Some Aspects of Demographic Reproduction in Carpathian Ruthenia in the Long Nineteenth Century

Branislav Šprocha [a], Pavol Tišliar [b, c, *], Vladimír Bačík [d]

[a] Centre of Social and Psychological Sciences, Slovak Academy of Sciences, Bratislava, Slovakia
[b] Masaryk university in Brno, Brno, Czech Republic
[c] University of Ss. Cyril and Methodius in Trnava, Trnava, Slovakia
[d] Comenius University in Bratislava, Bratislava, Slovakia

Abstract

Carpathian Ruthenia was a historical territory which is now mostly situated in the Zakarpattia Oblast in Ukraine. During the long nineteenth century, however, it was an integral part of the Kingdom of Hungary. It became a part of interwar Czechoslovakia after the First World War, and after the Second World War it was annexed to the Soviet Union. Regardless of the period or state to which Carpathian Ruthenia belonged, it has always been a peripheral area outside the main thrust of social and economic development. It is this peripherality, combined with unfavourable socio-economic conditions, that could be one of the reasons that Carpathian Ruthenia showed several signs of the old demographic regime for a long time in the twentieth century. The first signs of demographic transition occurred in Hungary at the end of the nineteenth century, and knowing the nature of the demographic reproduction of Carpathian Ruthenia and its possible changes in the second half of the nineteenth century is a key development. Using available data, the aim of the study is to analyse the basic demographic processes and their development over a longer period and to point out some possible differences in comparison with the whole population of the Kingdom of Hungary. The study will focus primarily on the intensity of mortality, fertility, and nuptiality, with an effort to identify their longer developmental trends. It will also analyse some aspects of the timing of marriages and motherhood, as well as the interconnection of nuptiality and fertility processes. For this purpose, the study will construct some basic indicators (crude marriage rate, crude birth rate, and crude mortality rate) as well as some more sophisticated indicators (life tables, total fertility rate, total marriage rate, mean age at marriage, and mean age at birth).

Keywords: Carpathian Ruthenia, demographic reproduction, demographic regime.

1. Introduction

The demographic regime before the onset of the demographic revolution was characterized by a combination of high fertility and mortality rates (Chesnais, 1992; Livi-Bacci, 2001; Pavlík, 1977; Pavlík et al., 1986). Population growth in such a regime was low, and thus the dynamics of population development were slow. All negative external and internal factors determining the emergence of demographic or mortality crises were very negatively reflected in this respect. Subsequently these crises sharply affected population development itself and had a very negative impact on the population. For a long time, Carpathian Ruthenia has had a population characterized by several features of the old demographic regime. While the onset of revolutionary, historically unique, and irreversible changes in reproductive behaviour can be observed in several European countries in the second half of the nineteenth century, in Carpathian Ruthenia these

---

* Corresponding author
E-mail addresses: tisliar@phil.muni.cz (P. Tišliar), branislav.sprocha@gmail.com (B. Šprocha),
vladimir.bacik@uniba.sk (V. Bačík)

transformations began to occur to a greater extent only after the First World War (Shnitzer, 2019; Drozd, Šmigeľ, 2020; Janto, 2017). The interwar period, during which this territory belonged to Czechoslovakia, also has the best database, which helped deepen research into population development. However, for the period encompassing the nineteenth century and up to the beginning of the First World War, there is incomplete information which to date has not been comprehensively processed and evaluated. Therefore, the main goal of this study is to analyse the available data on the three basic demographic processes (marriage, fertility, and mortality) of the population of Carpathian Ruthenia. This supplements previous research (Šprocha, Tišliar 2017), in which more detailed attention was given to the development of fertility. The period that is analysed in this study was determined by the availability of empirical data and mainly concerns the second half of the nineteenth century and the twentieth century until the beginning of the First World War. Due to the administrative division of Hungary, the territory of Carpathian Ruthenia is presented as data for four counties: Bereg, Máramaros, Ugocsa, and Ung.

