

**SPATIAL REDISTRIBUTION OF
POPULATION IN POLAND: 1980 – 1990**

Marek Kupiszewski

WORKING PAPER 92/19

SCHOOL OF GEOGRAPHY • UNIVERSITY OF LEEDS

WORKING PAPER 92/19

Spatial redistribution of population in Poland: 1980-1990

Marek Kupiszewski

School of Geography
The University of Leeds
Leeds LS2 9JT
United Kingdom

Abbreviated version of a paper prepared for publication as a comment to the map on population change in Poland published in the Atlas of East and South-East Europe by the Austrian Institute for East and South-East European Studies.

CONTENTS

Abstract

1. Introduction

2. Patterns of population change in Poland in the eighties

3. Components of population change

4. Reasons for population change

5. Conclusions

Appendix: Data and their recalculations

References

Abstract

The paper is devoted to the discussion of the geographical patterns of population change in Poland over the decade of the eighties. Explanation of the observed patterns is given both in terms of the components of demographic change and review of literature on the reasons for emigration which has the most important role to play in the redistribution of population.

1. Introduction

One of the most important issues in the research into population of a country is how the population relocates and grows. It is of paramount importance not only from geographical or geodemographical points of view but also from social and economic points of view. In practical terms it has deep impact on planning activities on all levels, it influences organization and performance of social security or health service. Finally it influences economy and labour markets on regional and subregional scale. This is why substantial research effort has been attracted over the last decade to the problem of spatial redistribution of population in Poland. In particular the depopulation of rural areas has been in the focus of the interest of researchers. Stasiak with associates have been commissioned a study of this phenomena. This study resulted in report /Stasiak et al. 1987/ delivered to the Polish government. Consequently a project has been granted for extensive research into this problem, attracting scholars from various countries /The process of depopulation..., 1990/, and focusing on geographical and demogeographical aspects of the phenomena. These research efforts have generated substantial output in terms of publications. It may be useful to have a brief review of these publications as most of them is in Polish and therefore can be read only by a narrow group of readers.

Local/subregional scale is the most suitable to scrutinize relocation of population. In terms of administrative division this is commune/town level (2946 units in 1990). However research

based on commune/town division of Poland require much effort as the availability of the data is limited, the comparability of the data from year to year is poor and in principle requires massive recalculations. The fundamental analysis of the process of the population redistribution was given by Eberhardt (1989). Starting from the result of the National Census in 1978 and administrative division of Poland in this year he went back as far as to 1946 recalculating the results of all National Censuses (i.e. in 1946, 1950, 1960 and 1970) to this administrative division. As a result he obtained a time series of numbers of population in each commune/town. The comparison of the data obtained for various years but in unified spatial framework allowed the Author for the identification and then, in consequence of complicated classification procedure, a delimitation of depopulating regions. In fact areas on which the depopulation occurred over the period 1970-1978 are much larger than the areas constituting the depopulating regions defined by Eberhardt, as the Author aimed at delimitation of regions, where the depopulation process was the most advanced and persistent. Extension of Eberhardt's study for the period 1978-1986 can be found in Stasiak /1990/. The present map covers the period from 1980 to 1990¹. The findings

¹ The population data referred to in this publication are for 1.1.1980 and 1.1.1990 that means for the beginning of the year rather than the end of the year. Such adjustment was necessary to maintain the consistency with cartographic materials of the change of administrative boundaries, which described situation as on the first day of the year. It may create some difficulties for the reader, as traditionally when we talk on the data for given year we understood the data for the end of this year.

of both studies confirm the observation that substantial part of rural Poland has been continuously and is currently losing population.

The insight into the mechanism of this process has been provided by Rakowski and Rakowska /1990/ who constructed Webb typology of population change in all rural communes in Poland in 1976, 1980, 1983, 1986, 1987 and over the periods 1976-1980 and 1981-1985. As the Authors did not recalculate the data to one specific administrative division their results are burdened with much less accuracy than Eberhardt's and Stasiak's studies mentioned earlier as well as the present study. This refers, in particular to the most interesting typologies encompassing longer periods of time rather than single year.

There is a number of studies analyzing the problem of depopulation at the voivodship scale (49 units). It should be understood that relatively large spatial units as voivodships are not particularly relevant to the nature of the process of depopulation, as it can occur on relatively small territory. Therefore studies conducted at this spatial scale could give us only a very general guidance with respect to the trends. Such general picture of changes is provided by Witkowski /1989/, Gawryszewski and Potrykowska /1988/ and Gawryszewski /1989/. The latter paper aims at relating population to economic changes and offers some explanatory analysis. Kupiszewski /1989/ attempted to simulate depopulation process based on various assumption on rural to urban mobility.

Another important stream of research is directed towards the social and economic backgrounds underlying rural to urban migration. From historical perspective massive rural to urban migration in post-war Poland has been caused by unprecedented processes of industrialization and urbanization (Latuch 1970). However this explanation has a very limited relevance with respect to the last decade.

