

Small destination towns of Ukrainian refugees in Poland. Case study of Karpacz.

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ABSTRACT

The paper discusses the role of small destination cities in spatial reception of Ukrainian refugees in Poland. It introduces the application of GIS tools for mapping existing settlement patterns at different urban scales and proposes its 3-level classification. The outcome of performed analysis is compatible with recent studies, however, the results suggest that small cities, such as Karpacz, may not only function as independent from major cities destinations, but also develop own reception network based on neighbouring small towns.

Introduction

In the last few years, there has been a growing interest in research related to the subject of refugees in urban spaces. The scope of conducted research is closely related to the region, where the reception of forced migrants occurs. The European “long summer of migration” and numerous resulting researches demonstrate the complex impact of sudden mass migration on the situation in Europe. Previous studies indicate that the key issue in mitigating the negative effects of the intensity and unpredictability of this phenom-

enon is a balanced policy and migrant-inclusive spatial scenarios. Spatial policy is of interest to researchers in terms of planning and managing the necessary infrastructure dedicated to refugees at the local levels, reshaping local communities and involving residents in these procedures (Schmal *et al.*, 2016; Boano and Nettelbladt, 2019; Doomernik and Glorius, 2020), as well as refugees seen as social capital of cities (Doomernik and Ardon, 2018). Vaz, Lee, Moonilal and Pereira argue that refugee settlement processes, including decision-making tools, should be systematically included in city management to ensure their encompassment (Vaz *et al.*, 2017).

Until recently, for various - mainly economic, political and geographical - reasons, Poland did not play a significant role as a destination country, regardless of being a European Union member. This situation has suddenly changed as a result of Russia's aggression against Ukraine in the beginning of 2022. According to statistics provided by Polish Border Guards, Ukrainian citizens submitted 1721 applications for refugee status in 2022 (Straż Graniczna. 2022); however, its total number is estimated in about 1 million in accordance with the Act on assistance to Ukrainian citizens in connection with the armed conflict on the territory of this country (Office for Foreigners, 2023).

Specificity of Poland differs diametrically from other European countries hosting refugees from 2015. In the first place, the long-distance factor is eliminated. Geographical proximity between Eastern Ukraine, where most refugees come from, and Poland is relatively small. It can be also noticed, that inter-state relations between both countries have been nurtured for at least a decade. Ukrainian diaspora is firmly rooted and developed. Ukrainian refugees receive exceptional political, cultural, social and economic reception conditions. Finally, the border between countries is not permanently closed. Constant movement, in both directions, is observed.

Despite the fact, that the refugee infrastructure in Poland is clustered around exclusive and isolating refugee centres under the supervision of Office for Foreigners and Boarder Guards, the major-

ity of Ukrainian newcomers elude them due to the shortened asylum procedure. Polish government adopted The Act on assistance to Ukrainian citizens in connection with the armed conflict on the territory of this country within three months of invasion on Ukraine. It guarantees immediate legal access to the labour market, education and health insurance.

When it comes to accommodation and social infrastructure, the solutions introduced by the Act also differ from standard procedures for other nationalities of refugees in Poland. The assistance organisation is shifted from central to provincial (Office for Foreigners, 2022). The scope and form of aid is defined separately by a body of each 16 local government units and can be distributed over a larger area around its main cities.

As reported by Wojdat and Cywiński, majority of Ukrainian refugees have settled in 12 biggest metropolitan areas. 62% of refugees reside within administrative boundaries of those cities, while 38% settle in other medium and small cities and municipalities of those metropolis (Wojdat, Cywiński *et al.*, 2022). However, one third of Ukrainian newcomers' lives in more distant, smaller cities. Spatial research on those locations are still lacking as little attention has been given to their importance in the literature.

The paper serves as an introduction to the shaping of the reception network from yet unrecognised perspectives of small towns. We raise a question, which of the small Polish cities, not related to metropolises, have become host points for refugees in the first place? In which regions of Poland are they located? What of its spatial factors make them potentially attractive to refugees?