2. Data and methods

The basic database for this study was created from data that was regularly published in the statistical yearbooks of the Kingdom of Hungary (Magyar statistikai évkönyv 1872–1892 and Magyar statisztikai évkönyv – Újfolyam 1893, 1897–1899) during the period from 1866 to 1899, and the kingdom's records of the movement of population (A Magyar Korona…, 1905; A Magyar Szent Korona…, 1907; A Magyar Szent Korona…, 1907, és 1908 évi népmozgalma; A Magyar Szent Korona országainak 1909, 1910, 1911, és 1912 évi népmozgalma; A Magyar Szent Korona országainak 1913–1918) for the period from 1900 to 1918. An equally important source of data for the present study's purposes were the Hungarian censuses for 1880, 1890, 1900, and 1910. From these sources, the authors of this study constructed some basic demographic indicators (crude marriage, mortality, and birth rates, and crude rate of natural increase) as well as some more complex indicators allowing for the analysis of intensity (total marriage rate, total fertility rate, and life expectancy) and the timing of given demographic processes (mean age at marriage and mean age at birth). Linking data from population movements and censuses also made it possible to construct some demographic models. In the case of mortality, life tables were constructed for the analysed counties of Carpathian Ruthenia and the Kingdom of Hungary for the first time. In this study, an abridged period life table with data on age-specific death rates was constructed based on a method suggested by Fergany (1971). The combination of data on population movements and the demographic structure of women by age and marital status from censuses also made it possible to construct Coale indices (Coale, 1969, 1973), indicators for the Coale-Trussell model of fertility (1974), and the singulate mean age at marriage. The Coale indices (especially the ratio of births for married women) and the Coale-Trussell model of fertility allow for an analysis of the level of conscious fertility limitation and thus the sequencing of the spreading of changes in reproductive behaviour within the first demographic transition. The proportion of single women aged fifty (never married) and the value of the singulate mean age at marriage tell us about the overall intensity of nuptiality in the population and the timing of these transitions.

3. Nuptiality

In the old demographic regime, entering into marriage represented an important transition in the life trajectories of young people which had a significant impact on demographic reproduction. Above all, marriage created a space for the legitimate coexistence of partners and, within it, for the birth of legitimate children in terms of widespread religious thinking. It is necessary to realize – and this is confirmed by the empirical results – that during the long nineteenth century, most children in Carpathian Ruthenia were born within marriage, and therefore entry into marriage was a significant factor influencing the length of a woman's fertile period and the total number of births. Marriage created a precondition for the socially recognized coexistence of partners and the birth of their children, and the family emerged as one of the most important multifunctional and irreplaceable social institutions in society. Nuptiality is a demographic process significantly conditioned by a range of social, cultural, and legal norms. The process itself can be analysed from two perspectives. The first is the time when partners enter into marriage, which is most often analysed by mean age at marriage, and the second is the overall intensity of nuptiality and the associated share of people who did not enter into marriage before the end of their reproductive period. In terms of these two aspects, Carpathian Ruthenia can be classified among those populations with a non-European type of marriage behaviour. In the sense of Hajnal's typology (Hajnal, 1965), this was characterized by early and almost universal nuptiality, with only a small part of the population remaining permanently single.
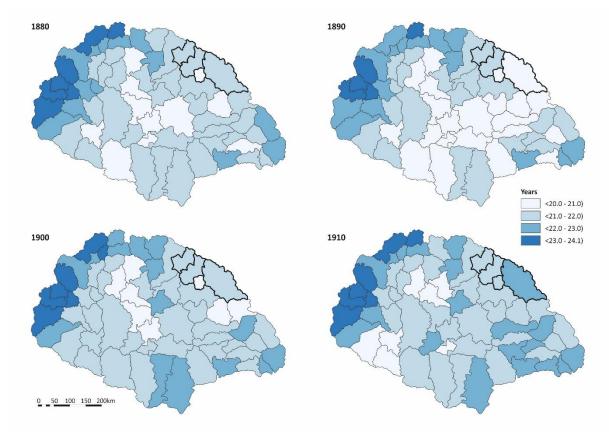
These aspects of marital behaviour in the counties of Carpathian Ruthenia were also confirmed by the European Fertility Project[1] results. The singulate mean age at marriage – the average number of years that women lived as single until the end of the reproductive period (substitution mean age at first marriage) –

---

[1] The European Fertility Project had two objectives: (1) to create a quantitative record of European fertility transition, and (2) to determine the social and economic circumstances that prevailed when the modern decline in fertility began in the hope of elucidating the causal mechanisms of the fertility transition (for more information, see https://opr.princeton.edu/archive/pefp/).
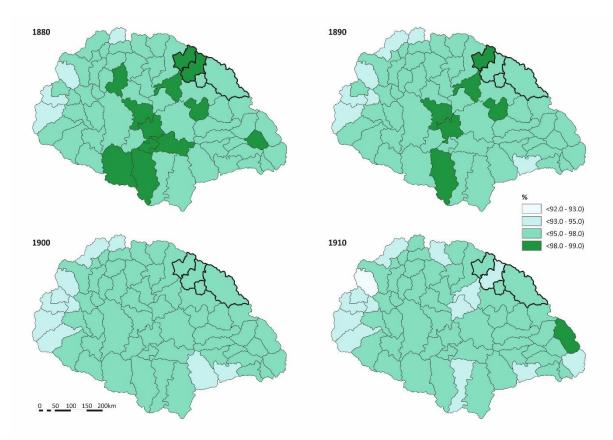
ranged from twenty to twenty-two years in all counties. The counties of Carpathian Ruthenia thus belonged to the areas in the Kingdom of Hungary in which marriage occurred earlier on average (Figure 1). Between 1880 and 1910, there was only a slight increase in the values of this indicator (Table 1). Likewise, the proportion of ever-married women at the end of the reproductive age indicated the long-term persistence of an almost universal model of marriage; thus, ninety-six to ninety-eight per cent of women entered into marriage at least once by the age of fifty. As Table 1 and Figure 2 show, there was only a very small decrease in this proportion.