In recent investigations it has been widely recognized (Stasiak et. al. 1987, Eberhardt 1989, Gawryszewski 1989), that the most important reason for migration from rural areas is the poor economic situation of these areas and disastrous lack of infrastructure of any type. Haman (1982:40) has given a concise description of it: 'Only 13% of rural houses have current water, one out of three families have to transport the water from outside of theirs' farm yard. 40% of rural housing stock is dilapidating and should not be inhabited. Almost 40% of rural population lives below subsistence level (as compared with 10% of urban population). High standard of living has been achieved by 12% of rural households. Some information on social infrastructure of the rural areas: There are there 5% of total number of physician, 14% of dentists, 5.5% of nurses and slightly above 5.5% of midwives whereas the rural population accounts for 42% of total population. Average working time of a rural woman has been estimated to be 13 hours/day in the thirties, 14 in the sixties and now 15-18 hours, depending on the size of a farm, type of production and family status.'². This account is ten

²Translation by MK.

years old, but there is no sign of improvement since then. In 1988 Grzybczak et.al. noted: '...only 7.2% of housing stocks is equipped with bathrooms, 21% with WC, 31% is supplied with gas, only in one out of three wells water is drinkable, 13% of villages does not have telephones at all...' ³. Casual relations between the quality of infrastructure and emigration has been confirmed in the study by Frenkel and Rosner (1986). Migration brings slight improvement of financial situation of the family of a migrant, as tables 1.12 and 1.13 in Szemberg (1990) show. Witkowski (1990) adds to this list such factors as inattractiveness of job, inadequate agricultural policy of the state, accessibility to recreational and cultural amenities. Sociologists points at the fact that a profession of a farmer is not highly respected and as a result such motivation as change of profession, increase of personal prestige or civilisation advancement play important role in migration decision making (Mirowski 1985).

So far attention has been paid to rural areas, particularly those loosing population. This population frequently migrate to towns, cities and industrial centres increasing population concentration there. Jerczynski and Gawryszewski /1984/ described the changes in the urban settlement subsystem of Poland in the second half of the seventies. Extension of this analysis till mid eighties has been offered by Jerczynski /1989/. According to his basic findings mobility looses its significance in the dynamics of urban growth. Also crucial is the fact, that the role of small

³Translation MK.

towns diminishes and the role of medium size towns grows. Highly urbanized voivodships with big cities /Korcelli 1990/ as well as big cities themselves /Korcelli 1989/ are loosing their importance as concentration foci. All these observations have been clearly confirmed in this study (see next section).

2. Patterns of population change in Poland in the eighties⁴

The spatial picture of the changes of population of Poland over the period 1980-1990 is very much similar to the one presented in publications mentioned in section 1. One may say that this picture is composed of two phenomena: rural depopulation and urban concentration. However this division is very superficial as the process of urban growth varies depending on the size of town and its geographical location. In fact in certain cases we deal with urban decline rather than urban growth. Also 'rural depopulation' is a term of convenience. Substantial part of rural Poland has been and still is growing - sometimes as an effect of the process of formation of urban agglomerations, sometimes because of high natural increase. The geographical patterns of the change will be briefly described below.

The areas suffering the most from rural depopulation are located in Białystok and Suwalki voivodships. Simultaneously in these voivodships are located towns which have experienced very high growth (more than 30%): Białystok, Bielsk Podlaski, Siemiatycze and Suwalki. As Dziewonski (1990) has shown these towns have grown on the expense of its rural hinterland. The extent of rural depopulation on the north-eastern and eastern boundaries of Poland is much larger than these two voivodships. In fact all, except 5, rural communes adjacent to the state boundary with the

⁴ This chapter refers to the map 'Population change in Poland 1980-1990'.

former USSR and located between Frombork on Zalew Wiślany up to Wielkie Oczy in the south-east /Przemyśl voivodship/ have lost population. The term "Eastern Wall" has been hammered, denoting stagnating and depopulating east of Poland.

There is another significant cluster of communes losing population in the Łódź voivodship and in the ring of voivodships surrounding it. In fact the majority of territory on which rural depopulation occurs might be quite liberally delimited with a line drawn from Frombork to Opole, then along upper Vistula and San rivers to the state boundary. Also inside the territory delineated above the depopulation process has patchy pattern. It may be easier to identify territories which have been growing. Almost all such patches are located around large cities i.e. ring of communes around Warsaw, extending to the south-east as far as to Kozienice and Dęblin with a kind of appendix around Łuków and to the south of it. Similar, but much smaller rings are around Kielce and Radom, to the north and north-west from Lublin as well as in the northern Poland: a crescent between Olsztyn and Ruciane-Nida or around Ostrołęka. It is clear, that these clusters either form urban agglomerations on various stages of maturity or at least grow in the vicinity of medium size towns, often new (since administrative reform in 1975) voivodship capitals.

Western part of Poland presents a mosaic pattern of growth or decline of population, but even there it is possible to identify depopulating areas in Gorzów Wielkopolski, Koszalin and northern

part of Szczecin and Piła voivodships. In the Lower Silesia in the northern part of Legnica voivodship as well as to the south from Wrocław and in the belt between Otmuchów and Kietrz are some other areas loosing population.

