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Youth Out-Migration before and during the COVID-19 Pandemic: Insights from a Depopulating Region in Poland

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Abstract

Youth mobility has been recognized as a significant catalyst of human capital redistribution across regions and countries, while universities play a significant role in youth retention and attraction. Student migration might exacerbate human capital redistribution from less developed areas to cities with high-performing universities. However, The COVID-19 pandemic had a severe impact on people's mobility and could possibly affect these trends. This paper identifies the scale and composition of youth out-migration (mainly student migration) from the peripheral and depopulating Lubelskie region in Poland before and during the COVID-19 pandemic. It builds on a unique dataset collected in five local census surveys conducted in 2016–2020, revealing the patterns of student enrolment and subsequent mobility of approximately 17 thousand graduates from Lublin (Poland) secondary schools. The research also benefits from individual and focused in-depth interviews with the youth conducted during the pandemic. The study revealed that every year more than 20% of graduates of secondary schools in Lublin leave their home region and predominantly continue education at higher education institutions. However, the migration rates across school-leaving exam results differ significantly, demonstrating a strong positive selectivity of out-migration. Youth enrollment at universities outside the Lubelskie region during the COVID-19 pandemic revealed the largest increase since the survey's launch. Interviews showed little impact of the pandemic on young people's decisions to enroll at a desirable higher education institution outside their home area. By discussing this evidence, the study contributes to the ongoing debate on the depopulation and its regional consequences. Finally, the paper offers some recommendations for regional policy.

Keywords: student migration, regional migration, COVID-19, depopulation, regional development

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Introduction

Youth mobility has been recognized as a significant driver of human capital redistribution at various geographical scale (Faggian, Corcoran, and Rowe 2017; Gérard and Sanna 2017; Lulle, Janta, and Emilsson 2021). From a spatial perspective, it is widely accepted that young people tend to migrate up the urban hierarchy in search of enhanced education, employment, and lifestyle opportunities (Dotti et al. 2013; Gibson and McKenzie 2012), while universities play a significant role in youth retention and attraction (Corcoran and Faggian 2017; Kitagawa et al. 2022). As a result, urban areas which successfully attract talents benefit from higher economic growth (Ahlin, Andersson, and Thulin 2018; Fratesi and Percoco 2014; Sardadvar and Vakulenko 2021; Winters 2011), while sending regions, particularly non-urban and peripheral areas, are often considered to suffer from labor supply shortages and depopulation (Faggian, Rajbhandari, and Dotzel 2017; Kashnitsky, De Beer, and Van Wissen 2021; Mendola 2012; Rowe et al. 2019).

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In Poland, ageing and depopulation have become one of the highest priority socio-economic issues on the political agenda.[1] They also raise many concerns in a scientific debate, and their impact on regional development is one of central issues (Markowski 2022; Organiściak-Krzykowska and Hrynkiewicz 2022). Youth migration to the largest cities from rural areas or smaller towns raises many concerns from the perspectives of the latter's economic development (Dolińska, Jończy, and Rokita-Poskart 2020; Śleszyński, Wiśniewski, and Szejgiec-Kolenda 2018). The recent COVID-19 pandemic has left a significant imprint on many demographic patterns, accelerating depopulation in many local areas (Szukalski 2021). Nascent empirical research suggests that regional university centers in Poland perform well in attracting youth from their region, while interregional student migration to the largest cities is strongly selective (Herbst, Kaczmarczyk, and Wójcik 2017; Herbst and Rok 2016; Maleszyk 2021). Still, some regions with less prosperous regional capitals and poorer academic recognition are affected by large youth outflows (Kiniorska and Brambert 2021; Rokita-Poskart 2021).

The COVID-19 pandemic has had profound and far-reaching implications on various facets of societal existence and economic activities, also leading to a record decline in migration flows.[2] Health concerns and movement restrictions aimed at curtailing the pandemic's transmission, economic recession, and the rise of distance learning are factors that have been affecting international and internal mobility across all age groups (Triandafyllidou 2022). Regarding international youth migration, early evidence on the impact of COVID-19 suggested a contraction in international student migration in several EU/OECD countries and changed geographies of student mobilities (Mok et al. 2021; Strods, Berka, and Linney 2021; Yıldırım et al. 2021). However, more recent, comprehensive data for 2020 and 2021 dispelled many concerns by proving that the number of inbound international students in EU/OECD countries was stable or continued to grow, with the exemption of the most popular global destination for international students, the US.[3] In contrast, the empirical evidence of youth regional mobility during the pandemic remains scarce.