Table 1. Singulate mean age at the marriage of females and the proportion of females ever-married at the end of reproductive age in the counties of Carpathian Ruthenia, 1880–1910

County	Year	Singulate mean age at marriage (years)	Proportion of females ever-married at age 50 (in %)
Bereg	1880	21.2	98.2
	1890	21.0	97.9
	1900	21.4	96.3
	1910	21.6	94.3
Máramaros	1880	21.4	97.1
	1890	20.8	96.6
	1900	21.4	96.1
	1910	22.0	96.1
Ugocsa	1880	20.7	97.9
	1890	20.3	97.7
	1900	20.7	96.6
	1910	21.1	97.1
Ung	1880	21.2	98.1
	1890	21.3	98.3
	1900	21.5	96.5
	1910	21.7	96.9

Fig. 1. Singulate mean age at marriage of females in the counties of Carpathian Ruthenia (highlighted) and the Kingdom of Hungary

Fig. 2. Proportion of females ever-married at age 50 in the counties of Carpathian Ruthenia (highlighted) and the Kingdom of Hungary

Data on the marriage rate in the counties of Carpathian Ruthenia can be obtained only from the early 1850s onwards. For the first half of the century, there is only the value of the crude marriage rate for the entire territory of the Kingdom of Hungary. From the beginning of the 1830s to the end of the 1840s, this was relatively stable at the level of 7.0-7.5 marriages per thousand inhabitants. In the first half of the 1840s, there was a slight increase to above eight per thousand people. However, data from Carpathian Ruthenia show that the crude marriage rate reached over twelve per thousand people in the early 1850s and dropped slightly to 8.5 per thousand people by 1853. Such a high value was atypical and signals a compensatory phase in the marriage process after previous unfavourable years. The value of the crude marriage rate in the counties of Carpathian Ruthenia remained above the limit of ten per thousand people only episodically in the late 1860s and subsequently in the 1880s. It was during this period that the crude marriage rate reached a higher level than the average for the whole of Hungary (Figure 3). In fact, until the first half of the 1890s, the crude marriage rate exceeded nine marriages per thousand inhabitants. On the other hand, in the second part of the 1880s, the beginning of a decline can be identified. In addition to Carpathian Ruthenia, this can be seen in the entire population of Hungary (Figure 3). From the end of the nineteenth century, there was some stagnation, and, in the first decade of the twentieth century, a slight recovery in the marriage rate can be observed in Carpathian Ruthenia; however, the value of the crude marriage rate already remained at eight per thousand people. At the end of the long nineteenth century, the unfavourable period of the First World War dramatically reduced the rate of marriage. The value of the crude marriage rate on average for the years 1915 to 1918 reached a limit of four marriages per thousand inhabitants (Figure 3).
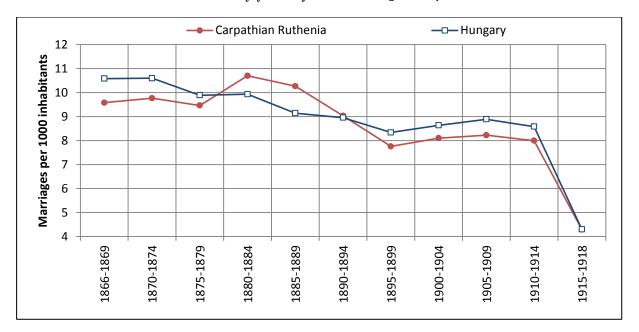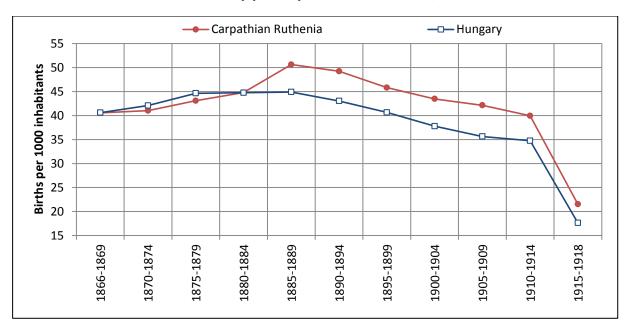
Fig. 3. The development of the crude marriage rate (multi-year averages) in Carpathian Ruthenia and Hungary from the second half of the 1860s to the end of the First World War

