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CONDITIONS OF SPATIAL DIVERSITY OF REGISTERED AND ACTUAL POPULATIONS AT A LOCAL LEVEL IN POLAND

ABSTRACT: The observed lack of conformity between the population measured by category of registration for permanent residence and the actual population is on the one hand a consequence of the limitations connected with public statistics and on the other it is the result of increasing temporary spatial mobility. Beside the scale of this phenomenon, its spatial dimension is particularly significant as, together with official statistics concerning population inflow and outflow, it defines the real intensity and directions of migration.

The basic objective of this study was to examine the scale and conditions connected with the shaping of spatial diversities between the size of registered and actual populations. The analysis was conducted, above all, in relation to economic factors creating these differences. The analysis was carried out in relation to the units of LAU2 level in Poland.

The conducted analysis indicated that economic and education-related conditions played an important role in the shaping of temporary registered migration. This also confirmed the existence of a link between temporary registered migration and human capital as well as the level of economic development of particular regions. Spatial structure of temporary registered migration was similar to non-registered migration structure. Thus, it may help define general directions of informal population migration.

KEY WORDS: population, spatial diversity, local level, Poland.

INTRODUCTION

One of the most important problems connected with carrying out empirical research at the local level is the lack of statistical data. This applies largely to is-

sues concerning the level of socio-economic development of particular regions, including the shaping of local labour markets. Insufficient data hampers the performance of a complex analysis of conditions influencing the occurrence of intra-regional diversities and consequently affects the effectiveness of current regional policy. The situation requires the search for new sources indirectly characterizing particular problems.

Crucial information can be obtained through the comparison of data describing the same issue but gathered using different methodological approaches. The knowledge of assumptions connected with obtaining this data and statistical exploration of the whole empirical evidence allows for the study of phenomena that go far beyond the thematic scope of their initial qualities. An example of this can be a comparative analysis of the number of registered and the actual populations in a particular region. There are more potential research problems based on this type of comparison and they are connected to the study of, e.g. the employed or the unemployed.

AIM AND SCOPE OF THE STUDY

The basic aim of this study was to examine the scale and conditions concerning the shaping of spatial diversities between the size of the registered population and the actual population. The analysis focused mainly on economic factors causing these diversities. The study was conducted in relation to the units of LAU2 (Local Administrative Unit, level 2) level in Poland. In 2006 it amounted to 2,078 communes. Due to the limited availability of statistical data, urban-rural communes were analysed jointly, i.e. without distinguishing between the towns and villages which constitute these units. The paper also verifies a hypothesis assuming the existence of a significant link between the size of registered temporary migration and the shaping of human capital as well as the level of an economic development of particular regions.

The reasons for discrepancies in the population of both categories lie in the way they are defined. According to terminology used by the Central Statistical Office (Główny Urząd Statystyczny, GUS) the registered population describes the people who are registered for permanent residence in a given administrative unit. The actual population, however, describes people registered for permanent residence in a particular administrative unit who actually reside there, as well as people residing temporarily and registered in this administrative unit for temporary residence of over 2 months (Słownik pojęć..., 2007). Due to the balancing of the registered population against the actual population on a national scale, the difference under examination, in fact, concerns population surplus (or deficit) resulting from registered, long-term temporary residence, i.e. exceeding 2 months.

According to statutory regulations, registration for temporary residence and residing in the same town for a continued period longer than 2 months is possible only in the case of circumstances indicating that the residence did not lose its temporary character. These circumstances include in particular the following (Ustawa..., 1974):

- 1) working away from the place of permanent residence,
- 2) travel connected with education, medical treatment, recreation or dictated by family considerations,
- 3) active military service,
- 4) sentence served in prison or a young offenders' institution, residence in remand centre, juvenile shelter care facility or childcare centre.

The above-mentioned basic assumptions suggest that the problems connected with studying the differences in the size of both categories are related to the following factors:

- thematic diversity of reasons causing the emergence of these differences,
- common practice of failing to fulfill the registration obligation, especially when migration,
- education and work (Marcinowicz, 2000).

To date a number of spatial studies were conducted regarding differences in the number of registered and the actual populations. They mainly concerned the results of the National Population Census (Narodowy Spis Powszechny) which showed the real scale of population migration at the time of the census (Śleszyński, 2004a, 2004b, 2005). In practice, the studies considered the consequences of internal and foreign migration, both registered and non-registered. The most important role in understanding the observed differences was played by non-registered internal migration (Śleszyński, 2005). The main focus of this study, as mentioned before, concentrated on registered temporary migration.

