

Demographic Vulnerabilities in the North-East Region of Romania during the Post-Communist Period

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ABSTRACT

The dynamics of the demographic system of the North-East region represents the result of the joint action of a complex of various elements, out of which the political, economic and demographic ones play the most significant part. Investigated by means of the population censuses carried out in the post-December period, the numerical evolution of the population recorded a recession evolution tendency resulting from the specific manner in which the two fundamental components of the demographic dynamics combine with each other. With the highest values of demographic dynamics in the last century as compared to all the other historical provinces in Romania, Moldavia region has become proverbial for its extraordinary demographic energy, resulting from an obsolete demographic mentality and behaviour. However, although during the 25 years of market economy experience it has preserved its first place in the hierarchy by provinces, larger and larger (especially rural) areas have begun to dissociate from the traditional Moldavian demographic pattern, adopting a system of new behavioural attitudes and habits of Western influence derived from the advance gained in problematizing the control over the conscious control of births along with the series of (demographic and socio-economic) disequilibrium triggered by the change of the type of political and economic experience. Our study proposes a multi-scale analysis of the spatial differentiations and tries to demonstrate that we are facing a modernization process of the social structures, in spite of the perpetuation of some traditional regional disparities.

1. INTRODUCTION

Starting from a set of hypotheses and applying an appropriate methodology meant to point out the regional convergences and disparities, we intended to identify, reconstitute and forecast the quantitative and qualitative evolution of the North-East rural population, in the framework of a general evolution influenced by the international selective migration of the population and the recent adoption of new population policies, according to the European regulations. Based on a complex set of indicators, the paper proposes a multi-scale analysis of the spatial differentiations and tries to demonstrate that we are facing a modernization process of the social structures,

in spite of the perpetuation of some traditional regional disparities. Vulnerability is a multidimensional concept which illustrates the numerous sides of this term.

IDNDR Dictionary (1992) defines it as “*the degree of losses (from 0 to 100%) resulted from a phenomenon with a destructive potential*”.

“Vulnerability” emphasizes the degree to which people and their commodities are exposed to the different hazards, pointing out the level of the losses a certain hazard could produce. The literature in the field speaks about two main types of vulnerability: biophysical and social [1]. In the present study we focused on the latter, according to which vulnerability is a function of the internal characteristics of an anthropogenic system. Social vulnerability became

important in the '90s, together with the acknowledgment of the role the features of the society may have in establishing the dimension of the losses [2].

The socio-demographic vulnerability of a system resides in its incapacity of favourably answering when it faces a risk situation, just like in its incapacity of actively adapting to the newly created situation. Active adaptation involves the capacity of managing a situation with minimum losses [3]. Demography, as a social science, has the advantage of being able to forecast social-demographic risks since they take place during long periods of time and spread gradually, thus allowing forecasts.

The study on the vulnerability of various systems must also take into consideration a series of adjacent terms, such as: resilience, sensitivity, fragility, adaptability etc. While resilience refers to a system's ability of facing disturbances (either by adapting to it or by returning to its initial condition), vulnerability represents the tendency of a system to suffer prejudices when exposed to perturbing processes. Other authors see vulnerability as the antonym of resilience [4].

The factors that cause vulnerability are different in relation to both the geographical, social, economic context and the typology of the disturbing phenomena [5], [6]. While, in certain cases, the determinants of vulnerability may be isolation and poverty, in other essential situations the quality of the infrastructure and the structure of land use may play this role. In the Romanian literature there is a very diverse approach of this topic as regards the vulnerability associated to both physical-geographical [7], [8] and human-geographical phenomena [9], [10], [11].

2. THEORY AND METHODOLOGY

In order to accomplish the three main objectives of the study (to assess the degree of demographic fragilization of the North-East demographic system in the post-communist period, to outline the intra-region disparities and to emphasize their causes), we identified and mapped 6 indicators that best illustrate demographic vulnerabilities:

- *the sex ratio* – calculated as the number of females per 100 males; when its values exceed 100%, we deal with a vulnerable demographic situation, since male manpower is required by most primary and secondary jobs [12];

- *the share of the young population* (a very good predictor for the future demographic potential of a community);

- *the ageing index* – representing the percentage ratio between the elderly population (aged 65 and more) and the young population (aged less than 14);

- *the demographic dependence ratio* – calculated as the ratio between the dependent population (aged 0-14 and more than 65) and the adult population; it represents a parameter with a real

capacity of demographic prognosis, since it is the measure of the pressure exercised on the working age population by the non-working age groups) [13];
- *the natural and migration balance*.