The persistence of the high intensity of marriage for men and women in Carpathian Ruthenia is also confirmed by the data on the total marriage rate, which can be calculated for the census years 1890, 1900, and 1910. This indicator ranged from 1.4 to 1.5 marriages per man and 1.1 to 1.4 marriages per women. These levels point to the great importance of repeat marriages (especially for widows) for the overall intensity and the fact that the chances of remarriage were higher for men in the long run.

The obtained statistical data confirm that the marriage rate in Carpathian Ruthenia was relatively high, despite a certain recorded decline in the last quarter of the observed period. The only exception was observed during the war years. On the other hand, it was also confirmed that the marriage rate was able to respond relatively quickly year-on-year to changes in population conditions.

4. Fertility

The fertility rate in the counties of Carpathian Ruthenia was high throughout the long nineteenth century. In the old demographic regime, it is generally assumed that the number of children was not limited to any significant extent by the number of children born previously (Henry 1961, 1964). As the fertility transition took effect, a couple's conscious control of family size became more important.
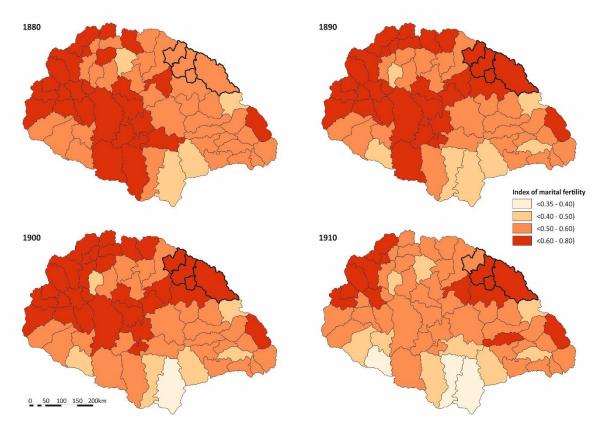
In the second half of the 1860s, for which there is the first available information on an overall level, there were just over forty births per thousand inhabitants in Carpathian Ruthenia. The birth rate reached approximately the same level in the Kingdom of Hungary. In the next period there was even growth in the crude birth rate, which in the late 1880s reached above fifty per thousand people. In Hungary, however, the development of the birth rate stagnated for more than a decade, and therefore in this period the counties of Carpathian Ruthenia reached a higher level than the national average (the difference was about six per thousand people). In the 1890s, there was a continuous decline in the crude birth rate in Hungary as well as in Carpathian Ruthenia. On the eve of the First World War, the crude birth rate in Hungary was thirty-five children per thousand inhabitants, and in the counties of Carpathian Ruthenia it reached approximately the same value as at the beginning of the observed period (approximately forty per thousand people). Subsequent developments were significantly affected by the war. Mobilization, the departure of men to the front, and the deterioration of the population climate contributed to a sharp decline in marriage, which was subsequently reflected in the sharp decline in birth rates. In the case of the territory of Carpathian Ruthenia, it is necessary to highlight the direct impact of war operations in the first years of the war. This was probably the reason why the crude birth rate fell in these counties faster than in the Kingdom of Hungary. From 1915 to 1918, the gross birth rate in Carpathian Ruthenia was on average only about 21.5 per thousand people; in Hungary it reached a level of less than eighteen per thousand people.

Fig. 4. Development of the crude birth rate (multi-year averages) in Carpathian Ruthenia and Hungary from the second half of the 1860s to the end of the First World War

The level of the crude birth rate and its changes over a longer period may indicate the onset and phase of transformational changes in the fertility process in the context of the first demographic revolution. Pavlík (1977: 169) defines the threshold at which one can confidently talk about a transition in the fertility regime as being when the crude birth rate permanently falls below thirty-five per thousand people; Chesnais (1992: 117) sets the threshold at thirty per thousand people. In the context of these assumptions, it can be said that the onset of irreversible changes in fertility within the conscious limitation of family size began in the population of Carpathian Ruthenia only in the 1930s and after the Second World War. This is also confirmed by the values of the Coale index of marital fertility and the Coale-Trussell model of fertility. The index of marital fertility (I_g) expresses the extent to which the number of children born within marriage differs from the theoretical number that would be born in conditions of maximum fertility.