Methods

The literature on urban organisation of refugee response shows a variety of approaches in current studies. Several publications have

appeared in recent years documenting suitability of GIS-oriented research in studies associated with decision-making processes. This tool is used in practice by the UN and other organisations for a purpose of humanitarian aid planning and management (Younes *et al.*, 2022). It can be applied for multi-criteria location models (Jinghai *et al.*, 2016), such as site-selection of temporary housing (Hosseini *et al.* 2022) or planning urban emergency shelter system (Wei *et al.*, 2017). In this paper, while we refer to above-mentioned research, the focus is different. Presented spatial analysis are associated with integration of a large set of multiple, conflicting referenced data and disproportionate evaluation criteria. Therefore, we have introduced GIS environment as a problem-solving tool that allows to establish connections between complex and diverse datasets. The software employed for this study was mainly ArcGIS Pro 3.0. provided by the University of Zielona Góra in Poland.

Data

In this study, we focus on small towns as places of first-stay in Poland for Ukrainian refugees. In order to perform necessary analysis, we have acquired two databases:

1. “Ukraine Regional Response Map” - the latest updates on number of refugees from Ukraine recorded and registered for temporary protection in Europe (UNICEF, 2022)
2. “Poland Boundaries provides 2022 boundaries for several layers of administrative divisions” – the latest update on Polish territorial units and its total population (ESRI_DM, 2023).

Ad. 1. The data source used for of the research is an open-source file provided by UNICEF. It presents the latest updates on number of refugees from Ukraine recorded and registered for temporary protection in Europe. It consists of data collected from personal ID numbers (PESEL) of refugees at the place of registration after arrival. It contains information on the number of registered refugees in mu-

nicipalities and the spatial representation of their initial residence in Poland. The database is provided as ArcGIS experience dynamic webmap with dashboard functionality.

Ad. 2. The data source used for of the research is an ESRI layer designed to be used for mapping and analysis based on geo.stat.gov.pl.

For the purpose of this paper, the data were pre-prepared in a separate form of a shapefile with attribute tables based on preselected criteria by the author.

Spatial-analysis framework

The GIS tool was used as follows: Stage 1. Pre-processing of the data listed above. Stage 2: An entirely automated process resulting in scenario summarising the provided data within another data with calculated statistics about its features. Stage 3: Graphical processing of result data for the purposes of the article. The obtained results were interpreted based on the adopted criteria.

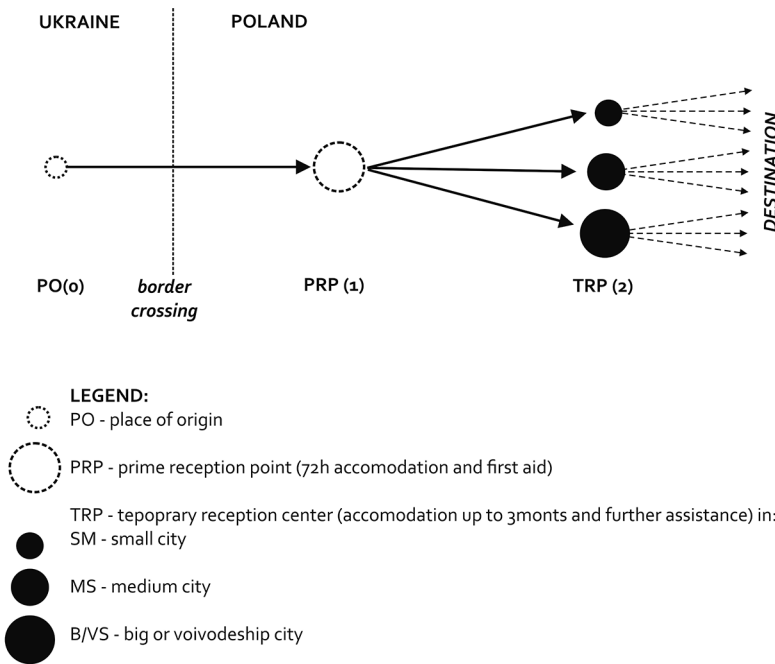
Mapping the settlement patterns

As mentioned above, the spatial organisation of Ukrainian refugee settlement in Poland bases on distinct procedures and infrastructure than standard governmental refugee assistance. Its overall organisation scheme, prepared for the purpose of this article by the author, is presented in Figure 1.