In this context, the paper's aims are twofold. The first aim is to identify the size and composition of youth out-migration (largely student migration) from the peripheral and depopulating Lubelskie region in Poland before and during the COVID-19 pandemic. Secondly, the paper contributes to the broader discussion on the drivers of depopulation and its regional consequences by providing insights into the decision to move made by most mobile, young adults. The data were acquired through five cross-sectional census surveys monitoring student enrolment and subsequent mobility patterns of approximately 17 thousand graduates from secondary schools in Lublin (Poland), subsequently enriched by individual and focused in-depth interviews with the youth. Lubelskie is an interesting example, given its decreasing population, peripheral location on the eastern border of the EU, one of the lowest GDP per capita in the EU, and strong agricultural profile.

The remainder of the paper is structured as follows. The subsequent section presents the context of the research by outlining the course of the COVID-19 pandemic in Poland in 2020, followed by the specific attributes of the Lubelskie region. The third paragraph presents research methods and data, while the fourth one provides results that allow us to apprehend changes in overall emigration rate as well as shifts in the mobility of distinct groups of graduates. In the 'discussion and conclusions' section, the results are referred to the ongoing debate on depopulation and the impact of the COVID-19 pandemic on migration and recommendations for regional policies are made.

1. See: Strategia na rzecz odpowiedzialnego rozwoju do roku 2020 (z perspektywą do 2030 r.). Dokument przyjęty uchwałą Rady Ministrów w dniu 14 lutego 2017 r. [Strategy for responsible development until 2020 (with a perspective until 2030). Document adopted by resolution of the Council of Ministers on February 14, 2017.]. Available at https://www.gov.pl/documents/33377/436740/SOR.pdf; "Strategia Demograficzna 2040." Published in Monitor Polski. Dziennik Urzędowy Rzeczypospolitej Polskiej z 8 grudnia 2022 r. poz. 1196, as the annex to Resolution no. 224 of the Council of Ministers, November 15, 2022 on the establishment of public policy entitled "Demographic Strategy 2040."

2. See: "International Migration Outlook 2021." OECD, doi: 10.1787/1999124x, available at https://www.oecd-ilibrary.org/social-issues-migration-health/international-migration-outlook-2021_29f23e9d-en.

3. See: Project Atlas, available at Institute of International Education, Inc. website. Accessed 2023-01-22, https://www.iie.org/research-initiatives/project-atlas/explore-data/.

1 Research context

1.1 COVID-19 pandemic in Poland

The initial occurrence of SARS-CoV-2 infection in Poland was officially reported on March 4, 2020, while the threshold of 100 new cases per day was reached three weeks later. Unlike many other European countries, where the number of daily new cases reached several thousand, the virus's spread in Poland in the spring and summer exhibited relative restraint, with an average of approximately 400 new cases per day.

In a concerted effort to avert the alarming upsurge in infections observed in numerous European countries, the Polish government implemented various lockdown measures. On March 12, schools were shut down and universities started canceling in-person classes. The Polish government officially declared the outbreak on March 20. Subsequent measures, announced on March 24 and 31, included further restrictions on public gatherings and limitations on the reasons allowed for leaving one's home for essential everyday activities. Over time, the government introduced many lockdown measures encompassing mandatory quarantine, closure of international transport, limitations to public gatherings and public transport availability, closure of parks, restaurants, and many other facilities, mandatory closure of non-essential businesses, 2-meter social distancing, along with the obligatory use of facial coverings. Although certain measures were later eased or rescinded, online teaching-learning remained the predominant mode of education in Polish secondary schools and higher education institutions till the end of the semester.[4]

In the summer of 2020, as prospective university students enrolled, the spread of the virus remained contained (see figure 1). Nevertheless, young individuals were making their educational choices amid high uncertainty regarding the day-to-day effects of the pandemic, notably regarding the prospects of university reopenings.