According to van de Walle (1974), it is possible to confidently speak of a decrease in fertility resulting from deliberate fertility control using contraceptive methods if the marital fertility index falls permanently below 0.5, and the lower threshold – when the transition in fertility is completed – is 0.35. However, the values of the monitored index in Carpathian Ruthenia for the years 1890, 1900, and 1910 were stable and above the limit of 0.6 (Šprocha, Tišliar, 2017), which indicates a minimal impact of the conscious reduction of family size on overall marital fertility. Applying the Coale-Trussell model of fertility gives essentially the same picture. In the present case, the model is based on a comparison of schedules of marital fertility of Carpathian Ruthenia and a model population with natural fertility, which Coale and Trussell estimated based on real data (Coale, Trussell, 1974). The result of the mathematical model is a numerical estimate of the level of deliberate efforts to limit family size. The general interpretation of this variable is that a higher value indicates a greater effort to control marital fertility. Negative values and levels up to around 0.3 indicate either no or very little effort to limit fertility. Essentially it is only with values of 0.5 or greater that one can really talk about a conscious effort to limit family size. The results obtained for 1900 and 1910 show that the rate of conscious fertility limitation increased slightly from 0.17 to 0.21 (Šprocha, Tišliar, 2017). From this finding, it follows that there was no significant indication of the beginning of changes in reproductive behaviour from the point of view of fertility control at the beginning of the twentieth century or before the First World War. As a deeper analysis of the fertility process showed, this phenomenon began to occur only in the interwar period (Šprocha, Tišliar, 2017).

1880

1890

Index of marital fertility
- <0.35 - 0.40)
- <0.40 - 0.50)
- <0.50 - 0.60)
- <0.60 - 0.80)

1900

1910

0 50 100 150 200km

Fig. 5. Index of marital fertility in the counties of Carpathian Ruthenia (highlighted) and the Kingdom of Hungary
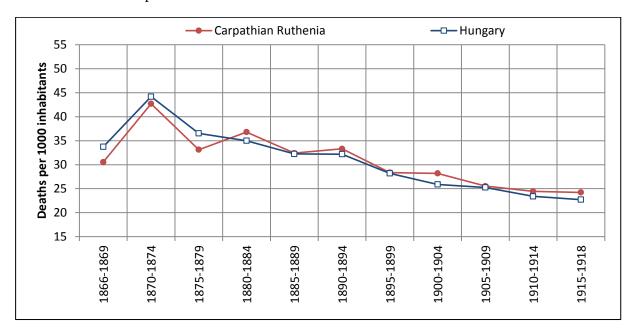
The high fertility of women in Carpathian Ruthenia from the beginning of the twentieth century is also highlighted by the data on the total fertility rate. This indicator expresses the number of children who would be born per woman if there were no changes in the intensity and character of childbearing. Its values can be constructed for the counties of Carpathian Ruthenia only from the beginning of the twentieth century. In 1900 the average number of children per woman was less than 6.3, and in 1910 it was still almost six children. By comparison, in France – which was the first country in the world to start limiting family size in this period – total fertility was already below three children, and in 1910 had reached the level of 2.5 children.

5. Mortality

Due to the high intensity of mortality and birth rates, there was only a small natural increase in populations during the old demographic regime. Moreover, this was significantly reduced at a time of demographic and mortality crises. It is estimated that the life expectancy at the time of the old demographic regime was between thirty and thirty-five years and only rarely exceeded forty years (Livi-Bacci, 2001). The causes of these conditions should be sought in setting the overall system of conditions that affected population development. The high intensity of mortality was mainly due to 'backwardness syndrome' (Livi-Bacci, 2001). This was formed by a multitude of conditions, such as housing, clothing, food, and health care. An important characteristic of mortality during the old demographic regime was high infant and child mortality and deaths from infectious diseases, accounting for two-thirds to three-quarters of the total death toll. Communicable diseases such as tuberculosis, typhus, and diphtheria, as well as various diseases of the digestive system, were an important factor in population development, and their effects increased even more in times of crisis.