The data used was provided by the National Institute of Statistics (Tempo-Online) and the database thus created was correlated to the cartographic support mentioned above. The methodology used to process the information corresponds to a time and space analysis specific to the geographic study of the population and territory.

In the end, after the data were standardized and normalized, in order to extract patterns of demographic vulnerability, we drew a hierarchical ascendant classification based on the above mentioned indices, the statistical data being graphically processed with the help of the PhilCarto software.

3. RESULTS AND DISCUSSION

3.1. Framework of vulnerability quantification

The comparative analysis of the statistical data provided by 1992 and 2011 population censuses reveals the fact that the 20-year transition period with its multiple mutations caused a -12.0% decrease in the total number of inhabitants, an evolution which almost perfectly overlaps the national average (-11.8%). Out of the six counties included in our study area, three of them (Bacău, Neamț and Vaslui) record a deeper collapse, while the other three (Botoșani, Neamț and Suceava) lie above the average, the causes of such an evolution being manifold and largely explainable through the indicators analysed below.

Table 1. Dynamics of the North-East region population (1992-2011).

County	Population (1992)	Population (2011)	2011-1992 (%)
Bacău	737,512	616,168	-16.5
Botoșani	461,305	412,626	-10.6
Iași	811,342	772,348	-4.8
Neamț	578,420	470,766	-18.6
Suceava	701,830	634,810	-9.5
Vaslui	461,374	395,499	-14.3
<i>North East Region</i>	<i>3,751,783</i>	<i>3,302,217</i>	<i>-12</i>
<i>Romania</i>	<i>22,810,035</i>	<i>20,121,641</i>	<i>-11.8</i>

3.1.1. The sex ratio

In comparison to the national value (105.6%), the North-East region records an average of 102.5%, which reveals a more balanced structure by age groups. The minimum value is claimed by Grajduri commune (86.3%), the main explanation for this situation residing in the fact that in the ethnic structure of this commune gypsies hold a significant percentage (9%),

representing a minority group which traditionally has very strong pro-natalist behaviour. As the high values of the birth rate are generally associated with a larger number of males, this traditional gender imbalance at birth could explain the smaller number of females. Besides, on the territory of the commune there is also a Psychiatry Hospital with 300 patients (1/10 of the population), mostly males, being the only medical unit in the country which provides psychiatric services to people who have been legally punished.

Lower values can be encountered in the mountainous area, where the male population was better preserved due to its involvement in activities of wood exploitation and processing. Iași and Vaslui counties also stand out through lower values, mainly due to their pro-birth position induced by a still dynamic demographic behaviour [14].

The highest values are recorded especially in those areas that face a strong ageing process because, as it is well known [15], the ageing process goes hand in hand with a feminization process, since the female life expectancy at birth is higher (the northern part of Jijia Plain, the upper basin of Suceava river). They are also typical of large areas in Neamț and Bacău counties (especially Cracău-Bistrița Depression), areas that used to be strongly industrialised in that past, especially in the field of heavy industry (chemical, extractive). After 1989, these industries were very much restructured, so many former employees lost their jobs and, in order to earn their living, they found themselves forced to go to work abroad, which caused a decrease in the percentage of the male population [16].

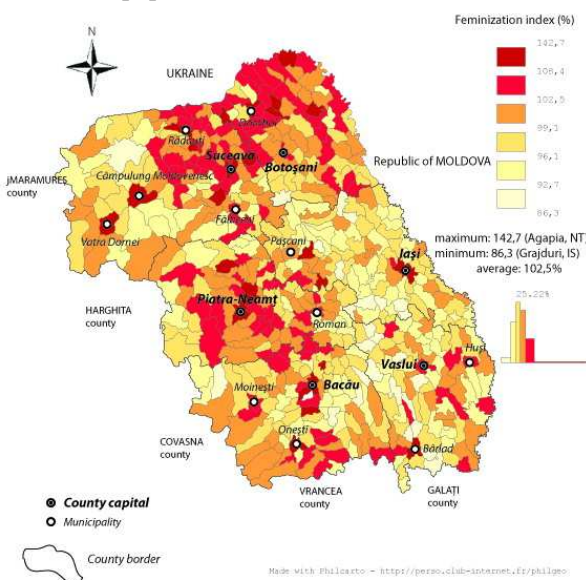


Fig. 1. The sex ratio (2012).