There are also rural areas with prominent growth of population. Probably the most important two are located in the north of Poland in Gdańsk Pommern, in particular in Pojezierze Kaszubskie (Gdańsk voivodship), but also in Słupsk and Elbląg voivodships and in the south in Carpathian Mountains and at its foothills (roughly speaking in Bielsko-Biała, Nowy Sacz, Kraków, Tarnów and part of Krosno voivodships).

As it was mentioned above the vast majority of the growth of population occurs in fact in urban territories. However, as it was noticed by Jerczynski and Gawryszewski /1984/ and Jerczynski /1989/ this growth is not distributed uniformly among all categories of cities and towns.

Analysis of the growth of towns and cities by size in the following categories: under 5000, 5-10000, 10-25000, 25-50000, 50-100000, 100-250000 and over 500000 inhabitants in 1990 shows that the pace of the growth of the largest cities - over 250000 is the slowest. In fact some of them, as Łódź (since 1988) and Katowice (since 1987) have been loosing its population. Some other cities - as Warsaw - demonstrated reduction of growth from thousands in the end of seventies to tens in 1989. However in longer perspective of 10 years all large cities show slow growth.

Also the category of smallest towns - under 5000 of inhabitants demonstrated quite limited growth. There is no one single pattern of growth of smallest towns. Some of them have experienced quite substantial decrease of its population - in several cases up to 10% (Dolsk) or more (Lipsk). Some of them have been booming (i.e. Kamień Krajeński, Nowogrodziec, Kańczuga) with the growth even over 40% decennially. It may be difficult to reveal a clear geographical pattern of booming small towns however if we consider towns with growth exceeding 20% and count the number of them by voivodship it occurs that in Gorzów, Konin, Poznań and Przemyśl voivodships there are more than four fast growing towns. But in fact large part of small towns have been stagnated with the change of population between +3% and -3% over 10 years. The average growth rate of towns inhabited by 5000 or less is below the national average and well below the average for urban population. Poor development of population of smallest towns is particularly worrying, because it hampers the development of most basic services for rural areas.

Towns between 10000 and 100000 population constitute the fastest growing group of towns, with the growth of its population exceeding substantially the growth of urban population. The true boom, with average growth rate over 20% (calculated based on the growth rates of towns rather than growth of total population inhabiting these towns was experienced by towns between 50000 and 100000 inhabitants.

It may be interesting to note that towns in the size category

between 10000 and 100000 which have grown very fast (over 30% of growth during 10 years period) are located basically in the east of Poland on the East Wall as well as in other territories showing loses of rural population.

It is clear, that the depopulation was characteristic predominantly to the rural areas. This process could be attributed mainly to the mobility of population, as the natural increase on rural areas have always been high and before 1983 had always been over 10%., whereas in urban areas since 1962 it has never exceeded 10%.

The sex structure of population⁵ is the result of selectivity of the mobility of population. Female population is more mobile than male, which is not new, as Ravenstein noted it a century ago. Female population concentrates in towns and cities. In fact it is very unusual to have more males than females in a town and it does not happen in cities. Almost all rural areas experienced below national average (which stood on 51.26% in 1990) share of females. However the imbalance was particularly acute in northern Poland. The area suffering the most from the lack of women is in Gdańsk, Słupsk, Koszalin Szczecin, Suwałki, Białystok, Łomża, Ostrołęka, Ciechanów, Olsztyn and Elbląg voivodships with the share of female under 49% in many rural communes. Quite severe distortion of the sex structure might be observed in and Pila voivodships and in the south in mountainous communes of Krosno

⁵All sex structure indices are calculated based on 1990 data (see section 4).

voivodships. The share of female in the total population irrespectively of age, shown on the map, does not reveals all truth. If we inspect sex structure in the age groups which are the most important from the point of view of marriages and procreation, i.e. between 20 and 29 years the picture would be much more disastrous. For example in this age group only 43.37% of rural population of Suwałki voivodship is female. On the other hand females dominate old population. To illustrate it is enough to say that women constitute 60.35% of rural population at the age of 70 and more in Suwałki voivodship.

Obviously the distortion of the balance of the sex structure has not only demographical, but much more important sociological and economic dimension. It hampers the process of formation of families due to a lack of suitable female candidates to marriage. As the agriculture predominantly relays on family-run farms with traditional division of tasks between male and female members of family it also causes various fundamental problems in running these farms.

It is fully justified to say, that rural areas suffering simultaneously from deep depopulation and sex structure imbalance can not expect bright future neither in demographic nor in economic and social terms.

3. Components of population change

The map of spatial redistribution of population presents integrated effects of natural increase and mobility in each commune. It is interested to have a closer look at how each of these factors have contributed to the final situation.

