

The foreign population in Poland during the COVID-19 pandemic

4th June 2020


223 thous.

the decline in the number of foreigners staying in Poland at the end of April compared to the figure at the end of February 2020.

In the first two months of the pandemic, i.e. in March and April 2020, the estimated number of foreigners staying in Poland fell by 223 thousand, which represents a decline by 10.1% from the figure at the end of February.

Introduction

The following study report presents preliminary estimates concerning changes in the number of foreigners staying in Poland before 1st of March and at the end of April 2020 in the light of data from administrative registers and information on foreigners arriving in and leaving Poland provided by the Border Guard.

The results should be treated as experimental and tentative. The study is based on a number of assumptions reflecting the availability and quality of data sources used to produce the estimates.

The foreign population in Poland in the context of the COVID-19 pandemic

The estimates are based on the size of the foreign population staying in Poland at 31st December 2019, which was established using information on citizenship from administrative registers. Data from 9 registers were used for this purpose: PESEL (Polish Resident Identification Number), UdSC (Office for Foreigners), ZUS (Social Insurance Institution), KEP (National Register of Taxpayers), MRPIPS (Ministry of Family, Labour and Social Policy), MNISW (Ministry of Science and Higher Education), MEN (Ministry of Education), KRUS (Agricultural Social Insurance Fund) and NFZ (National Health Fund). Taking into account their information content and quality parameters, these registers were assessed to be the most reliable sources as they use the same definitions of units (persons) and contain key variables of interest that guarantee a high degree of data consistency.

The initial established number of foreigners was 2 106 101, including 1 351 418 citizens of Ukraine, accounting for 64.2%. In the foreign population 1 208 545 persons (57.4%) had a PESEL number, while 897 556 (42.6%) did not have one. The following table shows 10 largest subpopulations of foreigners.

Table 1. Number of foreigners based on administrative registers as at 31st December 2019 – 10 largest groups by country of citizenship

Country of citizenship	Subpopulation size
Total	2 106 101
Ukraine	1 351 418
Belarus	105 404
Germany	77 073
Moldova	37 338
Russia	37 030
India	33 107
Georgia	27 917
Vietnam	27 386
Turkey	25 049
China	23 838
Others	360 541

In the next step, that information was updated with latest figures from the ZUS register about the number of insured persons (natural persons) who indicated citizenship other than Polish in their application for old-age and invalidity pension. According to the information from this register, the size of the foreign population as at the end of 2018, and as at the end of February, March and April 2020 was as follows:

- 31.12.2019 – 651 506, of which 479 113 (73.5%) were citizens of Ukraine,
- 29.02.2020 – 670 172, of which 493 138 (73.6%) were citizens of Ukraine,
- 31.03.2020 – 662 253, of which 484 753 (73.2%) were citizens of Ukraine,
- 30.04.2020 – 622 314, of which 449 298 (72.2%) were citizens of Ukraine,

The figures established on the basis of data from 9 registers were revised by accounting for dynamics of changes in insurance applications received by ZUS, which were received between the end of December 2019 and the end of February 2020. The dynamics was calculated for each citizen separately (over 200 indices in total, a more detailed description can be found in the Study methodology section). The outcome of this procedure was the established foreign population size as at the end of February 2020.

It is estimated that at the end of February, there were 2 213 594 foreigners in Poland, including 1 390 978 citizens of Ukraine.

Based on information provided by the National Border Guard, in March and April 2020, 938 014 foreigners left Poland and 714 834 arrived, which represents a decline by about 223 thousand people. More details are presented in Table 2.

Table 2. Arrivals and departures of foreigners in/from Poland between 1 March and 30 April 2020 – selected countries of citizenship

Country of citizenship	Arrival	Departure	Difference
Ukraine	407786	567828	-160042
Belarus	162719	196706	-33987
Russia	41791	51308	-9517
Great Britain	38031	46180	-8149
Moldova	2633	5152	-2519
Israel	1787	3327	-1540
Ireland	5702	6997	-1295
Turkey	1390	2527	-1137
Serbia	657	1745	-1088
USA	4228	5246	-1018

In March and April 2020, the number of Ukrainian citizens staying in Poland declined by 160 thousand.

