

The demographic role of religion in Hungary

Fertility of denominations at the beginning of the 20th century

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Abstract

Could it be possible that religious ties determine demographic behaviour, including fertility? If so, how can we arrange this factor with other variables in the same causal hierarchy? The raised problems were drafted at the beginning of modern demography already. In this paper we examine the mutual relations of religion, ethnicity and fertility in the territory of the former Hungarian Kingdom at the beginning of the 20th century. This period is interesting for the fact that fertility rate in Hungary decreased by an extraordinary proportion, 40% between 1910 and 1930. The Carpathian Basin had a unique ethnic and religious character at that time: seven main ethnic groups and seven relevant denominations had been registered by the 1910 Hungarian Census, thus the region is suitable for the empirical examinations of the mentioned coherences.

Keywords: fertility; marriage; religion; demographic regions

Theoretical background

During the 20th century, the explanation theories on fertility could be divided into two parts: economic and social paradigms. Dudley KIRK (1996) named altogether seven kinds of fertility explanation theories. In our case the validity of explanations on fertility reduction is delimited by the fact that the demographic transition took place in a different way in the Carpathian Basin compared to the description of this theory (NOTESTEIN, F.W. 1945): in certain areas the fertility rate began to decrease roughly before the industrialization already, and at the beginning of the 20th century some agricultural regions, especially the Banat, showed similar fertility rates to the strongly industrialized French and Belgian provinces, which had the lowest values on continental level (TEKSE, K. 1969; DEMENY, P. 1972).

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Hungary was one of the first countries where intellectual and widespread dispute, the so-called only-child debate began on fertility reduction because of the extraordinary low regional levels of childbearing. The interpretations of the phenomenon can be categorized into four groups.

1. *Economical viewpoint.* Small landed properties were not able to spread because of the dominance of large estates, and as its consequence, the sharing of small estates among descendants could result in wealth-disintegration. This is the reason why families, in order to avoid pauperisation, were forced to decide to limit the number of their offspring. Rudolf ANDORKA (1989), who proved by his family-reconstitution researches the application of contraceptive methods in some regions since the middle of the 18th century, supposed that the owners of small lands chose this alternative solution in order to avoid to become agricultural workers on large estates.

2. *Ethnical aspect.* In South Transdanubia, one of the least fertile regions in Hungary, Germans produced higher rates than Hungarians (KOVÁCS, A. 1923), moreover, fatal visions were published on the forthcoming population-change of Hungarians and Germans in the region (ILLYÉS, GY. 1933). The deviate demographic behaviours could be based on unwritten legal differences: among Germans the firstborn was the only inheritor, hence in the latter case the higher number of children could not cause the devaluation of estates.

3. *Denominational approach.* The imaginary shape of the Reformed person with only-child became the symbol of a beginning demographic crisis. It was certainly a simplification, but not without any basis: connections between religious ties and childbearing, or in other words, Calvinists' lower fertility was observed at the beginning of the 20th century (KOVÁCS, A. 1913; PEZENHOFFER, A. 1922), although the conclusions usually offended Protestants.

4. *Moral interpretation.* 'The only-child world is a separated moral universe. (...) Its base is the selfishness, the lack of faith, (...) the desire to live in comfort, in luxury, carefree' (FÜLEP, L. 1997, p. 22).

Dezső DÁNYI (1994), who analysed the employment and demographic statistics based on the 1930 Census, refuted the hypothesis on correlation between estate-size and fertility, pointing out that (1) in this term the fertility level of peasantry decreased in other European countries also, including those which had more balanced estate-conditions; (2) in Hungary the phenomenon of only-child or childlessness was more frequent among members of the rural middle classe than the small-holders. According to DÁNYI the level of fertility reduction depended firstly on the geographical position of the given regions, secondly, in accordance with the results of researches emphasizing the significance of age-specific fertility (ACSÁDI, GY. and KLINGER, A. 1965; KAMARÁS, F. 1991), on the intensity of contraception at the end of child-bearing life-period.