Over the entire post-war period population of Poland has been growing. It stood on 23.8 mln in 1946 and reached 38 mln in 1990. However this growth was solely due to the growth of urban places. In fact rural population decreased from 15.6 mln (65.98% of total population) in 1946 to 14.8 mln in 1980 and 14.6 mln (38.44%) in 1990. The urban growth was not only due to migration and natural increase but also due to changes of administrative boundaries. Nevertheless it is out of a question that trajectories of growth of rural and urban population have been totally different.

A look at the rural population change in more global terms shows, that in fact till early 70' the migration losses had been compensated by natural increase. In 1970 for the first time rural population reduced and the annual losses reached the peak in 1975 (74.1 thousand but negative migration balance stood in this year on 251.1 thousand). This decrease was solely due to huge rural emigration in the Gierek's era. In the last decade the total losses were about 100 thousand. In fact only between 1982 and 1985 rural population has been growing. Evident speed up of the process of decrease started in 1986. It was predominantly due to decrease in natural increase (precisely decrease in fertility)

as the mobility was relatively stable on lowest level since early seventies.

The pace of growth of urban population declined twofold over the last decade. It was due to the reduction of net migration and fertility and increase in mortality. What is particularly worrying in the patterns of growth of urban population is the overmortality, particularly of men in the middle age.

Above comments are of very general nature. Already mentioned recent paper by Rakowski and Rakowska /1990/ gives useful insight into the sources of change at the commune/town scale. Despite of the fact that it covers slightly different period of time than this paper the results reported are useful in the explanation of demographic sources of the phenomena. Let us summarize briefly the most important findings of the paper. Even a brief look at the maps presented by Rakowski and Rakowska shows, that the migration is the most important factor of rural depopulation over the whole period in question. Only less than 7.6% of all communes demonstrated positive balance of migration in 1987. In comparison to 1980 this share almost doubled as the general mobility and in particular rural to urban mobility decreased dramatically. In these communes where the population has been growing it has been in most cases due to excess of natural increase over migration losses. It should be noted, that in fact only slightly over 1/3 of communes increased its population in 1987. The majority of them loses population, however exact figures vary from year to year. Most dramatic situation is in the communes with negative

migration balance and negative natural increase. Their number is growing systematically from 18 in 1976 to 40 in 1980 and as many as 103 in 1987. It is important, that Białystok voivodship suffers the most from the concentration of communes of this type. 22 out of 49 rural communes in this voivodship has demonstrated this pattern of depopulation /Rakowski, Rakowska 1990/.

4. Reasons for population change

Very general reasons of the change in population distribution has been referred to in section 1. These will be discuss in detail below. As it has been already pointed out economic factors and more general quality of living have important impact on migration decisions. A study by Chojnicki and Czyż (undated) shows firmly that relatively high standard of living has been observed in urban agglomerations and in the west and north west of Poland. This to some extend coincide with the pattern of growth of rural population. Gdańsk voivodship has one of the highest indices of consumption per inhabitant (Chojnicki, Czyz undated), one of the highest gross production per employed and one of the highest increase in productivity, below average depreciation of fixed assets, relatively good housing situation (Dramowicz K., undated) and relatively high level of services (Matykowski R., Stryjakiewicz T., 1989). It coincide with one of the most impressive growth of rural population in Poland. Obviously this coincidence cannot be interpreted as causality unless proper research is done.

Much more difficult to explain is the growth of rural population in southern Poland. We may suspect, that in Kraków voivodship and above all in Nowy Sącz voivodship it is due to flourishing tourist industry in the eighties. Another factor which probably prevented outmigration of population from this area is that in the eighties the number of jobs in local centres was higher than labour available (Lijewski T., 1991). This coupled with high

propensity to commute to work over long distance (Potrykowska A., 1989) certainly has reduced the outflow from the rural communes of the south. However as the researchers try to answer why depopulation occurs rather than why growth of population occurs, not much more is on offer.

On many occasions the growth of a locality is due to massive investment. This is the case in Legnica voivodship (Głogów 40% of growth over the decade in question, Polkowice 15%) where entire branch of economy has been created from the scratch as investment has been made into copper mining and processing; Łęczna (304% of growth) due to a construction of a new hard coal pit, Bełchatów (120% of growth; brown coal mining and power station); Police (50%, chemical industry), Żory (52%), Żdzieszowice (23%) and many others.

In many cases the growth of population has been generated by urban agglomerations. This is particularly well visible with respect to Warsaw agglomeration, but also in the case of Szczecin, Poznań, Wrocław, Toruń-Bydgoszcz or Olsztyn.

There is very little doubts that the growth of these agglomerations has slowed down or even stopped recently as the importance of urban agglomerations in the migration system diminishes (Kupiszewski 1991).

A very interesting phenomena can be observed in the eastern Poland, where all cities growth, some as much as Ustrzyki Dolne (52%), Kańczuga (50%) or Siemiatycze (48%). New voivodship

capitals such as Łomża (52%), Suwałki (50%) or experience also profound population increase. Stasiak (1989) states, that these towns intercept outmigrants leaving dramatically depopulating Eastern Wall. This is in line with Dziewoński's (1990) opinion.