The first migration phase is border crossing, followed by a registration process in one of the Prime Reception Points (PRP) (1). PRPs are located on the border and in transit terminals of main cities (airports, railway stations and/or bus stations). They offer first aid,

provide information and, at times, accommodation up to 72 hours. Further, refugees are directed to Temporary Reception Points (TRP) (2). TRPs are reception centres and other forms of accommodation in available locations (social housing, private hotels and apartments, schools, and other facilities). The available offer developed in time and space, from main voivodeship cities to province and more distant towns. The organisation of those places and supportive infrastructure derive on demand in an unstructured manner, based on local initiative and resources.

Figure 1. Spatial organisation of Ukrainian refugees' reception in Poland - theoretical model. Source: Own.



Performed spatial analysis

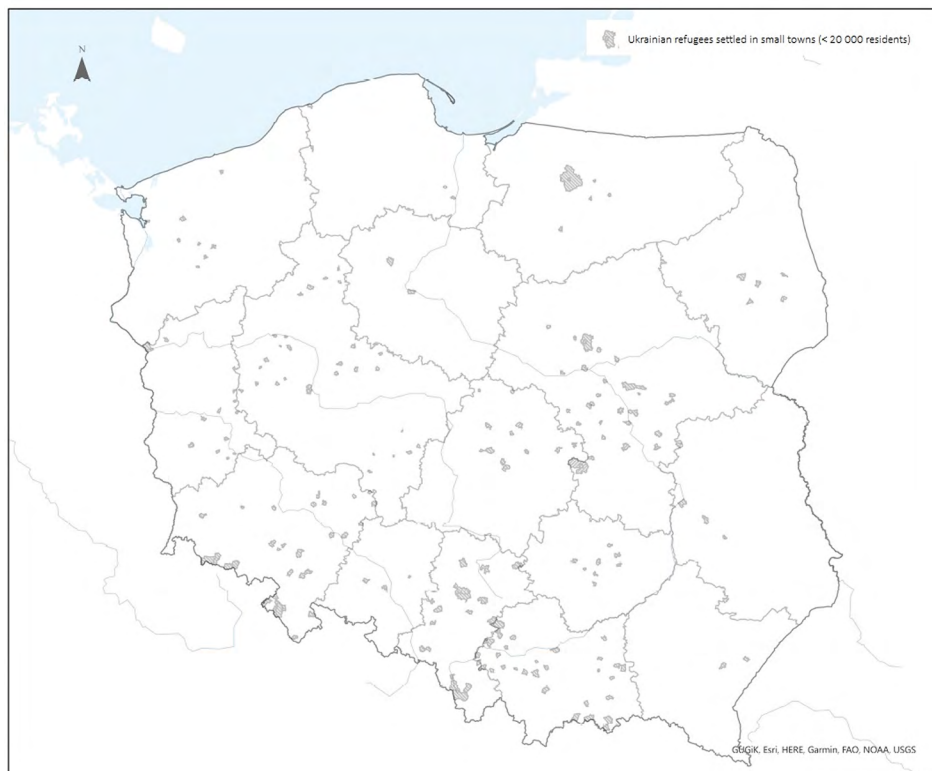
We started by investigating Ukrainian refugee population in urbanised areas. The first stage was to build a database to be used

with ArcGIS for further analysis. The data provided by UNICEF applies to the districts, and this spatial division was applied to all performed analyses. For the visual representation of refugee population, the Jenks natural breaks classification method was used. The database of Polish boundaries consists of 2477 districts: 302 municipal, 677 municipal-rural and 1498 rural. The rural districts, including those related to the cities, have been detached from the scope of interest. Using the collected information, the base map consists of two sets of layers: one of Ukrainian refugee inhabitation in districts as of 2022 (shown as dark grey areas), and second of borders of municipal districts as of 2022 (shown as hatched areas), were prepared.

