



Challenges for official statistics in the context of inflow of refugees after Russia-Ukraine conflict escalation

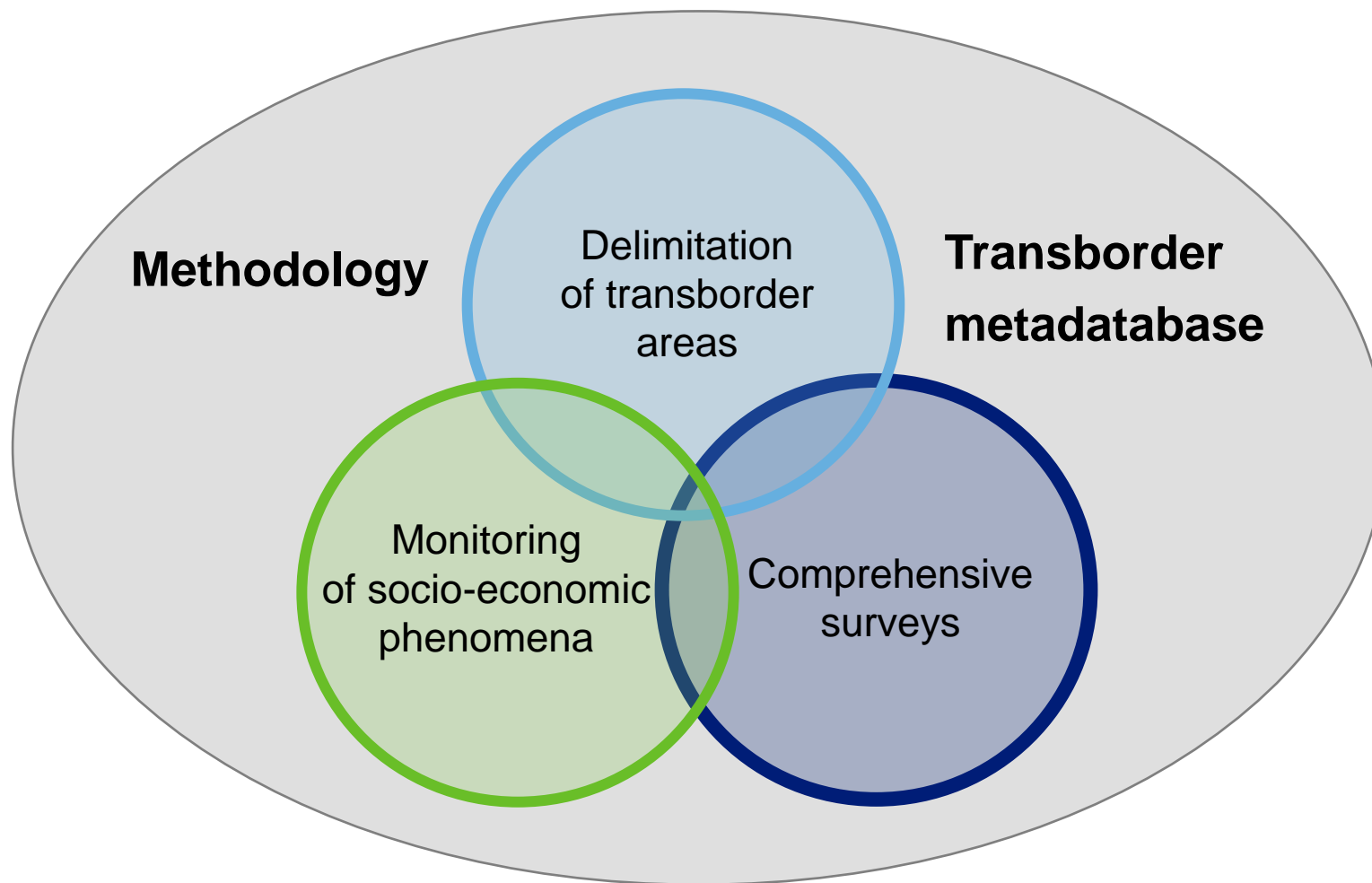
**Marek Cierpień-Wolan PhD,
Statistics Poland**

Agenda

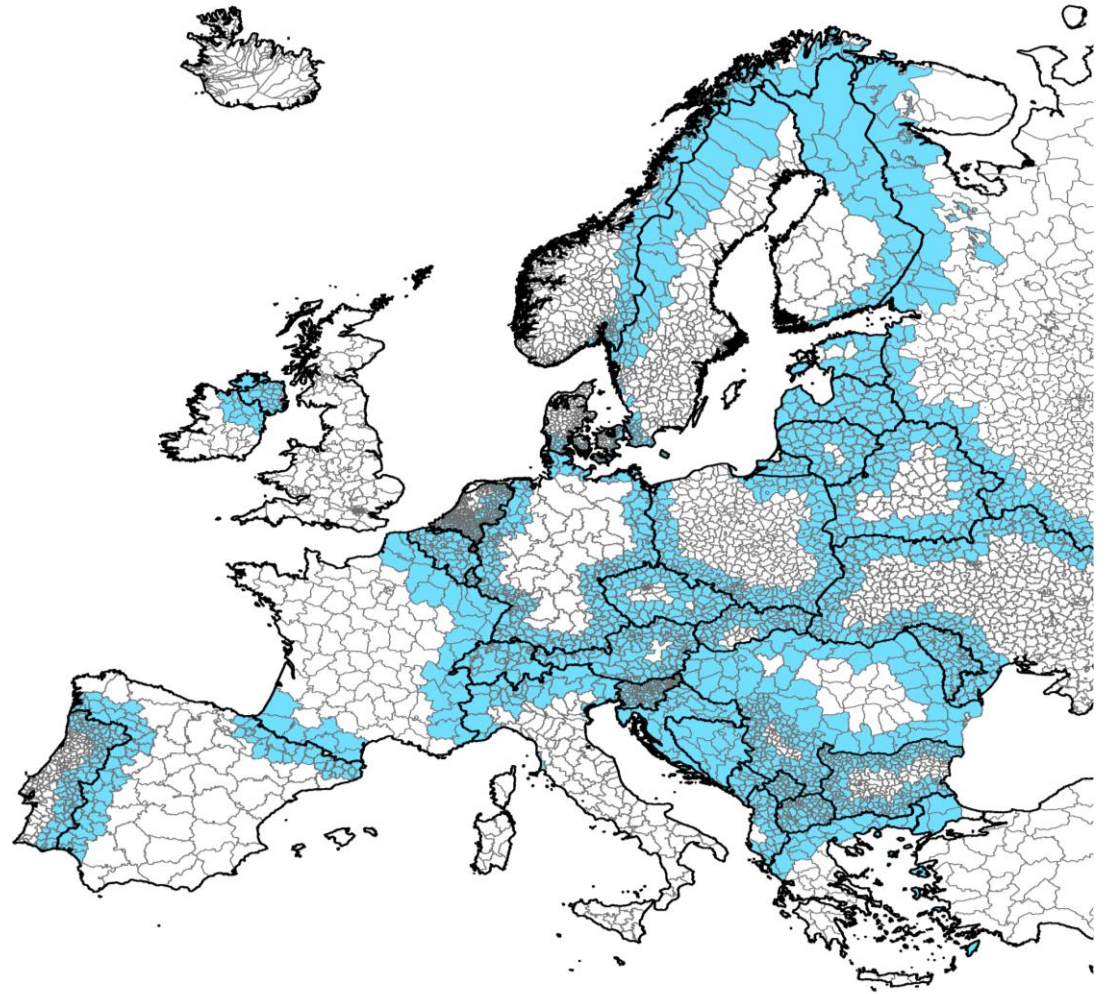
- 1. Coherent research system for transborder areas in Statistics Poland**
- 2. Tranborder processes – three pillars**
- 3. Escalation of the conflict – need for new approach**
- 4. Demographic scenarios based on the PROST model**
- 5. Summary**

Coherent research system for transborder areas

Significant support in the context of huge scale of refugges



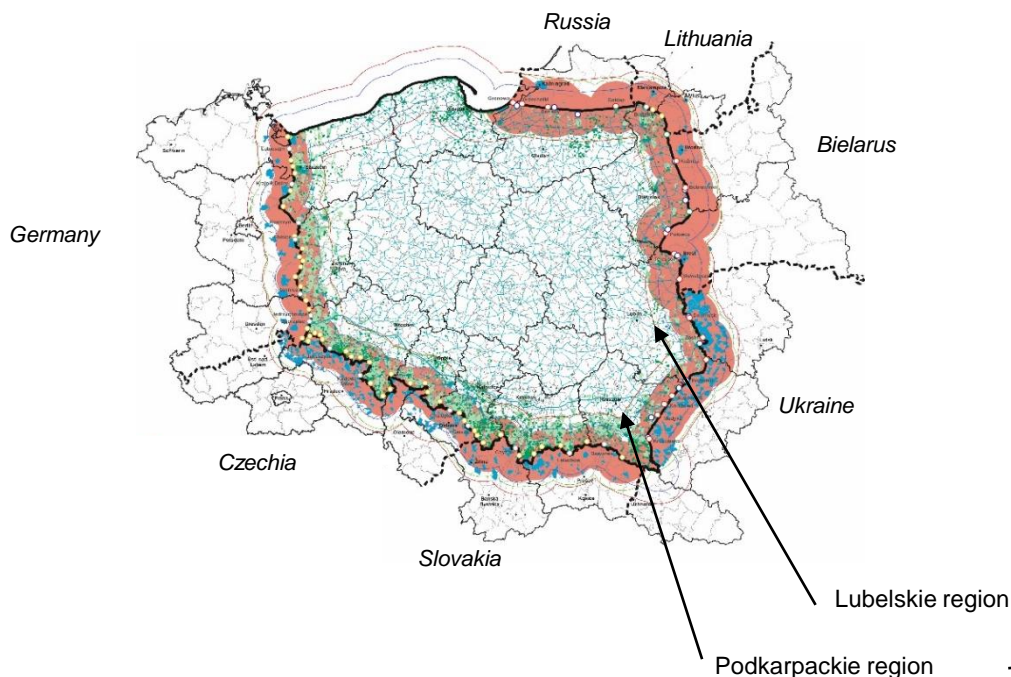
Dynamic delimitation – starting point



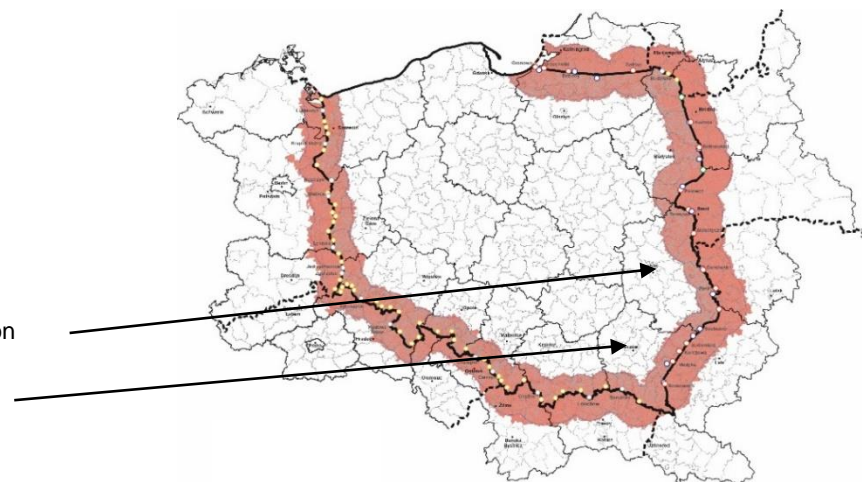
Multi-criteria delimitation

Attempt at delimitation of the cross-border area on the basis of various sources of data (with geo-coordinates) on:

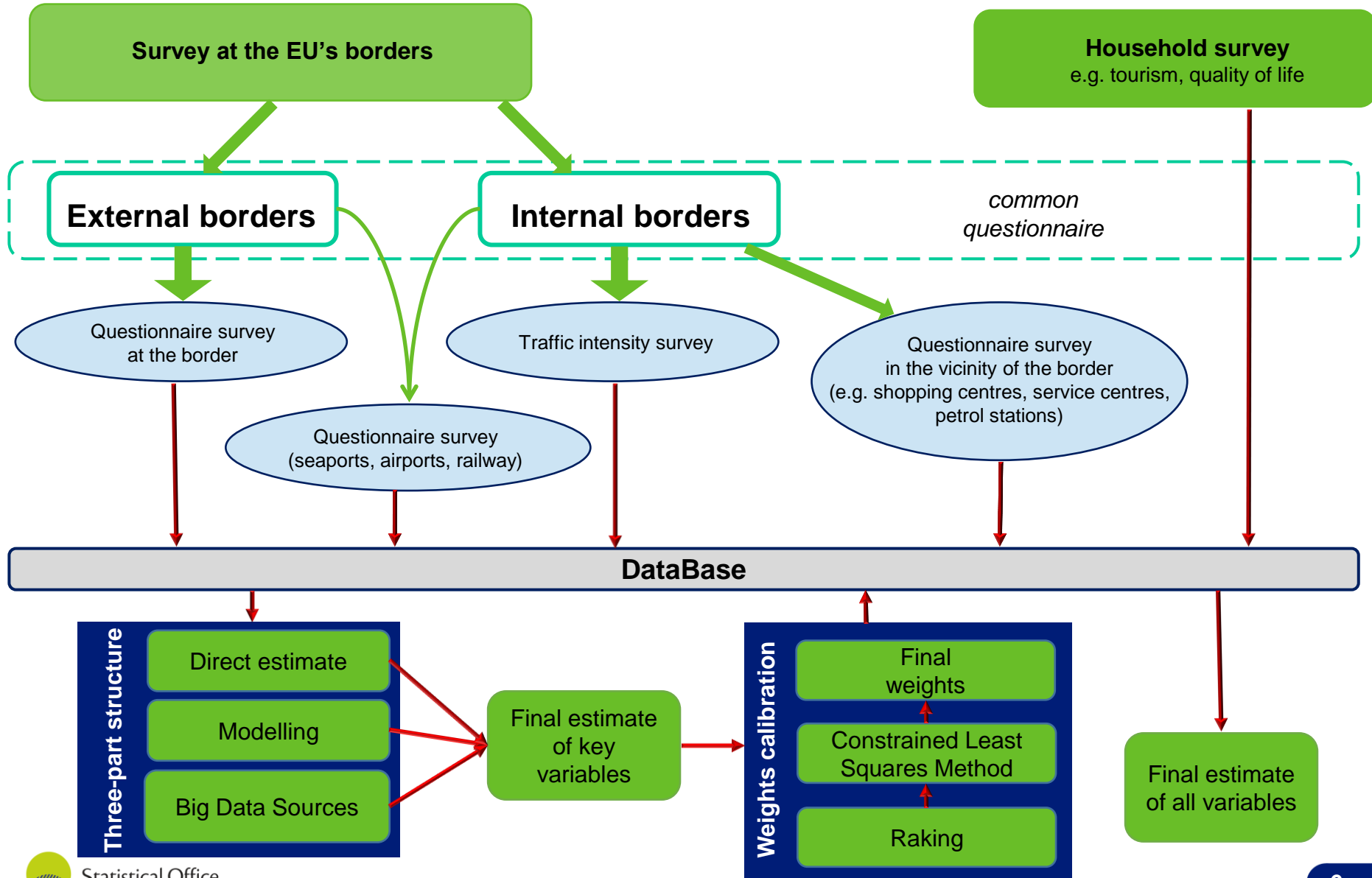
- (1) the place of purchases made by residents and foreigners from neighbouring countries,
- (2) the place of residence of foreigners and residents travelling to neighbouring countries,
- (3) data on the use of tourist accommodation establishments (including web scraping).



The final delimitation – based on localities (towns, villages)