It occurred that both economical and cultural (i.e. religious and ethnic) circumstances influenced the formation of fertility on local level (KÓSA, L.990). At the turn of the 19–20th century a more rational agriculture became general in some Calvinist and ethnic Hungarian villages of the Drava region (Somogy county), which led achieving a kind of middle-class status and spread of new values among the inhabitants. The common wish for keeping the reached level of living standard led to general practice of contraception. The harder it was to keep it, the more radical methods were applied by them. The reason why this process could be observed only in the Reformed Hungarian villages, but not in the neighbouring Catholic Croat settlements, raises the possibility of determining role of religion. According to Max WEBER 'the Protestants (...) both as majority and as minority, have shown a special tendency to develop economic rationalism which cannot be observed to the same extent among Catholics either in the one situation or in the other' (WEBER, M. 1930, p. 39).

Beside WEBER's interpretation, there is another approach to explain the demographic role of Protestantism, according to which, birth control would rather be regarded as a moral than an economical personal decision, and the measure of its application depends on the different levels of religious control upon individual. As DURKHEIM wrote: 'The only essential difference between Catholicism and Protestantism is that the second permits free inquiry to a far greater degree than the first. (...) The Protestant is far more the author of his faith. (...) If Protestantism concedes a greater freedom to individual thought than Catholicism, it is because it has fewer common beliefs and practices. (...) The greater concessions a confessional group makes to individual judgment, the less is dominant lives, the less is cohesion and vitality' (DURKHEIM, E. 1996, pp. 157–159).

On the basis of the results of a research on Vaud, a Reformed canton in Switzerland, PRAZ attributes the Calvinists' lower fertility to the fact that the church, reacting to external ideological offensives, launched a plain-spoken and taboo-free inner dispute on marriage, sexuality and birth control at the beginning of the 20th century, which resulted in the definition of a specific Protestant marriage and family behaviour pattern, which included the idea of a considerate father and husband, as well as, even a kind of the practice of birth control based on husband's self-restraint (PRAZ, A.F. 2009). Besides, as a direct consequence of this new family model, more and more young women began to attend school, which increased the expenses of upbringing, making the families reduce their fertility, which was commented by parochial reports in a tolerant tone. This connection between the church attitude and demography could not be imagined in the Carpathian Basin: first of all in Hungary there were not such open debates as it was arranged in Switzerland, second of all the Hungarian Calvinist clergy and intelligentsia, together with Roman Catholics, regarded the birth-reduction as one of the most serious social and moral problems.

Methodology

We examine three indices on each ethnic and religious group:

- nupciality of married women aged 15–49, henceforth: nupciality;
- marital fertility rate (concerning married women aged 15–49);
- overall fertility rate (concerning all women aged 15–49).

There is a logical connection between these rates: by the method of COALE, A.J. and WATKINS, S.C. (1986), the overall fertility – in this case the total fertility rate (TFR) – should be calculated by the next formula, if I_f means TFR, I_m is nupciality, I_g is total marital fertility rate (TMFR) and I_h means total extra-marital fertility rate.²

$$I_f = I_m \cdot I_g + (1 - I_m) \cdot I_h$$

Considering the fact that extra-marital births amounted to almost 90% of the all births of the Hungarian Kingdom in the examined period, the TFR was determined essentially by I_m and I_g . The product of them converges to the real value of TFR: the less the proportion of births out of wedlock is, the less is the deviation between the mentioned product and the real TFR on a local level. This mathematical fact is the reason why we examine henceforth only two indicators: the nupciality and the marital fertility rate.

The statistical database in the examined period does not allow us to calculate TFR/TMFR related to the religious groups, thus during our research we prefer general (marital) fertility rate instead of the mentioned indices (except the local TMFR values). It means that we do not use the index expressing the average number of births per one woman (concerned, of course, to a given year), but apply the rate of every births per every fertile women in a given year. However, it needs to be emphasized that the use of general (marital) fertility rate instead of TFR/TMFR does not change the validity of the formula above.