The record maximum belongs to Agapia (142.7%), its population structure by sex being distorted by the fact that this commune holds one of the most famous and attractive monasteries in the Moldavian region, comprising a number of about 400 nuns, which

represent one tenth of the population of this administrative unit.

3.1.2. The share of the young population

The average value of the North-East region (18.6%) is a little higher than the national value (15.8%) and this is mainly due to the fact that the North-East region, as part of Moldavia, still preserves a certain demographic energy in comparison to Romania on the whole. However, there is a noticeable decrease in the share of youth and the main causes are the same as at the national level: the decline of the birth and fertility rate as a consequence of the modernization of the demographic and nuptial behaviour, the turn of emigration into a mass phenomenon after 1990.

The map reveals the fact that there is a clear distinction between the western and eastern part of the region: the west has a more modern demographic behaviour, with lower birth and fertility rates which derives from a more efficient control over one's own lineage and an earlier rallying to an anti-natalist behaviour; on the contrary, the east seems to be more traditional, more conservative from the demographic point of view.

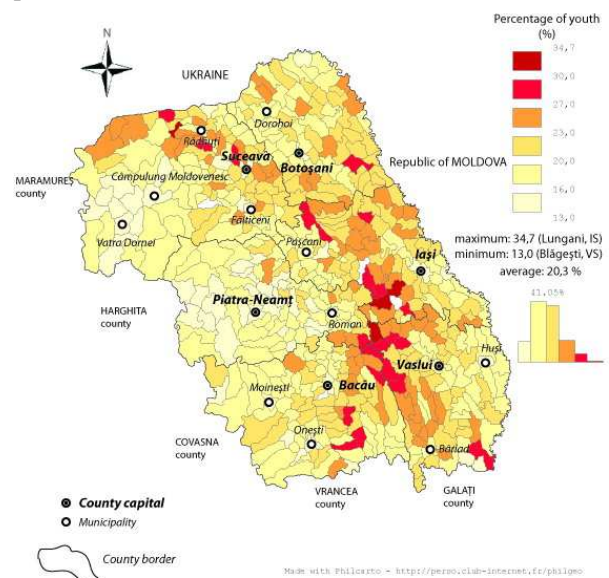


Fig. 2. The percentage of the young population (2012).

On the whole, we can say that a larger than the average percentage of young population is mainly the attribute of a certain configuration of the ethnic structure (the south-western part of Iași county and north-western part of Vaslui county, with an over representation of gypsies; the hutsuls in the Ridges of Bucovina), or of the religious configuration (the presence of the neo-protestant religious group in Bucovina, the Roman-Catholics in Siret Corridor).

The maximum percentage of youth is recorded by Lungani, a commune in Iași county, which stands

out through a very good representation of gipsies, especially in the case of Crucea and Zmeu villages, where this ethnicity represents 40% of the total population, the average birth rate being of about 25‰, many gipsy young females becoming mothers at 13 and having up to 3 children by 20.

3.1.3. The ageing index

In comparison with the national value, the average of the North-East region is a slightly smaller, as a consequence of the reminiscences of the traditionally pro-natalist behaviour of the Moldavian population on the whole. However, the value, which is close to 0.90, clearly shows the setting up of an ageing process, speeded up by emigration.

The map of the ageing index reveals the areas that are facing the most advanced process of demographic ageing:

- the northern part of Jijia Plain and Fălciu Hills, where the ageing process was induced by the erosion of the human potential of these areas as a result of the many decades of rural exodus during the communist period, when these parts of the country were completely disadvantaged by the precariousness of the communication infrastructure and a modest economic potential, having little to offer to a mainly rural population;
- Neamț County is also facing an alert and preoccupying ageing process, strengthened by the active integration of Neamț County in the post communist emigration flows.