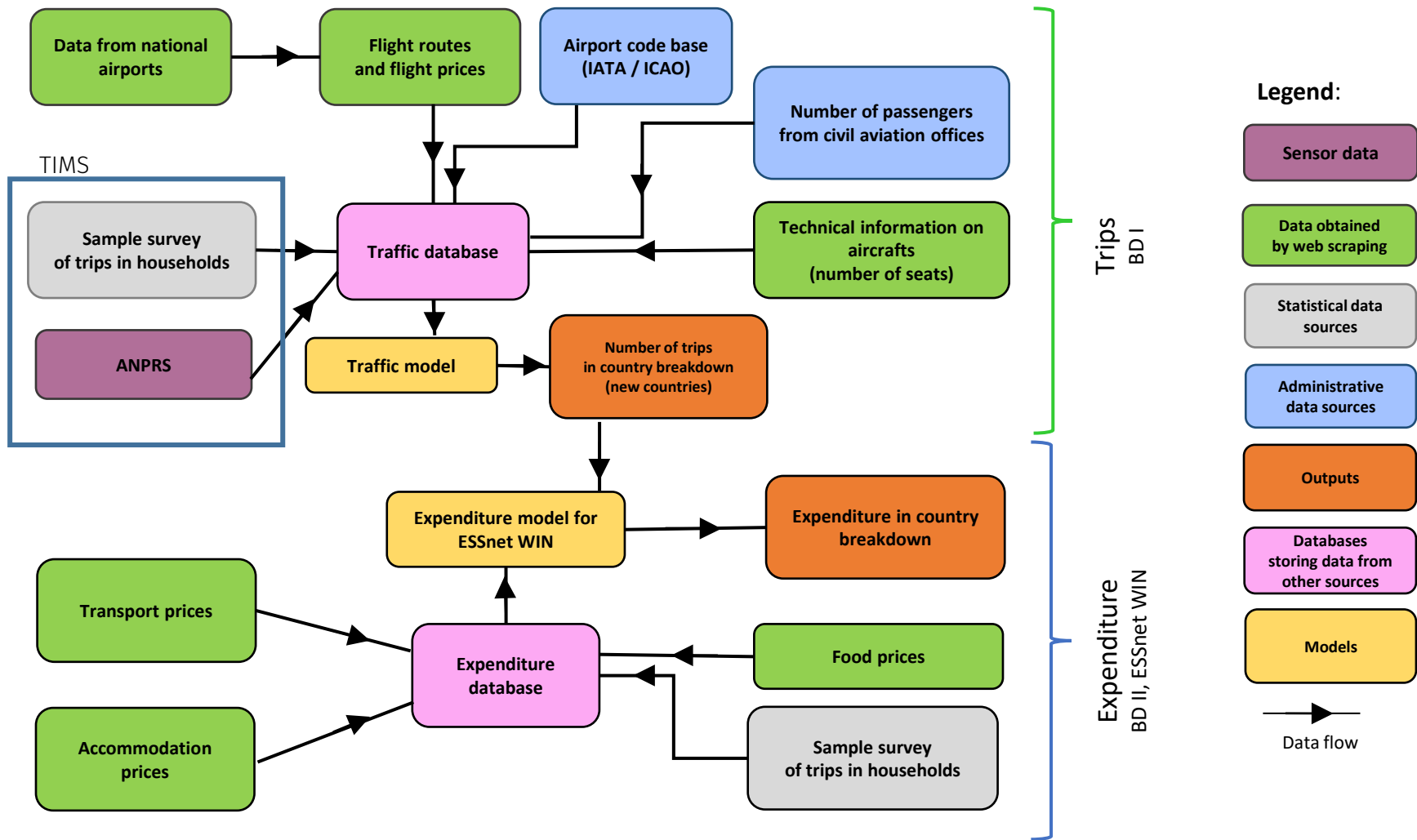


Comprehensive surveys



Comprehensive surveys

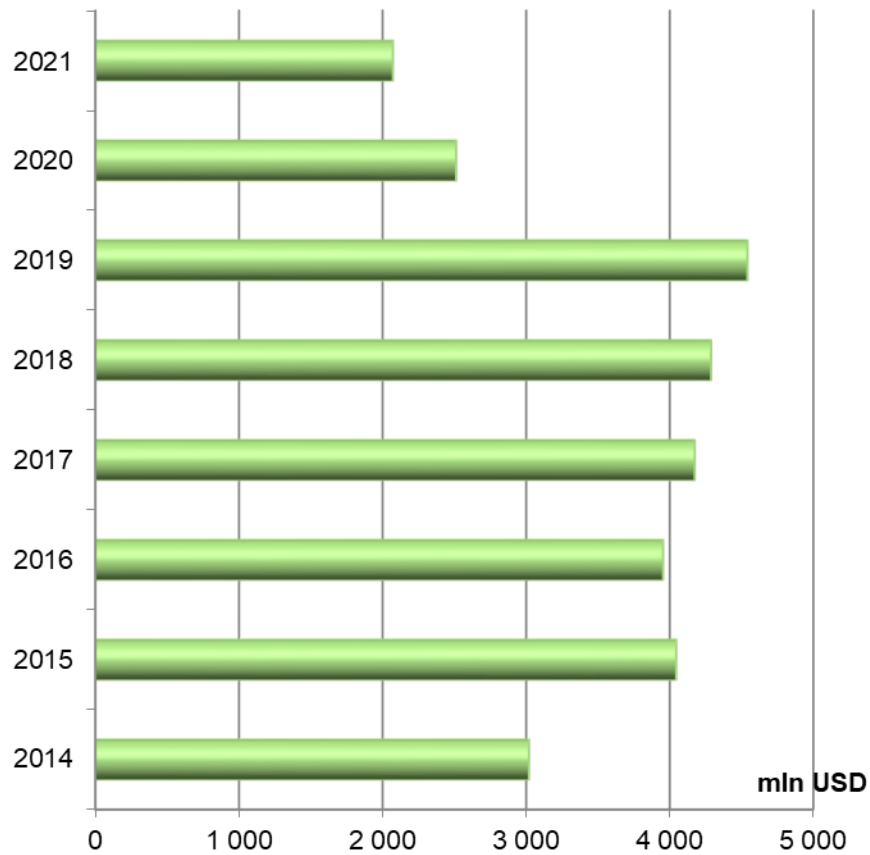
Flowchart of trips and expenditure estimation



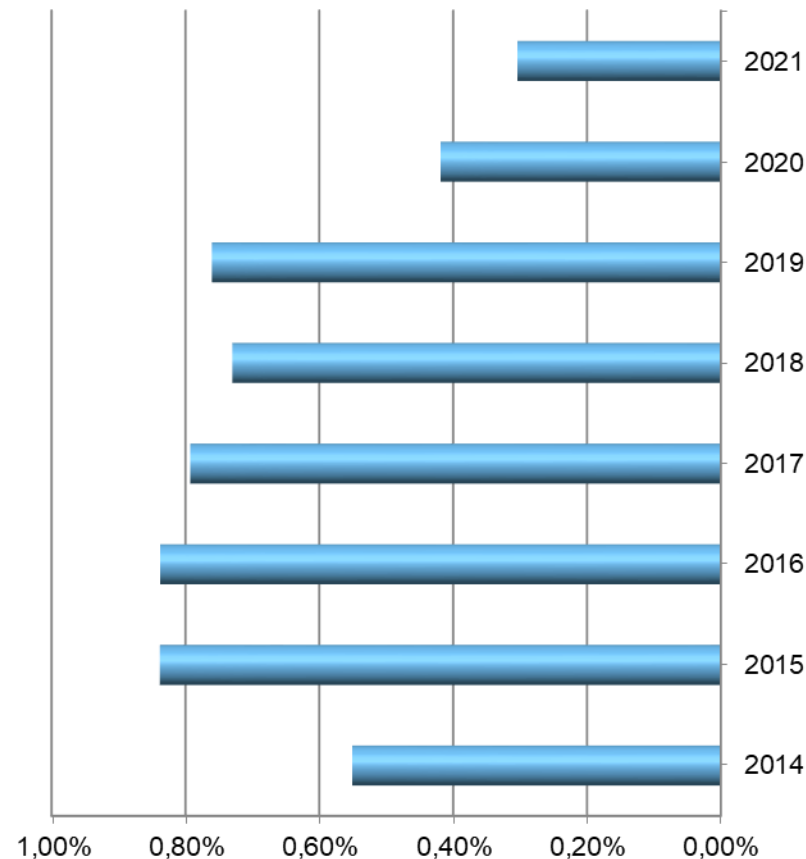
Transborder balance of trade

Results of comprehensive surveys

Transborder balance of trade



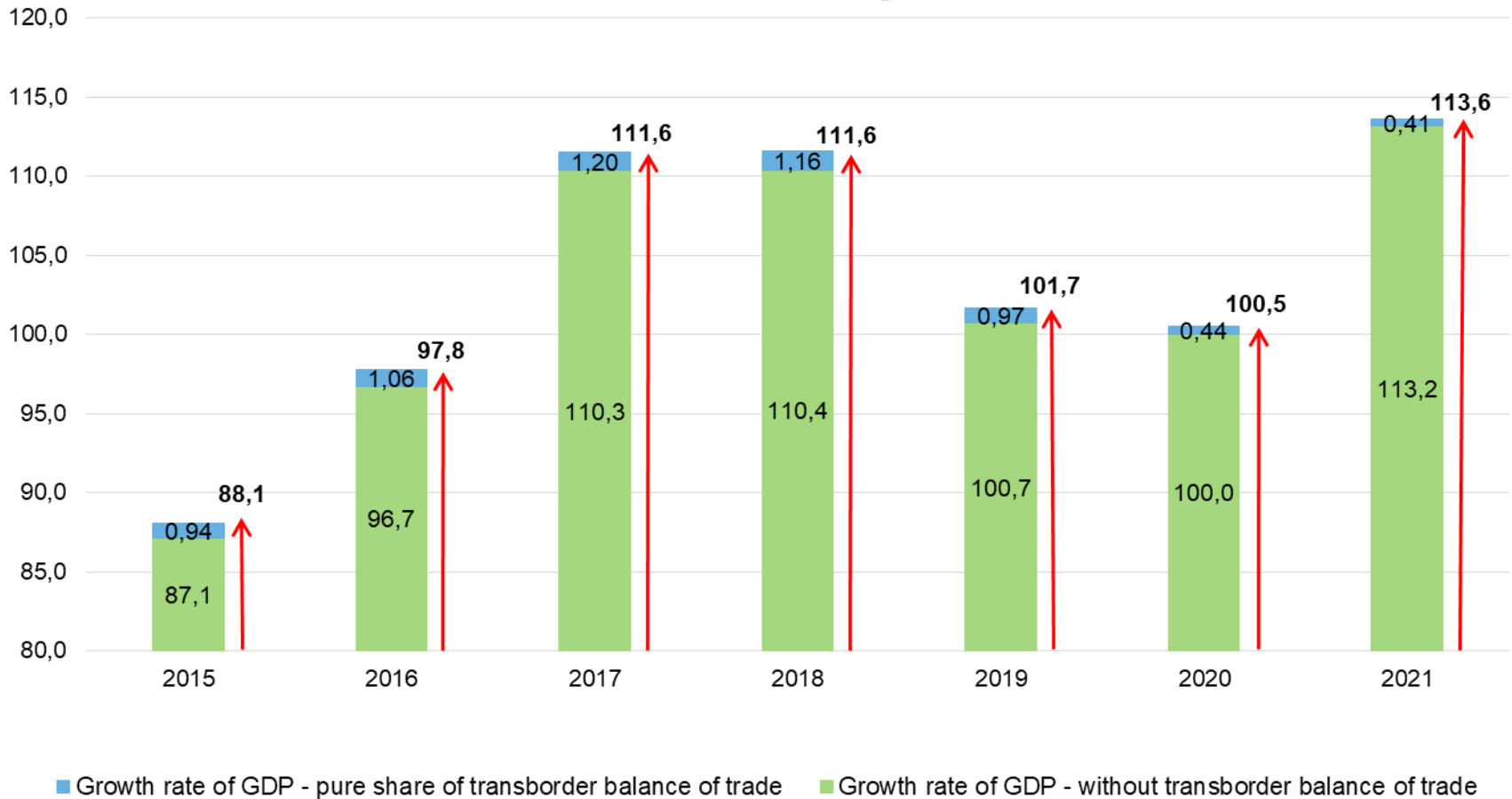
Share of transborder balance of trade in GDP



Transborder balance of trade

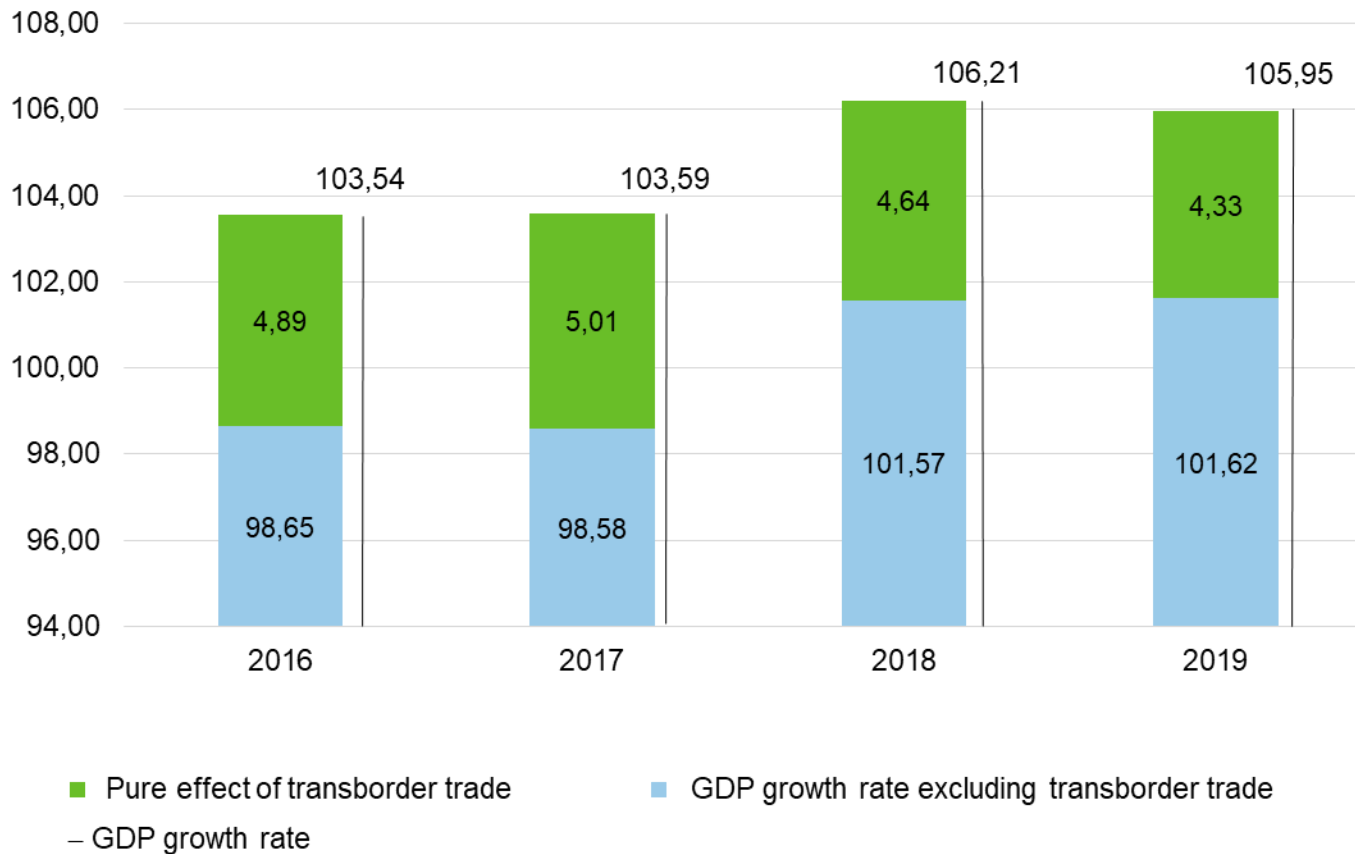
Results of comprehensive surveys

The rate of economic growth



Transborder balance of trade

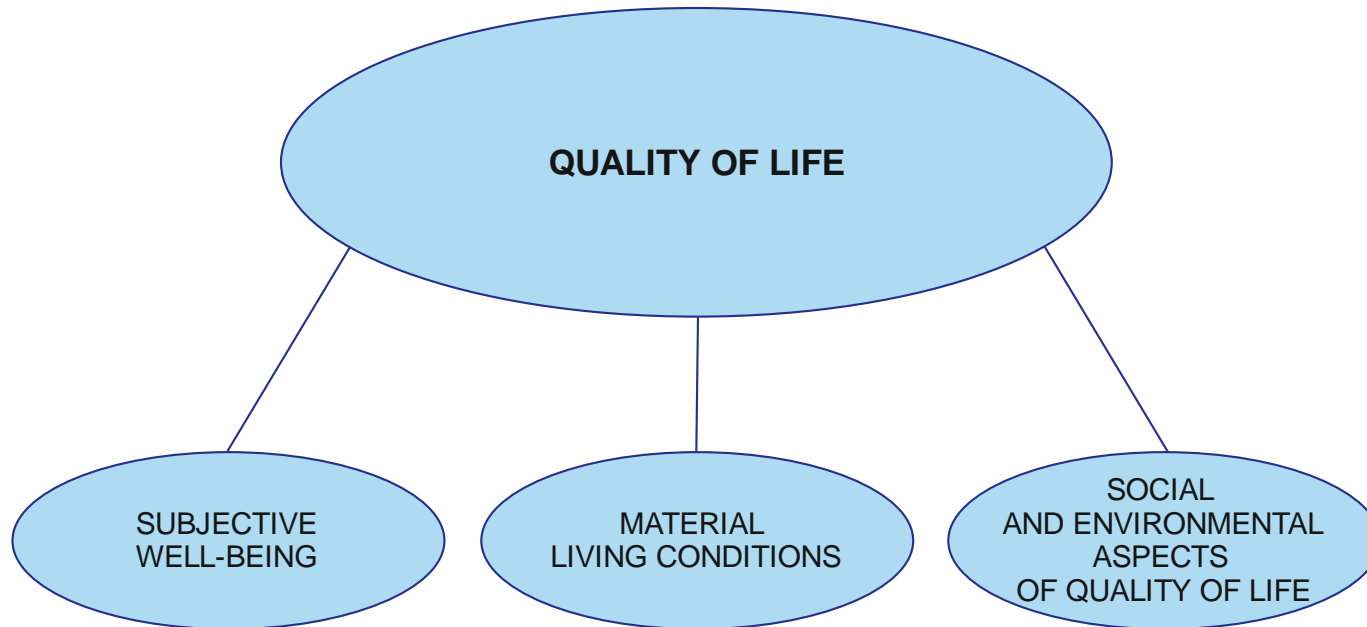
Results of comprehensive surveys



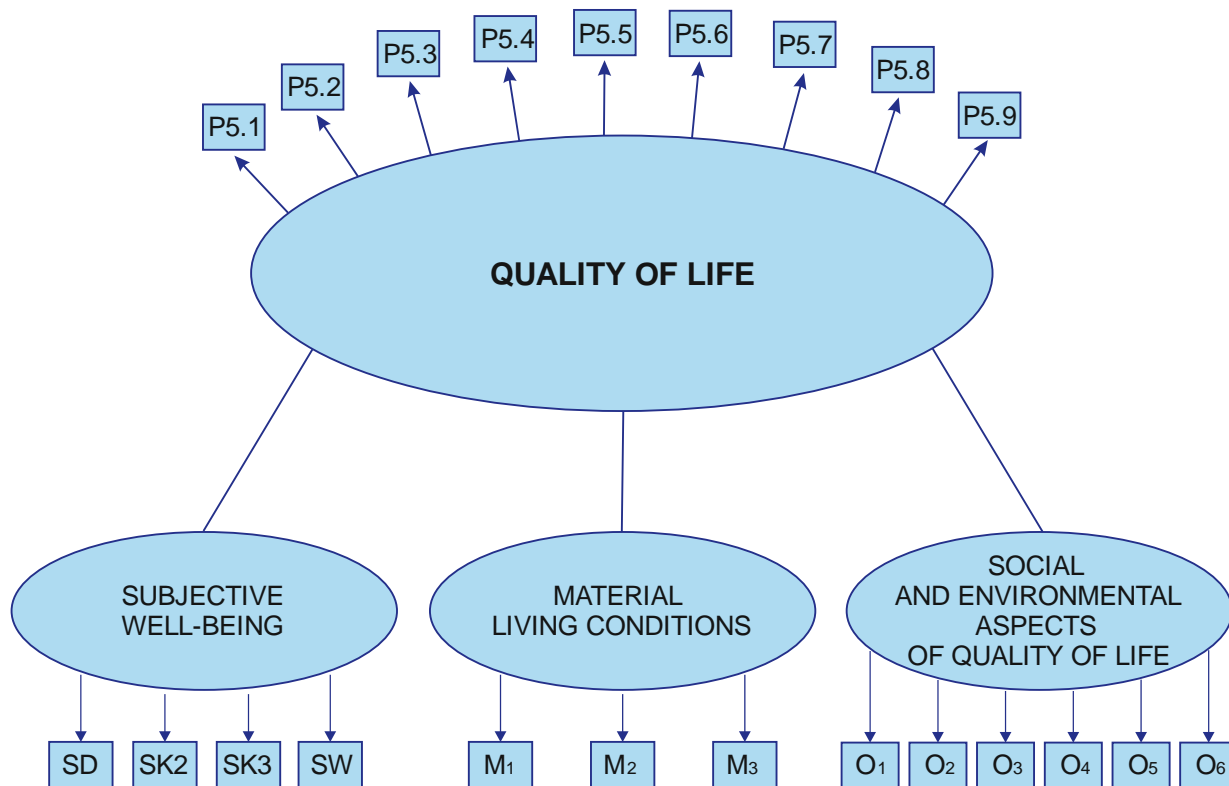
Tranborder processes – three pillars

- *cross-border flows*
- *territorial capital*
- *quality of life – a lasting improvement in the quality of life is the overarching objective of sustainable development*