In order to count nupciality and marital fertility rate of the different ethnic groups and denominations, country-wide or in the counties, first of all we should know the number of married women aged 15–49 belonging to each religious group. It is obvious that these data, in fact being the combinations of three basic variables (age, religion, family status), can not be found in any census databases or they can only be estimated, not computed. In our case only certain cross-data are published, composed any way by two of the mentioned variables, from which we can calculate the elements of the estimation-formula.

² As a matter of fact, this formula consists of the Princeton indices, i.e. the proportional numbers which indicate the relations to the nupciality and fertility of marital hutterites (HENRY, L. 1961; COALE, A.J., ANDERSON, B. and HARM, E. 1979; COALE, A.J. and WATKINS, S. 1986). In our case the demographic rates are expressed by traditional calculation, thus Princeton indices are not applied in this paper.

To create this formula, initially we consider the number of 15–49 years old women from d religion as a starting datum (w_{15-49}^d), and then we try to define the number of married ones within this group. It is expedient to multiply the w_{15-49}^d with the quotient of the married women aged 15–49 (m_{15-49}) and the total number of women from the same age-group (w_{15-49}). However, we know the fact from the census-statistics that each of denomination has different nuptiality level, consequently the product mentioned before should be multiplied with that proportional number also which shows the relation between the nuptiality of adult women from d religion (w_{15+}^d) and of every adult women (w_{15+}). Namely, because the nuptiality means a proportion too (married women to total women), as a matter of fact the latter relation is a quotient of two other quotients. In consequence of all, we can get the next formula:

$$m_{15-49}^d \approx w_{15-49}^d \cdot \frac{m_{15-49}}{w_{15-49}} \cdot \frac{\frac{m_{15+}^d}{w_{15+}^d}}{\frac{m_{15+}}{w_{15+}}} = \frac{w_{15-49}^d \cdot m_{15-49} \cdot m_{15+}^d \cdot w_{15+}}{w_{15-49} \cdot w_{15+}^d \cdot m_{15+}}$$

In theory, the total sum of the different m_{15-49}^d indices (which stand for the married women in a given denomination, aged between 15–49) should be equal to the whole number of married women in the same age-group (and in the same area, of course). Because the latter number can be calculated directly from census-statistics, it is possible to control the validity of the above estimation formula. We have completed this simple calculation on national level: the result was only 0,2 thousandths proportion-deviation between the real and the estimated numbers.

As a methodological notion, we defined a representation limit for denominations. In those counties and cities where the number of fertile women, belonging to a given religious group, was less than 100% or did not reach 1% of every productive woman living in the same area, their data are shown neither in the statistics, nor on the maps, because in this case the affected group would not be regarded representative. By our own database, established related to this research, it is proved by many examples that under-representation could cause extremely high or low demographic values.

The adjective ‘country-wide’ which we use many times, refers to different areas and population before and after World War I. For the sake of mutual comparability, only in case of chronological analyses, we tried to reduce the country-wide data of 1910 to the territory of Hungary after the Trianon Treaty. It was not an absolutely exact procedure indeed, because most of the demographic statistics from 1910 were published only on county level, and

the new frontiers tore apart many counties into two or three parts. Thus these modified data on country-level, from 1910, were counted to a heap of counties, the total territory and population of which approximately covered, as much as possible, the territory/population of Hungary after 1920.

The main demographic features of denominations in the Carpathian Basin

Before World War I.