The GIS Analysis Tools are dedicated to summarising the outstanding characteristics of a spatial distribution. Pairwise Clip, which extracts overlapping features of separate layers, was applied by the author to previously prepared basic map and was used for the indication of municipal areas, where refugees reside. As a result, a spatial model of cities forming a refugee reception network in 2022 was designated. The results were divided into three categories: big cities (over 100 000 residents), medium cities (20 000-100 000 residents) and small cities (below 20 000 residents).

Final GIS Analysis was performed to limit the area of research interest to small towns. The tool Select by Attributes allowed to isolate set of features representing the cities with the population below 20 000 residents, from the above model. As a result, 204 small cities were identified for further analysis. For visual representation of the results, the reader is referred to Figure 2.

Figure 2. Coefficients of determination of local models estimating share of Ukrainian refugee residency areas in the area of small Polish cities in 2022.



Source: Own

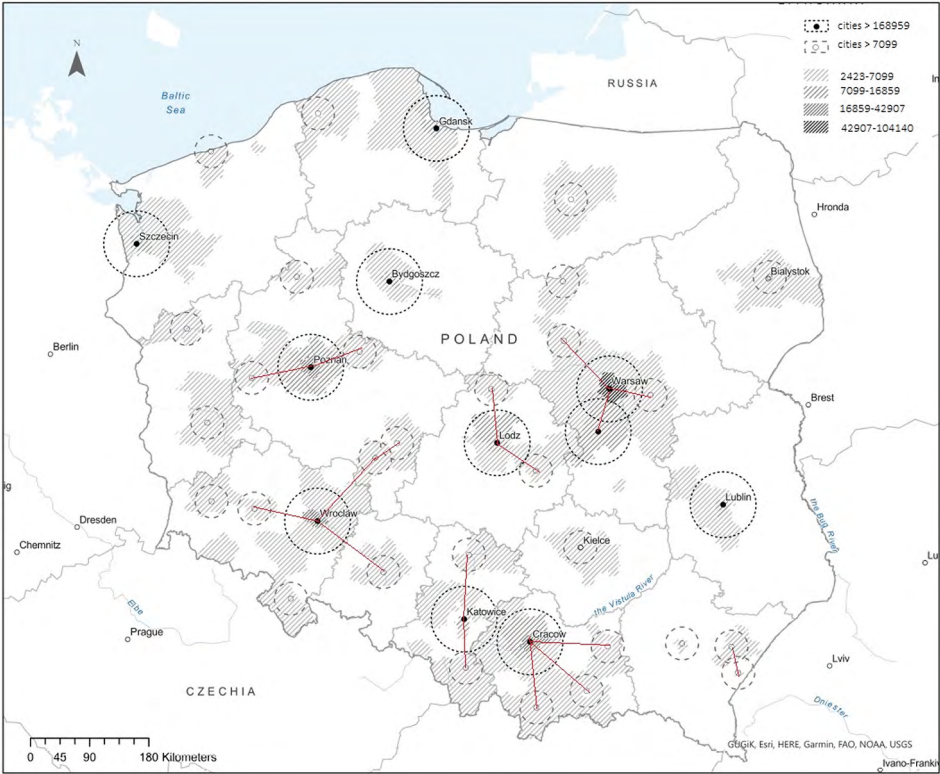
Results

Based on the first law of geography presented by Tobler, everything is interconnected and it is the objects that are closest to each other, that affect each other the most. Following this principle, one can assume, that the spatial organisation of refugee reception processes will follow certain patterns. Given that the location of small towns in relation to large agglomerations, which are the main centres of social and economic activity, is an important factor differentiating

the level of development and importance of small towns in regional systems in Poland (Konecka-Szydłowska, 2016), they will also play an important role in the spatial networks of refugee reception.

It has been found that the area of residence covers all of the 16 provinces; however, residential locations are not evenly distributed and differ in density and the size of the covered areas. They take the form of clusters. It can be clearly distinguished that the majority of them is related to the proximity of main metropolises and the highest density is cumulated in central Poland. Most refugees stay in Warsaw; however, intensively dense consolidation of refugees is also recognisable in connection with other main cities: Bydgoszcz, Cracow, Gdansk, Katowice, Lodz, Lublin, Poznan, Wroclaw and Szczecin. These observations are compatible with results published by Wojdat and Cywiński. The clusters of smaller population density are also noticeable on the presented map and were also marked by lighter dashed circles for better visual recognition. They relate to large and medium cities of less importance. Many of them concentrates around metropolises, such as Cracow, Lodz, Poznan and Warsaw. This is showed by red lines connecting the cities with its voivodeship. An interesting, additional observation refers to the inclusion of cities such as Bialystok and Rzeszow in this class. The lower number of residing refugees compared to similar cities in other parts of Poland may result from the proximity of border area. For the resulting plot, see Figure 3.

