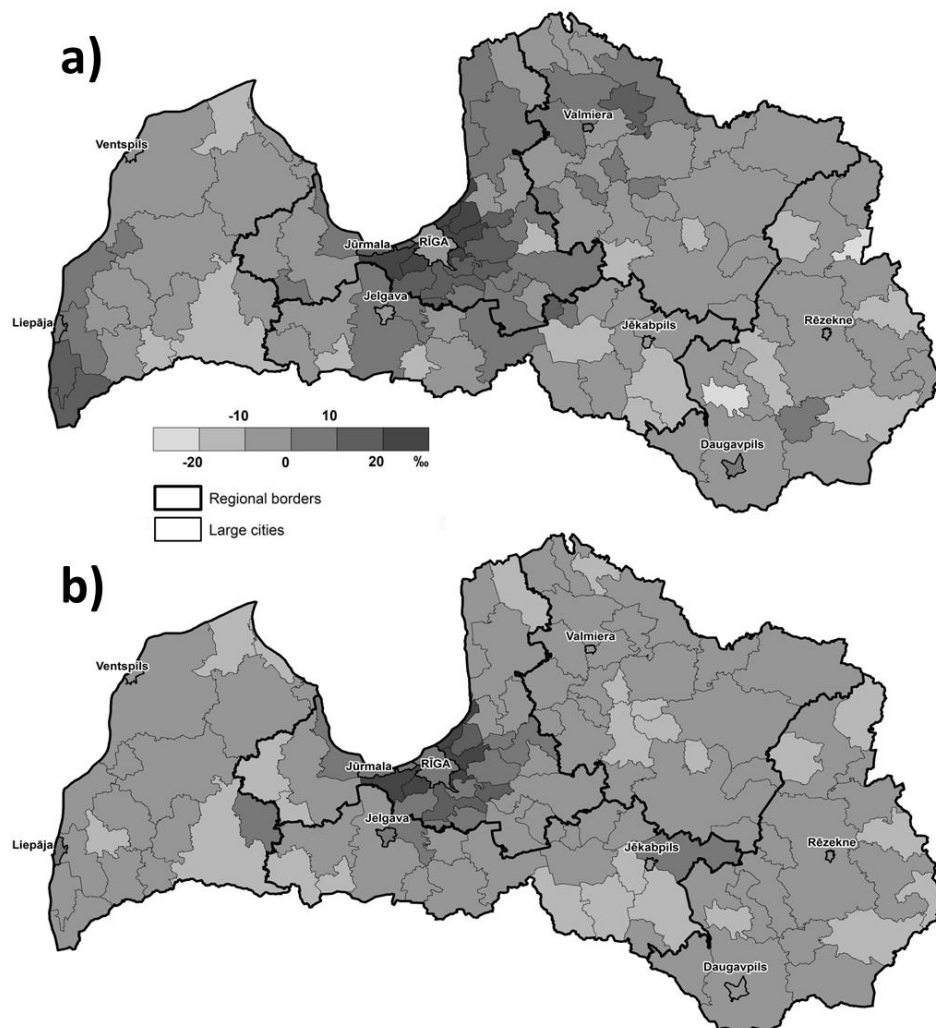




Figure 3. Yearly net migration rate in (a) 2020, (b) 2011–2019 among municipalities in Latvia (authors’ figure based on data from Central Statistical Bureau of Latvia)

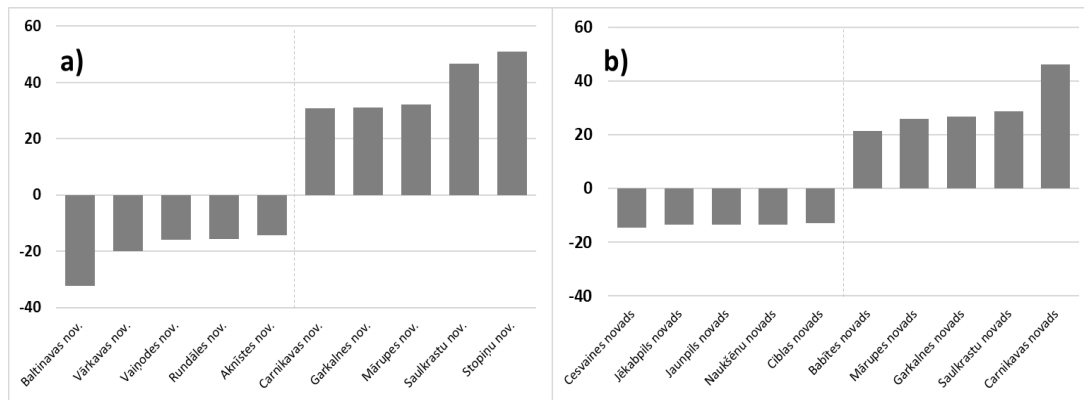


Figure 4. Yearly net migration rate extremes in (a) 2020, (b) 2011–2019 among municipalities in Latvia (authors’ figure based on data from Central Statistical Bureau of Latvia)