Quality of life – conceptual framework

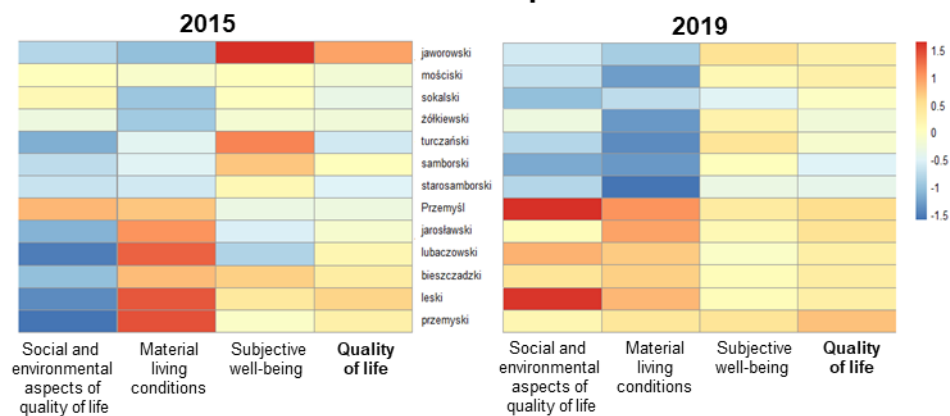


Soft model diagram of quality of life

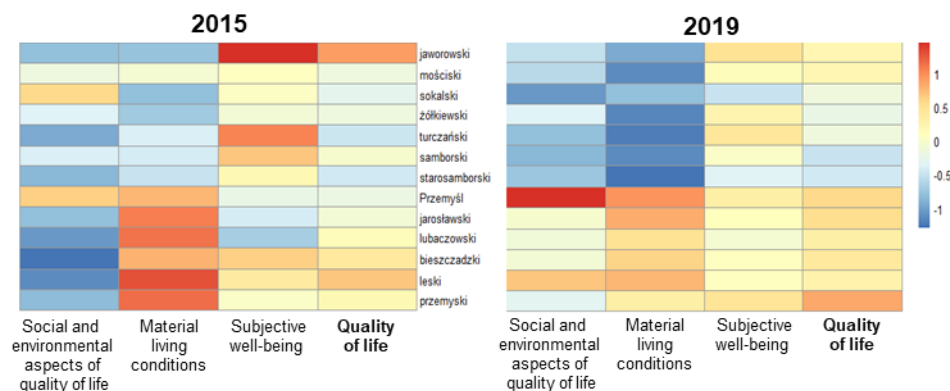


Well-being paradox

Transborder area - power model

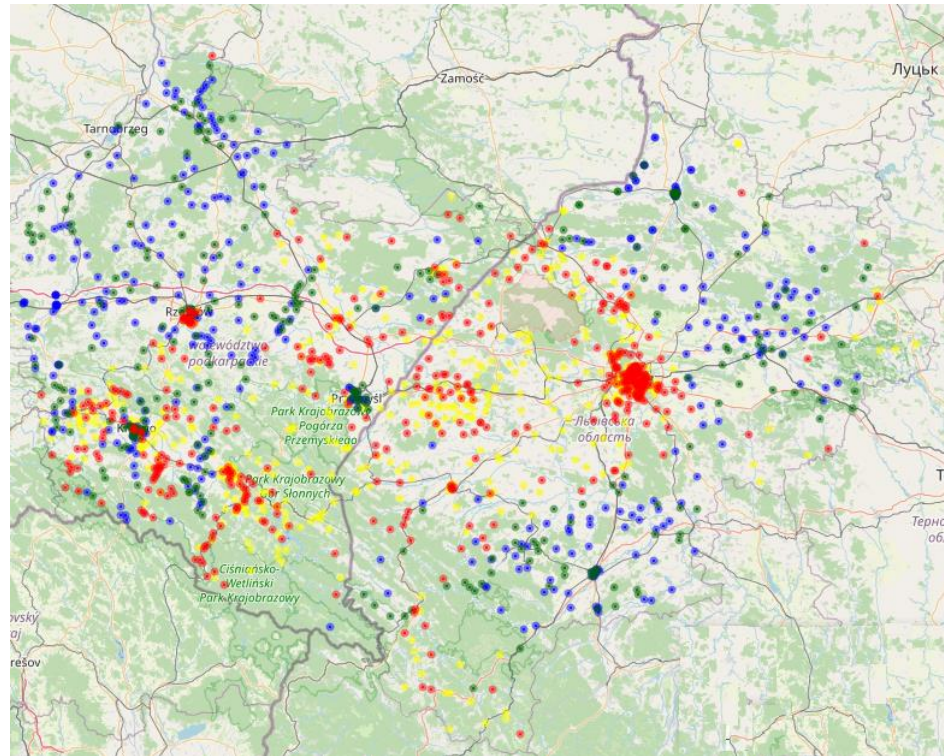


Transborder area - linear model



- a high similarity between the border areas of Poland and Ukraine
- quality of life expressed by latent variable improves in analysed period
- a well-being paradox - high values of subjective well-being are contrasted with a low level of synthetic indicators concerning material living conditions and environmental aspects of quality of life.

The spatial location of Moran's scatter plot

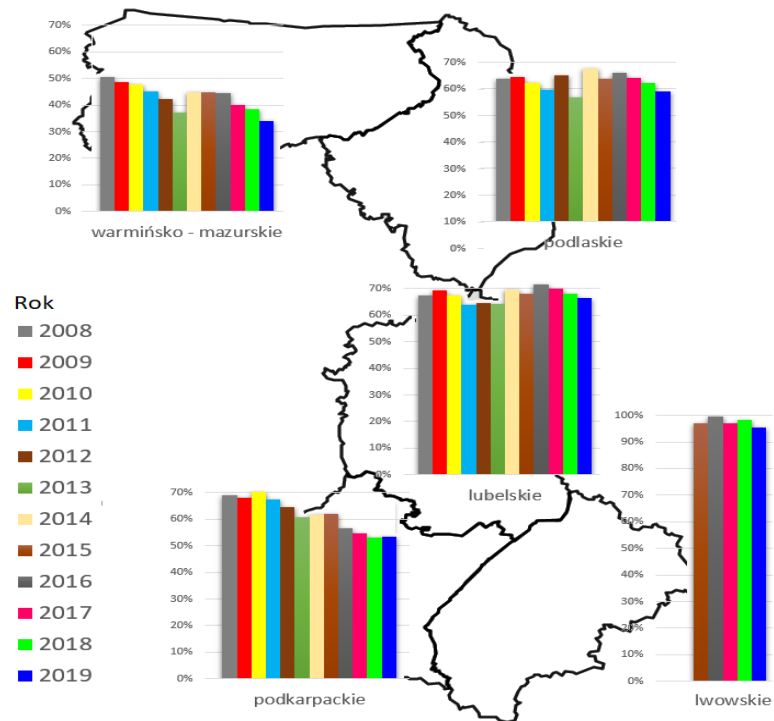


● HH (high-high)	high value units surrounded by high value units
● LL (low-low)	low value units surrounded by low value units
● LH (low-high)	low value units surrounded by high value units
● HL (high-low)	high value units surrounded by low value units

- *higher levels of evaluation of the quality of life by households close to the border that are surrounded by neighbours with similar characteristics*

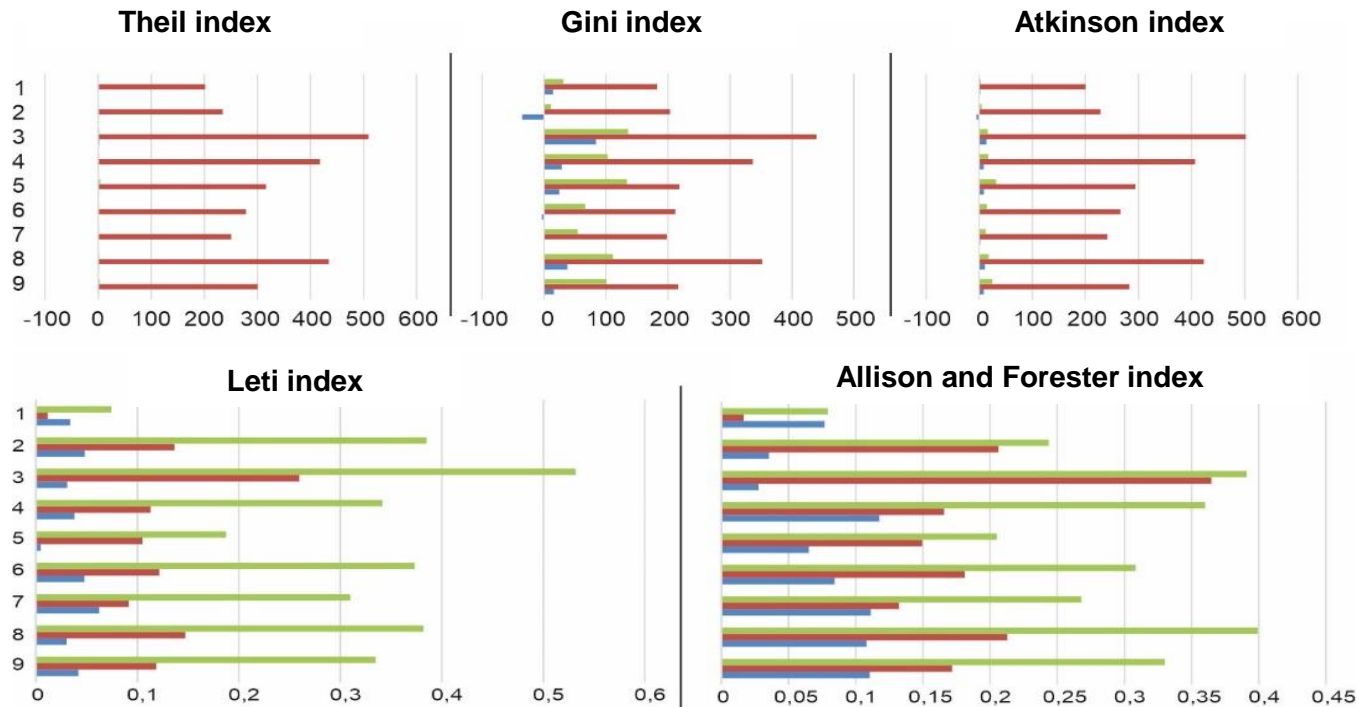
Private transfers

private transfers played a very important role in the political transition process, when informal links between households created a kind of economic safety net (Cox et al., 1997, pp. 191-192).



- *private transfers impact on the balance of household budgets*
- *in Ukrainian border regions, more than 95% of households participated in various types of transfers*

Assessing inequalities in subjective and objective aspects of quality of life



- 1 - Border zone - Lviv Region
- 2 - Internal zone - Lviv Region
- 3 - Border zone - Podkarpackie Voivodship
- 4 - Internal zone - Podkarpackie Voivodship
- 5 - Transborder zone

- 6 - Internal zone (Lviv Region and Podkarpackie Voivodship)
- 7 - Lviv Region
- 8 - Podkarpackie Voivodship
- 9 - Total (Lviv Region and Podkarpackie Voivodship)

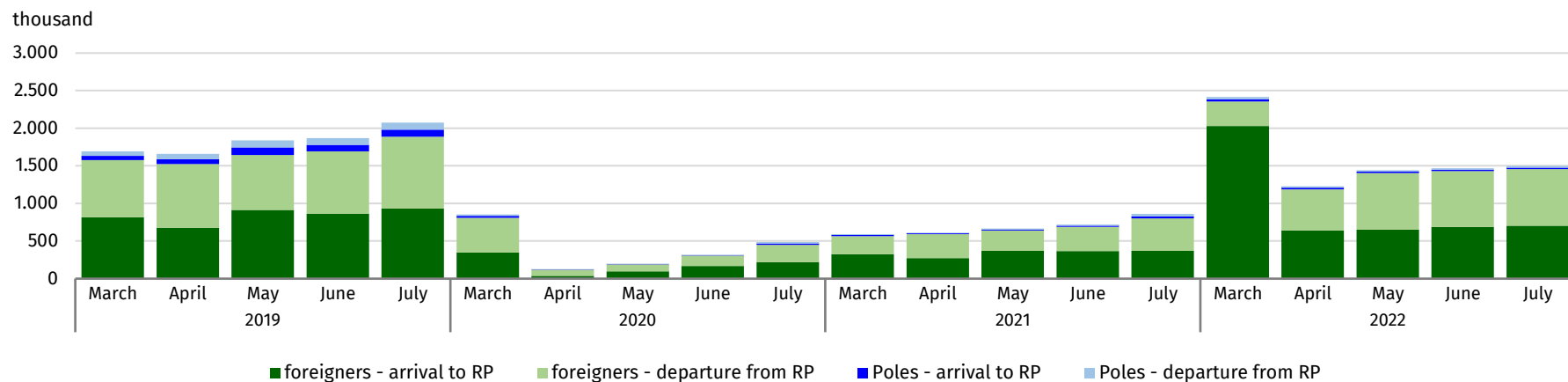
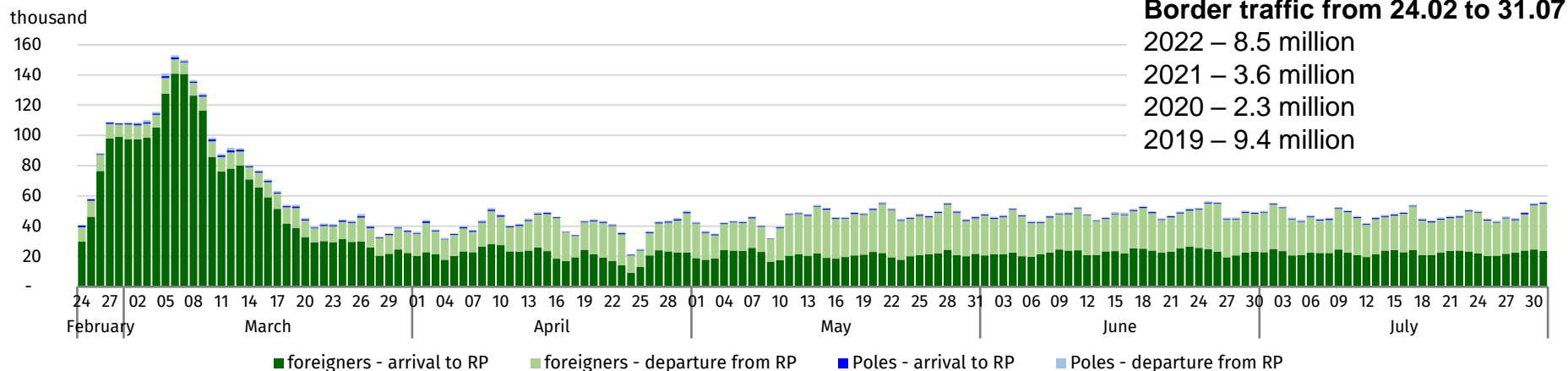
■ Residual change ■ Rate change ■ Inequality change

- a decrease in income inequalities as well as decrease in inequalities in terms of subjective income assessment.

Escalation of the conflict – need for new approach

- **comprehensive inventory of data sources**
- **the necessity for modification of current surveys**
- **new survey**

Border traffic on the Polish-Ukrainian border from 24.02 to 31.07.2022

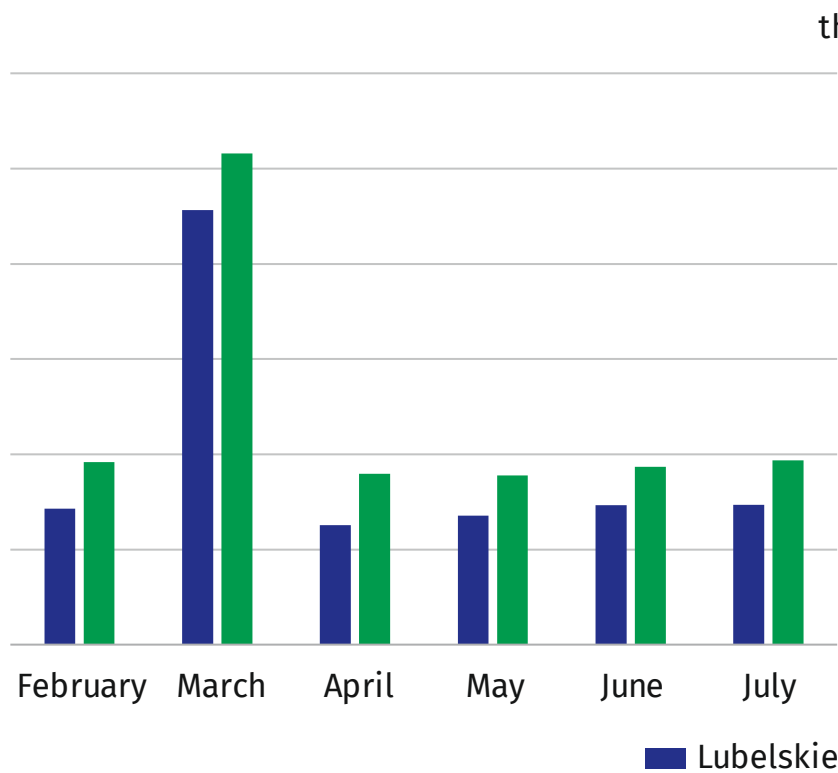


The scale of crossings was the highest in the first decade of March this year, but did not exceed the level of 2019.