Source: data provided by the Border Guard

The final result is that the foreign population in Poland at the end of April 2020, compared to the end of February 2020, had fallen by 223 thousand, i.e. by 10.1%. The population of Ukrainian citizens had declined by 11.5%. The biggest decrease was recorded among citizens of Belarus (32.2%) and Russia (25.7%).

The following limitations of the analysis should be taken into consideration:

- administrative data used for estimation only refer to the number of registered foreigners. This does not mean that they reflect the real number of foreigners staying in Poland at the end of December 2019. More information about data quality can be found in the Study methodology section.
- the Border Guard provided aggregated data that could not be used to identify possible cases of multiple arrivals and departures by the same individuals; there is also no certainty that people registered as leaving Poland were included in the registers used for estimation (more on this point in the Study methodology section). Unit-level data maintained by the Border Guard were not available when the estimates were being prepared.

The labour market situation of foreigners in the light of ZUS data

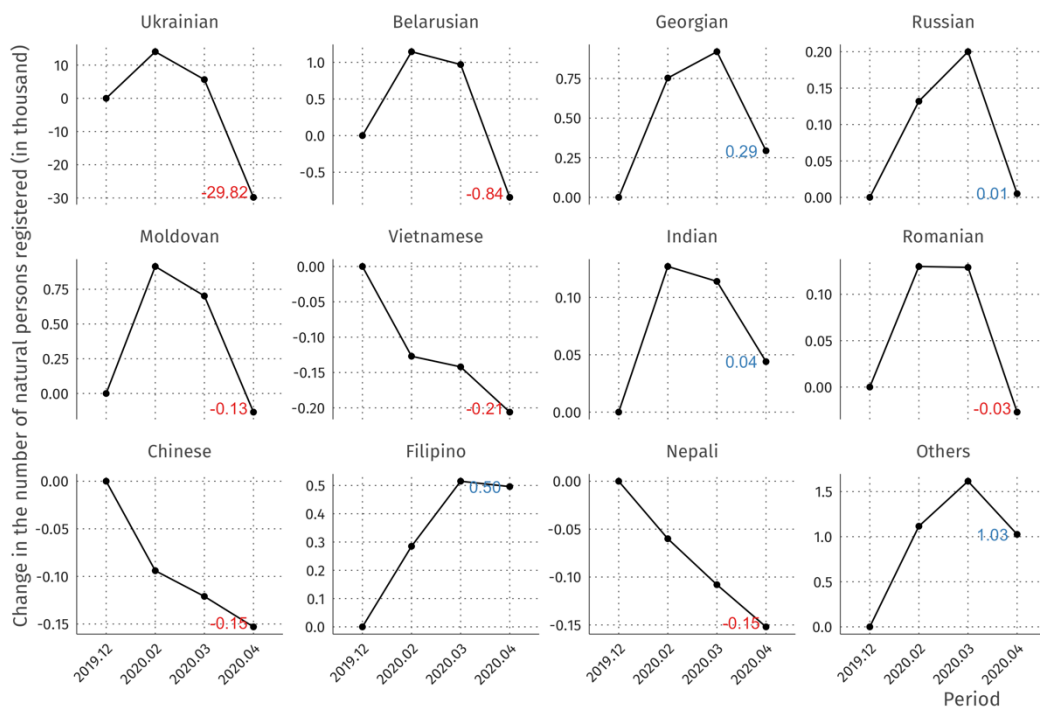
To supplement the information about the size of the foreign population, the following section contains addition figures reflecting changes in the size of selected foreign subpopulations in

the ZUS register. In this case, ZUS data refer to the *number of insured persons (natural persons) who indicated citizenship other than Polish in their application for retirement and invalidity insurance* and were compiled as at the end of February-April 2020. Corresponding figures from the end of 2019 are provided for reference.

The figures below show changes in the population of foreigners registered for insurance. The first figure presents how the number of foreigners (in thousands) changed, comparing to December 2019.

The largest decrease has been observed for Ukrainian citizens and it amounted to almost 30 thousand people. In the case of other foreigners, the decrease was insignificant and amounted to several hundred people. For two groups (Georgia, Philippines) a slight increase has been observed.