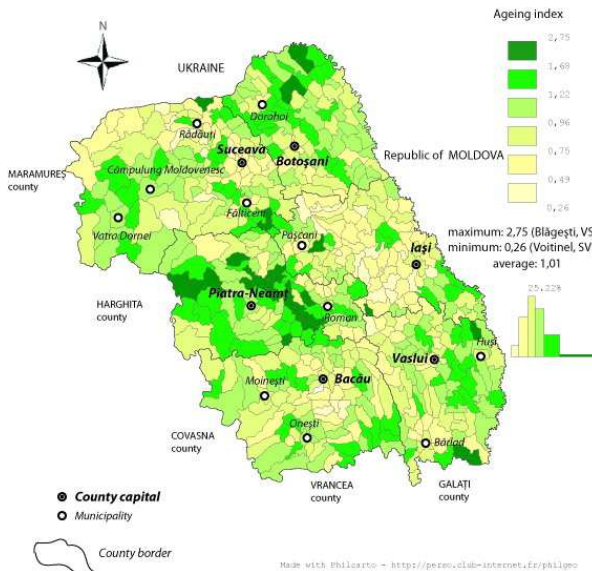


Fig. 3. The ageing index (2012).

The cartographical representation of the statistical data also emphasizes the areas that are still resistant to the ageing process: the hutsul villages in Bucovina – practitioners of higher than the average birth rates, Trotuș basin in Bacău County. Iași County

seems to be the most “immune”, mainly due to its still active demographic behaviour.

3.1.4. The age dependence ratio

At the level of the North-East region, the value of this indicator (67%) clearly shows the fact that there is a great pressure on the working age population laid by the young and old contingents, the value of this ratio being influenced by the natural and migration movement.

The map shows a clear cut distinction between the western and eastern parts of the region, with higher values in the east: in the northern part of Jijia Plain the degradation of the ratio is triggered by the severe process of demographic ageing, while in the south-western part of Iași county and north-western part of Vaslui county it is determined by the ethnic structure of the population, with high birth rates and consequently large shares of youth.

The Siret corridor also stands out through higher values, the deficit of adult population being determined by the active emigration of the working population after 1990.

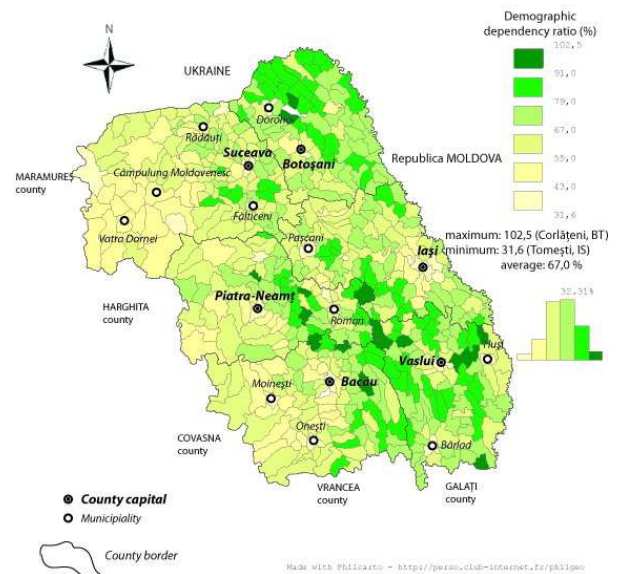


Fig. 4. The age dependence ratio (2012).

The minimum value is recorded in Tomești, a large commune in Iași County, situated in the proximity of Iași municipality. The fact that it records the most favourable ratio between the three age groups is mainly due to its very special status and specific evolution: before 1989, when the borders of Iași municipality used to be closed, it functioned as a bedroom village, most of its population being employed in Iași. The authorities intended to turn it into a town; they even built blocks of flats and a big slaughter house in order to provide a diversification of the economic profile. In this context, the population largely increased. After 1990, it acquired a new function: the residential one, many of the

inhabitants of Iași building here whole districts of houses, its main advantages being the proximity to the city and the lower price of the land.

3.1.5. The natural balance

The mapped statistical information reveals the ubiquitous presence of the negative values, the region on the whole recording a negative natural balance, which is very little higher than that at the national level. As a matter of fact, the difference between the areas with negative values is given by the depth of the decline: the smallest values are typical of the most aged communes, located all over Botoșani, Vaslui and Neamț counties.

The presence of the positive values has three possible explanations:

- a certain configuration of the ethnic structure, as it happens in Iași and Vaslui counties (with large communities of gypsies) or in the western part of Suceava, where the hutsuls still preserve a certain dynamism;
- a certain architecture of the religious structure: Neo-Protestant cults in Suceava county, Roman-Catholics in Siret passage (Bacău county);
- the preservation of a more traditional, conservative demographic behaviour (as it is the case in Iași county).