In September 2020, primary and secondary schools in Poland resumed in-person classes as the epidemiological situation appeared to be under control. As for universities, the central government recommended the adoption of a hybrid model of learning but left the final decision to the authorities of individual institutions. Nevertheless, the majority of higher education institutions, particularly those with high educational standings, either decided to continue entirely remote teaching-learning in the following semester or allowed limited in-person classes exclusively for first-year students. Within this context, some students still had the opportunity to reconsider their choice of university prior to the commencement of the semester. Prospects of returning to normality were diminished by the subsequent sharp rise in COVID-19 infections in October (figure 1), which resulted in

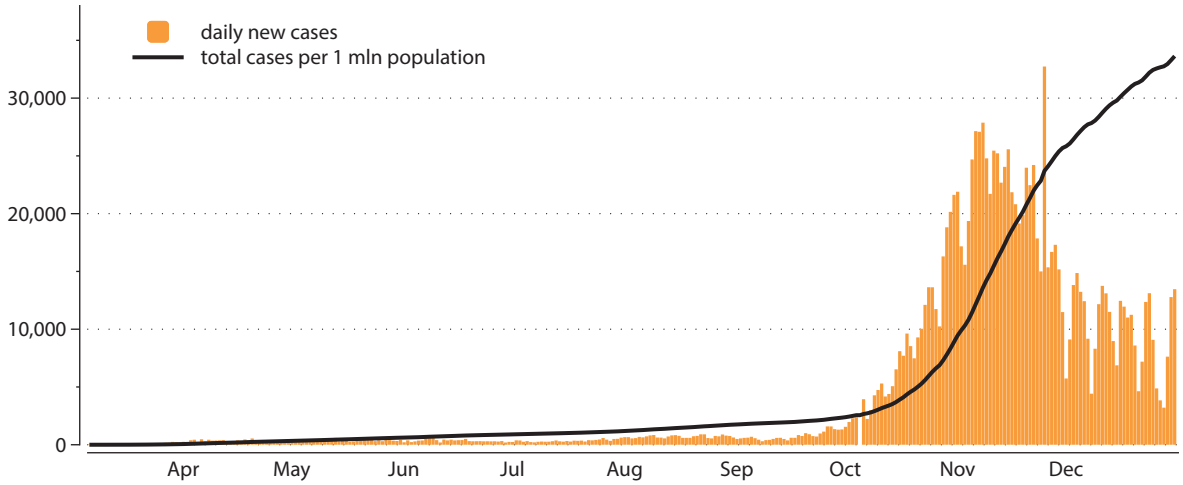

Figure 1. COVID-19 spread in Poland in 2020

Source: Own calculations based on data published by Eurostat, database accessed 2022-12-11, https://ec.europa.eu/eurostat/data/database.

4. See: "Coronavirus: information and recommendations"—section of the Republic of Poland government website, accessed 2023-02-09, https://www.gov.pl/web/coronavirus.

a near-complete shift towards remote teaching and learning at all higher education institutions. After the moderate decrease in winter, the first quarter of 2021 witnessed a resurgence of infections. A vaccination campaign was also launched, yet most universities in Poland continued remote teaching. In the second half of 2021, a Delta variant of the virus emerged, leading to a renewed increase in infections and deaths. The following year, the number of deaths decreased to low levels, and universities returned to on-site teaching.

1.2 Study area

Lublin is the capital city of the Lubelskie region — a peripheral NUTS 2 region located on the eastern border of the EU, neighboring Ukraine and Belarus. The Lubelskie region is among the poorest in Poland and the whole EU, with GDP per capita (at the level of) 67.6% relative to the Polish national level and 52.1% to the respective value for the EU (in PPS standards, 2021). The long-term trends confirm a slow catching-up process to the EU levels, albeit with lower GDP growth relative to Poland. The unemployment rate remains persistently higher than the national rate, and wages consistently rank among the lowest in Polish regional statistics, which might be partially explained by the region's predominantly agricultural profile and low urbanization level. Poorly developed transportation infrastructure has further contributed to the region's peripherality.

Unsurprisingly, Lubelskie is one of the most migratory Polish regions (Janicki 2015), and at the same time, one of the five regions in Poland that lost more than 5% of its residents over the period 2000–2020 (see figure 2). Population changes within the region differ as a result of migration within the region, and suburbanization in particular. Since 2000, a few local areas in the Lublin metropolitan area have experienced a significant increase in their population, yet 85% (181 out of 213) of local municipalities have seen the decreasing number of their residents (see figure 3). Population loss was most significant in rural municipalities located beyond the commuting distance of medium cities: 91 local administrative units have lost more than 10% of their population since 2000, while 11 units — more than 20%. Youth mobility, predominantly student migration, seems to be one of the crucial drivers of the depopulation of those areas.