Related to the 1910 census, the Hungarian Central Statistical Office published comprehensive data on eight relevant denominations (including the category of 'other'), ranking them as it can be seen below (*Figure 1.*) On the next table the population and proportional numbers are extracted directly from the official statistical database, while the nupciality, marital and general fertility are calculated by the upper estimation formula (*Table 1.*)

The formation of nupciality does not refer to the possible role of religious cultures. The values of neither of the indices show significant differences, except for Jews and the category of others. The outstanding marital proportion of the 'others' can be explained by strong inner cohesion of small church communities, which might be an urge for believers to be married; Jews are discussed in details below. The general fertility rates of Catholic and Orthodox churches exceeded the country-wide average, while those of Protestants (Reformed, Evangelist, Unitarian) were lower. Differences between Catholics and Protestants are more evident concerning marital fertility, even though in this case Orthodox believers present lower values, close to Protestants. (The reason of the latter fact is that almost 30% of Orthodox believers, lived in counties which had generally low fertility rates.)

Table 1. Main demographic rates of denominations in 1910

Religion	Population		Nupciality, %	Marital fertility, ‰	General
	number	%			
Roman Catholic	10,888,138	52.1	64.5	210.6	148.1
Greek Catholic	2,025,508	9.7	66.6	221.2	161.3
Reformed	2,621,329	12.6	65.8	191.0	138.1
Evangelist	1,340,143	6.4	66.1	187.8	132.0
Orthodox	2,987,163	14.3	66.9	189.4	148.1
Unitarian	74,296	0.4	64.2	184.5	137.7
Jewish	932,458	4.5	60.1	156.3	104.9
Other	17,452	0.1	73.9	180.7	139.5
<i>Together</i>	<i>20,886,487</i>	<i>100.0</i>	<i>65.1</i>	<i>201.9</i>	<i>144.9</i>