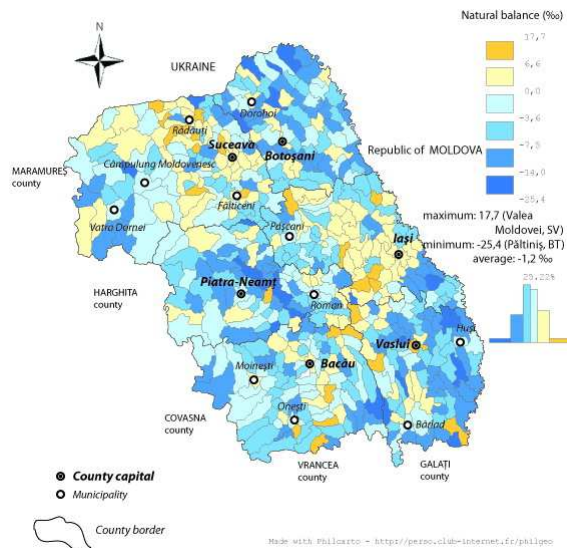


Fig. 5. The natural balance (2012).

3.1.6. The migration balance

The map of the migration balance points out the predominance of the negative values, which reflects the repulsiveness of most Moldavian rural areas [17].

The average value of -1.5% does not fully reflect this repulsiveness, being distorted by the incomplete records of the Moldavians who left to work and live abroad after 1989. Once again there is a clear distinction between the east and the west. The most

repulsive areas are located in the eastern part, occupying most of Botoșani and Vaslui counties, as well as large areas of Iași County. This exogenous migration behaviour is not new, it is only a continuation of the behaviour before 1989, when large masses of people left the Moldavian rural space, which was very little offering from the economic point of view, and headed towards the most industrialized regions (Bucharest, Brașov, Constanța, the mining areas). Tanacu commune (-23.5%) is emblematic from this point of view for the repulsiveness of the Moldavian rural space, both before and after 1989. Tanacu was a mere commune in Vaslui County until several years ago, when it became famous all over the country, unfortunately in the negative sense – because of an incident in which a young girl who was a nun in Tanacu Monastery was exorcised by the abbot monk. There was even a famous movie, *Beyond the Hills*, which rebuilds this tragic story. From the geographical point of view, this film is important because it perfectly depicts the poverty and demographic decline typical of the eastern Moldavian rural space, disadvantaged both by the economic and especially agricultural potential, but also by the systematization plans of the communist authorities, which almost completely avoided the eastern Moldavian village on the whole.

The repulsivization of the Carpathian and sub-Carpathian areas in Suceava and Bacău is rather new and it deals with the decline of the mining field after 1989.

However, in comparison to the east, the western part records more and larger attractive areas, which are obviously connected to the development of the tourist sector in this part of the region.

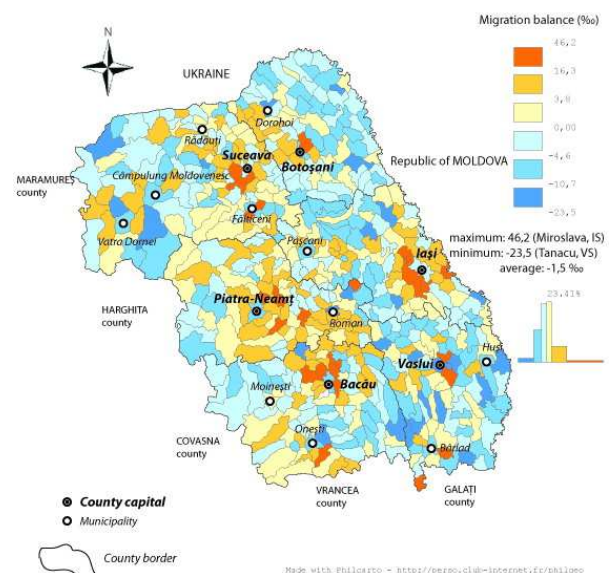


Fig. 6. The migration balance (2012).

Periurban areas also stand out through positive values of the migration balance, especially when it comes to large cities (Iași, Suceava, Bacău, and Piatra Neamț). The maximum value is claimed by

Mirolava, the biggest commune in Iași County, having 13 villages and 12,000 inhabitants.