Against the Lubelskie region, the development patterns of Lublin — its capital city and 9th largest city in Poland with 332.8 thousand residents (2021) — are seemingly more favorable. Estimates of local GDP indicate that GDP per capita has remained above the national average (Ciołek 2017). Changes in unemployment and wages are roughly in line with recent improvements observed nationwide, although they demonstrate more favorable performance against Polish cities of similar size. However, since 2000 the city's population has decreased by 5.7%, largely as a result of the

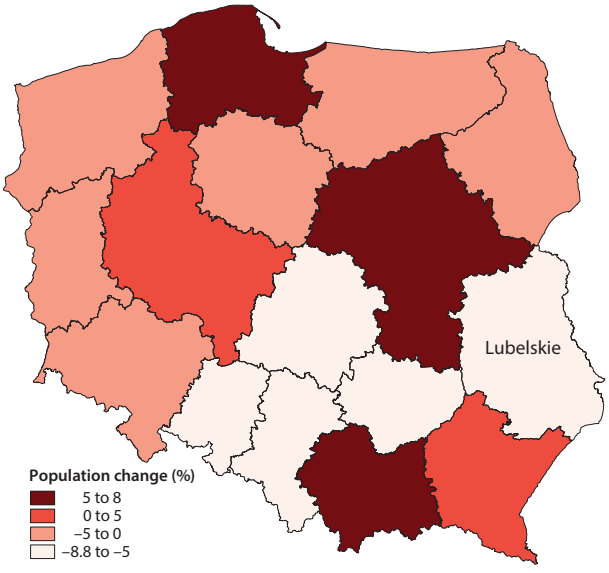

Figure 2. Total population change in Polish regions, 2000–2020 (%)

Source: Own work based on data published by Statistics Poland, accessed 2023-02-09, https://stat.gov.pl/.

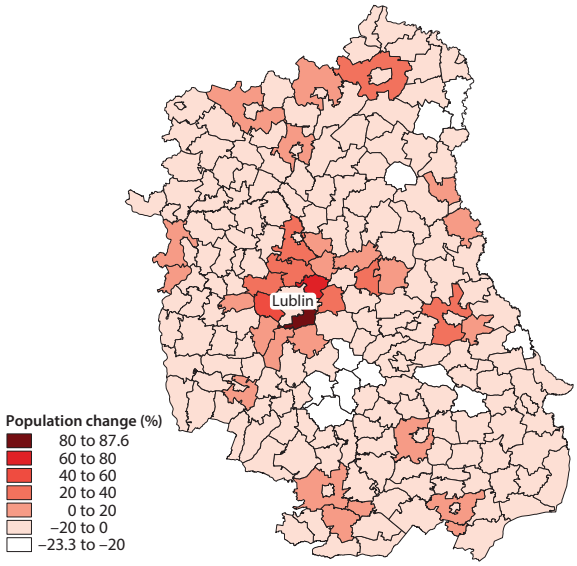

Figure 3. Total population change in local administration units in Lubelskie Region, 2000–2020 (%)

Source: Own work based on data published by Statistics Poland, accessed 2023-02-09, https://stat.gov.pl/.

rapid suburbanization of the neighboring local administrative units (see figure 2). In the context of teens' mobility, one of the distinct traits of the city is its strong academic profile, with nearly one-fifth of the resident population studying at one of its nine higher academic institutions, and at the same time one of the highest ratios of international students among academic cities in Poland.

2 Data and methods

Statistics Poland[5] does not currently encompass the surveying of secondary-school graduate migration within Poland. The aim of the present study is to partly fill this gap with a novel dataset consisting of five successive waves of cross-sectional, census-type surveys conducted from 2016 to 2020. Each census was conducted in collaboration with the Lublin City Office. Surveys covered 19–21-year-old individuals who had recently graduated from secondary schools in Lublin: all public secondary schools (both three-year comprehensive schools and four-year technical schools) and two private comprehensive schools.[6] Graduates were interviewed 6 months after sitting the school-leaving examination (matura examination), the outcomes of which determine eligibility for further tertiary education pursuits. The fifth survey was conducted in October and November 2020, allowing us to compare patterns of youth mobility during the backdrop of the COVID-19 pandemic to those observed in preceding migration trends.

