DESCRIBING INTERREGIONAL DIFFERENCES: SELECTED PROBLEMS

1. Introduction

The analysis of social and economic differences in regions is closely connected with statistics. The research on regions based on statistics was initiated after 1965, and the first research results were published after that date (W. Kawalec, 1973). They included regional statistics considered from retrospective point of view (researchers analysed materials dated back to 1945).

Regional statistics is considered as “the statistics used to analyse the process of development and the space-structure programming of national economy and social phenomena on different territories” (W. Kawalec, 1973, p. 11), or “it is a collection of data processed and published by state statistics offices, which are connected with the phenomena that occurred in a country, within clearly described territorial borders” (S. Zawadzki, 1973, p. 33). Those definitions aren’t complete, but they include statistical research regarding all levels of administrative divisions. We believe that they should be more precise and include detailed description of the changes which occur in classification systems and territorial administration units.

The problem is, therefore, connected with establishing the basic research unit which would include the range and the degree of generalisation. It isn’t connected,
though, with new definition of a unit, but, rather, it requires the selection of optimal unit within existing territorial divisions. We would like to add, that it isn’t a new problem. It is connected with regional differences which were described in geographic literature in mid-1960’s (by, for example, B. Kostruniec, 1965, B.K. Prandecka, 1965, T. Czyż, 1971). During system transformation, many researchers described the process of reconstructing local administrative units. Analysts participated in preparation of strategies, development plans, monitoring analyses, prognoses, and publication of monographies. There were several tendencies in their work, including (Z. Chojnicki, 1996):

- the number of studies on economic changes and the number of complex analyses which included the situation in industry and service sector grew in that period of time;
- many articles can be considered as diagnostic and they include analysis of the country’s economy in certain time periods; they didn’t include, though, commentary on mechanisms and tendencies of change; they didn’t include theoretic description and didn’t explain the consequences of spatial transformation;
- many articles described the situation in Poland and in a single voivodship in Poland, but they didn’t include in-depth analysis of the transformation in regions;
- analysts rather concentrated on “invisible” than on “visible” structures.

In those studies, it is difficult to find precise description of the relationship between a particular kind of research and territorial divisions. Researchers primary concentrated on establishing “basic fields” in territorial studies (B. Kostrubiec, 1982, J. Parysek, 1982, and others).

2. Choosing observation units for studies on regional differences

In their studies completed before 1975, and from 1976 to 1998, analysts considered voivodships as regions. Even in contemporary studies, that tendency is still noticeable. As the result of administrational changes, analysts had to consider a

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1 Functional principles and competence of local administrative units were described in several bills such as the bill on gminas administration (March 8, 1990).
2 In my research, I didn’t consider geographical and economic definitions of a region. I considered regions as units of specific territorial division.
different number of observation units. Usually, the differences were not considered in research studies. The variable, however, is very important and it influences conclusions. Analyses of voivodships aren’t sufficient for in-depth diagnoses of differences between social and economic structures. The studies of small units, such as powiats, gminas, and towns, often is too precise, and doesn’t meet the requirements for the research on interregional differences (see: E. Jakubowicz, A. Raczyk, 2002).

In 2000, analysts formally included different levels of territorial division in their studies on the relations between regions and the situation in regions. They adopted the Territorial Unitary Nomenclature for Statistical Purposes (NTS), which was based on nomenclature used in the European Union (Nomenclature..., 2000). That system is used for collecting, harmonisation, and publication of statistical data and is the basis for regional policies. According to that classification system, the potential units considered for interregional research, are NTS 2 units (voivodships-regions), and NTS 3 units (sub-regions).

The NTS 2 level is too general for the purpose of studies on a country scale. Observation units are too few (16 voivodships), and it is difficult to conduct more precise statistical analysis (for example, an analysis of the relationship between phenomena), based on the data from that territory. The NTS 2 analysis gives a broader scale, but it doesn’t illustrate a phenomenon in space. Using that analytical tool, it would be difficult to register all the phenomena which characterise spatial relations on a country scale. The analysis of spatial division of phenomena shows that the borders of homogenic territories often run across the borders of voivodships (see: D. Ilnicki, A. Raczyk, 1999). It is important when we analyse economic phenomena. In that situation, voivodships are listed according to their importance, and it includes the importance of big agglomerations which are located in a voivodship. It is connected with the concentration of economic potential which is significantly bigger than population concentration (table 1). As the result of that, the analysis is considered in the context of location on a list, the size, and the importance of an agglomeration on an economic and social country scale.