After 1990 and especially during the last decade it has experienced the largest growth in Iași county, lots of houses and even districts of villas appearing all over the commune, favoured by its proximity to Iași municipality and by the presence of many economic agents, which helped it become the richest commune in the county.

3.2. Demographic vulnerability patterns

In order to extract patterns of demographic vulnerability [18], starting from the above mentioned indices we drew a hierarchical ascendant classification meant to classify the commune by their demographic vulnerabilities. We thus identified six major types.

Type 1 (111 administrative units out of 551) is mainly present in Moldova and Bistrița basins (Suceava and Neamț counties), being characterized by an over representation of the sex ratio and a deficit of youth which, overlapped on a not very high ageing index, does not generate a very degraded demographic dependence ratio.

Type 2 (85 administrative units out of 551) is mainly distributed in the eastern part of Neamț county and largely represented in Botoșani and Vaslui counties, comprising ones of the most vulnerable areas, confronted with the strongest ageing process and a devitalisation of the human potential which results in the underrepresentation of the youth and an exodynamic natural balance.

Type 3 (70 administrative units) presents a longitudinal insertion in the central part of Iași county, continuing to the south in Vaslui county. It can be described as the youngest type, having the highest percentage of young population due to a still pro-natalist demographic behaviour, which ensures an under representation of the sex ratio but an over representation of the demographic dependence ratio. The main explanation resides in the special configuration of the ethnic structure, in which gipsies play an important role.

Type 4 (42 administrative units) is the least represented from the spatial point of view and it can be described as the most endodynamic type, its attractiveness being induced by the position of these communes in the periurban area of the most important cities in the North-East region. From the demographic point of view, this type is the most balanced and favoured one, since it does not face extreme demographic phenomena (such as the ageing process or collapse of the natural balance), at the same time relying on a still generous potential of working age population.

Type 5 (114 administrative units) is mainly encountered in Vaslui and Botoșani counties, the

poorest areas in the region. Its profile shows that this type best overlaps the average profile of the region, synthesizing the main problems the North-East region is confronted with: demographic ageing, decline of birth rate and natural balance, depopulation.

Type 6 (129 administrative units) is largely represented in the mountainous and sub-Carpathian part of Suceava and Bacău counties, areas in which the demographic decline is more recent due to their later de-enclavation.

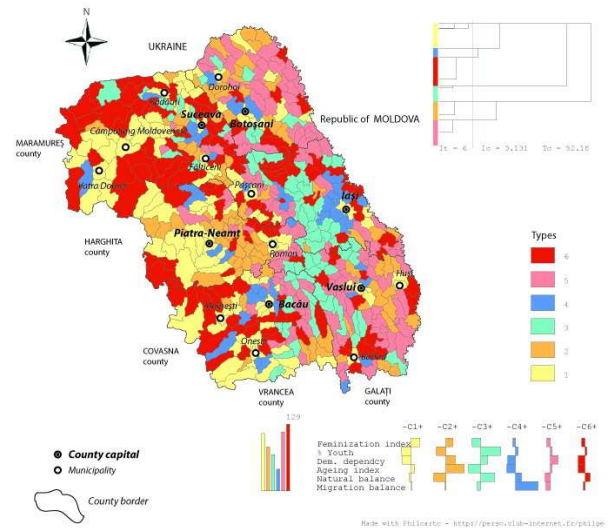


Fig. 7. Demographic vulnerability patterns (2012).

4. CONCLUSION

During the 25-year transition period the North-East region, just like Moldavia and Romania on the whole, has been experiencing significant economic, social but also demographic mutations, many times the post communist evolution being in opposition to the past.

Thus, before 1989, Moldova on the whole was proverbial for its extraordinary demographic energy, which managed to counterbalance a strongly exodynamic behaviour. Although actively rallied to the inter-counties and inter-provinces migration circuits (Moldavians being attracted especially by more industrialized and more urbanized areas), it was still the most demographically prolific historical province due to its strongly pro-natalist behaviour and mentality.

After 1989, an erosion of the human potential took place, speeded by the decline of the birth rate and natural balance, but also by emigration. Moreover, there can be noticed a convergence with the national demographic evolution and pattern, the sporadic manifestation of a still obsolete, pro-birth behaviour being the attribute of the ethnic structure (gipsies, hutsuls), of the religious architecture (New-Protestants, Roman-Catholics) or of a traditional, conservative demographic behaviour and mentality (isolated rural areas).

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