If we look at the reasons of depopulation it is clear that economic condition, technical and social infrastructure and accessibility to various amenities play the most important role. Miazga (1990) provides the following catalogue of reasons of depopulation in mid-eastern voivodship: 1. concentration of economic potential in voivodship capitals; 2. difficult condition of work in agriculture. This is due to poor soils and miserable weather conditions; 3. low profitability of farming; 4. lack of mechanization of work on farms; 5. neglected social and technical infrastructure; 6. 'demographic feedback' where unfavourable demographic structures (in particular age and sex structure) create an additions pushing factor⁶; 7. lack of positive attitude towards local community and lack of sense of common goals⁷. He also mentions frictions between national (Ukrainian in this case) minorities and the Poles. The last problem has also been mentioned by Jelonek (1990) with respect to south-eastern Poland. Jelonek (1990) mentions also poor accessibility to localities adjacent to the border, as on purpose no transportation infrastructure has been developed there to make

⁶ This problem has been discussed in detail in Stasiak, 1989 Szydłowski et. al., 1990.

⁷ Some other sociological problems has been illuminated by Mirowski (1985) and mentioned earlier in this study.

illegal crossing of the border more difficult. He also noticed, that the construction of various frontier installation hampered land accessibility. This observation certainly is true with respect to all communes bordering former USSR. In fact the presence of the dead-end border with former USSR hampered enormously non-agricultural development of all communes in the east⁸. Besides that Stasiak (1989) in his study of the depopulation of north-eastern Poland stresses that the reason of massive outmigration are '... soils of relatively weak quality, growing season is shorter there than in the central and western parts of the country, and winters are colder, what put some limitations on the access to services... there are some villages where many kinds of service, including health care and welfare, education, etc. are in fact absent [and] ... public transport often fails in winter.' (p.156).

Quite similar are the reasons of depopulation in territories other than eastern Poland. Stachiewicz (1990) writes about lack of cultural and entertainment amenities, poor telecommunication network, inadequate water supply, poor transportation infrastructure, lack of means of agricultural production and poor shop supply. He blames also recruitment campaign run by upper silesian industry, but this campaign affected virtually all country (Dziewoński, Korcelli 1981). Czerebież-Tarabicki (1990) who researched into communes of Szczecin voivodship and most northern communes of Gorzów voivodship points at politics and policy-making as important pushing factors. He said that

⁸see Stasiak 1989.

mismanagement and misadministration, unstable and frequently changed administrative boundaries, lack of stable agricultural policy, faulty spatial planning as well as economic reasons (low standard of living, lack of extra-agricultural employment, unprofitable agricultural production) forced young people out of rural settlements. With respect to all Regained Territories it seems to be important (Sałuda 1990) that farmers who own the land are much less mobile than these who are employed by the state farms⁹.

Depopulation of south-west Poland, in particular in Sudety Mountains has slightly different character, because not only rural areas frequently loose population but also urban localities have had negative migration balance¹⁰. The latter may be attributed to the faulty regional policy after the World War II. These territories, despite war damages and massive looting by the Soviet Army has had better infrastructure than these in eastern and southern Poland. Therefore scarce resources have been directed to those territories which needed them most. This policy lasted much too long and resulted in dilapidation of both urban and rural substance. Rapid decline in coal industry, in particular in Wałbrzych Coal Basin where geological conditions are particularly difficult causing the mining of coal to be very

⁹In the Regained Territories the socialized sector of agriculture was much stronger than anywhere else.

¹⁰ in Jelenia Góra voivodship over the period 1976-1983, in Wałbrzych voivodship over the period 19876-1980; see Jerczyński 1989., but also later on, see relevant Demographical Yearbooks.

expensive, has put at stake tens of thousands of jobs. Depopulation in rural areas (Więckowicz and Kuszpit 1990) has been enhanced by the lack of emotional attitudes of farmers towards their job and unfavourable condition of farming (low quality of soils, relief, northern exposition of slopes, short vegetation season) and wrong state policy towards the farming. Opole voivodship also has its specific causes as this voivodship is the main home for the German minority. For national and probably even, more for economic reasons this minority tends to move to Germany. As a result of it the external outmigration rate from this voivodship over the period 1981-1988 was as high as 7.2. per thousand of population, the highest in Poland (Korcelli 1992). Obviously the reasons to migrate are more complex than that. Heffner (1990) gives lack of extra-agricultural jobs opportunities for rural population and poor access to education as pushing factors. Availability of both in towns and cities created the pulling factors.

5. Conclusions

As it has been already shown one of the main features of the redistribution of population in Poland is depopulation of some rural areas, often coupled with high speed growth of small and medium size towns in these areas. Obviously the phenomena of rural depopulation is geographically diversified and it is possible to delineate some regions where the process is particularly acute. On the other hand some rural areas experience profound increase in population. The analysis of the components of change show that migration is the most important agent of the change. Usually fertility much higher than mortality partially offset migrational losses. But the number of communes where both net migration and natural increase are negative have been growing over the last two decades. There are some important changes in urban settlement subsystem: large cities do not grow any longer and in most cases maintain its size, whereas the medium size towns growth very fast. Smallest towns usually decrease in size which should be an important reason of a headache of regional planners.