The interviews were carried out by the graduates' former tutors and usually involved communication via social media platform. The survey gathered the graduates' answers regarding their current place of residence and information on further tertiary education or work, which were subsequently matched by respective tutors with individual school records, information on sex, place of residence before secondary school enrolment, and school-leaving exam results (on a 0%–100% scale)[7].

Over the five editions of the survey, data on the residential locations of 89.3% of graduates from participating schools and roughly 83.0% of graduates from all public and private schools in Lublin were successfully collected. The response rate varied from 86.1% in 2019 to 92.4% in 2016 and 2017. Notably, almost 45.6% of the young respondents hailed from locations beyond the city of Lublin, primarily residing within a 30-kilometer radius of the city's administrative borders. A summary of respondents' characteristics is presented in table 1 (on next page). Importantly, the distribution

5. [Current name of Central Statistical Office of Poland (Główny Urząd Statystyczny, GUS)—Ed.]

6. Other private schools, constituting approximately 4% of the total number of graduating students, refused to partake in the research.

7. Specifically, the exam result is the score obtained in the compulsory, written, advanced-level exam.

Table 1. Summary statistics

	n	%
Graduates with identified mobility patterns	16,793	100.0
Type of school		
Comprehensive schools	11,675	69.5
Technical schools	5,118	30.5
Sex		
Male	7,336	43.7
Female	9,437	56.2
No answer	20	0.1
Residence before school		
Lublin	9,105	54.2
Outside Lublin	7,664	45.6
No answer	24	0.1
Continuing education?		
Yes	13,875	82.6
No	2,897	17.3
No answer	21	0.1
Survey year		
2016	3,198	19.0
2017	3,626	21.6
2018	3,289	19.6
2019	3,396	20.2
2020	3,284	19.6

of respondents across all variables detailed in the table, including school type, gender, place of residence, and the continuation of education, exhibited remarkable consistency across each surveyed year. Given the census-type of the data collection, the ensuing analysis relied on descriptive statistics and dispensed with the significance tests which are typically employed in sample surveys.

The dataset sheds new light on migration size and composition, yet cannot explain the motives behind the intention to move nor the role of COVID-19. To partly fill this gap, the discussion section of the paper benefits from results from qualitative data: 16 In-Depth and 2 Focus Group Interviews carried out in 2nd and 3rd quarters of 2020 with talented individuals studying in secondary schools in Lublin considering migration and students of HEIs located in Lublin.

3 Results

Out-migration patterns among graduates were examined by emigration rates, i.e. the ratio between the number of respondents with certain characteristics who left the region (enrolled in HEIs or found a job outside the region) to the total number of surveyed graduates from a given defined group with specific post-mobility patterns. The time series of the rates computed for the entire cohort of graduates from schools in Lublin are depicted in figure 4.

The rate of graduates leaving their home region is close to 20% and exhibits a slight upward trend. Surprisingly, even amidst the challenges posed by the COVID-19 pandemic, the year 2020 witnessed both the highest rate of out-migration and the most substantial increase in youth mobility. A closer examination of the two kinds of emigration reveals divergent trends in interregional and international moves. the growing trend is notably pronounced when focusing on internal mobility, with the highest recorded outcome and most significant annual shift occurring in the final surveyed year. In stark contrast, international mobility appears to have declined.[8]

8. However, the data for 2019 might be understated, as one of two classes offering International Baccalaureate diploma in Lublin refused to participate in the survey. Results in other years show that 1/3 of graduates from