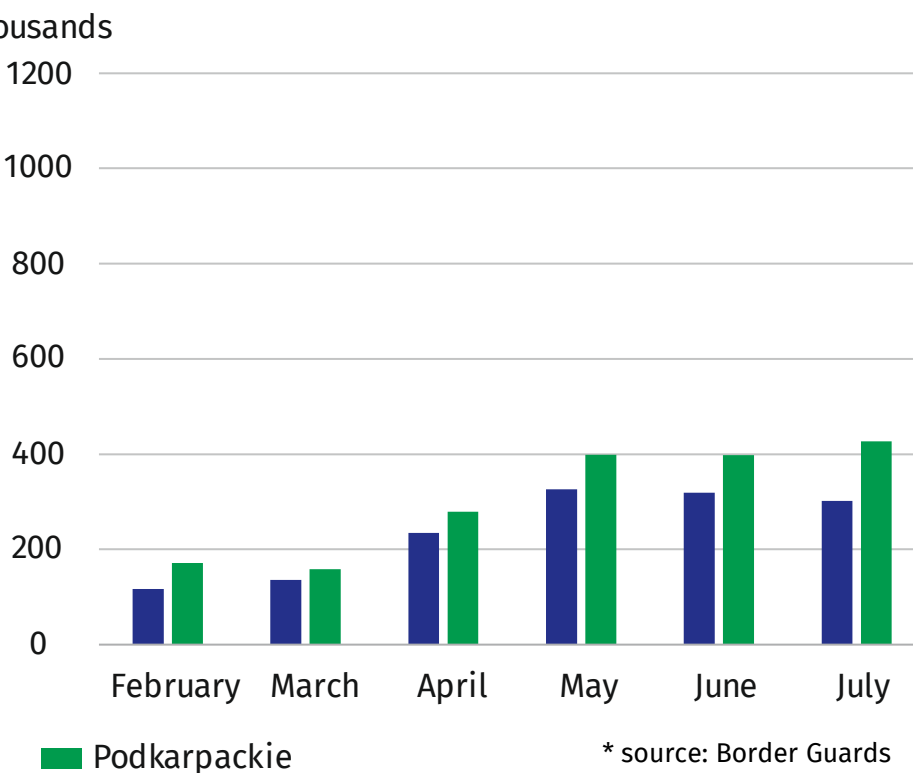
More and more people return to Ukraine, since mid-April the number of departures has exceeded the number of arrivals.

Arrivals and departures of Ukrainian citizens to Poland across the Polish-Ukrainian border in 2022 by month*

Arrivals

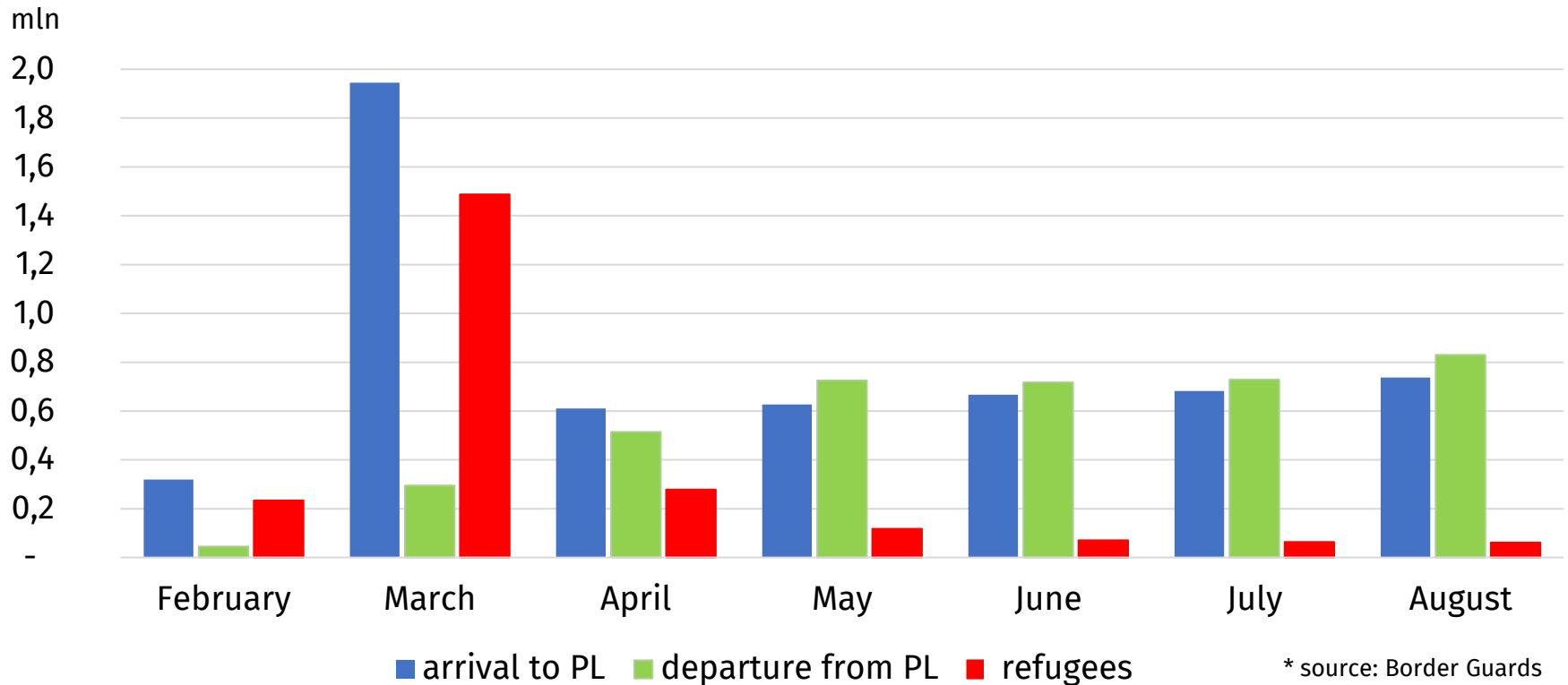


Departures



Survey of refugees

Specifics of border traffic on the Polish-Ukrainian border*

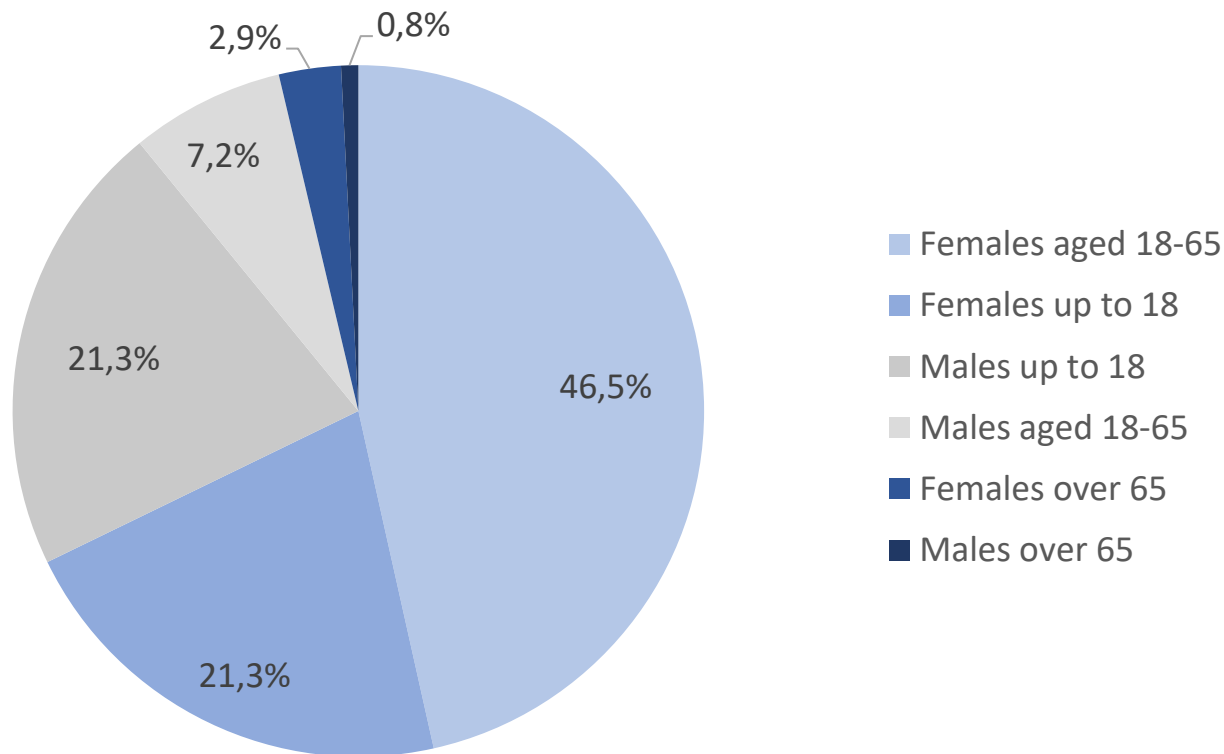


Specifics of border traffic on the Polish-Ukrainian border

Citizenship	Refugees*	
	in thousands	%
Ukraine	2 313.2	94.9
Poland	15.5	0.6
other EU/Schengen countries (excluding Poland)	12.9	0.5
Russia	9.1	0.4
Uzbekistan	7.7	0.3
India	6.1	0.3
Belarus	5.3	0.2
Azerbaijan	4.9	0.2
USA	4.8	0.2
Georgia	4.6	0.2
Armenia	4.0	0.2
Others	61.9	2.5

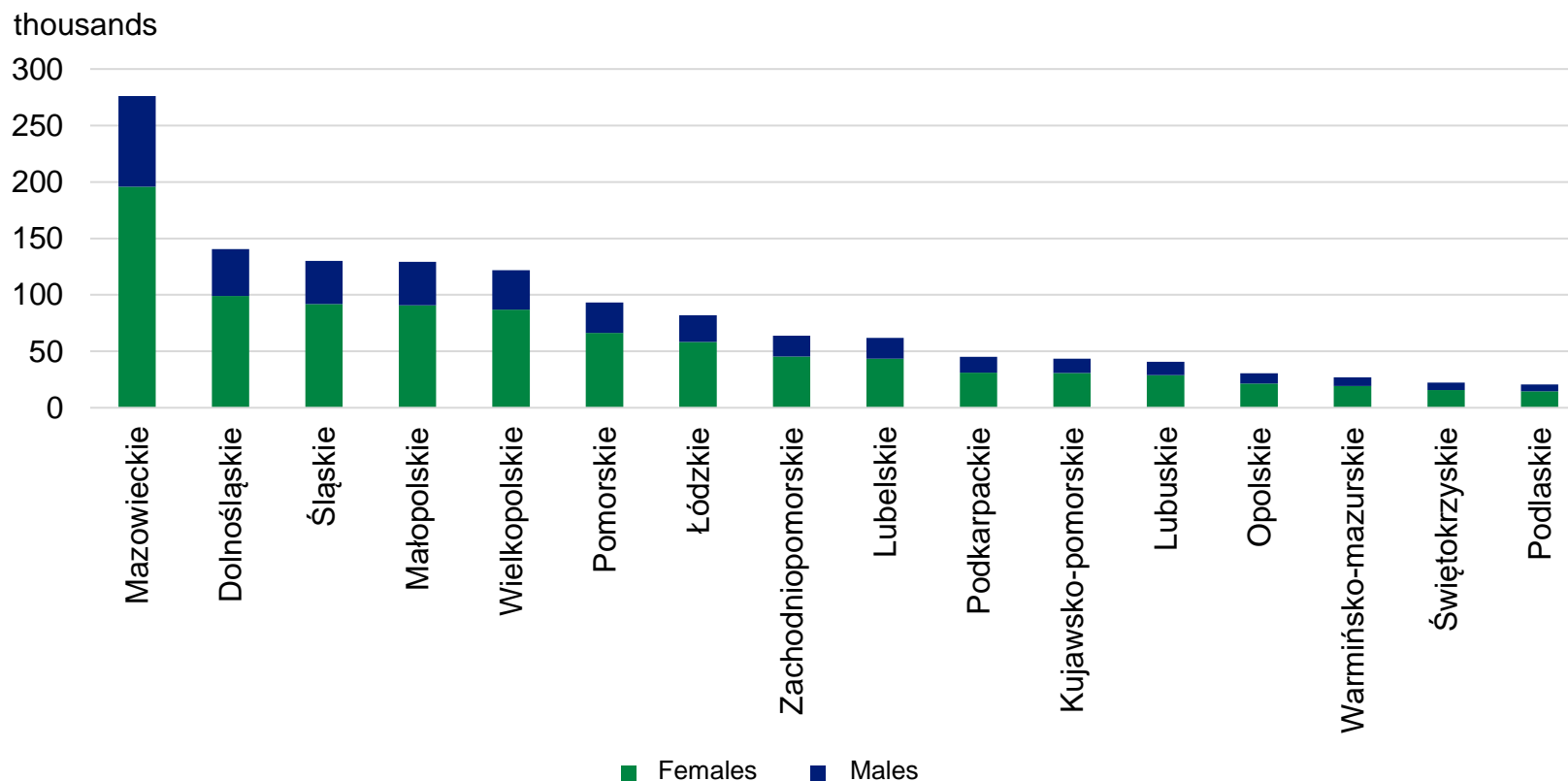
* source: Border Guards

Demographic structure of persons who have applied for refugee status (UKR) in Poland

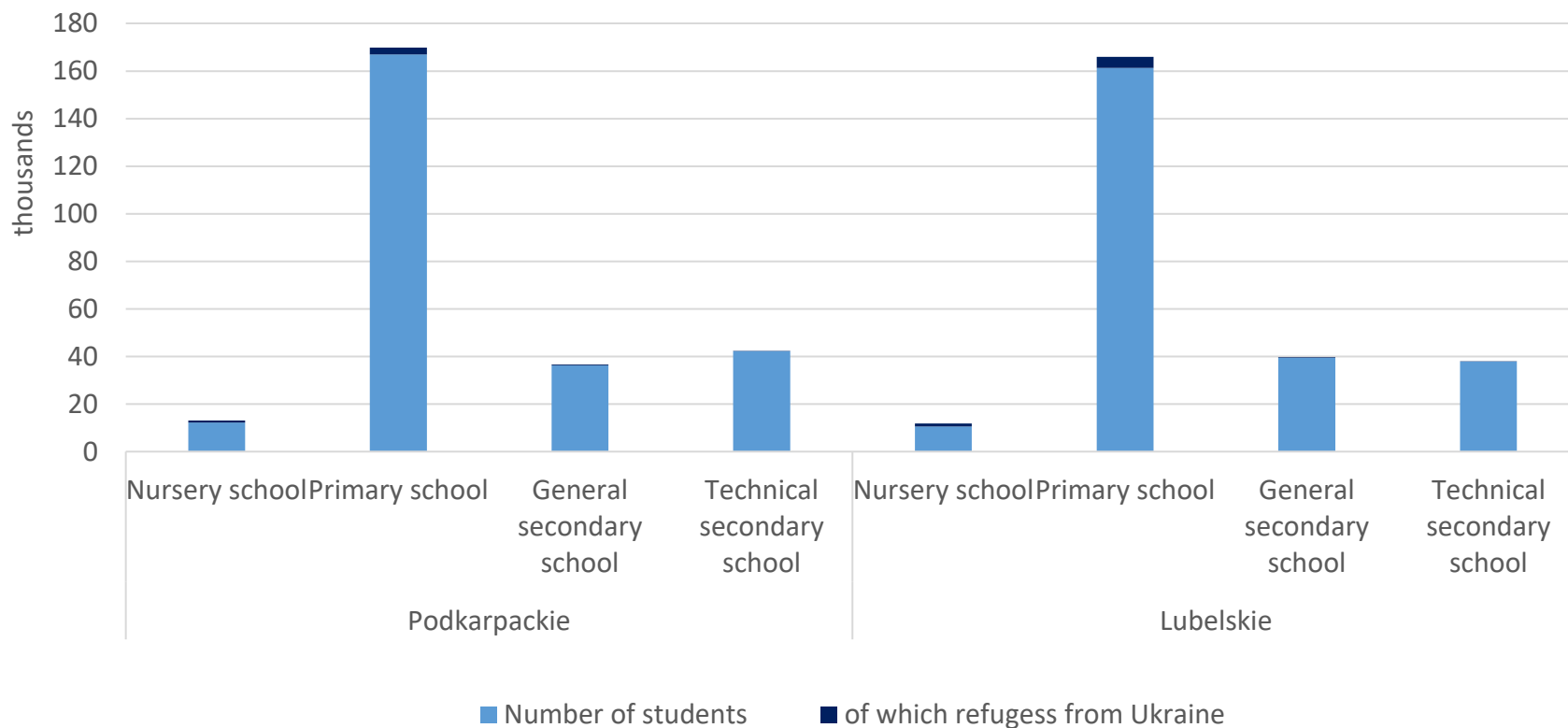


Source: PESEL Register

Persons in the register of citizens of Ukraine and their family members (PESEL) who have been granted refugee status on the basis of the special law by voivodship (NUTS 2)