Figure 1. Changes in the number of foreigners registered for retirement and invalidity insurance at the end of February, March, April 2020 compared to December 2019

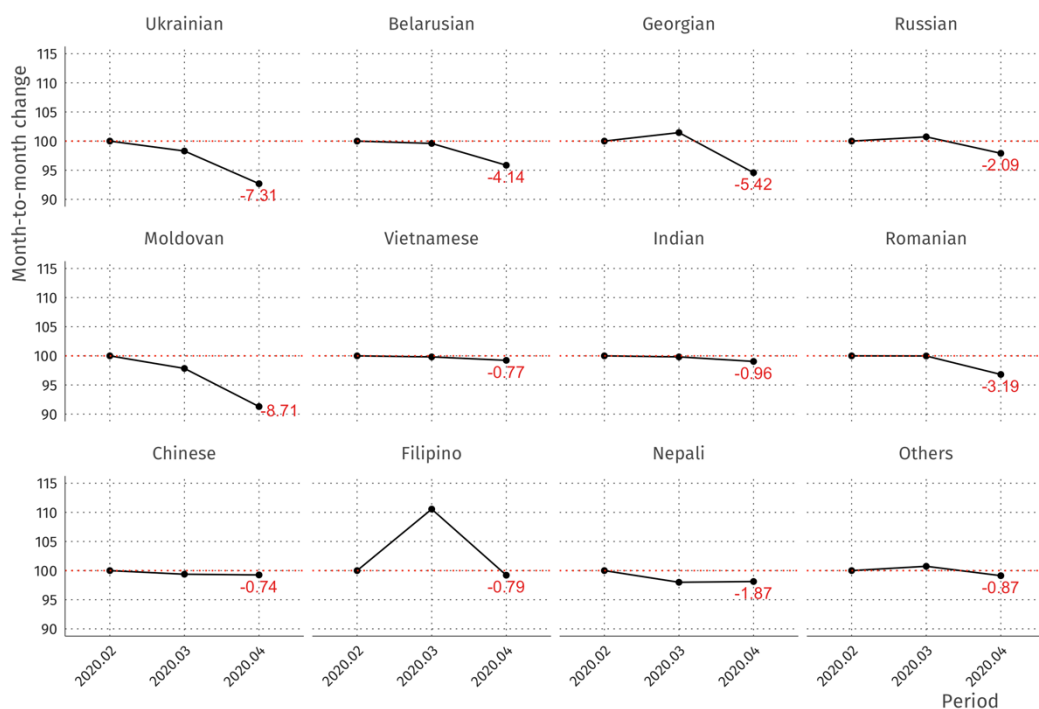


Note: The vertical scales for particular subpopulations of foreigners differ.

Source: based on data from ZUS

The next figure presents monthly changes in the employment of foreigners. The biggest percentage decrease was recorded for citizens of Moldova, Ukraine, Georgia and Belarus. In the case of the other groups, the declines were rather marginal.

Figure 2. Monthly changes in the number of foreigners registered for retirement and invalidity insurance from February to April 2020