If we look at the reasons for depopulation, in fact reasons for outmigration as this is the factor which offset usually high natural increase in countryside, there is a wide agreement amongst various authors. The reasons for outmigration from various areas are very similar and have been listed out earlier. We may distinguish three main groups of them: 1. dissatisfaction from the level of living, 2. inappropriate agricultural policy

and 3. low level of appreciation of peasants and their work in the society. The possibility to cure situation lies in the increase in the profitability from farming, creating decent social and technical infrastructure, creating non-agricultural jobs, increasing accessibility to services, education and culture, enhancing medical care and shaping new mental picture of the farmers. However, given economic situation of Poland it is unlikely that this would be done. Therefore the reduction in outmigration could occur due to exhaustion of demographic resources available in the countryside or due to lack of pulling (jobs, education, housing facilities etc.) factors in urban Poland.

Appendix: Data and their recalculations

The population data used to prepare the map on 'Population change in Poland 1980-1990' are for 1.1.1980 and 1.1.1990 and came from unpublished materials of Central Statistical Office. Indices of sex structure of population were calculated based on 1990 data and did not required any adjustment. The data on population change required recalculation of the data for 1980 to the administrative boundaries in 1990. The methodology of these recalculation should be briefly explained. From the point of view of rural/urban divide there are following possible changes of boundaries:

- * rural area is incorporated to urban area
- * urban area is moved to another urban area
- * urban area is incorporated to rural area
- * rural area is moved to another rural area

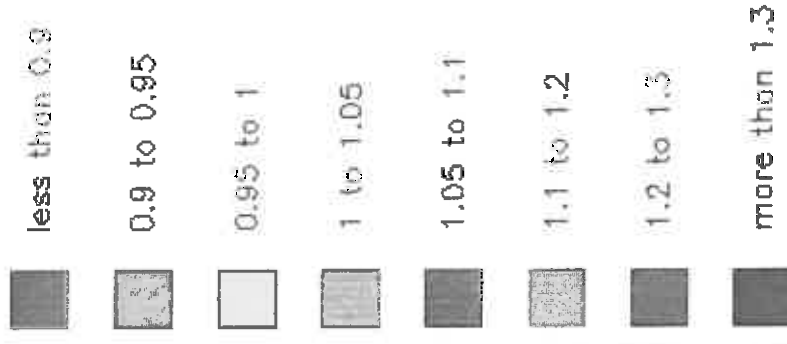
For the first three types of changes the year of change and the data on the number of population moved from one administrative unit to another has been published in Główny Urząd Statystyczny /1990/, so the recalculations were relatively straightforward. The last case, the change of boundaries between rural areas, has been tackled based on assumption that the density of population is homogenous over all administrative unit and the population transferred from one unit to another is proportional to the area transferred. In some cases an attempt to check sensibility of this assumption has been made by inspection of topographic maps at various scales. From methodological point of view this category of recalculations is the most doubtful, but they have

been done with extreme precautions.

In 32 cases direct comparison of cartographic materials /PPWK 1980, PPWK 1990 providing administrative boundaries as for 1.1.1980 and 1.1.1989/ with Główny Urząd Statystyczny /1990/ did not satisfy the needs of this methodology due to the changes of boundaries between 1.1.1980 and 1.1.1990 (these changes has not been presented officially in the form of administrative map of Poland as yet). In all these cases references to administrative decrees introducing the changes has been made and data on the areas transferred from one administrative unit to the other has been amended adequately.

POPULATION CHANGE IN POLAND 1980-1990

Change (1980=1)



References

Chojnicki Z., Czyż T., undated, The structure of the level of living in the regional pattern of Poland. Mimeographed manuscript. Adam Mickiewicz University, Poznań.

Czerebież-Tarabicki R., 1990. Depopulation of the countryside in Western Pomerania. [in:] A. Stasiak and W. Mirowski (eds.), The process of depopulation of rural areas in Central and Eastern Europe. Conference Papers, 8, 116-127, Institute of Geography and Spatial Organization, Warszawa.

Dramowicz K., undated, Some problems of disparities in Poland's regional development. Mimeographed manuscript.

Dziewoński K., 1990. Rural-urban migration and housing in contemporary Poland. [in:] J. van Weesep and P. Korcelli (eds.), Residential mobility and social change: Studies from Poland and the Netherlands. Nederlandse Geografische Studies, Amsterdam/Utrecht, 106, 36-45.

Dziewoński K., Korcelli P., 1981. Migration and Settlement: 11. Poland. RR-81-20, IIASA, Laxemburg.

Eberhardt P., 1989. Regiony wyludniające się w Polsce (Depopulating regions in Poland). Prace Geograficzne, 148. Ossolineum, Wrocław.

Frenkel I., Rosner A., 1986., Infrastruktura wiejska a migracje między miastem a wsią (Rural infrastructure and rural-urban migration). [in:] Studia nad migracjami ludności wiejskiej (Studies on migration of rural population). Monografie i Opracowania SGPiS, 216, 199-254.