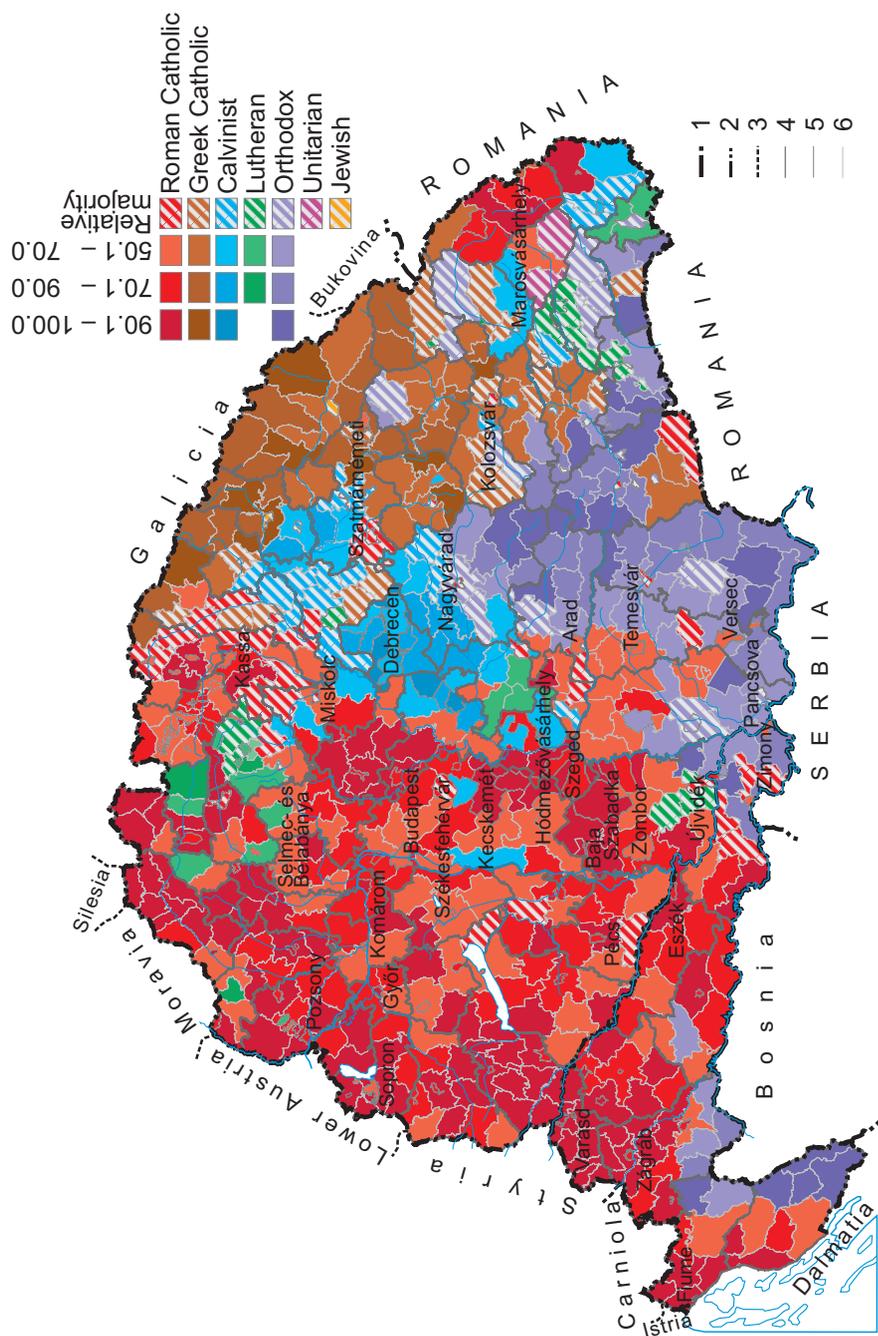


Fig. 1. Denominational majority in the subregions and cities in 1910 (%). - 1 = border of the Hungarian Kingdom; 2 = Hungarian-Croatian border; 3 = city boundary; 4 = subregion border; 5 = town boundary; 6 = border of the subregion

Previously we mentioned that overall fertility is determined firstly by nuptiality and marital fertility. The next matrix and point-diagram can make the mutual relation of both indices visible. If each value of them above the national mean number is regarded as high and below it as low.³ We can get four categories of the demographic behaviour patterns (*Table 2*).

Table 2. General scheme of the demographic behaviour patterns

Indicator		Nuptiality	
		Low level	High level
Marital fertility	Low level	Modern	Neo-Malthusian
	High level	Malthusian	Traditional

Societies or communities, who aimed their fertility reduction by limitation rather of marriages than childbearing, are called Malthusian. Where fertility reduction was achieved in an opposite manner – high marital rate and birth control at the same time – we can speak about neo-Malthusian groups. A society with high nuptiality and marital fertility is traditional, and if both of the components are low, it is simply called modern. The latter pattern is not equal with the post-modern demographic behaviour, of which is described in the theory of second demographic transition (VAN DE KAA, D.J. 2002).

The mean values of nuptiality and marital fertility are changing spatially and temporally. For example people who lived in the Hungarian Kingdom before World War I, followed the Eastern European marriage pattern, which meant marriage at young age and generally high proportion of married people at the same time (HAJNAL, J. 1965), because ‘the society expected its members to be married after a certain age’ and ‘singles, divorcees or separated married couple were condemned’ (CSERNÁK, J. Mrs. 1997, pp. 341–342). Consequently the classification of elements in the scheme of demographic behaviours depends on the examined region and era (*Figure 2*).

In the Carpathian Basin the total population of Roman Catholics followed the Malthusian, Calvinist, Lutheran and Orthodox believers the neo-Malthusian and Greek Catholics the traditional pattern, while Jews and Unitarians had modern demographic behaviour (ÁJUS, F. 2010). However the demographic values of each church are influenced very much by urbanization levels: the higher is the rate of citizens, probably the lower are the values of nuptiality and marital (and thus also general) fertility. This rule is evident in case of Greek Catholics, who lived mostly in rural environment, and in case of Jews, whose very low demographic rates can be explained by their highly urbanized character: 38% of productive aged Jew women lived in cities (in contrast to the national value, 13%), moreover, their county population lived rather in small and medium sized towns than in villages.