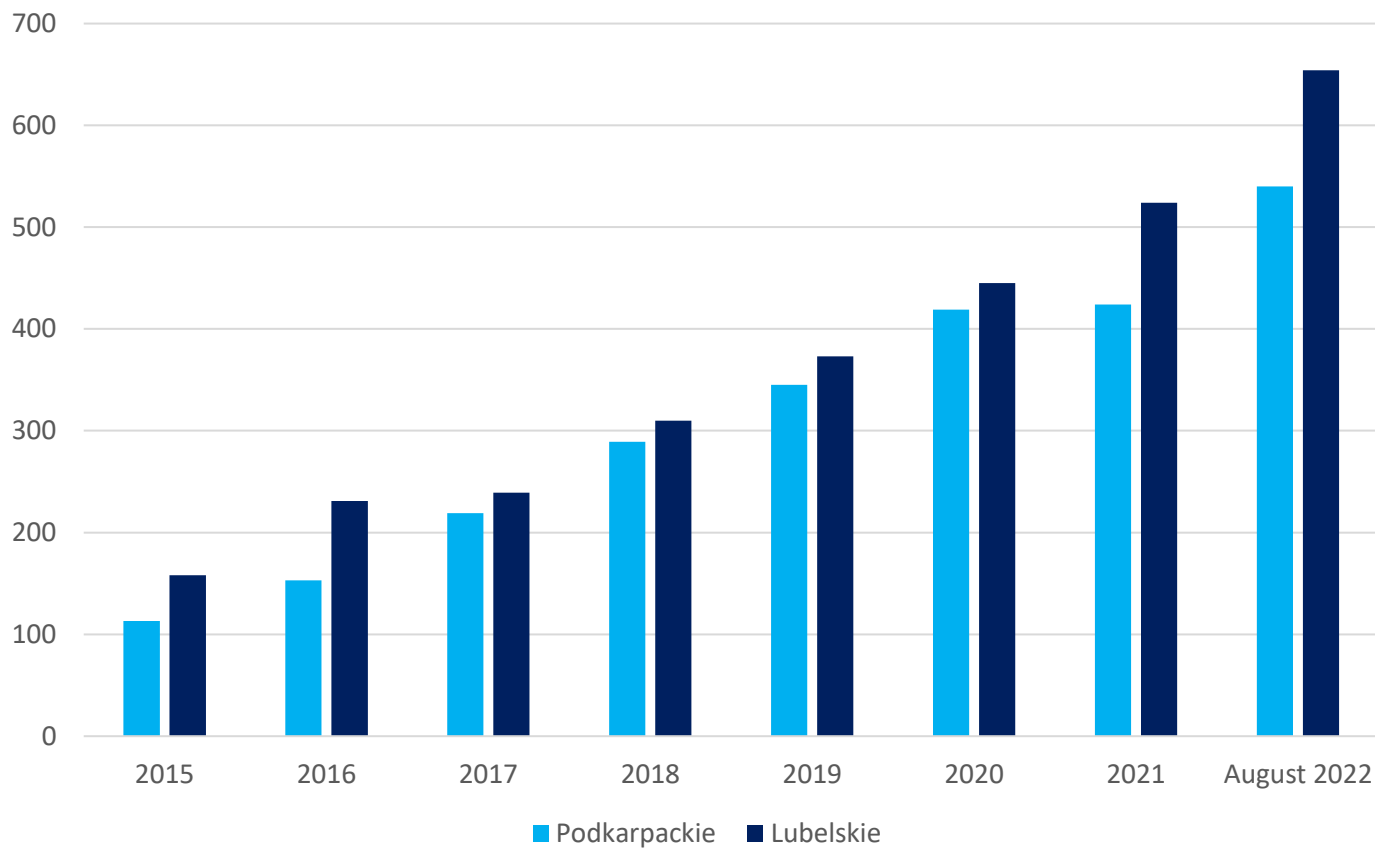


Students by type of school

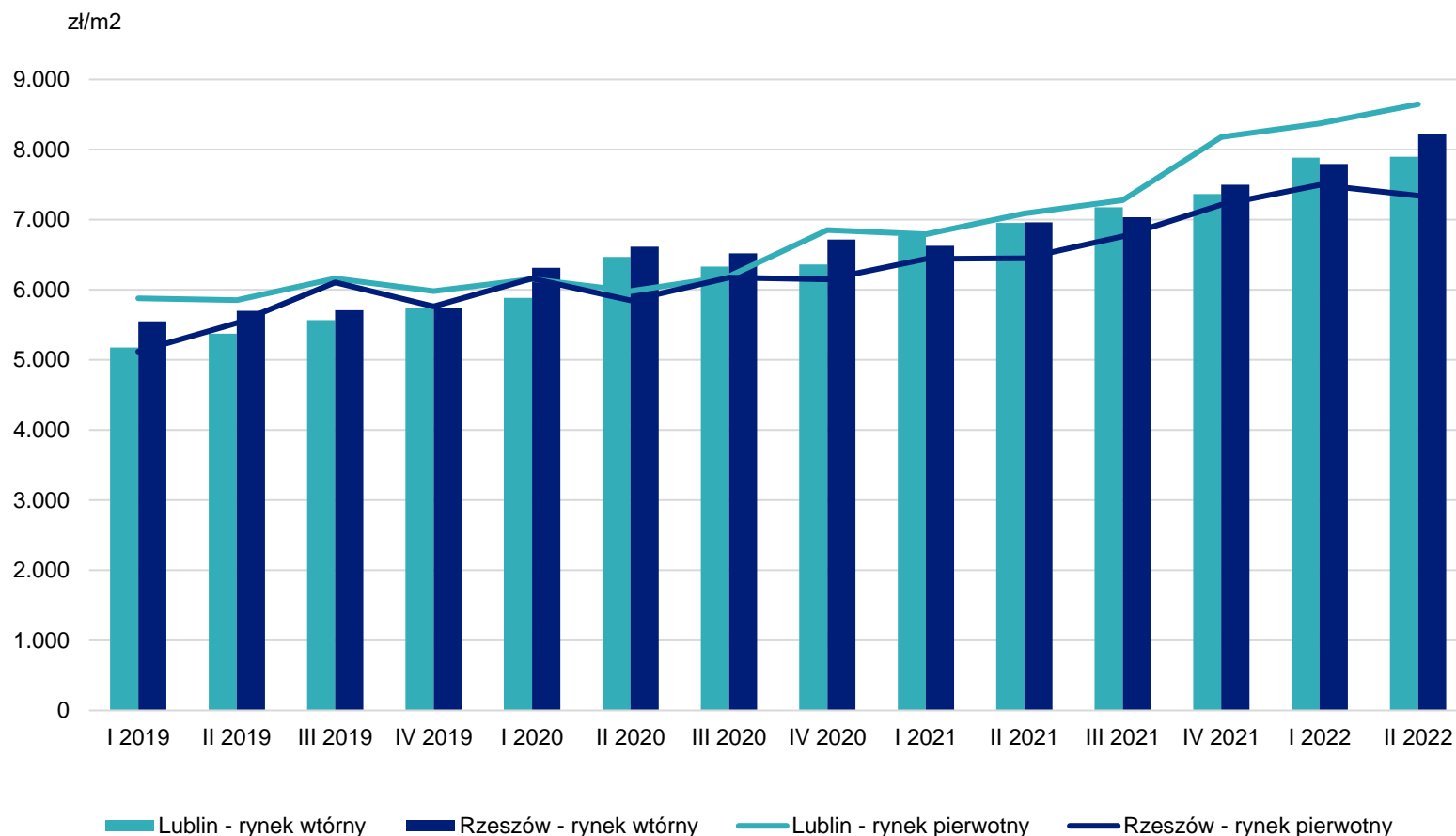


As of 21.09.2022, 169.7 thousand Ukrainian students were studying in Poland, including 4.3 thousand in Podkarpackie Voivodship and 5.8 thousand in Lubelskie Voivodship.

Foreign natural persons (not deleted) - Ukrainians as at the end of the year











Average prices of flats on the primary and secondary market (transaction prices)



Inventory of new data sources related to tourism statistics



Country	Bulgaria	Germany (Hesse)	Greece	Italy	Netherlands	Poland	Portugal	Slovakia
								
Data sources	Number of identified sources							
Total	6	12	11	14	44	16	7	20
External	2	6	9	5	22	13	6	12
of which available	2	2	2	2	13	11	5	2
Side								
supply	-	-	-	1	2	1	2	1
demand	2	2	2	1	4	7	3	1
both	-	-	-	-	7	3	-	-

Inventory of data sources - External data sources

Data sources	Frequency
Data from airports	monthly / quarterly
Data from seaports	monthly
Data from waterway sensors	weekly
Rail traffic data	monthly / quarterly
Car traffic data and parking data	daily
Traffic image data	monthly / quarterly
Mobile phone data	weekly/ monthly
Water consumption data	monthly / annual
Waste generation data	semi-annually / annual
Energy sensor data	monthly / semi-annually / annual
Card transaction data	quarterly / monthly

 Access obtained

 Access negotiated

 Without access

Modification of current surveys

Additional scopes of research in connection with the situation on the territory of Ukraine

1. Household Condition. Questions introduced from April 2022. Monthly survey
2. Labour demand survey. Questions introduced from April 2022. Quarterly survey
3. Declaration of economic activity. Questions introduced from April 2022. Monthly survey
4. Report on the use of tourist accommodation establishment. Questions introduced from April 2022. Monthly survey - once a month by the 10th day after the month for the month.
5. Participation in domestic/foreign trips. Questions introduced from April 2022. Quarterly survey - once per quarter, by 20th of the month for the previous quarter.
6. Report on cooperation, management cooperation, management and integration activities of selected non-profit organisations. Questions introduced from April 2022.
Biannual survey - every two years until 29 April 2022 for the year 2021.
7. EU-SILC European Living Conditions Survey of the population. Questions introduced from April 2022. Annual survey - once a year, from 21 April to 30 June 2022 for the year 2022.
8. Household budget survey. Questions introduced from April 2022. Monthly survey - once a month by 20th working day after the month for the month.
9. Survey of economic prosperity – industry. Questions introduced from April 2022. Monthly survey - once a month by the 10th day of the month for the month.
10. Report on trade union activities trade union activities. Questions introduced from October 2022 r. Cyclical survey - every 4 years until 31 October as at 30 September 2022

New surveys

Survey of refugees – WHO and Statistics Poland

Statistics Poland carried out a needs assessment among refugees in cooperation with the World Health Organization (WHO).

- **Pilot survey** April - May 2022
- **Survey of refugees** June - August 2022

New surveys

Survey of refugees – WHO and Statistics Poland

During the survey interviewers collected

1.8 thousand BU questionnaires with information on approximately
5 thousand persons who found temporary shelter in Poland.

New surveys

Survey of refugees – WHO and Statistics Poland

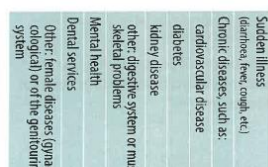
The results of the study were generalised on the basis of daily data on border traffic by direction ("from" and "to" Poland) for the period February-April 2022 obtained from the Border Guard Headquarters. Due to the pilot and limited scope of the survey, results are not available in all cross-sections of interest.

More than 3.3 million people entered Poland between 24 February and 30 April. Taking into account returns to the country and multiple border crossings by the same persons, around 2.2 million people stopped in Poland at least temporarily.

Passenger border traffic of foreigners on the Polish-Ukrainian border in 2022 (in thousands)

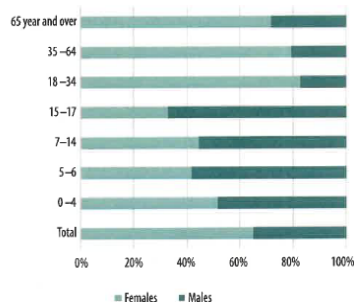
		of which			
		02	24.02-28.02	03	04
Foreigners to Poland and from Poland	total	1 011.5	398.2	2 356.0	1 187.5
	of which Ukrainians	957.0	365.1	2 238.7	1 124.9
to Poland	total	710.8	350.4	2 028.2	641.5
	of which Ukrainians	669.0	319.6	1 944.1	610.6
from Poland	total	300.7	47.7	327.9	546.0
	of which Ukrainians	287.9	45.5	294.6	514.4

Source: Data of Border Guard Main Headquarters.

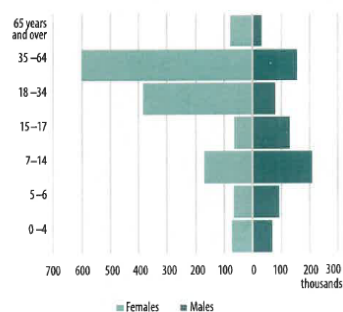


Health care needs by age b

Demographic structure of refugees



Refugees by sex and age group



Health needs of refugees who have chosen Poland as their destination country

Among the respondents, more than 40% concluded that household members needed health care. Women predominated in the group needing care (64%).

Health needs of refugees by type of medical care (in %)

	Females	Males
Sudden illness (diarrhoea, fever, cough, etc.).	89	83
COVID-19	0	10
Cardiovascular disease	35	20
Diabetes	11	2
Kidney disease	4	2
Tumour	1	2
Other chronic diseases	24	15
Mental health	7	2
Dental services	15	22
Other	6	5

The vast majority (87%) of those in need of medical care declared that they needed medical care for sudden illnesses. This is followed by cardiovascular diseases (29%), chronic diseases (20%) and dental services (18%).

Pilot survey of refugees from Ukraine



Due to the military operations of the Russian Federation in Ukraine, which began on 24 February 2022, millions of people have been forced to leave their country through, also through 9 border crossings on the Polish-Ukrainian border. Some of them decided to seek asylum in Poland.

A pilot survey was conducted at 5 reception points in mid-May 2022, as of end of April 2022. These points were opened and organised in border areas so that refugees could take rest after a long and sometimes very stressful journey, eat a warm meal or receive first aid if necessary.

Statistical units in the survey

The pilot refugee survey covered people who left Ukraine via the Polish-Ukrainian border. The target group included both Ukrainian and citizens of other countries who were in Ukraine when the war started and decided to leave its territory because of the war.

Scope of data in the survey

- The refugee pilot survey covered primarily:
- method and place of crossing the border
 - characteristics of persons crossing the border by citizenship, gender, age and education;
 - planned place/country of stay;
 - intention to work in Poland, receive medical care and education;
 - intention to return to Ukraine after the end of hostilities,
 - health care needs on the territory of Poland,
 - access to health care,
 - information on COVID-19 vaccination and vaccination for childhood diseases, mental health needs.

New surveys

Survey of refugees – WHO and Statistics Poland

HEALTH MODULE
PLEASE INDICATE THE NUMBER OF PERSONS AFFECTED

IX-1 In the past 30 days or less, did your household member need health care? Total 0-4 years old

IX-2 What types of health care were needed? Total 0-4 years old

IX-3 Were your household members have access to the above-mentioned conditions? Total 0-4 years old

IX-4 Where were (country and type of facility) the health care services provided for the affected household members? Total 0-4 years old

IX-5 In the past 30 days or less, what proportion of your household members? (includes sex)

IX-6 (COVID-19) Have your household members received vaccinations against COVID-19? Total 0-4 years old

IX-7 (Vaccination)

IX-8 (Mental health) Is there anyone in your household member currently so upset, anxious, worried, agitated, angry or depressed that it affects the person's daily functioning?

Statistics Poland

GŁÓWNY URZĄD STATYSTYCZNY

al. Niepodległości 208
00-925 Warszawa

BU – Survey of refugees

Dear Visitors!

Statistics Poland is conducting an anonymous survey on arrivals to Poland. Please fill in this questionnaire and hand it back to the interviewer. The information given is used for research purpose only.

I. Method of crossing the border (please circle the correct answer)

on foot 1
road transport 2
railway transport 3

II. What is your nationality?

III. Please give the number of people travelling together (family, friends) (if you travelled alone please write in 1)

Specification	Total	0-4 years old	5-14 y.o.	15-17 y.o.	18-34 y.o.	35-44 y.o.	45-54 y.o.	55-64 y.o.	65 and over
0	1	2	3	4	5	6	7	8	9
Females (F) 01									
Males (M) 02									

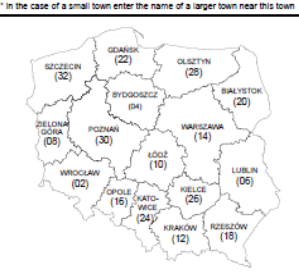
IV. Planned country of stay / Country of destination

Poland 1 → question V
other country (which one?) 2 → question X

V. In which town do you intend to live?

enter city/town *
enter the voivodship number
we do not know yet

* In the case of a small town enter the name of a larger town near this town



VII. Do you intend to work in Poland?

• yes no. of persons
• no no. of persons

VIII. Do you intend to take advantage of the following forms of education in Poland?

• nursery (children under 3 years old) no. of persons
• pre-primary (3-6 years old) no. of persons
• primary school (7-14 years old) no. of persons
• vocational school (15-18 years old) no. of persons
• post-primary (15-20 years old) no. of persons
• higher education institution (19 and over) no. of persons
• none of the above no. of persons

IX. Do you have a need for continued medical care in Poland due to a chronic illness or disability?

• yes, for persons 1
• no 2

X. Please specify oblast, raion of residence in Ukraine

number of persons		
	oblast	raion

XI. Please specify the distance from your place of residence in Ukraine to the border crossing

• up to 100 km 1
• from 101 to 500 km 2
• from 501 to 1000 km 3
• 1001 km and over 4

XII. Do you intend to return to Ukraine after the end of military operations?

• yes no. of persons
• no
• do not know

VI. With whom will you stay in Poland?

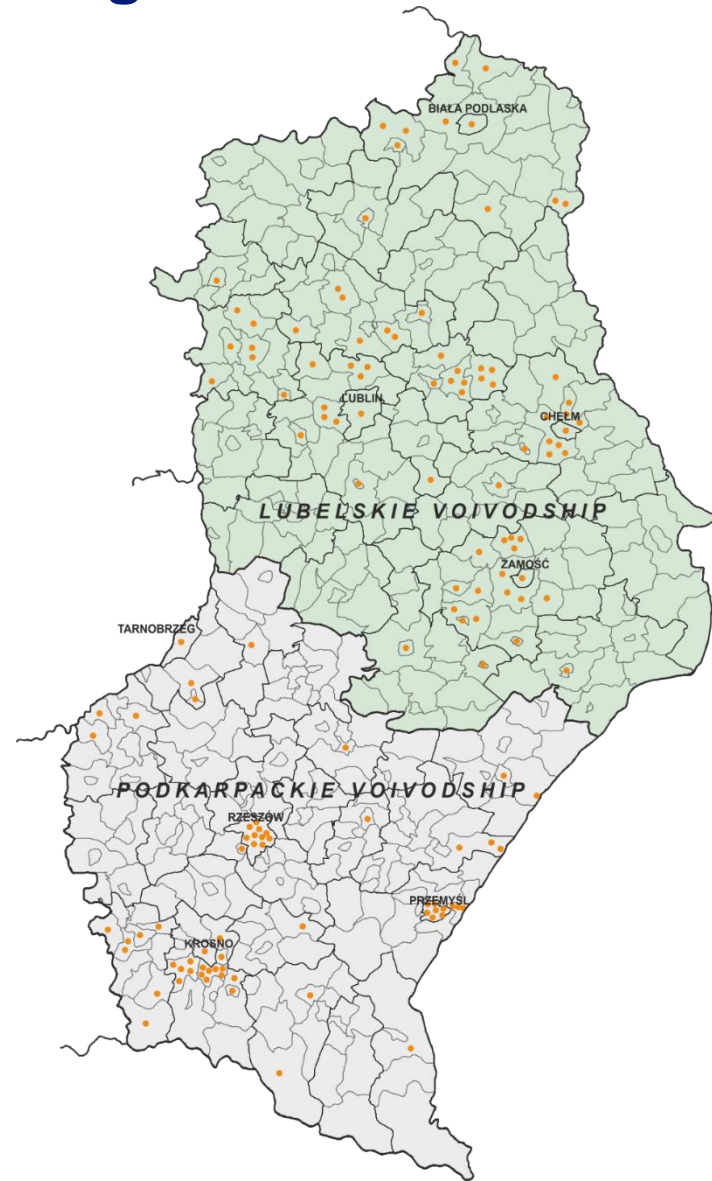
• with family or friends 1
• other accommodation (what kind?) 2
• we do not know yet 3

Survey of refugees

Locations where interviewers from the statistical offices in Rzeszów and Lublin conducted interviews with refugees from Ukraine.