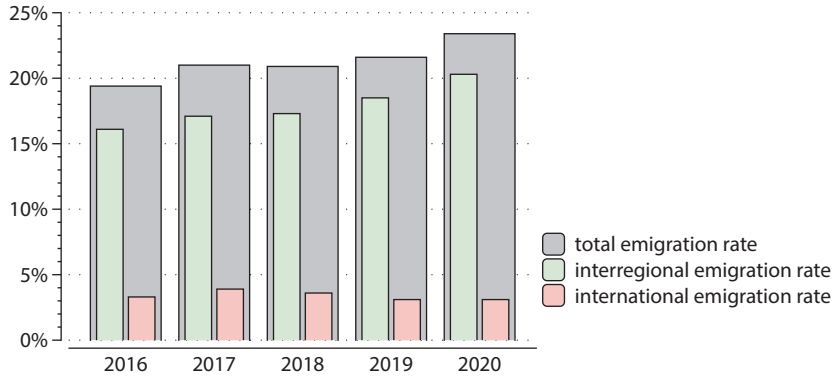

Figure 4. Emigration rates for graduates (%)

Tables 2 and 3 provide more detailed insights into young people's mobility patterns across different characteristics. Intriguingly, the surge in interregional out-migration is primarily attributed to increased mobility among residents of the city of Lublin, as opposed to their counterparts hailing from the rest of the region. Specifically, the rate for the subpopulation of Lublin residents continuing education (i.e., student migration) rose to 28.8%. This marked a substantial rise from the previously stable levels oscillating between 20.3% and 22.2% in preceding years. Furthermore, graduates of comprehensive schools enrolling in HEIs during the pandemic were increasingly prone to enroll in universities outside the region during the COVID-19 pandemic. The study also revealed that the rise in graduates' mobility was uneven across the sexes, with a somewhat larger increase in males' propensity to move. Finally, the pandemic, alongside its ensuing economic recession, seemingly acted as a deterrent to the internal mobility of graduates who opted against pursuing further education, instead entering the labor market.

The survey findings affirm that international out-migration rates have reached their lowest level since 2016 (see table 3 on next page). A more in-depth examination of migration composition reveals that the international student emigration rate has closely approximated the levels observed during the period from 2016 to 2019, resting at 1.9%. Despite the pervasive uncertainty and the constraints imposed on international movements, international student mobility seems barely affected. In contrast, non-student mobility, largely involving labor migration of graduates with poor

Table 2. Interregional emigration rates (%)

	2016	**2017**	**2018**	**2019**	**2020**
Interregional emigration rate (total)	16.1	17.2	17.3	18.6	20.3
Residence before school					
Lublin	16.8	18.3	18.1	19.5	22.9
Outside Lublin	15.3	15.7	16.4	17.4	17.4
Reason for migration					
Student migration	18.7	19.9	19.9	22.0	25.0
Non-student migration[a]	4.2	2.1	2.6	3.4	1.7
Type of school					
Comprehensive schools	18.9	19.6	20.0	22.6	25.3
Technical schools	8.7	11.4	11.1	10.1	10.1
Sex					
Male	17.7	18.2	18.3	19.1	21.6
Female	15.0	16.3	16.5	18.0	19.2

[a] The data for 2019 might be understated; see footnote 7 on page 33 for details.

this class moved abroad. Assuming this tendency persisted in 2019, the international emigration rate would have amounted to approximately 3.4% instead of the recorded 3.1%.

Table 3. International emigration rates (%)

	2016	2017	2018	2019	2020
Interregional emigration rate (total)	3.3	3.9	3.6	3.1[a]	3.1
Residence before school					
Lublin	3.5	3.9	3.6	2.3	3.2
Outside Lublin	3.1	3.8	3.7	4.0	3.1
Reason for migration					
Student migration	1.6	2.5	2.1	1.5[a]	1.9
Non-student migration[a]	11.4	11.2	12.2	10.0	8.1
Type of school					
Comprehensive schools	2.9	4.1	3.5	2.4[a]	2.8
Technical schools	4.4	3.2	3.8	4.6	3.7
Sex					
Male	3.5	3.5	2.7	2.8	2.5
Female	3.2	4.1	4.3	3.4	3.6

[a]The data for 2019 might be understated; see footnote 7 on page 33 for details.

exam results, has decreased significantly: the rate declined by roughly 1/3 compared to the 2016-2019 average. In this case, we link this change not only to the pandemic but also to Brexit and their consequent economic impact. Although the UK remains the leading destination for student and non-student migrants, its appeal has waned in recent years. More specifically, the UK was chosen by two-thirds of internationally mobile graduates in 2016–2017, while this proportion notably diminished to 56%, 46%, and 42% in the subsequent three years.