Figure 3. The visual representation of reception network for Ukrainian refugees in Poland.



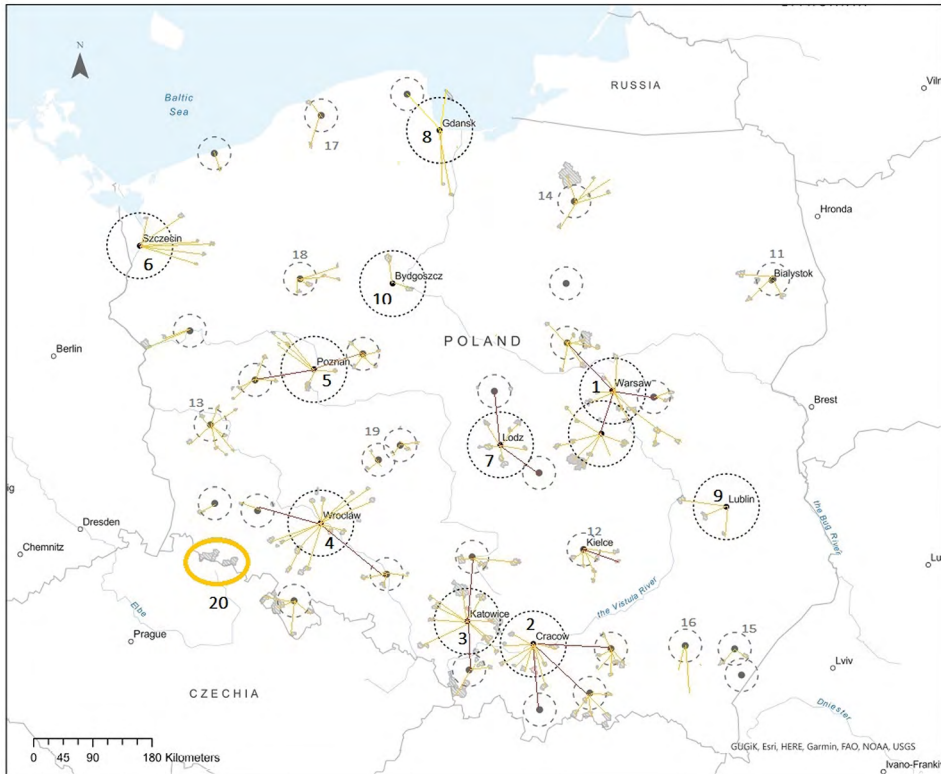
Source: Own

Following the Tobler's principle, we assume, that there are small towns located in the proximity of above designated reception areas where refugees reside. Adamiak and colleagues claims that "Small cities are an important part of settlement systems. They are the glue that binds the network of villages, medium-sized cities, and large cities together." (Adamiak *et al*, 2021), whereas their locality, spatial scale and neighbouring social structure are the factors, that are crucial in the processes of refugee rooting and form the basis for development of reception networks. ArcGIS Near Analysis calculate distance and additional proximity information between the input features and the closest feature in another layer or feature class. It

was used to simulate the spatial links between 204 analysed small towns and nearest significant host cities.