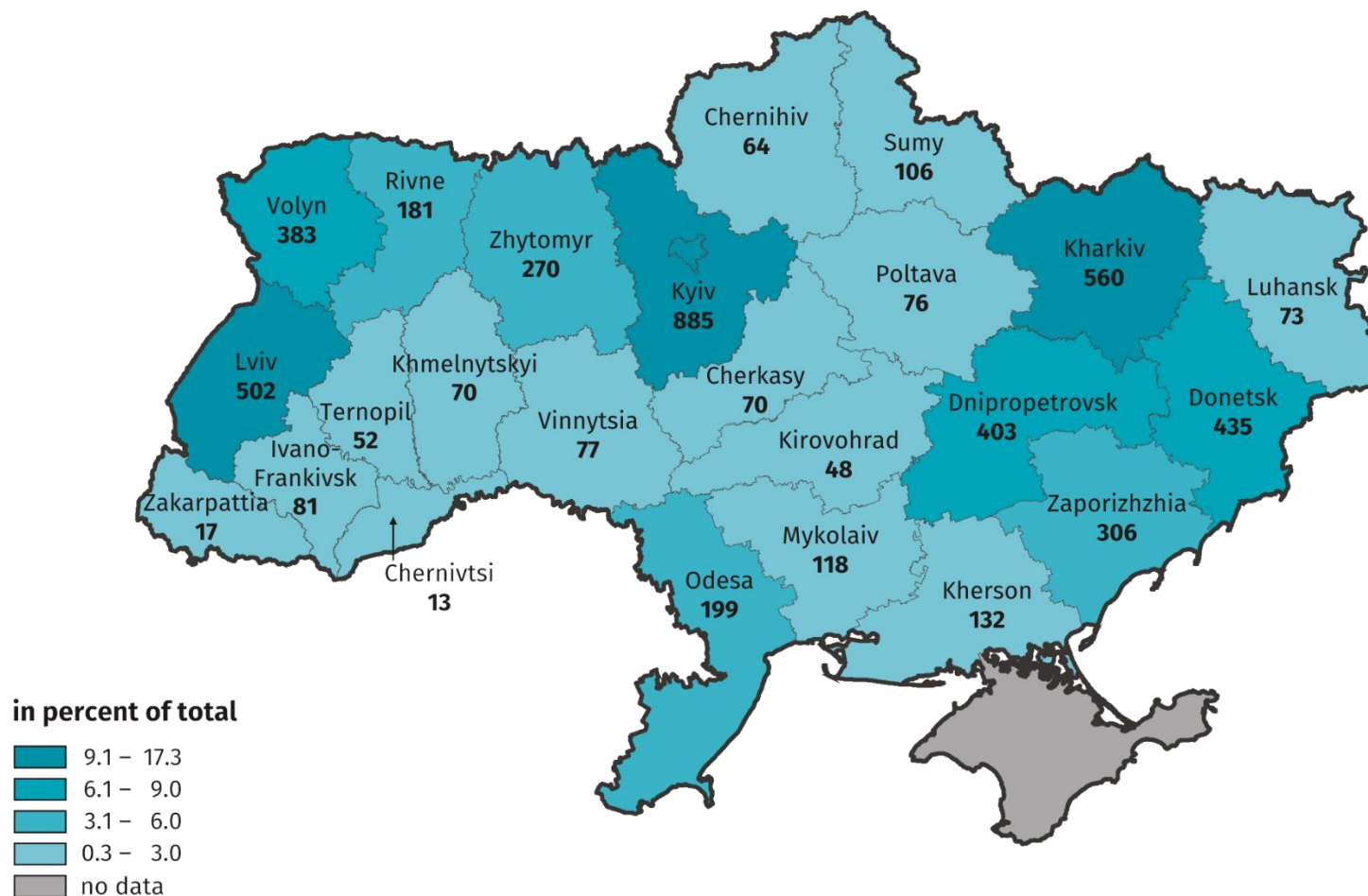


Reception points used during the pilot study.



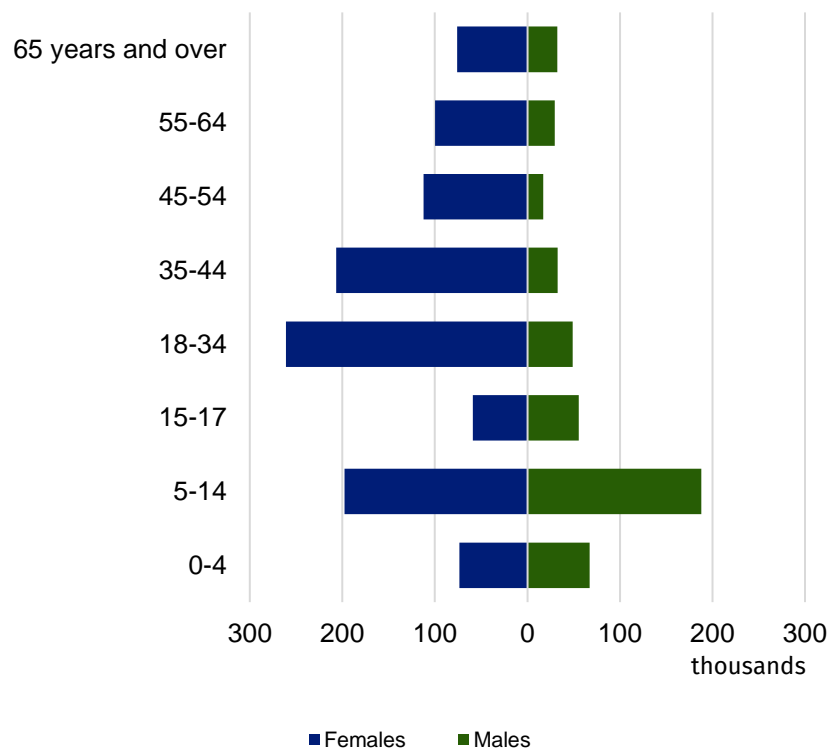
Survey of refugees

Refugees' place of residence in Ukraine by oblasts

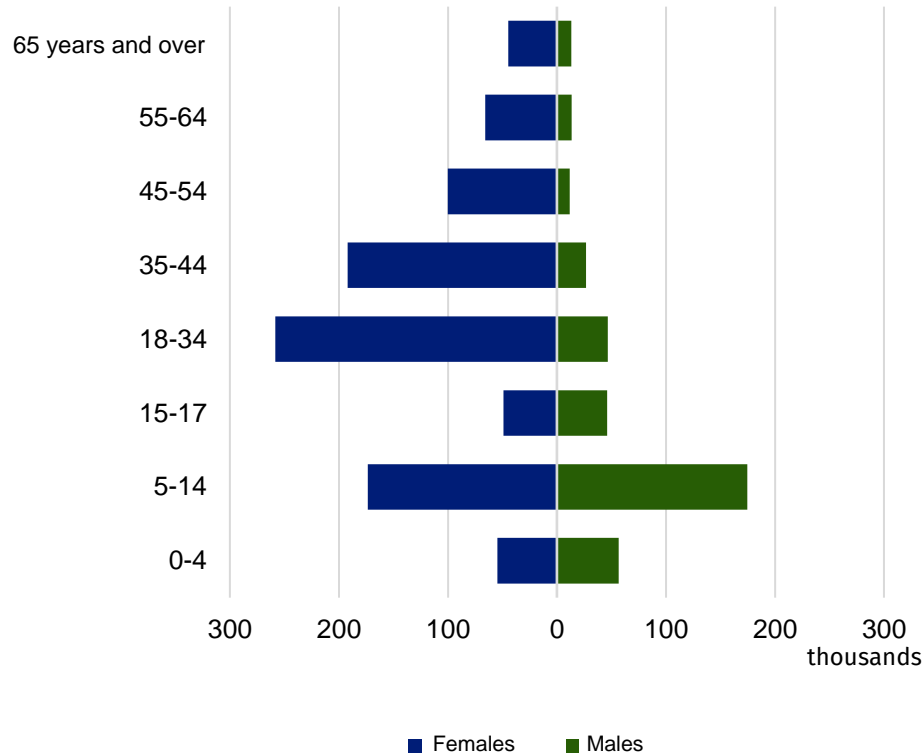


Refugees by sex and age groups

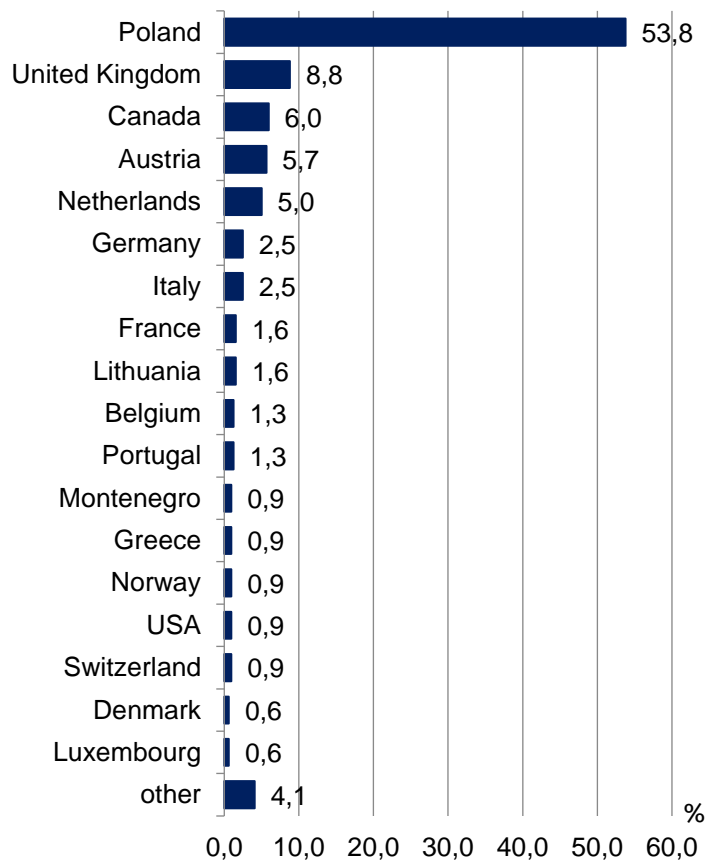
**Refugee survey
(refugees who crossed the Polish-Ukrainian border)**



PESEL Register (Poland)



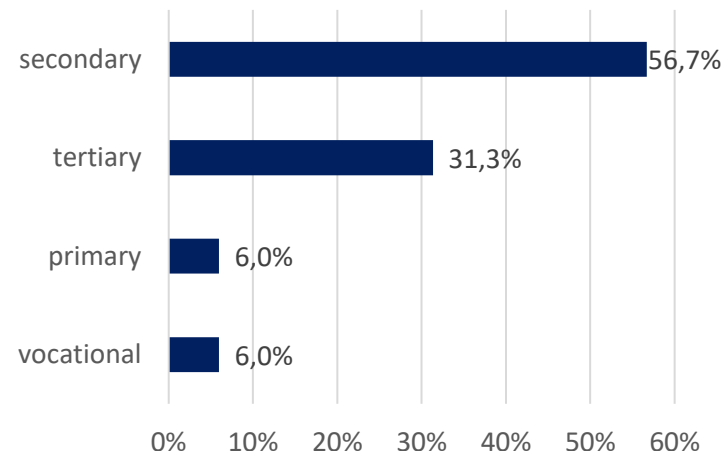
Structure of refugees according to the declared country of further residence



Source: Pilot refugee survey.

Characteristics of refugees aged 18+ in the context of the labour market

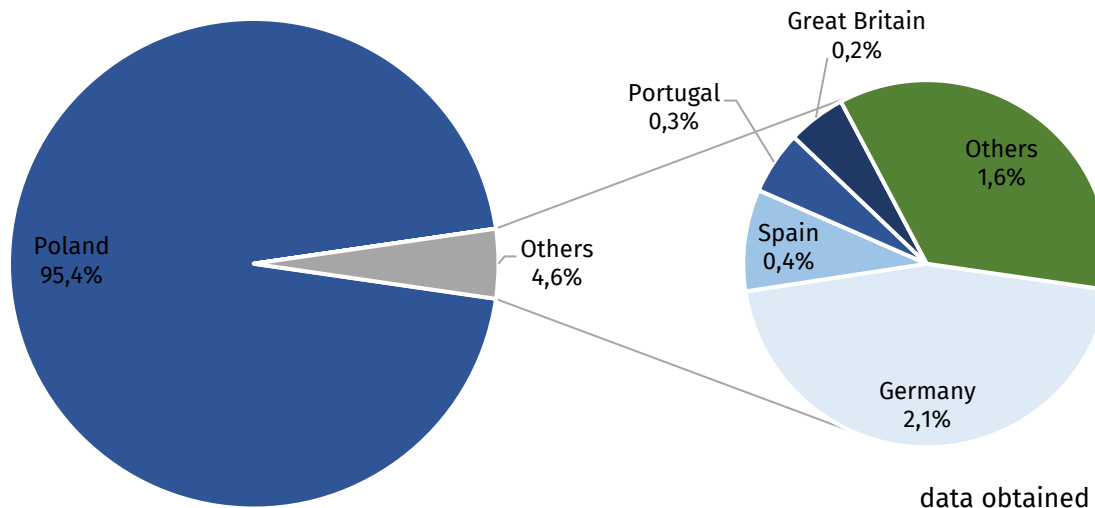
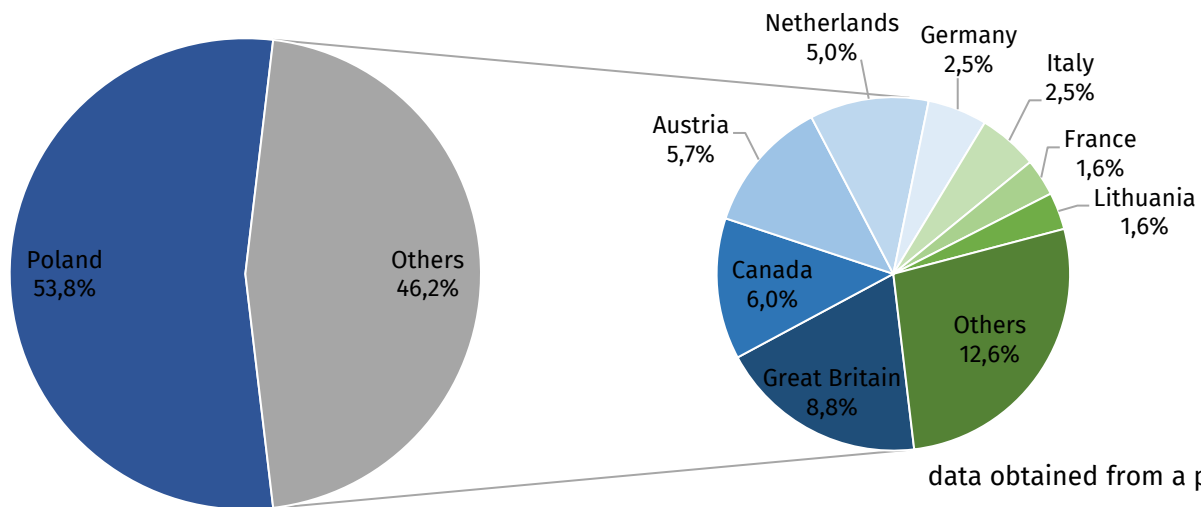
Structure of refugees by education



- Among the refugees from Ukraine, people with secondary education prevail and nearly one third has higher education.
- A much greater number of refugees want to take up employment in Poland, but every **fourth** refugee does not intend to do so for various reasons, mainly due to age.
- On the other hand, under the Act on assistance to Ukrainian citizens, about **80 thousand** people have already taken up employment in Poland.

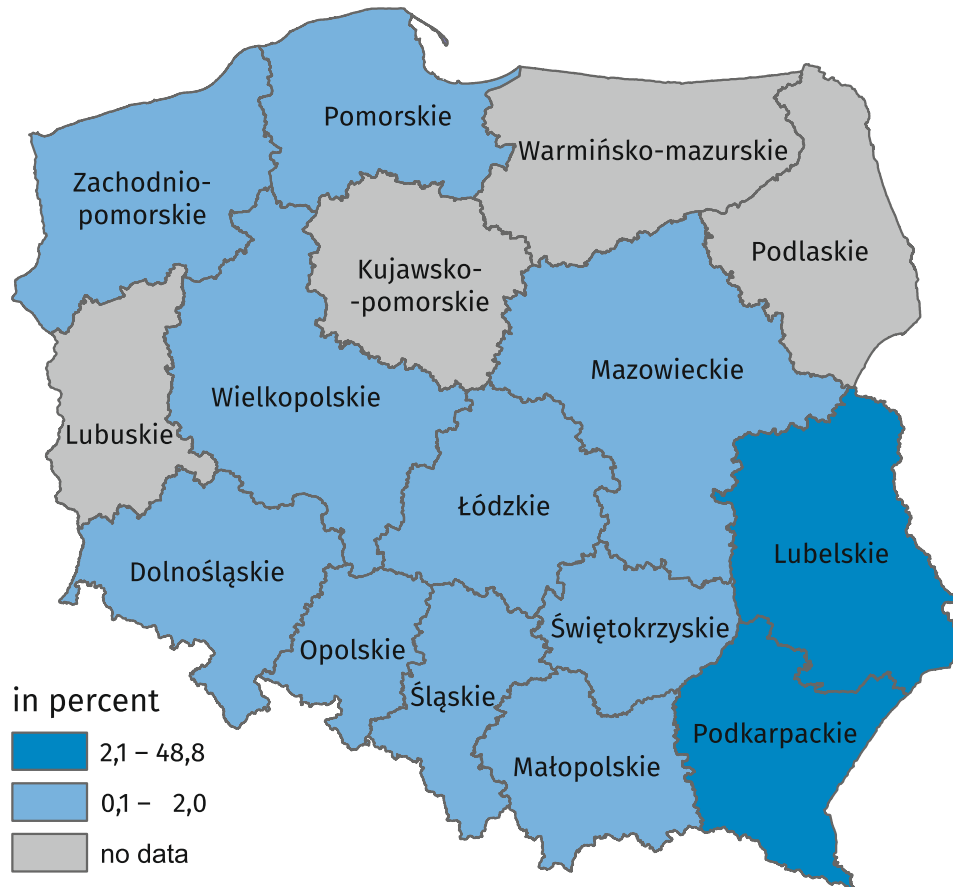
Survey of refugees

Planned country of stay



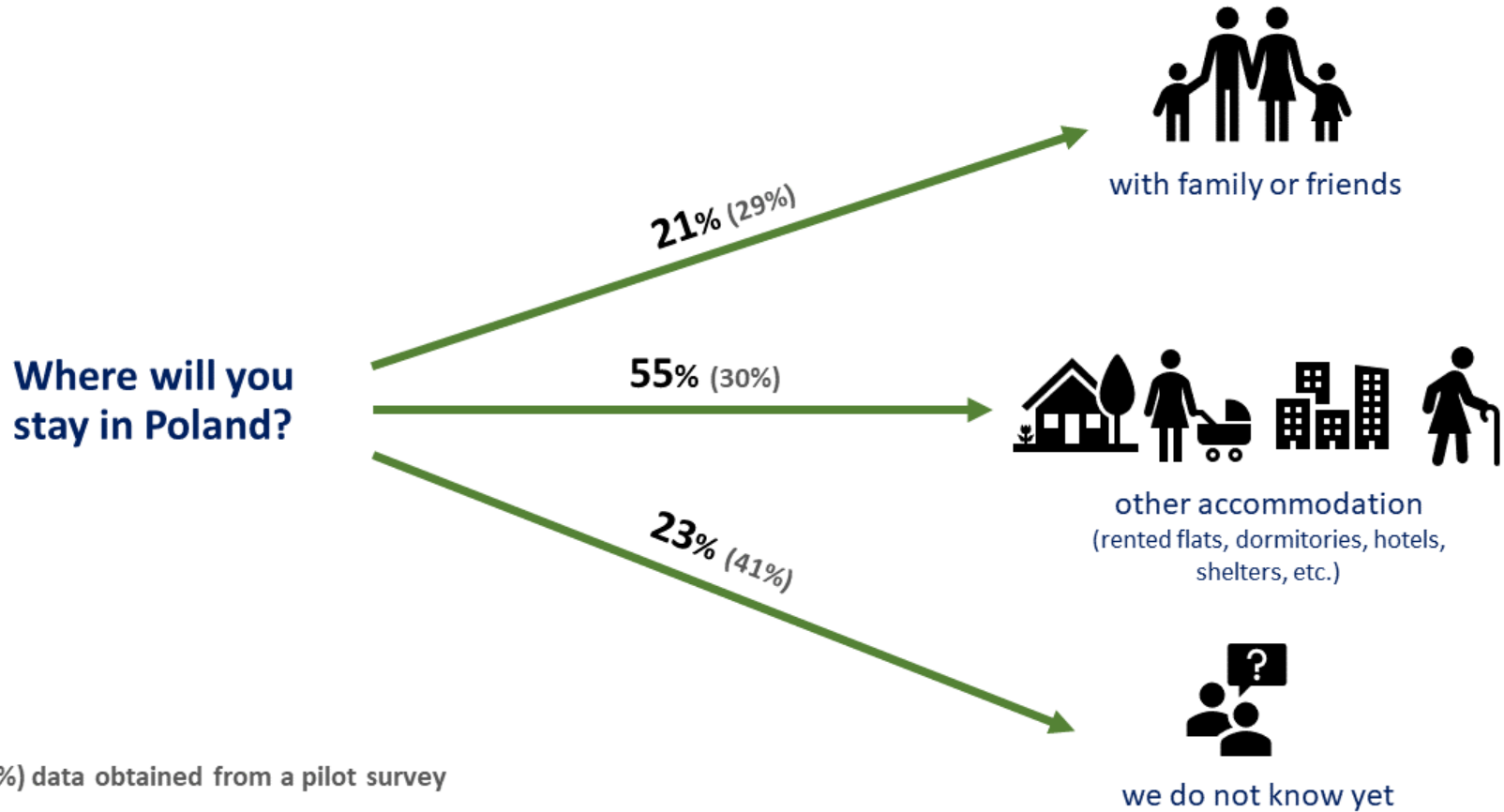
Survey of refugees

Planned place of stay



Approximately 90% of respondents declared an intention to stay in the Podkarpackie and Lubelskie voivodships. The border location of these voivodships and the possibility of a quick return to Ukraine were decisive factors in this choice.