Finally, the results show that the migration propensity increases with the education outcomes. Emigration rates across exam results quantiles (figure 5) clearly displayed positive human-capital selection of graduate emigration. Notably, the overall emigration rate for graduates ranking within the top 20% of exam results was three times higher than that for graduates in the middle deciles and five to six times greater compared to values observed for graduates in the lowest quantile. It is also noteworthy that the 2020 pandemic year witnessed the highest emigration rate of graduates who excelled in school-leaving examination.

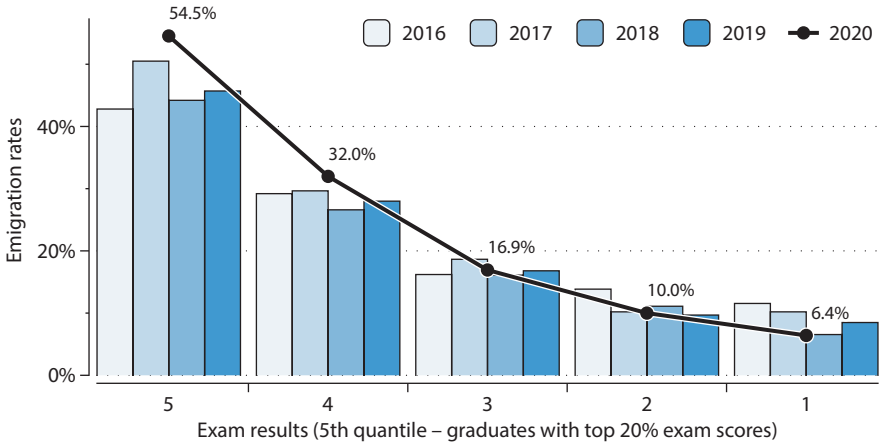

Figure 5. Emigration rates across graduates' school-leaving examination results

4 Discussion and conclusions

The research shed some light on the size of youth out-migration by estimating emigration rate which amounted to approximately 20%, with almost one in six migrating graduates moving abroad. Nevertheless, our study proved that youth's propensity to leave the peripheral Polish region during the COVID-19 pandemic revealed the most substantial increase since the study began in 2016, which

might be considered an unexpected finding. This increase can be attributed to a moderate rise in interregional student mobility coupled with a decrease in labor migration, both internally and internationally. In contrast, the rate of international student out-migration displayed no remarkable deviation from previous years. The rise in emigration occurred particularly among urban residents and graduates with the highest exam results. Evidence offered in this paper appears to be contradictory to post-COVID scenarios considering "the end of migration age"[9] and favors evidence of at most a moderate and temporary impact of COVID-19 on youth mobility (e.g., Borsellino et al. 2022; Di Pietro 2023; González-Leonardo et al. 2022). The evidence raises questions about why graduates have become more prone to pursue higher education beyond their home area and to what extent country or even region-specific factors might explain these results.

One plausible explanation could be linked to the relatively mild course of the COVID-19 pandemic in Poland during the first three quarters of 2020, when final decisions regarding applying for universities were being made. Unlike other EU countries, at that time, Poland reported a low number of COVID-19 cases relative to its population, experienced a mild economic downturn and stable employment, while exhibiting low levels of COVID-induced economic uncertainty (Ahir, Bloom, and Furceri 2018).[10]

Furthermore, the increase in interregional student migration might be associated with higher education institutions' decisions to offer education either entirely or partially in a remote format. This situation enabled numerous students to engage in courses without the necessity of commuting, making higher education outside the region a more feasible option for graduates from low-income households. Those who still opted to move to other cities benefited from the lower rental housing costs.

This explanation leads us to an interpretive problem regarding the accuracy of the definition of "a migratory movement." The empirical literature investigating interregional student migration associates the graduate's place of residence with the university's location (e.g., Corcoran and Faggian 2017; Kitagawa et al. 2022). Such an assumption, however, might prove inadequate during the COVID-19 pandemic, when students enrolled at leading universities outside Lubelskie region might attend online courses from their home areas and cannot recognize themselves as 'settlers' in cities where their HEIs are located. Nevertheless, fully online teaching-learning was a temporary solution. In June 2021 many universities announced a withdrawal of fully remote education in the subsequent 2021/2022 academic year. They combined remote lectures with classes for smaller groups held on the campuses with respect to safety measures.