The accuracy of the national census results seems very high, however, there is no facility for conducting continuous and dynamic analyses. These limitations do not apply in the case of relying on the statistics for registered temporary residence, i.e. longer than 2 months. It is necessary, however, to consider the most important conditions determining the emergence of spatial diversities of the analysed differences.

COMPONENTS OF TEMPORARY MIGRATION

The analysis of factors shaping the difference between the registered population and the actual population may be conducted via disaggregation of component parts of this difference arising from legal regulations, i.e. work, education, military service, stay in prisons, etc.

The total surplus of the residing population over the registered population in Polish communes between 1995 and 2006 ranged between 230 and 170 thousand people per annum (with the total of surplus and deficit balancing) (Fig. 1). In the period under examination a permanently decreasing trend was displayed, both in the period prior to and following the census. It is indicative of either a decreasing scale of temporary migration or an increasingly widespread evasion of the registration obligation.

Among the constituent parts of the difference under examination an important role was played by people staying in prisons and remand centres. On the basis of the data from 2006, in Poland there were 86 prisons and 70 remand centres holding nearly 83 thousand people serving a sentence. (Mały rocznik..., 2007). The number of conscripted soldiers doing military service was around 62 thousand persons per annum. Childcare centres and juvenile shelter care facilities constituted a non-significant category (below 2 thousand persons nationwide) and therefore their role in this context was marginal.

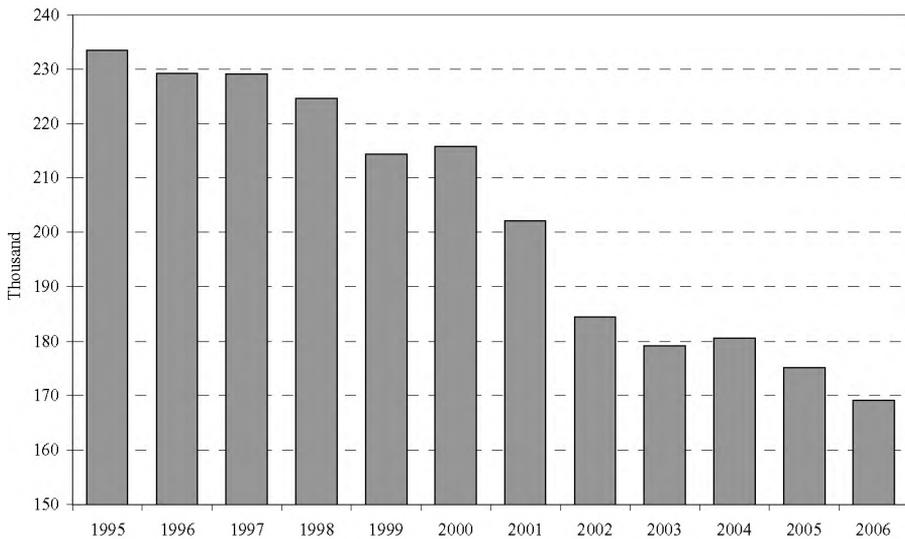


Fig. 1. Total surplus of actual population over registered population in Polish communes between 1995–2006

Source: author's own study based on data from the Central Statistical Office (GUS)

In practice, the incorporation of the above-mentioned groups in the spatial study proved to be very difficult. There is a definite lack of official, current statistics regarding the number of soldiers doing military service in particular towns. As for prisons and remand centres, the available data concerns only the general number of places and not the number of people actually residing there, which is usually different (mostly higher). This data can also be assessed on the basis of the number of people eligible to vote in parliamentary or presidential elections. However, such a number does not provide crucial information as to the percentage of inmates in prisons or remand centres coming from the town in which the prison (remand centre) is located. The exclusion of this category through simple deduction of the imprisoned population from the population actually residing in the area is therefore impossible as it fails to estimate the true population.

With regard to the remaining components of temporary migration, estimation of their spatial significance would require extensive research and would be extremely difficult, if not impossible. It can be assumed, however, that the main reasons for this type of migration are working away from place of permanent residence and migration connected with education.