Survey of refugees



(30%) data obtained from a pilot survey

Survey of refugees

What types of health care were needed?

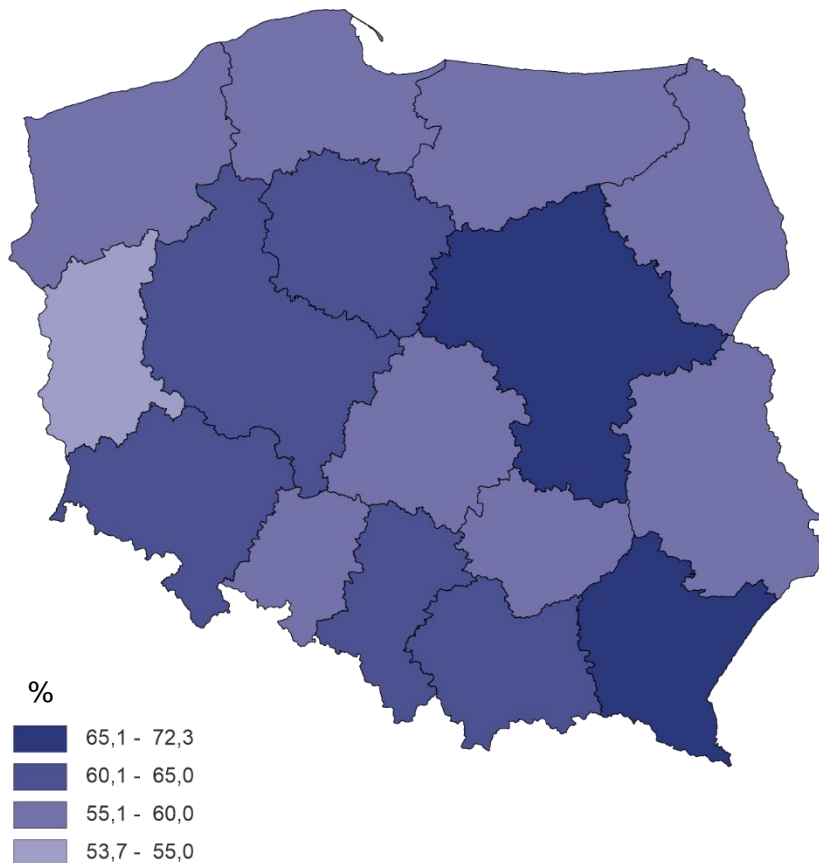
Types of health care	%
Acute illness	16.5
Dental services	7.7
Cardiovascular disease	6.4
Other chronic illness	5.3
Others	3.7
Diabetes	2.4
Mental Health	1.9
Pulmonary disease	1.5
Cancer	1.5
Renal/kidney disease	1.0
COVID-19	0.7
Sexual and Reproductive Health	0.6
Infectious disease	0.4

Expert estimate compiled using statistical data (accommodation establishment survey) and administrative data from the national identification number (PESEL), Social Insurance Institution (ZUS), Border Guard register

Estimated number of refugees from Ukraine in Lubelskie and Podkarpackie Voivodships

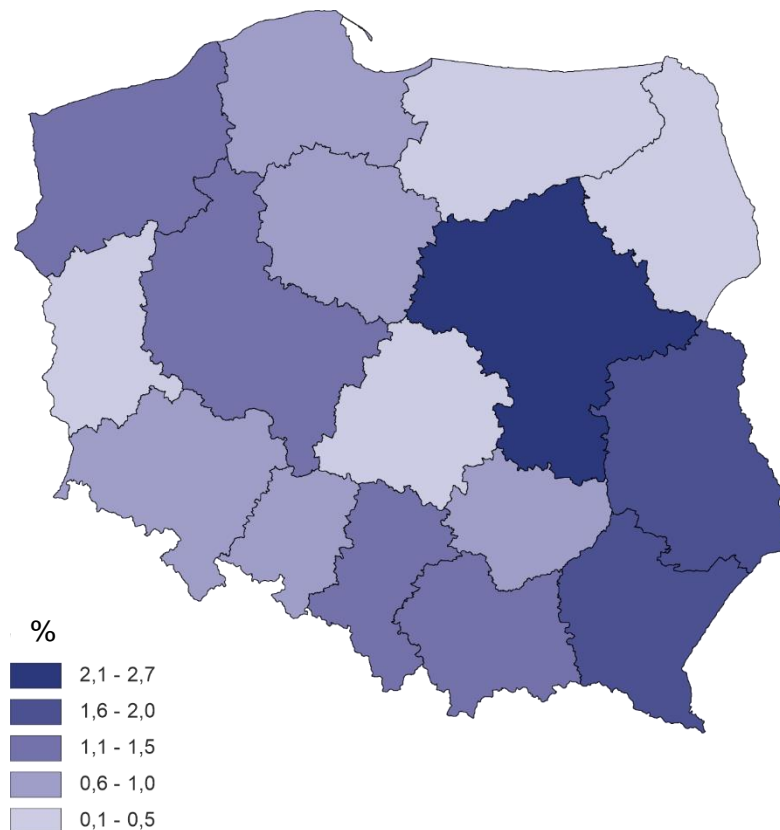
Specification	As of 31.07.2022	As of 31.08.2022
	In thousands	
Lubelskie Voivodship	67.0	69.7
Lublin	11.8	12.8
Podkarpackie Voivodship	48.0	52.4
Rzeszów	9.7	10.5

Households that provided assistance to refugees from Ukraine



Over 60% of all households in Poland have provided assistance to refugees from Ukraine.

Dwellings/houses made available by households to refugees from Ukraine per 100 dwellings



Around 1.5% of all Polish households sheltered refugees from Ukraine

Can refugees from Ukraine significantly change the demographic situation in Poland?

Possible demographic scenarios

PROST

- PROST model (Pension Reform Options Simulation Toolkit) – a deterministic one-year cohort model developed by the World Bank;
- It is actually a toolkit for simulating the pension system over the long term;

PROST model used data on:

PROST

Data sources:

- Statistics Poland demographic data
- Statistics Poland population projections
- Data on births, deaths and life expectancy from the State Statistics Service of Ukraine
- Expert estimate developed using statistical data (KT-1 survey) and administrative data from the PESEL register, ZUS, Border Guard Headquarters.

Two variants were developed for the projection:

- **VARIANT I**

Assumptions:

- Indigenous population - according to Census 2021 data,
- Indigenous population fertility and mortality - according to 2018 projection,
- Immigrants - mortality the same as indigenous population,
- Immigrant fertility - at 1.369 (averaged based on the 2020 survey of the State Statistics Service of Ukraine).

- **VARIANT II**

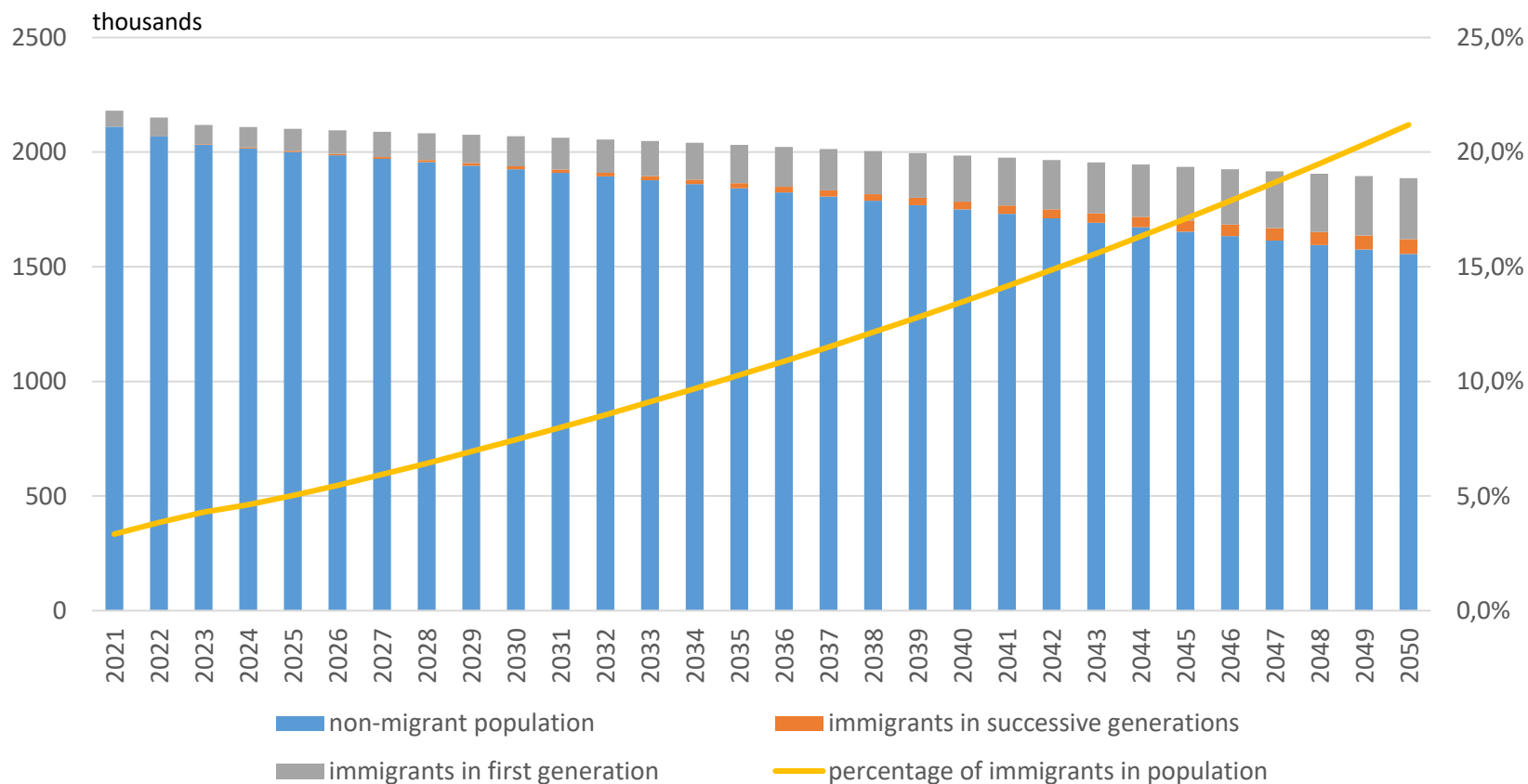
Assumptions:

- Indigenous population - according to Census 2021 data,
- Indigenous population fertility and mortality - according to 2018 projection,
- Immigrants - mortality the same as indigenous population,
- Immigrant fertility at 1.44

Population structure in Podkarpackie Voivodship

PROST model

VARIANT I



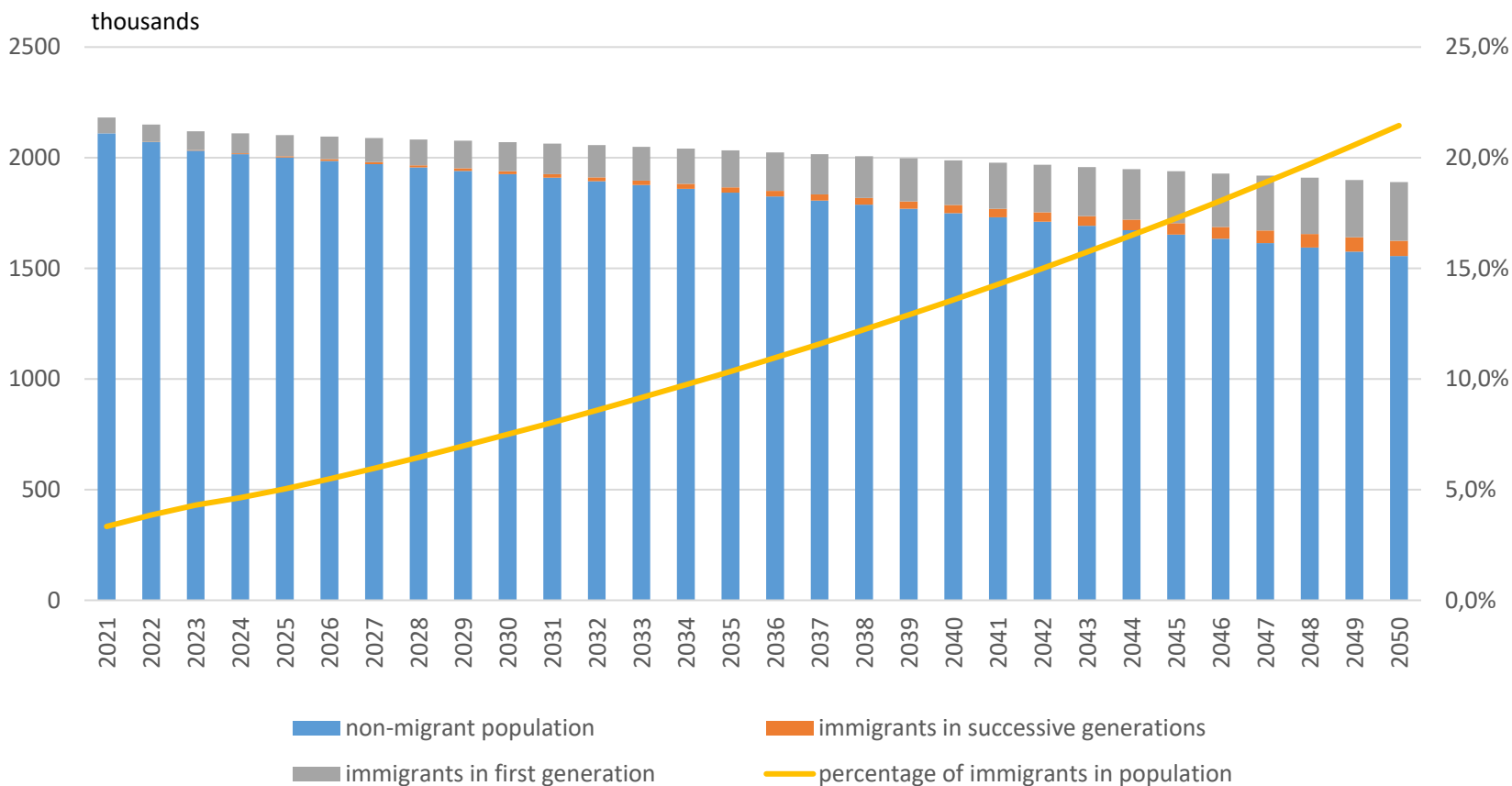
Population in 2035 - 2.0 million (2031,8 thousand including immigrants - 9.3%) (6.9% decrease compared to 2021)

Population in 2050 - 1.9 million (1,886.4 thousand including immigrants - 17.5%) (13.5% decrease compared to 2021)