One of the critical questions relevant to regional policy in depopulating peripheral areas relates to the drivers of youth mobility. With regard to migrants' characteristics, the evidence has shown that young people's propensity to move increases with their education outcomes. This result is consistent with most literature findings indicating that school graduates with the highest grades tend to choose high-performing universities (Ciriaci 2014; Faggian and Franklin 2014; Tosi, Impicciatore, and Rettaroli 2019). Qualitative data from interviews with talented secondary-school students confirm that, among territorial characteristics, the university's quality is regarded as the most relevant driver of the decision to move, while the moderate reputation of regional HEIs discourages graduates from continuing education in Lublin. These interviews also showed that talented youth generally appreciate the quality of life in Lublin and claim that it cannot change their decision to leave the city, although it might favor return migration after university graduation. Interviews with HEI students proved that the youth with average education outcomes generally embrace HEIs' offer, yet give much attention to factors related to the proximity to their hometown, the costs of living, the city's size, and vibrant student life. Such preferences are also consistent with the results in the literature (Dotti et al. 2013; Imeraj et al. 2018). Further, some secondary-school students expressed worries concerning labor market prospects, though they never mentioned it as first or even second. Only HEI students ranked employment prospects as the number one reason to leave the region.

9. See: "Migration and mobility after the 2020 pandemic: The end of an age?" by Alan Gamlen, International Organization for Migration (IOM), Geneva, 2020, available at https://publications.iom.int/system/files/pdf/migration-_and-mobility.pdf.

10. See also: Eurostat database. Accessed 2022-12-11, https://ec.europa.eu/eurostat/data/database.

In the context of the COVID-19 pandemic, two conclusions from interviews with the youth seem most noteworthy. Firstly, when asked about their decision to move or stay, talented secondary school students did not mention pandemic concerns at all. Linking this fact to the stable out-migration rates, we might confirm that the pandemic in Poland was perceived a transient event, not significant enough to discourage young individuals and their parents from undertaking a life-changing decision to enroll at a desirable higher education institution located outside their home area. The second important reason to migrate indicated just after the quality of the university was a strong willingness to experience something new and make a life-changing decision. We might assume that the period of social isolation and remote learning has nurtured this desire and contributed to the increasing enrollment in universities outside the region in 2020 among young Lublin dwellers.

We also highlight that the documented rise in the enrolment rate at universities outside the region, particularly among most talented graduates, is an unfavorable outcome for the depopulating and backward Lubelskie region. In contrast to some future suggestions that COVID-19 pandemics might favor the residential attractiveness of non-core places against the largest cities (e.g., Florida, Rodríguez-Pose, and Storper 2023; Sonzogno, Urso, and Faggian 2022), age-specific results presented in this paper suggest that the COVID-19 pandemic has not mitigated outflows from the shrinking Lubelskie region to more prosperous areas.

Finally, the research offers some implications for regional policies, especially given the increasing attention to the depopulation issue. First, enhancing the quality and prestige of local HEIs could play a key role in retaining the youth, particularly the most talented individuals, in the region. However, providing excellent learning opportunities without securing satisfactory employment opportunities in the region might, at best, delay migration decisions of talented youth until the post-graduation period. Nevertheless, qualitative evidence, along with some recent research on youth emigration from peripheral areas (Crescenzi, Holman, and Orru' 2017; Sonzogno, Urso, and Faggian 2022) leaves some room for optimism by suggesting that job prospects available in less prosperous cities and regions can still be sufficient for the majority of youth, while non-economic factors (e.g., provision of essential services, social networks and family, or environmental amenities) are also significant drivers of the decision to stay or to return. We suggest that the framework for developing policy answers in disadvantaged areas should focus primarily on creating education opportunities, improving service provision, enhancing social capital, and tightening collaboration between education institutions and local businesses which would facilitate transitions from school to work. Careful policies supporting growth and innovation might also be conducive to human capital retention, yet cannot make a difference against those cities and regions which are more endowed with territorial capital. In this light, local authorities should regard outflows of most talented individuals to more prosperous cities and regions as inevitable and rather direct efforts to build the bridge between local authorities and talented migrants and subsequently exploit the potential of those relations in favor of a sending region — e.g., by creating trade and investment opportunities, enhancing access to the global network of knowledge, influencing national policies, or increasing a region's recognition.

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