Temporary migration related to work takes various forms. These include trade, relocation lasting up to several weeks, migration connected with the specifics of a particular industry and its seasonal nature, extended economic migration, legal employment contracts, etc. (Zakrzewska, 2003). It is hard to explicitly identify all the involved conditions as a result of which they take on a formal character, i.e. registered at the office for registering residents. It can be assumed that this is mostly connected with employer relocation, collective accommodation of workers, e.g. workers' hostels, or rental of apartments. In the majority of cases, however, registration depends on the good will of the owner of the property and is very seldom performed. It needs to be highlighted, however, that in the case of the registration of tenants in rented premises located away from the place of the tenants' permanent residence, it usually takes the form of a fixed term registration. This results from legal regulations, which make it difficult for unregistered tenants, who were registered for permanent residence, even in the case of breach of lease. In this context the difference indicator seems to be a much better tool for analysing the labour market than the permanent migration indicator. It concerns, above all, the dynamic development of labour markets, which is accompanied by a mass inflow of workers.

Education-related residence was observed most commonly in the biggest academic centres. Registration of this type of residence was most often related to places of collective accommodation, e.g. student halls of residence. This was also necessary in order to receive student benefits like accommodation grants. Considering the lack of uniform regulations concerning the above-mentioned

benefits and varying accessibility to collective accommodation, the fulfillment of the obligation to register differed in particular towns.

The remaining categories (residence connected with medical treatment, recreation, or for family considerations) played a marginal role because of their scale. Due to the shaping of the presented components of the registered temporary migration it seems that the analysis of differences between the number of registered residents and the actual population should facilitate the analysis of local labour and education markets. However, such analyses should take into account the afore-mentioned reservations.

CONDITIONS – EMPIRICAL ANALYSIS

The examination of conditions shaping spatial differences between the registered and the actual populations was performed using a correlation analysis. It included a difference indicator of both categories of population in relation to the registered population (the difference indicator) as well as chosen demographic and socio-economic development indicators.

The research confirmed the existence of a relatively high, statistically relevant connection between the difference indicator and the internal migration balance indicator (Table 1). This relationship was connected with the fact that the surplus of population actually residing in an area was mostly observed in the areas characterized by a positive balance of internal migration. This dependence was observed within all sub-populations of communes with the most crucial role played by urban-rural (indicator value -0.431) and rural communes (-0.513). It shows a similarity between spatial structures of registered temporary migration and permanent migration. It may suggest that the observed temporary migrations precede permanent ones or that both phenomena are caused by the same (or similar) conditions. It was impossible, however, to unequivocally confirm the hypothesis of sequencing of registered temporary and permanent migration in the light of the existing empirical evidence.

Spatial structures in the surplus of population residing temporarily in a given area coincided mainly with spatial structures of migration inflow indicator (-0.317). This relationship in the period under examination displayed a growing tendency. As far as the migration outflow indicator is concerned no such relationship was observed or was much weaker (+0.189). The least significant role was played by urban regions (+0.124). The factors conditioning the inflow movement of the population and temporary migration were alike. At the same time, the shaping of migration outflow was largely caused by other considerations. This confirms the results of previous studies (Raczyk and Dobrowolska-Kaniewska,

2006). The relationships with the migration inflow indicator also suggest that a considerable role in the volume of registered temporary migration could have been played by economic factors.

Table 1. Correlation coefficient of the difference indicator and chosen socio-economic indicators at the commune level in Poland in 1995 and in 2005

Specification	1995				2005			
	Total	1	2	3	Total	1	2	3
Employees per 100 inhabitants (%)	-0.234	-0.149	-0.177	-0.318	-0.318	-0.281	-0.200	-0.360
Corporate income tax (CIT) per inhabitant	-0.154	-0.086	-0.091	-0.106	-0.147	-0.182	-0.109	-0.091
Personal income tax (PIT) per inhabitant	-0.357	-0.303	-0.321	-0.281	-0.497	-0.425	-0.443	-0.428
Migration influx (%)	-0.170	-0.222	-0.201	-0.133	-0.317	-0.303	-0.326	-0.333
Migration efflux (%)	0.381	0.077	0.359	0.305	0.189	0.124	0.251	0.290
Migration balance (%)	-0.480	-0.302	-0.482	-0.407	-0.402	-0.379	-0.431	-0.513
Contribution of inhabitants with higher education (%)*	-	-	-	-	-0.443	-0.465	-0.451	-0.367
Contribution of inhabitants with primary and vocational education (%)*	-	-	-	-	0.405	0.341	0.423	0.374
Contribution of business entities from the business environment (%)	-0.236	-0.419	-0.378	-0.272	-0.251	-0.318	-0.354	-0.254
Foundations and associations and social organizations per 10,000 inhabitants	-0.343	-0.478	-0.242	-0.139	0.023	-0.348	0.083	0.071
Joint venture companies for every 10,000 adults	-0.321	-0.422	-0.249	-0.283	-0.266	-0.313	-0.187	-0.232
Natural persons' business entities for every 1,000 adults	-0.452	-0.342	-0.434	-0.279	-0.421	-0.286	-0.371	-0.354
Commercial companies for every 10,000 adults	-0.401	-0.515	-0.313	-0.365	-0.414	-0.483	-0.288	-0.361