It is evident that the majority of analysed small cities are spatially related to larger, nearby urban centres. In Figure 4, for visual representation of the dependence, the connections are shown as yellow lines. Ten main reception areas consist of a main voivodeship city, several other large and medium cities and numerous small towns. These are areas around Gdansk, Warsaw (1), Cracow (2), Katowice (3), Wroclaw (4), Poznan (5), Szczecin (6), Lodz (7), Gdansk (8), Lublin (9) and Bydgoszcz (10). They are characterised by the largest concentration of refugees in its municipal districts. Further, refugee residency places concentrate around voivodeship cities of less importance and its neighbouring municipalities. Such examples are: Białystok (11), Kielce (12), Zielona Góra (13), Olsztyn (14), Przemyśl (15), Rzeszów (16), Koszalin (17) i Piła (18) Kalisz (19) and Częstochowa (20). Finally, there are small cities which are not explicit related to bigger urban structure. Such precedent may be noticed in South-West areas of Poland, close to the border with Czech Republic, in the touristic region of Karkonosze, and in the city of Karpacz (20; highlighted on Figure 4 by the yellow contour).

Figure 4. The visual representation of reception network for Ukrainian refugees in Poland – type A, B and C.



Source: Own

Within a year of Ukrainian migration to Poland, small towns have become visible points in reception networks. It has been found that there are at least 20 clusters, consisting of different scale and importance, where refugees reside. Considering the role of small towns, we propose to divide them in 3 main categories: Type A – clusters concentrated around major voivodeship cities, including municipalities of three scales: big, medium and small cities (1-10). Type B - clusters concentrated around large and medium cities of a less administrative importance including municipalities of three scales: big, medium and small cities (11-19). Type C – clusters compound of medium and small cities not related to large cities (20). Results are presented in Table 1.

Table 1. Juxtaposition of analysed refugee reception clusters by proposed spatial classification.

TYPE		A	B	C
DESCRIPTION	central territorial unit	major voivodeship city	large or medium city	medium or small city
	types of accompanying territorial units	large cities, medium cities, small cities	medium cities, small cities	small cities
CLUSTERS TYPE A				
no	central territorial unit	other major cities in cluster	medium cities	small cities
1	Warsaw	Y (1)	Y	Y
2	Cracow	Y (3)	Y	Y
3	Katowice	Y (13)	Y	Y
4	Wroclaw	y (1)	Y	Y
5	Poznan	N	Y	Y
6	Szczecin	N	Y	Y
7	Lodz	N	Y	Y
8	Gdansk	Y (3)	Y	Y
9	Lublin	N	Y	Y
10	Bydgoszcz	Y (1)	Y	Y
CLUSTERS TYPE B				
11	Białystok	N	N	Y
12	Kielce	N	N	Y
13	Zielona Góra	N	Y	Y
14	Olsztyn	N	Y	Y
15	Przemyśl	N	Y	Y

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16	Rzeszów	N	N	Y
17	Koszalin	N	N	Y
18	Piła	N	N	Y
19	Kalisz	N	N	Y
CLUSTERS TYPE C				
20	Karpacz	x	N	Y

Source: Own calculation

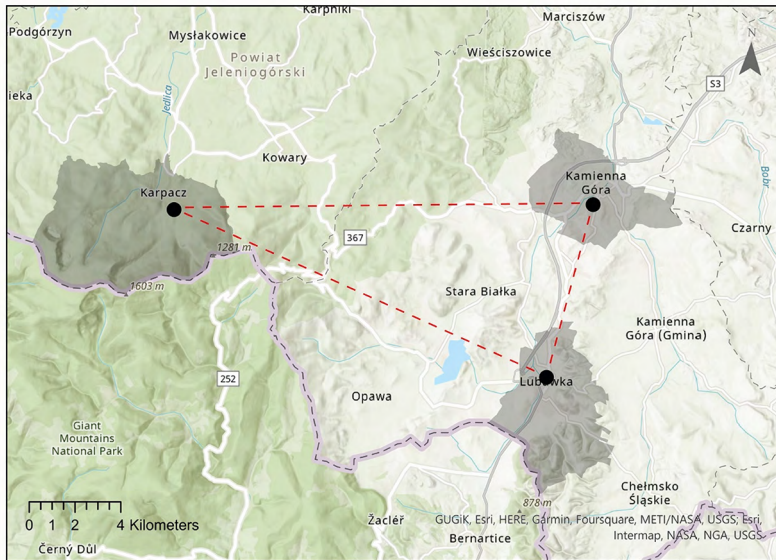
Case study of Karpacz

Carried out analysis have resulted in the selection of Karpacz as the only example of type C reception cluster. Further analysis of literary studies, reports and internet sources confirmed that it is a small town, which is hosting a significant number of refugees, even though it is not organisationally connected in terms of refugee reception to any of the areas of main reception cities. In addition, it is slowly shaping its own reception network, involving neighbouring cities and towns.