The crude mortality rate in the counties of Carpathian Ruthenia in the second half of the 1860s remained above thirty deaths per thousand inhabitants. As a result of the deterioration in mortality rates during the cholera epidemic, there was a relatively sharp increase to forty-five per thousand people in a five-year average. In 1873, during a cholera epidemic, the gross mortality rate in the four counties of Carpathian Ruthenia exceeded seventy deaths per thousand people. In the following period, there was a basically continuous gradual decline in mortality. In the second decade of the twentieth century, despite the events of the First World War, the crude mortality rate in Carpathian Ruthenia fell below twenty-five per thousand people. A closer look shows that there was a temporary worsening of mortality, especially in 1915 and 1918, which is related to the aforementioned war situation and the epidemic of Spanish influenza. Overall, however, this increase in crude mortality rates was not significant enough to have a major effect on the multi-year average. Overall, mortality declined; this was because of the reduced frequency and severity of crises as

well as the decline in the probability of death at various ages during normal periods (Livi-Bacci, 2001: 97).
As Livi-Bacci (2001: 97–98) points out, the greatest reductions came in the first years of life due to improved
infant care and measures taken to block the spread of infectious diseases. As was shown by Pavlík et al.
(1986), during the first demographic revolution there was an irreversible decrease in mortality rates, which
fell below fifteen per thousand people from more than thirty per thousand people. From the abovementioned
development of the crude mortality rate in the counties of Carpathian Ruthenia, it is clear that this process
was still in its earliest phase.

Fig. 6. Development of the crude death rate (multi-year averages) in Carpathian Ruthenia
and Hungary from the second half of the 1860s to the end of the First World War

The improvement in mortality rates was subsequently reflected in the values of life expectancy at birth.
Its value for the male population of the four counties of Carpathian Ruthenia increased from thirty-five years
to almost thirty-seven years between 1900 and 1910. In women, the dynamics of this process were somewhat
more pronounced: for them, life expectancy at birth rose to almost thirty-eight years from a little over thirty-
five years. Before the beginning of the First World War, when compared to the population of the Kingdom of
Hungary, Carpathian Ruthenia lagged in the number of potential years of life by 1.5 years for men and a little
more than two years for women. This lag was even more pronounced compared to the most demographically
developed countries in Europe. For example, compared to Norway, which had the highest life expectancy
during this period, the lives of the inhabitants of Carpathian Ruthenia were shorter by more than fifteen
years. One of the most important factors in this lag was a significantly higher infant mortality. Between 1900
and 1910, its values fell from 240 to 220 per thousand people for boys and from 200 to 190 per thousand
people for girls. For comparison, in Norway, the infant mortality rate fell over the same period from just over
ninety children under one year of age from one thousand live births to less than seventy. The very significant
impact of infant and child mortality on the length of life of men and women in Carpathian Ruthenia is also
mentioned in the 'paradox' of life expectancy. If children survived the high-risk first year of life, life expectancy
increased by more than nine years for boys and 7.5 years for girls compared to new-borns. At the age of five, life
was then extended by approximately four years in males and slightly more than three years among females.
At the age of five, life expectancy in Carpathian Ruthenia was almost fifty years for men and exceeded forty-nine
years for women. The obtained results also point to the existence of a specific female over-mortality. This was
concentrated in the reproductive age and at the younger productive age. It is only among the elderly that the
situation was reversed, with evidence of a male over-mortality just like in childhood.

6. Conclusion

For the nineteenth century and first two decades of the twentieth century, reproduction in Carpathian
Ruthenia was highly extensive. On the one hand, there was a high birth rate, which in the second half of the
nineteenth century even slightly increased; on the other hand, there was a high mortality rate. In the case of
mortality, however, there was a continuous decline from the 1880s. High fertility was also positively affected
by the high and almost universal marriage of women at a young to very young age.

Despite the identification of an improvement in mortality throughout the long nineteenth century, this
process continued to have a very significant negative impact on the dynamics of population development in

Carpathian Ruthenia. In particular, the persistence of very high infant and child mortality rates meant significantly worse mortality rates compared to the demographically developed countries of Europe.

The obtained datasets and analysis of empirical data using selected indicators and demographic models confirmed that before the beginning of the First World War, the population development of the four counties of Carpathian Ruthenia still did not exhibit a significant implementation of the transformation process of the first demographic revolution. On the other hand, especially from the point of view of mortality, there are signs of a certain onset of life extension. However, the main changes in reproduction in this area would take place in the interwar period and especially the post-war period.

7. Acknowledgements

References

A Magyar Korona…, 1905 – A Magyar Korona országainak 1900, 1901. és 1902.évi népmozgalma. Magyar Királyi Központi Statisztikai Hivatal. Magyar statisztikai közlemények. Ú. S. 7. köt. Budapest, 1905. VIII, 106, 675 p.

A Magyar Szent Korona országainak 1909 – A Magyar Szent Korona országainak 1909, 1910., 1911. és 1912. évi népmozgalma. Magyar Királyi Központi Statisztikai Hivatal. Magyar statisztikai közlemények. Ú. S. 50. köt. Budapest, 1916.