1 – Municipal units; 2 – Urban-rural units; 3 – Rural units

* only in 2002

Source: author's own study based on data from the Central Statistical Office (GUS)

This indicator was characterized by a high interdependence among all the indicators of the level of economic development mentioned in this study. It displayed the strongest correlation with regard to entrepreneurship connected to the emergence of simple (natural persons) as well as advanced (commercial partner-

ships) forms of conducting business activity (-0.421, -0.414 respectively). It was also significantly connected to the number of companies with participation of foreign capital (-0.266) and the significance of the business environment sector (-0.251). Importantly, these dependencies were observed within the subpopulation of various communes: urban, rural, and urban-rural. They confirm the importance of economic factors in creating destinations for temporary migration. It has also been observed, however, that the greatest role in temporary migration was played by the establishment of new business entities and the consequent appearance of new workplaces.

The shaping of difference indicator spatial structures was greatly affected by conditions dictated by local labor markets. Both types of phenomena seemed to have an equally significant impact – negative, like the unemployment rate, as well as positive (connected with the number of workplaces per 100 inhabitants) with their correlation coefficients of +0.330 and -0.318 respectively. Considering the high level of interdependence with the indicator of the number of commercial partnerships it may be suggested that the difference indicator reflected largely the sector of the labour market connected with the existence of large enterprises creating the demand for commuting workers. This is also indicative of the presence of highly specialized workplaces. Additionally, it may suggest the existence of large corporations having a number of branch offices across the country among which there is an ongoing transfer of workers (worker relocation, internships, etc.).

One of the most significant factors shaping spatial distribution of temporary migration was the affluence of the inhabitants measured in their income based on PIT (-0.497). Thus, the economic factor played a larger role than the labour market factor or the level of economic development connected with the emergence of new economic entities or the profitability of the economy (CIT -0.147). In the latter case a strong relationship was only observed among large, profitable entities which are local market leaders (e.g. Brown Coal Mine and Power Station in Kleszczów, KGHM Polska Miedź S.A. in Rudna, Refinery in Płock, Hortex Holding S.A. in Przysucha, “Tymbark” S.A. in Tymbark).

Based on the assumption that there is a connection between the difference indicator and local education markets this indicator was also examined in relation to population structures measured by the level of education. With reference to the share of population having higher education the correlation coefficient was -0.443, whereas in the case of the population with vocational and elementary level of education it was +0.405. The strongest mutual correlations were observed in urban regions (-0.465). It confirms the hypothesis suggesting the existence of a significant correlation between the size of registered temporary migration and the level of human capital development. At the same time, the survey revealed that there is virtually no statistically significant correlation between the difference

indicator and social capital (+0.023). This is caused by the fact that conditions governing social capital development (e.g. historical or mental considerations) only marginally translate into temporary migration.

Although the values of the difference indicator are connected with the level of human capital development, they seem not only to be determined by educational function of particular commune units. This is reflected by the following facts:

- a relatively low (although statistically significant) correlation between the difference indicator and the size of a given territorial unit (measured by the percentage of population in total) (-0.185). It must be remembered that the size of particular territorial units is usually strongly related to the centralization indicator, as well as the indicators of surplus of services connected with education. Therefore, it can be assumed that central location of particular centres only slightly translates into the difference indicator,
- high and similar values of the correlation coefficients between the difference indicator and the economic development indicators observed in all subpopulations of communes, i.e. urban, rural, and urban-rural. In the case of rural communes temporary migration of more than 2 months for educational considerations (primary schools and junior high schools) occur incidentally.