Of course, we cannot ignore the NTS 2 scale. It can be used for certain analysis of social and economic phenomena, but the level should be limited to comparative
analysis on the European Union scale, and/or, when we compare different regions in Central Europe (for example, the reports prepared by European Commission, on social and economic cohesion between union countries \(^3\) (see: M. Barnier, 2001). Also, we could use the method to analyse the position of Polish regions among the union regions. The analysis would show and verify their real potential, which is important in the process of policy forming on central and local government level. Also, it would help in decision-making regarding absorption of monetary-assistance and structural funds. Many spatial regional analyses, however, are limited to the territory of Poland. Usually, Central European analyses are based on country-level material.

The NTS 2 includes the most complete statistical data (over 3,000 indicators). In case of special analyses (for example, the analysis of innovation), regional level is the only one on which such research can be conducted.

For country analyses, the best level is the NTS 3 level. That opinion is based on the fact, that there are 45 sub-regions, and the number of units suggests that an analysis can be more detailed, and include more phenomena, than other analyses, which only include the data from a voivodship. When we compare basic descriptive statistics for selected economic indicators (table 2), we can clearly see the problem. The coefficient of skewness of the NTS 3 units is associated with different average values and their movement towards higher values. It is more important, though, that 30% of coefficient of variation’ range is used for sub-regions (NTS 3) by voivodships (NTS 2). As the result of that “changeable range-cut”, average spread parameters are 50% lower (standard deviation, coefficient of variation) in the subregion-voivodship relation. Therefore, it is necessary to use, as often as possible, the NTS 3 level for establishing interregional differences. Using that method, researchers can show real divisions which minimise differences within groups, and maximise differences between selected groups (classes). Based on that method, we can find indicators which determine regional structure of a phenomenon. NTS 3 research isn’t significantly influenced by administrative divisions, regardless of the number of units. The overlapping of the two divisions, especially in Eastern part of Poland, clearly indicates

\(^3\) For example: “Szanse i możliwości rozwoju regionu południowo – zachodniego w porównaniu z wybranymi regionami Unii Europejskiej” (Ilnicki D., Raczyk A., 2001)
their non-coincidence. It isn’t possible to explain regional differences based on old administrative divisions (49 voivodships). I believe that we should try to explain some aspects of “cutting” and “adding” certain areas (some parts of voivodships according to old divisions) to sub-regions, and, we should study the changes and their impact on certain phenomena.

The NTS 3 level includes two different sub-groups of units: independent agglomerations (7) and “land” units (38). Their dichotomy influences research conclusions, and narrows the range of potential to-be-analysed indicators 4.

There are limits to statistical data availability on the NTS 3 level of research. Therefore, analysts cannot use dynamic research methods. It is possible to broaden the range of a subject when we aggregate data on the NTS 5 level (towns and gminas) which are connected with demography, infrastructure, and housing, and, only to limited extent, with economy and labour market. The limitations are associated with regional statistics on NTS 2 and 3 level. When we consider those limitations, we only can analyse certain aspects (always the same) of social and economic phenomena. Therefore, current geographic research is mainly concentrated on description and explanation of the observed phenomena. That kind of research, especially on a voivodship scale, leads towards the confirmation of banal conclusions, or, towards “self-replication” of research (D. Ilnicki, 2002). The research regarding interregional differences is based on statistics which confirm “regional structure” of the phenomena, but it doesn’t concentrate on the levelling of interregional disproportion. It only registers them. Interregional analyses should be used to classify, describe the structure of phenomena, and study the range of differences and changes between the regions. Analyses should concentrate on studying the range of differences, and that aspect of studies should be considered in the context of dynamism.