A Magyar Szent Korona…, 1906 – A Magyar Szent Korona országainak 1906, 1907. és 1908. évi népmozgalma. Magyar Királyi Központi Statisztikai Hivatal. Magyar statisztikai közlemények. Ú. S. 32. köt. Budapest, 1910.

A Magyar Szent Korona…, 1907 – A Magyar Szent Korona országainak 1903., 1904. és 1905. évi népmozgalma. Magyar Királyi Központi Statisztikai Hivatal. Magyar statisztikai közlemények. Ú. S. 22. köt. Budapest, 1907.

Chesnais, 1992 – Chesnais, J.C. (1992). The Demographic Transition: Stages, Patterns, and Economic Implications. Oxford: Oxford University Press.

Coale, 1969 – Coale, A.J. (1969). The Decline of Fertility in Europe from the French Revolution to World War II. In: S. J. Behrmann, L. Corsa, and R. Freedman (eds.). Fertility and Family Planning, Ann Arbor, Michigan: University of Michigan Press. Pp. 3-24.

Coale, 1973 – Coale, A.J. (1973). The Demographic Transition Reconsidered. IUSSP – Proceedings of the International Population Conference. Liège, Belgium: Eds. Ordina.

Coale, Trussell, 1974 – Coale, A.J., Trussell, J.T. (1974). Model Fertility Schedules: Variations in the Age Structures of Childbearing in Human Populations. Population Index. 40(2): 185-258.

Drozd, Šmigeľ, 2020 – Drozd, R., Šmigeľ, M. (2020). The extinction of the Ukrainian culture of the Polish-Ukrainian-Slovak borderland and the image of the "Ukrainian Banderite" in Polish and Czechoslovak literature, journalism, and cinematography, mid-1940s–1980s. Muzeológia a kultúrne dedičstvo. 8(2): 91-116.

Hajnal, 1965 – Hajnal, J. (1965). European marriage pattern in historical perspective. Glass, D.V., Eversley, D.E.C. (eds.). Population in History. London: Arnold, pp. 101-143.

Henry, 1961 – Henry, L. (1961). Some Data on Natural Fertility. Eugenics Quarterly. 8(2): 81-91.

Henry, 1964 – Henry, L. (1964). Mesure du temps mort en fecondite naturelle. Population. 19: 485-514.

Janto, 2017 – Janto, J. (2017). Production of bryndza in Slovakia and the Vagac bryndza manufacture in Detva: On the 230th anniversary of the founding of the first industrial site for the production of bryndza. Muzeológia a kultúrne dedičstvo. 5(2): 51-59.

Livi-Bacci, 2001 – Livi-Bacci, M. (2001). A Concise History of World Population. Oxford: Blackwell Publishers.

Magyar statistikai évkönyv, 1872 – Magyar statistikai évkönyv. 1. évfolyam. Országos Magyar Királyi Statistikai Hivatal. Budapest, 1872.

Magyar statistikai évkönyv, 1874 – Magyar statistikai évkönyv. 2. évfolyam. Országos Magyar Királyi Statistikai Hivatal. Budapest, 1874.

Magyar statistikai évkönyv, 1875 – Magyar statistikai évkönyv. 3. évfolyam. Országos Magyar Királyi Statistikai Hivatal. Budapest, 1875.

Magyar statistikai évkönyv, 1876 – Magyar statistikai évkönyv. 4. évfolyam. Országos Magyar Királyi Statistikai Hivatal. Budapest, 1876.

Magyar statistikai évkönyv, 1878 – Magyar statistikai évkönyv. 5. évfolyam. Országos Magyar Királyi Statistikai Hivatal. Magyar statistikai évkönyv 5. Budapest, 1878.

Magyar statistikai évkönyv, 1879 – Magyar statistikai évkönyv. 6. évfolyam. Országos Magyar Királyi Statistikai Hivatal. Magyar statistikai évkönyv 6. Budapest, 1879.

Magyar statistikai évkönyv, 1879a – Magyar statistikai évkönyv. 7. évfolyam. Országos Magyar Királyi Statistikai Hivatal. Magyar statistikai évkönyv 7. Budapest, 1879.

Magyar statistikai évkönyv, 1881 – Magyar statistikai évkönyv. 8. évfolyam. Országos Magyar Királyi Statistikai Hivatal. Budapest, 1881.

Magyar statistikai évkönyv, 1882 –Magyar statistikai évkönyv. 9. évfolyam. Országos Magyar Királyi Statistikai Hivatal. Budapest, statistikai évkönyv 9. Budapest, 1882.