Gawryszewski A., 1989. Wiejskie obszary wyludniające się, 1961-1985 (Rural depopulation areas 1961-1985). [in:] P.Korcelli, A.Gawryszewski (eds.), Współczesne przemiany regionalnych systemów osadniczych w Polsce (Regional settlement system in Poland. Recent trends). Prace Geograficzne, 152, 91-106. Ossolineum, Wrocław.

Gawryszewski A., Potrykowska A., 1988. Rural depopulation areas in Poland. Geographia Polonica, 54, 81-99.

Główny Urząd Statystyczny, 1990. Powierzchnia i ludność w przekroju terytorialnym oraz zmiany podziału administracyjnego (Area, population and the change of administrative boundaries), Warszawa, 1990.

Grzybczak J., Chłopecki K., Gorzelak E., Jasiński W., Mieńkowski S., Rafalski H., Tomczak F., Woś A., 1988. Społeczny raport o zagrożeniach rozwoju wsi, rolnictwa i gospodarki żywnościowej (A report on the threat of development of countryside, agriculture and food industry). Odrodzenie, 7, 1988.

Haman J., 1982. W sprawie rolnictwa i nauk rolniczych (On the

agriculture and agricultural sciences). Nauka Polska 1-2, 37-44.

Heffner K., 1990. Depopulation process of rural settlements in the Opole region. [in:] A.Stasiak and W. Mirowski (eds.), The process of depopulation of rural areas in Central and Eastern Europe. Conference Papers, 8, 138-153, Institute of Geography and Spatial Organization, Warszawa.

Jelonek A., 1990. Depopulation of rural areas in south-eastern Poland. [in:] Stasiak A., Mirowski W., (eds.) The process of depopulation of rural areas in central and eastern Europe. Conference Papers 8, 58-66. IGiPZ PAN, Warszawa.

Jerczyński M., 1989. Aktualne tendencje przemian ludnościowych w krajowym systemie miejskim (Current population change in the national urban system). [in:] P.Korcelli, A.Gawryszewski (eds.), Współczesne przemiany regionalnych systemów osadniczych w Polsce (Regional settlement system in Poland. Recent trends). Prace Geograficzne, 152, 37-54. Ossolineum, Wrocław.

Jerczyński M., Gawryszewski A., 1984. Problemy demograficzne a rozwój miejskiego systemu osadniczego Polski (Demographic problems and the development of urban settlement system). [in:] A.Kukliński (ed.) Gospodarka przestrzenna Polski. Diagnoza i rekonstrukcja. (Spatial economy of Poland. Diagnosis and reconstruction), 155-211. Ossolineum, Wrocław.

Korcelli P., 1989. Zmiany układu migracji w regionie miejskim

Warszawy (Changing migration patterns in the urban region of Warsaw). [in:] P.Korcelli, A.Gawryszewski (eds.), Współczesne przemiany regionalnych systemów osadniczych w Polsce (Regional settlement system in Poland. Recent trends). Prace Geograficzne, 152, 107-121. Ossolineum, Wrocław.

Korcelli P., 1990. Recent urban and population change in Poland. Geoforum, 21, 2, 173-184.

Korcelli P., 1992. European migration - the Polish example. Paper presented on the Conference on Mass Migration in Europe: Implication in East and West. Vienna, March 1992.

Kupiszewski M., 1989. Perspektywy procesów depopulacyjnych na obszarach wiejskich. Próba projekcji i symulacji (Prospects of depopulation processes of rural areas. An attempt at projection and simulation). [in:] J.Witkowski (ed.), Współczesne migracje i metodyka ich badania (Contemporary migration and methodology of studies of them). Monografie i Opracowania, 287, 87-100. Instytut Statystyki i Demografii SGPiS, Warszawa.

Kupiszewski M., 1991. Stability of intervoivodship migration in Poland 1975-1987. Mimeographed manuscript.

Latuch M., 1970. Migracje wewnętrzne w Polsce na tle industrializacji (1950-1960) (Internal migration and industrialization in Poland (1950-1960)). PWE, Warszawa.

Lijewski T., 1991. Ośrodki aktywności gospodarczej w Polsce (Centres of economic activity in Poland). [in:] Krawczyk B. and Grzeszczak J., (eds.), Sesja Naukowa IGiPZ PAN 1991 (Annual Conference 1991), Conference Papers 14, 97-105, IGiPZ PAN Warszawa.

Matykowski R., Stryjakiewicz T., 1989. The process of service orientation of the Polish economy in 1970-1982. Concepts and methods in Geography, 2, 81-94.

Miazga M., 1990. Rural depopulation and agriculture in Mid-Eastern Poland. [in:] A.Stasiak and W. Mirowski (eds.), The process of depopulation of rural areas in Central and Eastern Europe. Conference Papers, 8, 67-72, Institute of Geography and Spatial Organization, Warszawa.