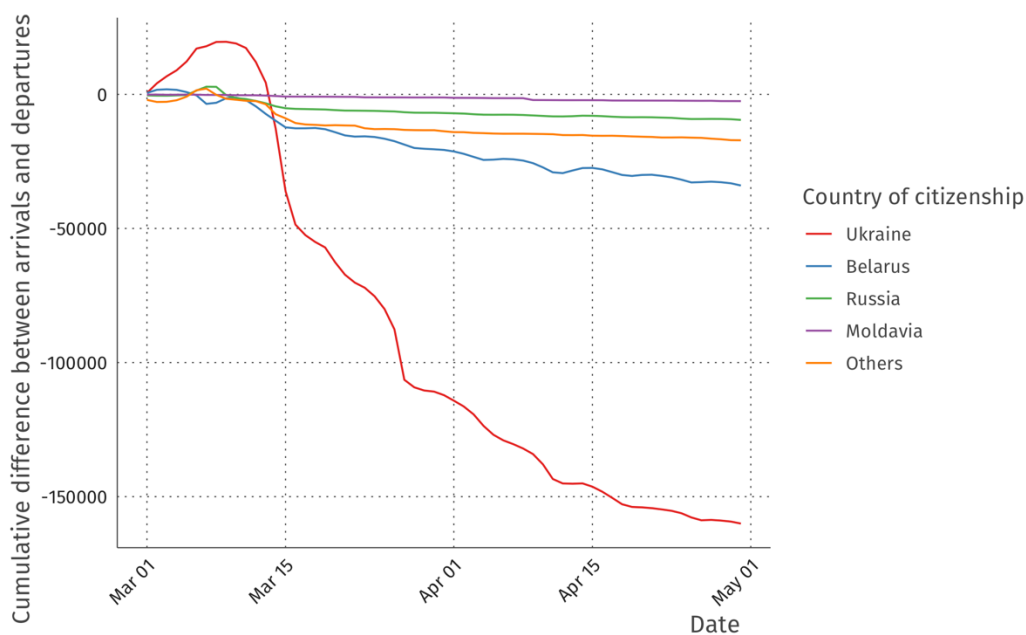
Source: based on data from ZUS

Changes in the foreign population in the light of data provided by the Border Guard

Data presented in this section refer exclusively to crossings at land border checkpoints along the border with Russia, Belarus and Ukraine and at airports and sea ports.

Figure 3 shows cumulative differences between arrivals and departures by selected country of citizenship (including the 'others' category).

Figure 3. Cumulative difference between arrivals and departures for selected groups of foreigners between 1 March and 30 April 2020.

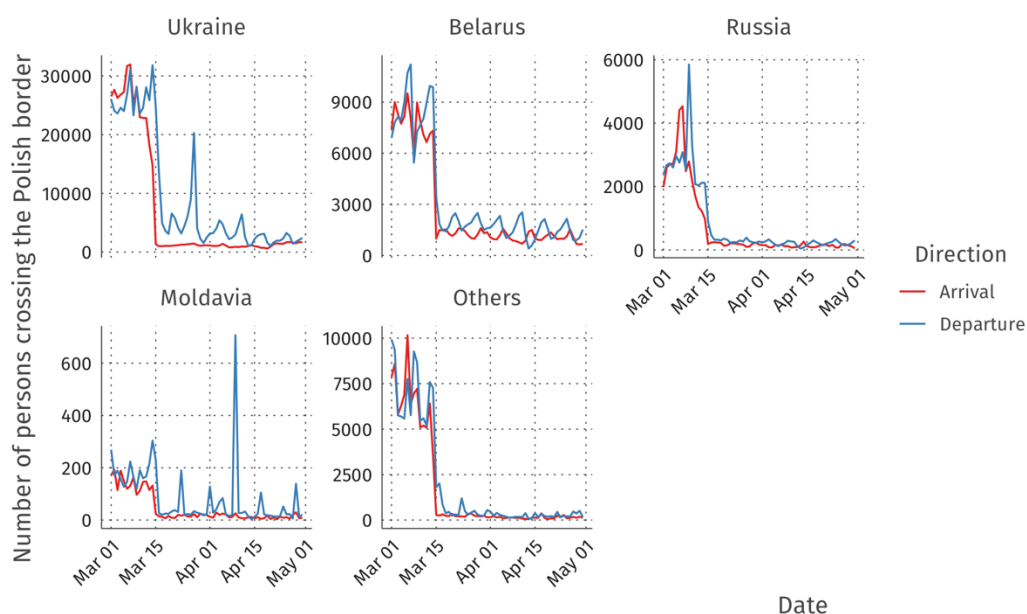


Source: based on data from The Border Guard

It can be observed, that until the 13th of March, the inflow Ukrainian citizens kept growing, with the number of arrivals exceeding the number of departures. After that date, especially after 15th of March, there was a notable rise in the number of foreigners leaving Poland. More importantly, that increase is bigger than the decline recorded in the ZUS register, which may suggest that foreigners who left a) had been employed under civil law contracts, b) had not worked during their stay, c) had stayed in Poland on a visa, or d) had worked/stayed in Poland without an official residential permit.