There are, however, both theoretic and empirical limitations. In Poland, we have to consider the problem of increasing and decreasing interregional disproportion, but, first of all, the problems which are connected with deep structural-spatial changes. The structures which were built in conditions of planned economy have to be changed,

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4 On the NTS 3 level, there is an opposition of “city areas” and “rural areas”. Analysts should avoid indicators which only are characteristic for cities and/or villages, such as city population, grain harvest, etc.
and the changes are dramatic. They need to be verified (see: E. Jakubowicz, A Raczyk, 1998), and the process of verification must have wide range. It must proceed fast, and researchers must be able to follow it. They have to re-do their research on spatial changes. The beginning of transformation is one of the limits beyond which analysts usually don’t reach. There is no continuity in their research. There is no theory of change. The situation is difficult both in geographical sciences (T. Stryjakiewicz, 1999), and economy (W. Trzeciakowski, 1997). There are many studies which can be characterised as static. They are non-historic. The group includes documents regarding regional policy (for example, the strategies and programs for development which are prepared by regional and local self-governing administration units). The studies on phenomena and structures are not connected with the studies on social and economic problems of the past (B. Domański, 2001). That interpretation leads towards oversimplification and wrong conclusions. It influences regional policy, makes it irrational and ineffective. Insufficient dynamic studies make it difficult to evaluate the real effects of policies, and to follow the changes in regional developmental trajectories. As the result of those insufficiencies, the research becomes shallow, and regional planning becomes questionable within both short and long range.

3. Conclusions

The NTS (Territorial Unitary Nomenclature for Statistical Purposes) which functions in Poland includes two levels of territorial division. They are potential reference units for the research on interregional differences. One of the most important factors which influence the possibilities of researching those differences is limited availability of statistical data. The choice of an observation unit influences the range of problems, and the value of conclusions. We have to consider the goals of statistical research which should be in accordance with the European Union requirements. The analysis of interregional differences on a country scale should be conducted according to the NTS 3 level, and should refer to territorial units.

There are, however, certain dangers which should be avoided. They are connected with the dichotomy of units on that level (7 “city units” – independent agglomerations, and 38 “land units”) Also, we should be aware of the fact that there
are false similarities between the NTS 3 division and the previous voivodship division. We shouldn’t explain the sub-regional differences in the context of previously formulated conclusions.

The NTS 2 level should primarily be used to interregional comparison beyond the country scale (for example, within the European Union and/or for the analysis of a group of countries). The research should concentrate on the dynamic character of the phenomena which are studied. We should try to define the real reasons of the existing disproportion. We must be able to measure their influence. We must further discuss the methods of the interregional differences research.
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Streszczenie

Badania zróżnicowań międzyregionalnych mają długą historię. Ich początek datuje się na drugą połowę lat 60-tych. Poprzedził je okres tworzenia i porządkowania publicznej statystyki regionalnej z podejmowaniem prób jej retrospekcji do 1945 roku. Podejmując badania zróżnicowań międzyregionalnych rzadko uświadamiane są zagrożenia jakie są z nimi związane. Podstawowe zagadnienia koncentrują się na wyborze podstawowej jednostki obserwacji, w kontekście istniejącego podziału terytorialnego, oraz zakresu, dostępności istotnych z punktu widzenia zachodzących przemian, danych statystycznych. Biorąc pod uwagę znaczną zmienność funkcjonujących po wojnie podziałów administracyjnych, inercji systemu publikowania i udostępniania statystyki publicznej oraz dostosowywania obu aspektów do wymogów UE, zasadnym wydało się zajęcie tymi zagadnieniami.