³ Nuptiality: 65.1%; general marital fertility: 201.9%.

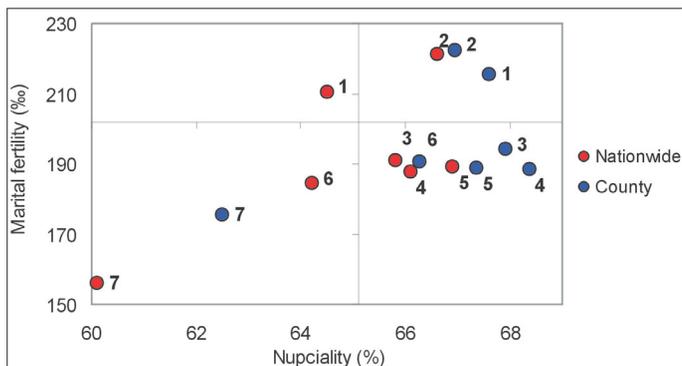


Fig. 2. Nuptiality and general marital fertility rate of denominations on country-level in 1910. – 1 = Roman Catholics; 2 = Greek Catholics; 3 = Reformed; 4 = Evangelists; 5 = Orthodoxes; 6 = Unitarians; 7 = Jews

Beside levels of urbanization several social facts could influence the fertility such as educational level, employment structures, the low level of infant and child mortality which could influence the willingness to childbearing. Some of these facts will be discussed below. Although we need to emphasize, first of all, according to the upper figure the urbanization seems to be the most influential factor in demographic sense, second of all, urbanization is a complex notion, namely the above-mentioned causal variables had special, fertility reducing values in urban areas. On the upper figure we have marked also the data of aggregated population of each church in the counties. The distance between a red and a blue diagram element of the same denomination is closely related to the urbanization level: both values are varying linearly.

Between the two World Wars

We analyse six churches altogether in a chronological approach. (The Unitarian Church became insignificant in Hungary after World War I because of the occupation of Transylvania by Romania.) In the following tables and figures the data from 1910 are reduced to the new territory of Hungary, as we mentioned it in the chapter on methodology, and the aggregated county and urban values are also indicated (*Table 3*).

The general fertility rate of Hungary decreased by 40% between 1910 and 1930, thus a downward tendency can be observed, regardless of the normal annual fluctuations in fertility rates.⁴ The process was influenced by different demographic

⁴ It is observed that the annual agricultural rate of return and the birth rate have a positive correlation with each other (ÁJUS, F. and HENYE, I. 1992).

Table 3. Nupciality, marital and general fertility rate of denominations between 1910–1930

Religion	Nupciality			Marital fertility			General fertility		
	%			‰					
	1910	1920	1930	1910	1920	1930	1910	1920	1930
Roman Catholic	63.8	57.9	59.6	212.7	196.2	137.2	148.6	123.4	90.2
Greek Catholic	62.0	59.1	61.2	236.2	251.8	201.1	162.5	159.5	132.9
Reformed	66.3	59.2	60.2	183.3	181.0	139.3	131.8	116.2	92.9
Evangelist	66.7	58.0	60.4	186.0	179.1	118.6	132.3	111.2	77.1
Orthodox	64.6	60.8	62.7	173.5	185.4	111.2	133.0	129.0	86.5
Jewish	58.0	52.0	54.0	134.8	106.0	71.2	82.8	57.1	39.6
Counties (aggr.)	68.7	60.6	62.8	210.4	198.1	143.4	154.5	128.7	97.5
Cities (aggr.)	48.6	48.3	48.6	154.5	126.9	96.3	92.5	72.0	56.3
Total	64.0	57.8	59.5	200.7	184.5	134.5	140.3	115.5	88.0

factors in each decades and administrative category: decreasing nupciality between 1910 and 1920 on county level (as a consequence of the men's casualties during World War I), marital fertility reduction between 1920 and 1930 on county level also, as well as, in the cities during both decades. In total the most important statistical cause of the general fertility reduction was the fall of marital fertility between 1920 and 1930. Between 1910 and 1920 most of the denominations, and in the next decade all of them can be characterized by a uniform decrease of general fertility rate⁵ (Figure 3).