Magyar statistikai évkönyv, 1882a –Magyar statistikai évkönyv. 10. évfolyam. Országos Magyar Királyi Statistikai Hivatal – Magyar statistikai évkönyv 10. Budapest, 1882.

Magyar statistikai évkönyv, 1883 –Magyar statistikai évkönyv. 11. évfolyam. Országos Magyar Királyi Statistikai Hivatal. Magyar statistikai évkönyv 11. Budapest, 1883.

Magyar statistikai évkönyv, 1885 –Magyar statistikai évkönyv. 13. évfolyam. Országos Magyar Királyi Statistikai Hivatal. Magyar statistikai évkönyv 13. Budapest, 1885.

Magyar statistikai évkönyv, 1886 – Magyar statistikai évkönyv. 12. évfolyam. Országos Magyar Királyi Statistikai Hivatal. Magyar statistikai évkönyv 12. Budapest, 1886.

Magyar statistikai évkönyv, 1886a – Magyar statistikai évkönyv. 14. évfolyam. Országos Magyar Királyi Statistikai Hivatal. Magyar statistikai évkönyv 14. Budapest, 1886.

Magyar statistikai évkönyv, 1887 – Magyar statistikai évkönyv. 15. évfolyam. Országos Magyar Királyi Statistikai Hivatal. Magyar statistikai évkönyv 15. Budapest, 1887.

Magyar statistikai évkönyv, 1890 – Magyar statistikai évkönyv. 16. évfolyam. Országos Magyar Királyi Statistikai Hivatal. Magyar statistikai évkönyv 16. Budapest, 1890.

Magyar statistikai évkönyv, 1890a – Magyar statistikai évkönyv. 17. évfolyam. Országos Magyar Királyi Statistikai Hivatal. Magyar statistikai évkönyv 17. Budapest, 1890.

Magyar statistikai évkönyv, 1891 – Magyar statistikai évkönyv. 18. évfolyam. Országos Magyar Királyi Statistikai Hivatal. Magyar statistikai évkönyv 18. Budapest, 1891.

Magyar statistikai évkönyv, 1891 – Magyar statistikai évkönyv. 19. évfolyam. Országos Magyar Királyi Statistikai Hivatal. Magyar statistikai évkönyv 19. Budapest, 1891.

Magyar statistikai évkönyv, 1892 – Magyar statistikai évkönyv. 20. évfolyam. Országos Magyar Királyi Statistikai Hivatal. Magyar statistikai évkönyv 20. Budapest, 1892.

Magyar statisztikai évkönyv 1893, 1893 – Magyar statisztikai évkönyv 1893. Országos Magyar Királyi Statisztikai Hivatal, Ú. F. 1. Budapest, 1893.

Magyar statisztikai évkönyv 1898, 1899 – Magyar statisztikai évkönyv 1898. Magyar Királyi Központi Statisztikai Hivatal, Ú. F. 6. Budapest, 1899.

Magyar statisztikai évkönyv 1899, 1900 – Magyar statisztikai évkönyv 1899. Magyar Királyi Központi Statisztikai Hivatal, Ú. F. 7. Budapest, 1900.

Magyar statisztikai évkönyv, 1898 – Magyar statisztikai évkönyv 1897. Országos Magyar Királyi Statisztikai Hivatal, Ú. F. 5. Budapest, 1898.

Pavlík et al., 1986 – *Pavlík, Z., Rychraříková, J., Šubrtová, A.* (1986). Základy demografie. Praha: Academia.

Pavlík, 1977 – *Pavlík, Z.* (1977). Demografická revoluce jako globální zákonitost populačního vývoje. Praha: Přírodovědecká fakulta, Univerzita Karlova v Praze.

Shnitzer, 2019 – *Shnitzer, I.* (2019). Museum Affairs at the Territory of Subcarpathian Rus' in the Years of the First Czechoslovak Republic (1919 –1938). *Muzeológia a kultúrne dedičstvo*. 7(1): 99-110.

Šprocha, Tišliar, 2017 – *Šprocha, B., Tišliar, P.* (2017). The Fertility of Women in Subcarpathian Russia in the Second Half of the Nineteenth Century and the First Half of the Twentieth Century. *Bylye Gody*. 45(3): 964-977.

The European Fertility Project – The European Fertility Project, Princeton University, Office of Population Research. [Electronic resource]. URL: https://opr.princeton.edu/archive/pefp/

Van De Walle, 1974 – *Van De Walle, E.* (1974). The Female Population in France in the Nineteenth Century. Princeton: Princeton University Press.