W opracowaniu wskazano na podregion (poziom NTS 3) jako najlepszy do badań zróżnicowań międzyregionalnych w ramach kraju. Wyłączono z tego typu opracowań poziom NTS 2 (region - województwo), który należy wykorzystywać zarówno w analizach w układzie podobnych jednostek w skali UE, czy też w przypadku porównań z innymi regionami w obrębie państw Europy Środkowo – Wschodniej. Równocześnie sformułowano postulat, aby w prowadzonych badaniach zróżnicowań międzyregionalnych w większym stopniu uwzględniać dynamiczny charakter opisywanych zjawisk i procesów oraz dążyć do prób podejmowania określenia rzeczywistych uwarunkowań istniejących dysproporcji, jak i empirycznego określenia siły ich oddziaływania. Konieczne jest również podjęcie szerszej dyskusji dotyczącej metodyki badań zróżnicowań międzyregionalnych.
<table>
<thead>
<tr>
<th>Specification</th>
<th>Wrocław</th>
<th>Warszawa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>21</td>
<td>32</td>
</tr>
<tr>
<td>Economic entities of J (finance and insurance) and K (real estate and firm) section</td>
<td>42</td>
<td>65</td>
</tr>
<tr>
<td>Employed persons in J and K section</td>
<td>36</td>
<td>63</td>
</tr>
<tr>
<td>Employed persons in service</td>
<td>31</td>
<td>57</td>
</tr>
<tr>
<td>Economic entities in service</td>
<td>33</td>
<td>51</td>
</tr>
<tr>
<td>Economic entities registered in REGON system</td>
<td>33</td>
<td>48</td>
</tr>
</tbody>
</table>

Source: own study

Źródło: opracowanie własne
Table 2. Descriptive statistics of NTS 2 and NTS 3 level for selected economic indicators

Tab. 2. Statystyka opisowa poziomu NTS 2 oraz NTS 3 dla wybranych wskaźników gospodarczych

<table>
<thead>
<tr>
<th>Specification</th>
<th>Enterprise</th>
<th>Companies with foreign capital per 10 thousands’ population</th>
<th>Number of work places per 100 population</th>
<th>Employed persons in service per 1,000 population</th>
<th>Earnings of territorial council from title of part in taxes from physical persons</th>
<th>Earnings of territorial council from title of part in taxes from legal persons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average value</td>
<td>NTS 2</td>
<td>77.1</td>
<td>9.9</td>
<td>32.9</td>
<td>192.0</td>
<td>18.6</td>
</tr>
<tr>
<td></td>
<td>NTS 3</td>
<td>78.3</td>
<td>10.3</td>
<td>33.1</td>
<td>194.0</td>
<td>20.4</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>NTS 2</td>
<td>12.7</td>
<td>7.1</td>
<td>3.7</td>
<td>27.0</td>
<td>13.8</td>
</tr>
<tr>
<td></td>
<td>NTS 3</td>
<td>22.4</td>
<td>12.8</td>
<td>10.2</td>
<td>82.9</td>
<td>28.2</td>
</tr>
<tr>
<td>Coefficient of variation (%)</td>
<td>NTS 2</td>
<td>16.5</td>
<td>72.3</td>
<td>11.4</td>
<td>14.1</td>
<td>74.5</td>
</tr>
<tr>
<td></td>
<td>NTS 3</td>
<td>28.6</td>
<td>124.4</td>
<td>30.7</td>
<td>42.7</td>
<td>138.3</td>
</tr>
<tr>
<td>Minimum value</td>
<td>NTS 2</td>
<td>57.5</td>
<td>2.6</td>
<td>28.0</td>
<td>166.9</td>
<td>10.2</td>
</tr>
<tr>
<td></td>
<td>NTS 3</td>
<td>48.9</td>
<td>1.3</td>
<td>21.6</td>
<td>119.8</td>
<td>5.1</td>
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<tr>
<td>Maximum value</td>
<td>NTS 2</td>
<td>100.6</td>
<td>29.6</td>
<td>42.6</td>
<td>288.1</td>
<td>69.7</td>
</tr>
<tr>
<td></td>
<td>NTS 3</td>
<td>152.3</td>
<td>77.4</td>
<td>75.0</td>
<td>561.4</td>
<td>184.8</td>
</tr>
<tr>
<td>Coefficient of skewness</td>
<td>NTS 2</td>
<td>0.3</td>
<td>1.4</td>
<td>1.0</td>
<td>3.0</td>
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<tr>
<td></td>
<td>NTS 3</td>
<td>1.6</td>
<td>3.6</td>
<td>2.3</td>
<td>2.8</td>
<td>4.9</td>
</tr>
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Source: own study

Źródło: opracowanie własne