Population structure in Podkarpackie Voivodship

PROST model

VARIANT II



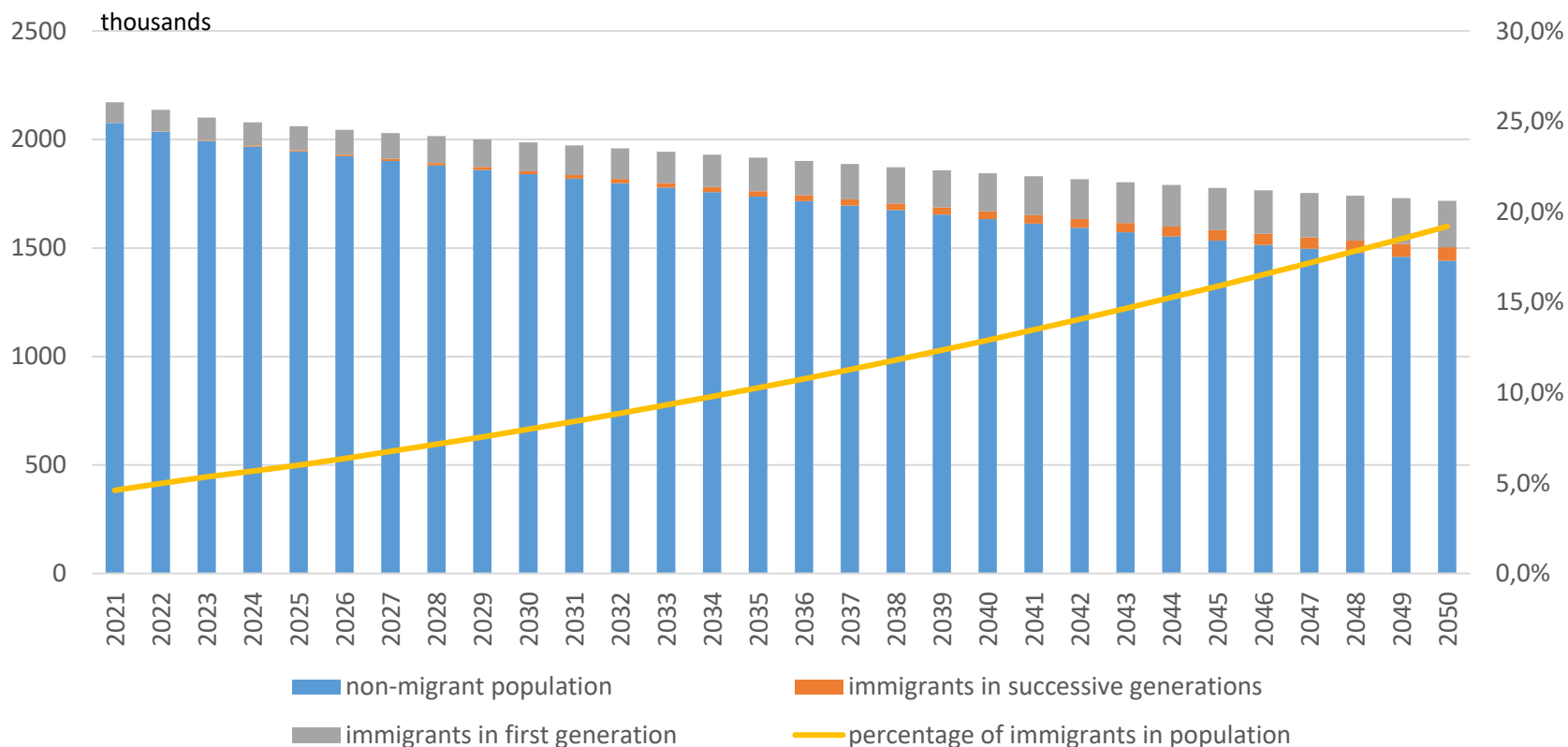
Population in 2035 - 2.0 million (2033.2 thousand including immigrants - 9.4%) (6.8% decrease compared to 2021)

Population in 2050 - 1.9 million (1,890.4 thousand including immigrants - 17.7%) (13.3% decrease compared to 2021)

Population structure in Lubelskie Voivodship

PROST model

VARIANT I



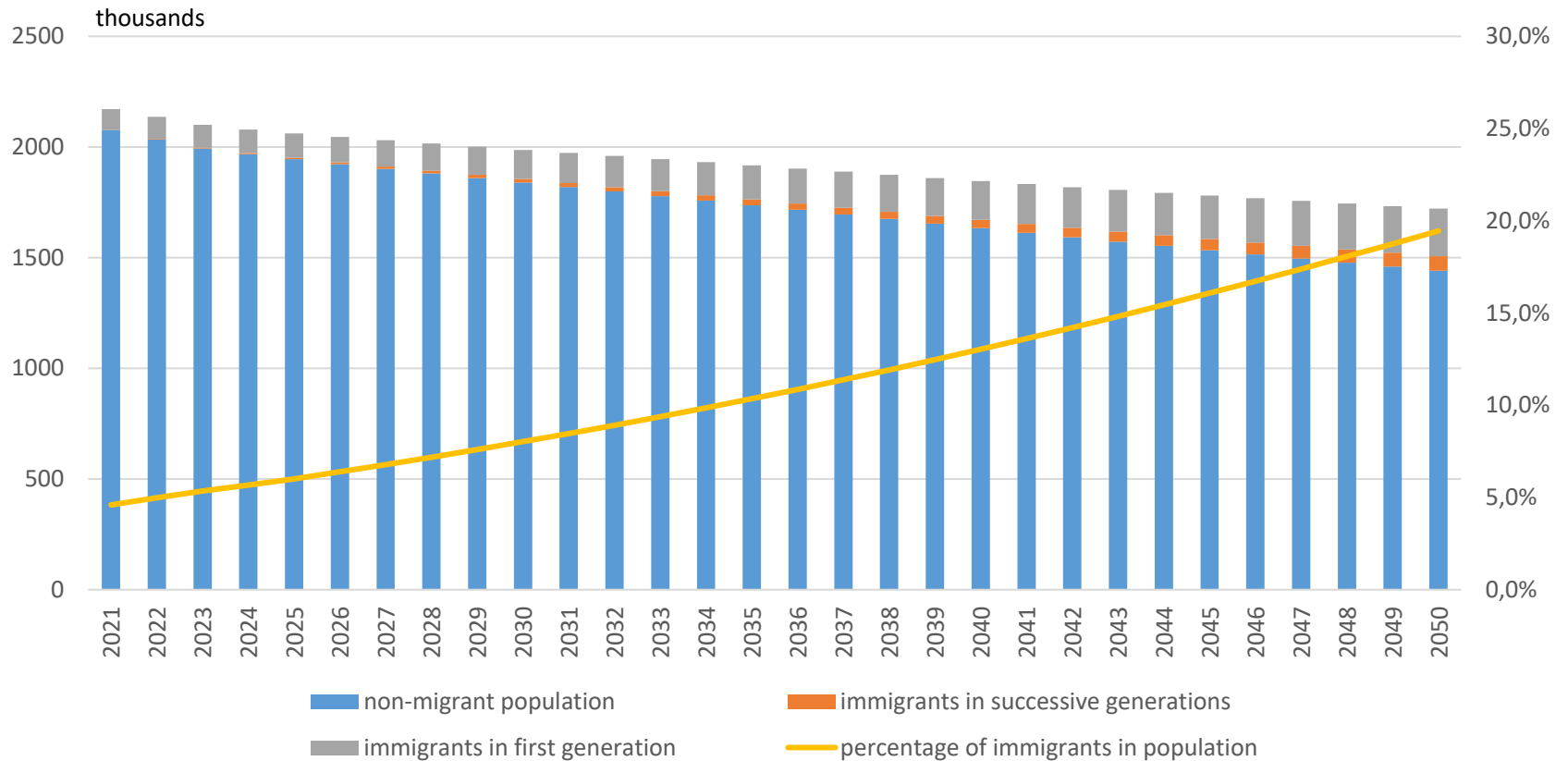
Population in 2035 - 1.9 million (1,915.8 thousand including immigrants - 9.3%) (11.8% decrease compared to 2021)

Population in 2050 - 1.7 million (1,718.1 thousand including immigrants - 16.1%) (20.9% decrease compared to 2021)

Population structure in Lubelskie Voivodship

PROST model

VARIANT II

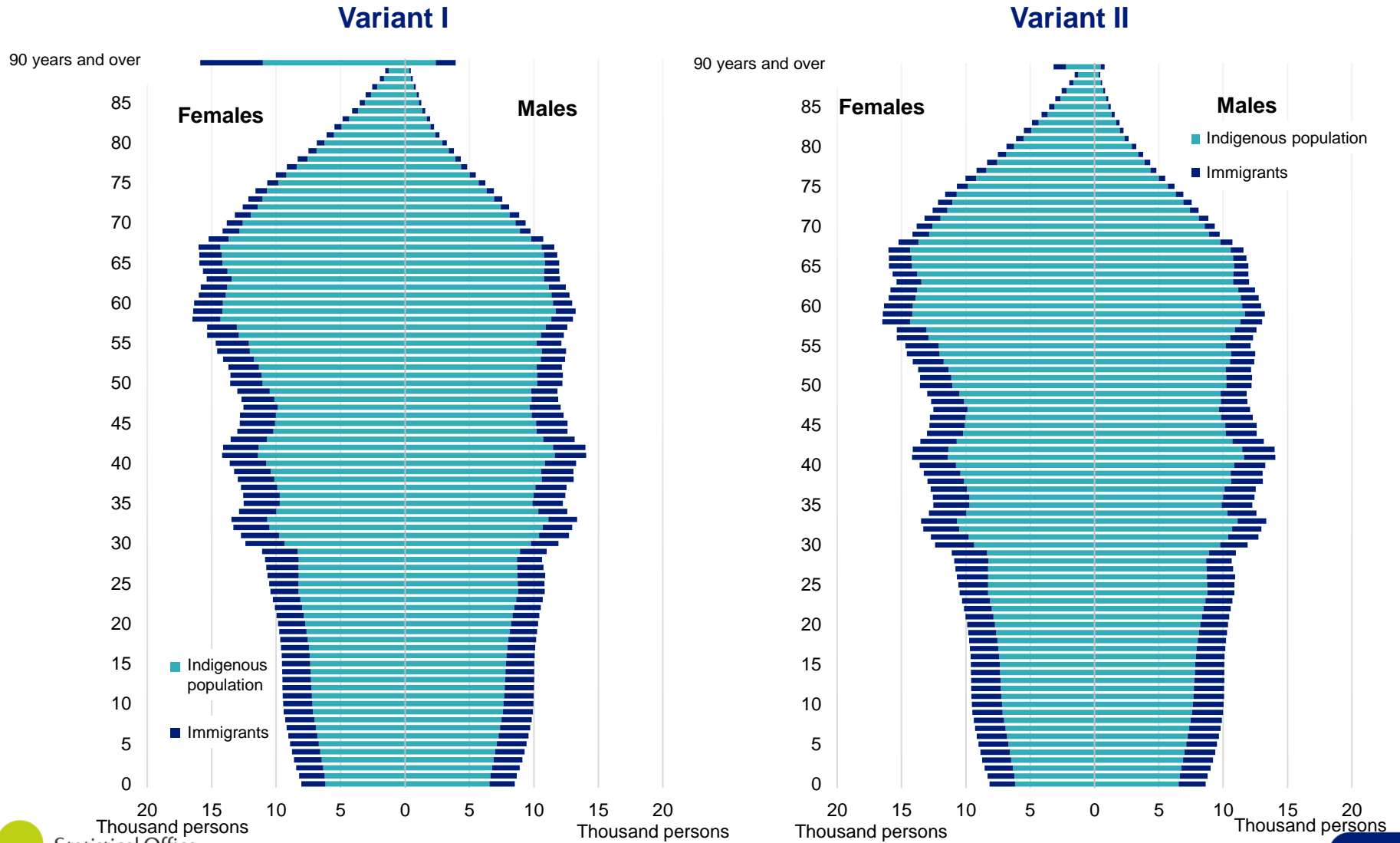


Population in 2035 - 1.9 million (1,917.3 thousand including immigrants - 9.4%) (1178% decrease compared to 2021)

Population in 2050 - 1.7 million (1,722.0 thousand including immigrants - 16.3%) (20.7% decrease compared to 2021)

Impact of increased immigration on the age pyramid PROST model

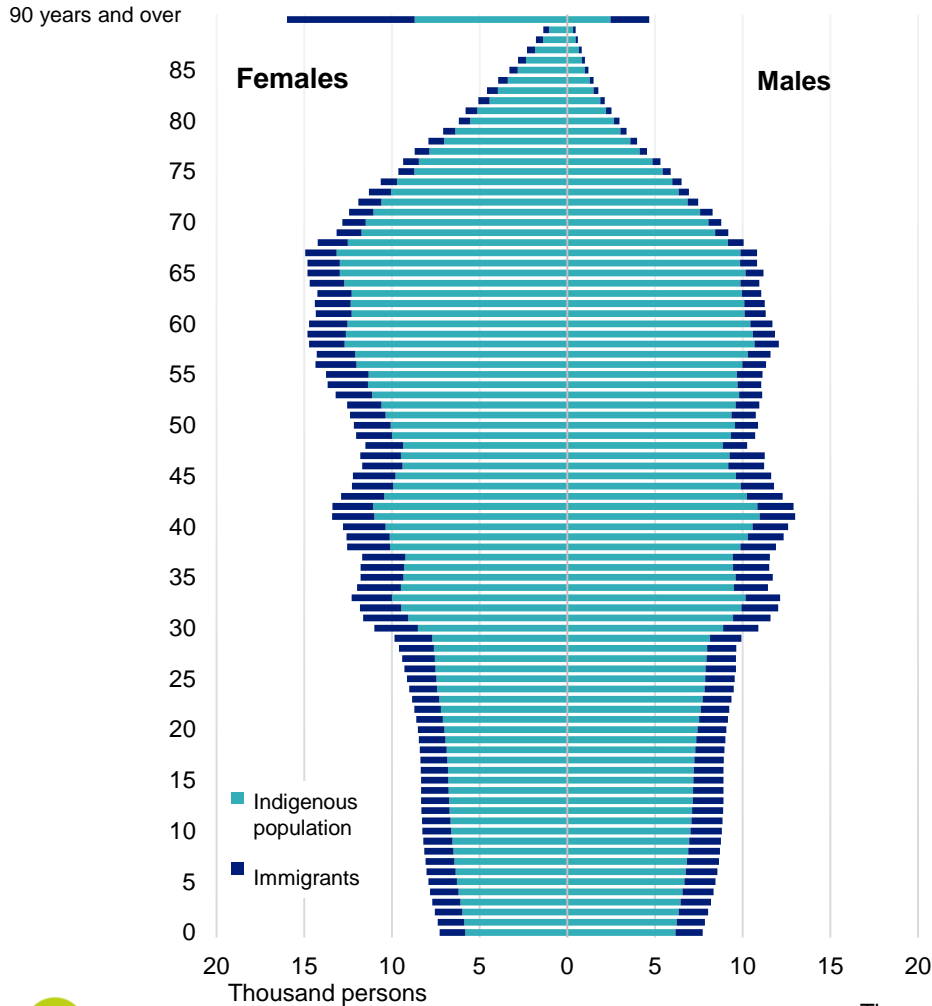
Podkarpackie 2050



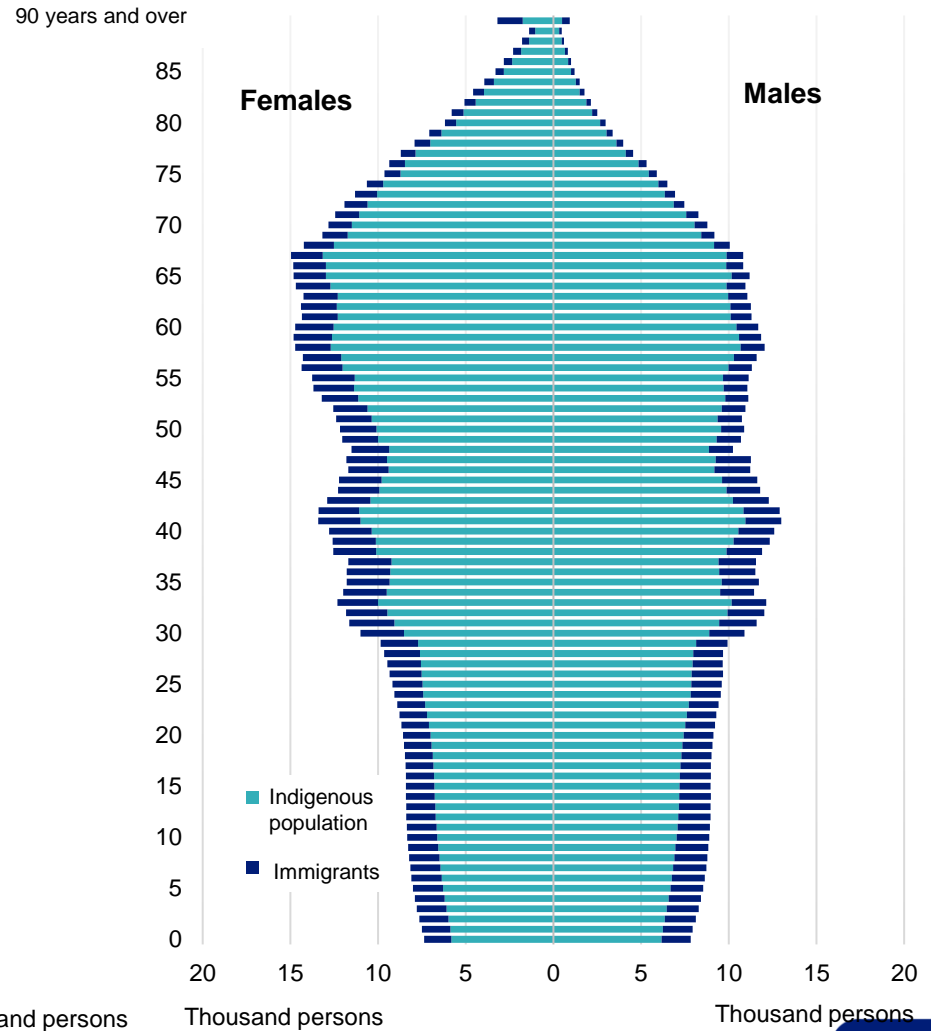
Impact of increased immigration on the age pyramid PROST model

Lubelskie 2050

Variant I



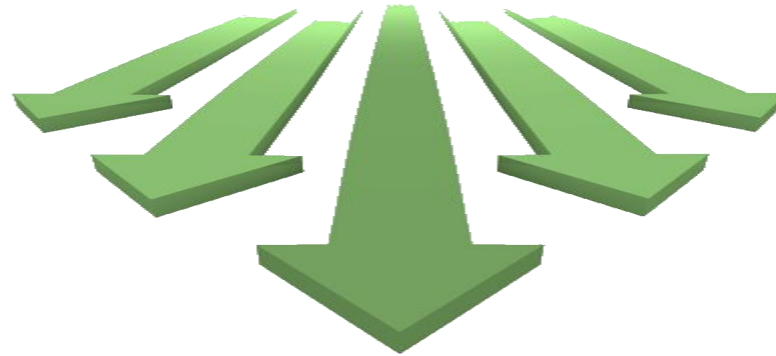
Variant II



Conclusions

- Despite the differences in potentials (infrastructural, economic, institutional, etc.) in the cross-border areas, by the time of the CoViD pandemic we observed more and more similarities in the assessment of quality of life (well-being paradox in the Ukrainian part, decreasing inequalities in subjective and objective aspects of quality of life);
- The conflict in Ukraine - necessity for the use of new sources of information (especially Big data), conducting new surveys;
- The need to continuously improve methodological solutions in research system for transborder areas;
- Cooperation between countries (specification of the most important endo- and exogenous factors affecting the economy and regional development, standardization of methods and forms of monitoring and survey, etc.)
- Creating a uniform information infrastructure of transborder areas – the base of knowledge on transborder areas
- The practical use of such an information infrastructure - on the local, regional, national and international level.

Conclusions and next steps



- Integration of new data sources (smart systems, MNO, satellite pictures)
- Prototype of coherent research system with innovative micro-services
- Real-time data analysis and flash estimates

Thank you for your attention

Marek Cierpiął-Wolan, PhD