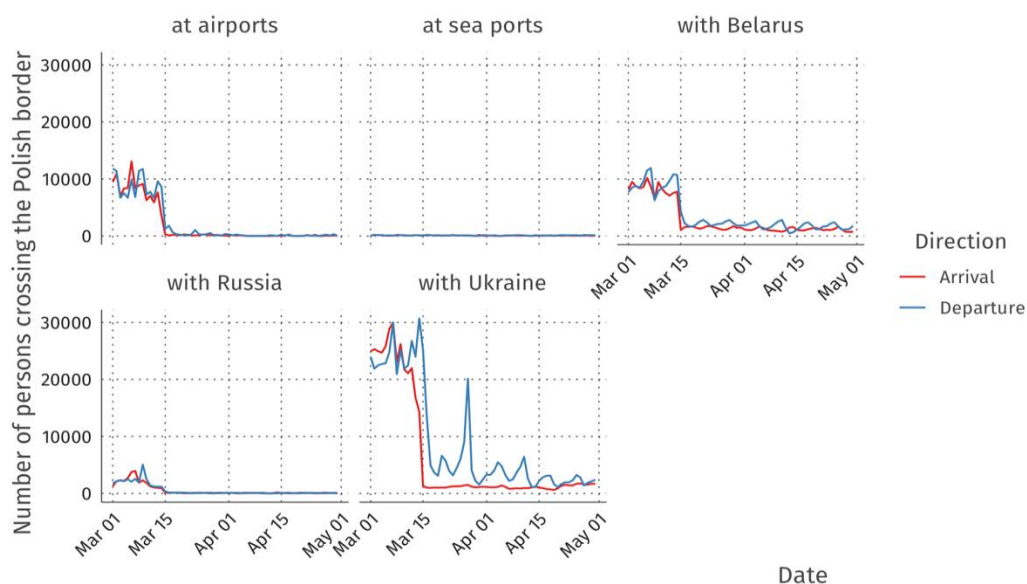
The following figures (Fig. 4,5,6) show daily changes in foreigner arrivals and departures by country of citizenship, border section and type of border crossing. As expected, a notable decrease in cross-border traffic was observed after 15 March, as a result of the border shut-down.

Figure 4. Daily changes in the number of foreigners crossing Polish border between 1 March and 30 April 2020 by country of citizenship



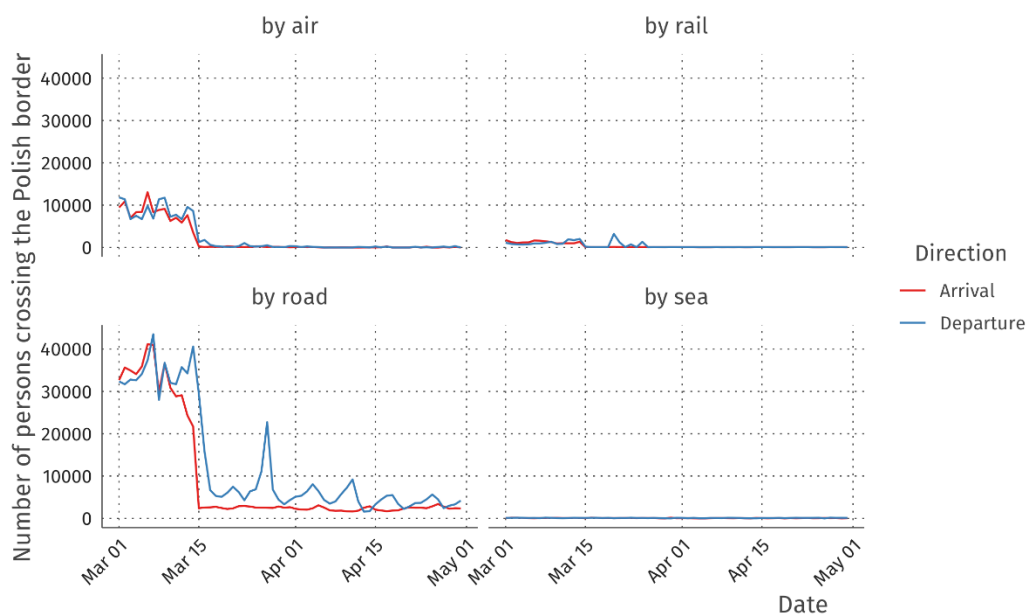
Source: based on data from the Border Guard

Figure 5. Daily changes in the number of foreigners crossing Polish border between 1 March and 30 April by border category



Source: based on data from the Border Guard

Figure 6. Daily changes in the number of foreigners crossing the Polish border between 1 March and 30 April by type of border crossing.