Karpacz, located in the Lower Silesian Voivodeship, has the population of 4358 residents. The town is accessible by public transport (bus) from Jelenia Góra, which is well connected with other regions of Poland by train. It is a tourist-oriented town, located in the areas of national parks and mountains. The region is one of the famous tourist canters in the Karkonosze Mountains. In addition to popular winter sports, such as skiing, it offers a wide range of mountain and landscape attractions, such as hiking and biking trails. It has a rich accommodation base, estimated at about 11,000 beds, various restaurant and catering facilities. Covid-Sars pandemic led to the closure of ski slopes, accommodation facilities and significant restrictions in the gastronomy sector. Restrictions on tourism-related activities had negative effects for both entrepreneurs and munic-

ipalities of the region (Jęcek. 2022). The majority of tourist resorts, hotels and private apartments for rent have closed.

Figure 5. The visual presentation of spatial structure of Karpacz reception cluster representing central territorial unit (Karpacz) and attendant types of accompanying territorial units represented by small towns: Lubawka and Kamienna Góra.



Karpacz has the highest number of refugees per capita in Poland. Over 1000 Ukrainians have fled here to seek shelter. From 2022, a part of a local prison in Karpacz and several private tourist facilities were used for the temporary reception of Ukrainian refugees. Over time, two public refugee canterers in neighbouring towns were opened by local authority. Currently, there are three facilities operating: hotel Krucze Skąły in Karpacz, refugee centre in Lubawka and refugee centre in Kamienna Góra, as can be seen in Figure 5. The locations are located less than 20 km apart and connected by public transport. Krucze Skąły is a private refugee centre in former hotel. It functions as a local community space, bringing together local activists and volunteers. It offers workshops, activities, language courses and is equipped in warehouse. It also hosts weekly social gatherings,

exhibitions, film screenings, and more. Refugee centre in Kamienna Góra is located in a former school built in the 80s. It has 200 beds and mainly dorm rooms. The refugee centre in Lubawka is located in a former kindergarten. The building is undergoing renovation and will house a support centre for various groups which experienced exclusion. The planned program of the facility includes a therapeutic centre for refugees and Lubawka residents, a community space, scout workshops, temporary accommodation and flats for refugees.

Many refugees have found employment and private accommodation in nearby small towns as pandemic restrictions have been lifted. The restoration of tourism has increased the number of workplaces. Those who are unemployed collect seasonal fruits and mushrooms and distribute them to nearby hotels and gastronomies. The city cooperates with foreign institutions and organisations which organise relocations to other European countries.

Discussion and Future Directions

The network of reception cities faces many challenges in the studied region. The fact that big, medium-sized and small cities receiving refugees are spatially related is indisputable. The role of small town in this process from organisational perspective is emphasised by many recent research and authors, but the problem of determining connections that are locally existing and accurate remains underexplored. Its precise analysis and observation of spatial relations between its elements leads to the legitimate indication of crucial factors, that influence the process of settlement of refugees. It demonstrates general management patterns, yet, it allows its more detailed differentiation and highlights areas that are functioning in distinct forms. The results obtained in this way are compatible with previous research, but the analysis focused on small cities resulted in a more accurate and structured classification of main reception

cities. The analysis and simulation indicate that there are at least three classes of migration networks in Poland, which include 204 small municipalities.

The main concern of the paper was to define the spatial role of small towns as Ukrainian refugee destinations. An important implication of these findings is that they are a significant part of reception infrastructure. Basically, none of analysed clusters performs without small towns. Additionally, as presented in the Karpacz case study, small towns can form their own clusters with higher refugee capacity per capita than any other large or medium city. The paper is not able to make any causal claims, but the obtained results should be the starting point for further, more detailed research on the role of small cities in reception clusters in Poland, aimed for instance at capturing the relationship and patterns of actual migration movements.

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