Mirowski W., 1985. Zróżnicowanie społeczno-gospodarcze a procesy wyludniania się województw siedleckiego i białkopodlaskiego (Socio-economic differentiation and depopulation process of Siedlce and Biała Podlaska voivodships). Biuletyn Informacyjny, 50, Institute of Geography and Spatial Organization, Warszawa.

Potrykowska A., 1989. Funkcjonalne regiony miejskie w krajowym systemie osadniczym (Functional urban regions within the national settlement system in Poland). [in:] Korcelli P., Gawryszewski A. (eds.) Współczesne przemiany regionalnych systemów osadniczych w Polsce (Regional Settlement system in Poland. Recent Trends), Prace Geograficzne 152, 55-75. Ossolineum, Wrocław.

PPWK, 1980., Polska Rzeczpospolita Ludowa. Mapa administracyjna (Administrative map of Poland), 1:750000, Warszawa.

PPWK, 1990., Rzeczpospolita Polska. Mapa administracyjna (Administrative map of Poland), 1:750000, Warszawa.

Rakowski W., Rakowska A., 1990. Typologia obszarów wiejskich z punktu widzenia kształtowania się relacji przyrostu naturalnego i salda migracji ludności w latach 1976-1987 (Typology of rural areas from the point of view of forming of the relation of natural increase and population migration balance in years 1976-1987). [in:] J.Witkowski (ed.), Wybrane problemy migracji ludności wiejskiej w Polsce (Selected problems of rural population migration in Poland). Monografie i Opracowania, 309, 77-125. Instytut Statystyki i Demografii SGPiS, Warszawa.

Sałuda B., 1990. Attitudes of farmers towards land ownership on both sides of the former East Prussian border, 1984-1987. In Stasiak A., Mirowski W., (eds.) The process of depopulation of rural areas in central and eastern Europe. Conference Papers 8, 83-92. IGIPZ PAN, Warszawa.

Stachiewicz M., 1990. Social conditions and consequences of depopulation of rural areas in Koszalin and Słupsk provinces. [in:] Stasiak A., Mirowski W., (eds.) The process of depopulation of rural areas in central and eastern Europe. Conference Papers 8, 111-115. IGIPZ PAN, Warszawa.

Stasiak A. et al., 1987. Analiza uwarunkowań i skutków migracji ludności ze wsi do miast ze szczególnym uwzględnieniem wpływu tych migracji na strukturę ludności (The analysis of conditions and consequences of population migration from rural to urban areas with particular consideration of the influence of these migrations upon the demographic structure). Mimeographed manuscript, Warszawa.

Stasiak A., 1989. Processes of depopulation of the north-eastern areas of Poland. [in:] Rościszewski M. with Czyż B. and Grzeszczak J. (eds.) The state, modes of production and world political map. Conference Paper 3, 153-165, IGiPZ PAN, Warszawa.

Stasiak A., 1990. Depopulation of rural areas in Poland - general problems. [in:] A.Stasiak and W. Mirowski (eds.), The process of depopulation of rural areas in Central and Eastern Europe. Conference Papers, 8, 13-37, Institute of Geography and Spatial Organization, Warszawa.

Szemberg A., 1990. Mobilność ludności wiejskiej a gospodarstwo chłopskie (Mobility of rural population and peasant household). [in:] J.Witkowski (ed.), Wybrane problemy migracji ludności wiejskiej w Polsce (Selected problems of rural population migration in Poland). Monografie i Opracowania, 309, 15-76. Instytut Statystyki i Demografii SGPiS, Warszawa.

Szydlowski W., Serwin M., Horodenski R., 1990. Demographic problems in rural areas of the north-eastern voivodships. [in:]

A.Stasiak and W. Mirowski (eds.), The process of depopulation of rural areas in Central and Eastern Europe. Conference Papers, 8, 73-82, Institute of Geography and Spatial Organization, Warszawa.

The process of depopulation of rural areas in Central and Eastern Europe. 1990. Conference Papers 8, Institute of Geography and Spatial Organization, Warszawa.

Więckowicz Z., Kuszpit W., 1990. Depopulation of rural areas in south-western Poland. [in:] A.Stasiak and W. Mirowski (eds.), The process of depopulation of rural areas in Central and Eastern Europe. Conference Papers, 8, 128-138, Institute of Geography and Spatial Organization, Warszawa.

Witkowski J., 1989. Demograficzne konsekwencje odpływu migracyjnego ze wsi (Demographic consequences of migratory outflow from rural areas). [in:] J.Witkowski (ed.), Współczesne migracje i metodyka ich badania (Contemporary migration and methodology of studies of them). Monografie i Opracowania, 287, 62-75. Instytut Statystyki i Demografii SGPiS, Warszawa.

Witkowski J., 1990. Warunki życia a zamierzenia migracyjne młodzieży wiejskiej w Polsce (Living conditions and migratory intentions of rural young people in Poland). [in:] J.Witkowski (ed.), Wybrane problemy migracji ludności wiejskiej w Polsce (Selected problems of rural population migration in Poland). Monografie i Opracowania, 309, 127-210. Instytut Statystyki i Demografii SGPiS, Warszawa.