Source: based on data from the Border Guard

Study methodology

Limitations and assumptions

In the estimation there were used data on the size of the foreign population in Poland on 31 December 2019, established on the basis of 9 administrative registers.

The dataset was created by adding foreigners listed in each register. The PESEL number was used to eliminate duplicates and ensure that the dataset contained unique records; where it was unavailable, a combination of variables was used (name, surname, sex, date or year of birth).

The size of the foreign population was updated using aggregated data provided by the Border Guard. It should be noted that given such data it is not possible to determine whether a person leaving Poland was actually included in the integrated dataset of foreigners. Likewise, it cannot be ruled out that foreigners arriving / leaving in the reference period were counted more than once.

In view of the above, the following nonrandom errors may have affected the final estimates:

- redundancy errors – possible duplicates in the data provided by the Border Guard and in the integrated register
- coverage errors in administrative registers:
 - overcoverage error – inclusion in the register does not mean that a person actually stayed in Poland,
 - undercoverage error – the study is based on the foreign population listed in administrative registers, which means it does not include foreigners whose stay is undocumented or those listed in other registers,
- extrapolation error – it was assumed that changes in the size of the foreigner population established on the basis of 9 registers were similar to those in the ZUS register,
- data integration error – in the case of a few hundred thousand foreigners, the integration of registers was made using linkage keys other than the PESEL number (combinations of variables).

Quality of integrated data sources

The tables below provide quantities that summarize the quality of administrative data about foreigners. It should be noted that very large number of foreigners can only be found in one register. This means that for nearly 900 thousand foreigners no other information was found that would confirm their stay in Poland. The authors of the study made use of the signs of life method, which means that the quality of a given record depends on the number of its occurrences in different registers and the degree of consistency between them.

Table 3. The number of foreigners listed in different registers on 31 December 2019

Register	count
PESEL	263 976
UdSC	426 266
ZUS	696 434
KEP	919 491
MRPIPS	767 033
MNISW	66 824
MEN	18 032
KRUS	60 198
NFZ	1 230 717
Co-occurrence	count
Foreigners listed in 1 dataset:	988 235
Foreigners listed in 2 datasets:	461 233
Foreigners listed in 3 datasets:	303 767
Foreigners listed in 4 datasets:	222 911
Foreigners listed in 5 datasets:	111 896
Foreigners listed in 6 datasets:	17 921
Foreigners listed in 7 datasets:	138
Foreigners listed in 8 datasets:	0
Foreigners listed in 9 datasets:	0

The method of updating the foreign population

The following table shows basic descriptive statistics for the foreign population according to ZUS data. The indicator represents the percentage change for each of 204 citizenships between February 2020 and December 2019. Values greater than zero represent a growth, and values smaller than zero – a decline. In the case of citizens of Chad, the index is equal to zero, because in December ZUS reported 5 citizens and in February – none. Falls were recorded for 34 foreigner groups, with the biggest one observed for citizens of South Korea (0.658), United Arab Emirates (0.80) and Kuwait (0.857). The biggest increase was recorded for citizens of Mozambique (1.64), Costa Rica (1.47) and Namibia (1.33). It should be noted that these groups were relatively small, numbering 105, 208 and 58 persons, respectively, at the end of February.

Table 4. Descriptive statistics for the indicator used to update the population of the integrated administrative register

minimum	q1	median	mean	q3	maximum
0	1	1	1.03	1.03	1.64

This indicator was used to extrapolate the foreign population based on the count at the end of February 2020. Decimal values were rounded up.

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Key concepts explained in the glossary

Concepts and terms used in official statistics

<https://stat.gov.pl/en/metainformations/glossary/terms-used-in-official-statistics/723,term.html>