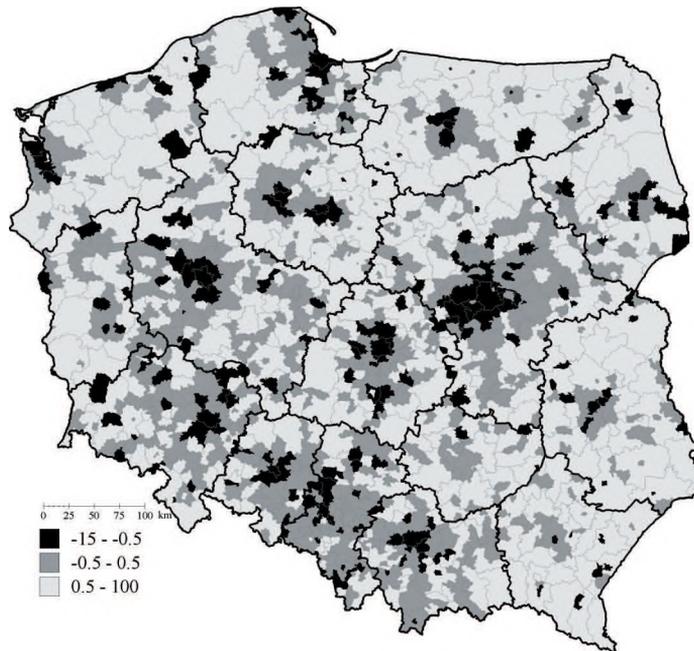


Fig. 2. Spatial distribution of difference indicator in Poland in 2005

Source: author's own study based on data from the Central Statistical Office (GUS)

An important feature concerning the conditions shaping temporary migration structures is their strong relationship with the actual movement of the population observed during the National Population Census carried out in 2001 (correlation coefficient +0.717). It indicates that the observed temporary migration reflects the main directions of non-registered internal migration. This can be, therefore, used to estimate its spatial structures, although, it cannot be taken into account when assessing size. Both phenomena, i.e. non-registered migration and registered temporary migration, therefore, depend on similar factors.

A characteristic feature of the spatial distribution of the difference indicator was the existence of the surplus in population residing temporarily in the main agglomerations of the country (Warszawa, Poznań, Kraków, Wrocław, Łódź) (Fig. 2). Moreover, it was observed in communes where large, on a local scale, business entities were based (Kleszczów, Przysucha, Rudna, Tymbark, Puławy, Płock). The spatial structure was clearly dominated by units characterized by a surplus of registered population (accounting for about 80%), i.e. the outflow regions in relation to temporary migration. In the period under examination there was a slight increase in the number of communes which were inflowing in character (by about 85 units, which still constituted only a little over 3% of their total number). This tendency coincided with the observed changes in spatial structures of the migration balance and business activity. It may be indicative of a slow spread of migration inflow over increasingly large regions, above all in the agglomeration environment. However, both the regions characterized by the surplus, as well as with the deficit in the actual population were coherent in character. However, the relative stability of spatial structures of the difference indicator between 1995 and 2006 seemed disturbing.

The performed analysis exhibited a noticeable influence of the location of prisons, remand centres, and army units on the difference indicator under examination. It was above all limited, however, to chosen units, e.g. Osiecznica, Morąg, Powiedz, Wronki, and in a number of communes it did not occur at all. Therefore, it can be assumed that the unbalancing factor of the location of such objects was relatively insignificant.

CONCLUSIONS

The conducted analysis revealed that economic and education-related conditions play a crucial role in shaping registered temporary migration. It also confirmed the hypothesis suggesting the existence of a connection between registered temporary migration with shaping human capital and the level of economic development of particular regions. This hypothesis was not confirmed, however, in relation to social capital.

However, spatial structure of registered temporary migration was similar to that of non-registered migration whose scale, demographic, and economic implications were much greater. It may serve as a reference point for the assessment of general directions of informal population movements. Considering the results of earlier analyses concerning permanent migration (Raczyk and Dobrowolska-Kaniewska, 2006) there is a similarity between their spatial structures and registered temporary migration (and most probably to non-registered migration). This brings about the emergence of coherent regions characterized by permanent population outflow, covering the majority of the country. An overwhelming predominance of drained regions over absorbent regions, both in a demographic and economic sense, will constitute a significant obstacle for regional convergence. This will have to be taken into account to a greater extent for the implementation of regional policy to be effective, especially in relation to the choice of instruments of regional policy.

The presented relationships between registered temporary migration and economic factors allow one to apply the difference indicator used in this study in the construction of socio-economic development models at the local level, e.g. in the model of cumulative causality (Raczyk and Dobrowolska-Kaniewska, 2006). It needs to be remembered that the decreasing volume of registered temporary migration stemming from the common failure to fulfil the registration obligation will make the analysed indicator susceptible to random phenomena. As a result, it may limit its usefulness in the research conducted. Empirical research should also consider the impact of the location of prisons, remand centres, and army units on the obtained results.

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