Outliers or extremes are municipalities with the highest or lowest rates. Yearly net migration extremes even further highlight the difference between Pierīga municipalities closer to Riga and the others. Therefore, suburban municipalities are represented among the positive extremes (Fig. 4), whereas all other regions are among the negative extremes for 2020 and 2011–2019. Geographically, the contrast between Pierīga and the others is evident regardless of the observed time period; however, there have been differences quantitatively.

For 2020, net migration rates are more heterogeneous, resulting in higher and lower extremes. On the negative side, Baltinavas *novads* in Latgale region has registered -33 population loss per 1,000 people due to internal migration in a single year. On the positive side, Stopiņu un Saulkrastu municipalities have gained 51 and 46 per 1,000 respectively due to internal migration in a single year. In 2011–2019, the only outlier was Carnikava municipality. Logically, it is much more difficult to register extremely high or low migration balance in a nine-year period. Individual years from 2011–2019 have also had several positive and negative extremes that allows us to assess the impact of social, economic and political processes on an intra-regional scale. For 2020, the extremes are mostly municipalities closer to Riga or peripheral areas with smaller populations.

### Conclusion

The major forces affecting patterns and overall levels of internal migration usually operate over a longer time period and little change is expected within a single year. Therefore, we must bear in mind that in the first year of the pandemic migration

is likely to be primarily related to other reasons and only partially to the pandemic. Therefore, geographical patterns between municipalities are mostly similar to those observed pre-COVID-19, with higher migration intensity concentrating around Riga and other larger cities.

The differences in migration patterns between 2020 and 2011–2019 are mainly due to slightly higher migration intensity in some municipalities. Overall, 2020 shows similar trends to the long-term period before. The slight decrease in migration rates could be explained by working and studying remotely. However, the main factors affecting internal migration remain largely unchanged, and the first year of the pandemic does not allow a full assessment of the potential impact.

The COVID-19 situation also affects the overall population from a demographic perspective. Among the ageing, high-risk population of Latvia, COVID-19 increases mortality rates, thus decreasing the population. Within the scope of this article, the total registered migration has been lower than pre-COVID-19 (55,800 in 2020 versus 59,300 in 2015–2019); however, the relative rates have slightly increased. At a time of population decrease, this could mean a more important role of internal migration in population redistribution.

The results of our study do not allow us to draw far-reaching conclusions on the impact of the COVID-19 pandemic on internal migration, as only the short-term effects of the first year of the pandemic were analysed. However, we should acknowledge that the pandemic is still ongoing and impacts human behaviour, including geographical mobility. Thus, further studies are acknowledged to understand how internal migration is changing and how persistent the patterns found are for migration-induced population redistribution.

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### **Kopsavilkums**

Globālā COVID-19 pandēmija būtiski ietekmējusi mūsu ikdienas dzīvi, pielāgojot sociālās normas un cilvēku uzvedību visos līmeņos - globālā līdz individuālajam. Ar šīm pārmaiņām saistīta arī ietekme uz cilvēku pārvietošanos, ko pastiprina valdības īstenotie ierobežojumi, gan pārvietojoties uz ārzemēm, gan valsts iekšienē. Šajā rakstā analizēta COVID-19 saikne ar iekšzemes migrācijas procesu Latvijā. Darba mērķis ir izvērtēt iekšzemes migrācijas iezīmes pirmajā COVID-19 uzliesmojuma gadā Latvijā, izmantojot pieejamos iekšzemes migrācijas datus pašvaldību līmenī. Rakstā salīdzinātas iekšzemes

migrācijas plūsmu iezīmes 2011.–2019. gada periodā un 2020. gadā, kas atbilst pandēmijas sākumam Latvijā.

Rakstā secināts, ka pastāv līdzīgas ģeogrāfiskās iezīmes migrācijas pamatrādītāju tendencēs abās apskatāmajās laika vienībās. Lielākā migrācijas intensitāte novērojama tiešā Rīgas tuvumā, kā arī ap atsevišķām citām republikas pilsētām gan vienā, gan otrā laika nogrieznī. Tomēr statistiski, migrācijas rādītāji administratīvajās vienībās 2020. gadā bijuši augstāki nekā desmitgadē pirms pandēmijas.

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