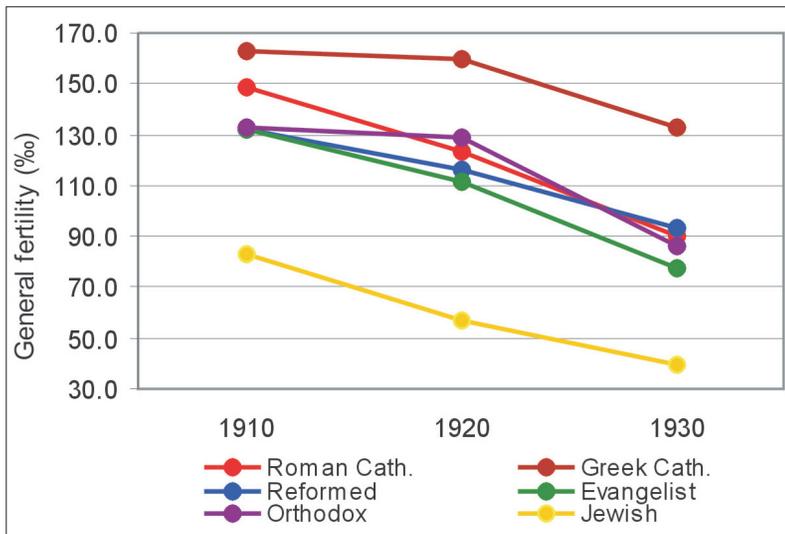


Fig. 3. General fertility rate of denominations between 1910 and 1930

⁵ It can not be perceived on the figure that fertility rate fell down to an extraordinary degree during World War I, then it was almost entirely re-corrected by 1920.

Until 1930 a special order of values was formed, in which both of the extreme (highest and lowest) rates were significantly separated from other values which were relatively close to each other. Therefore Greek Catholics, having outstanding general fertility, were followed by Roman Catholic, Protestant and Orthodox believers, and finally Jews took place on the diagram, deviated very much from the others. Because of the various proportions of infant and child mortality by churches, differences among their net reproduction rates are smaller than the observed ones on the upper graph.

As a result of an earlier comparative study (THIRRING, L. 1936)⁶ an average married Greek Catholic woman had 3.98 births and 2.25 living children in 1930. The same indices in case of Jews were 2.40 and 1.88. Therefore the difference between the two denominations is 1.58 to births, but only 0.37 to living children, which refers to the fact that infant and child mortality was higher at Greek Catholics and lower at Jews. All things considered there is a positive correlation between fertility and child mortality rates of denominations, chronologically resulting in a mitigation of the original differences among churches on childbearing.

Denominations in the hierarchy of causes

Henceforth we analyse only the marital fertility, because this component plays more important role in formation of general fertility. The following map shows the most relevant and accurate index, the TMR in the counties and the cities in 1910 (*Figure 4*).

Counties, whether their marital fertility rates are high or low, made demographic regions. According to our definition a demographic region is an area where a demographic index (1.) shows similar values, or (2.) changes in the same direction, hereby in both cases differs from the surrounding ones. In other words, the notion of demographic region has both static and dynamic interpretation. In our case a demographic region means an area consisting of counties with similar marital fertility rates. It is characteristic in the Carpathian Basin that neither of them covers the economical, ethnic and religious regions. Moreover the highest marital fertility rates, unusually, can be observed in the most developed and underdeveloped areas at the same time, as others have already raised attention to it (KATUS, L. 2011). The next task is to investigate how religion could influence the level of marital fertility.

⁶ These rates, by the fertility-definition of that time, were calculated for adult women, without the reduction to those aged 15–49. Because of the higher mean number of births/children of elder generations, values become higher by this calculation.

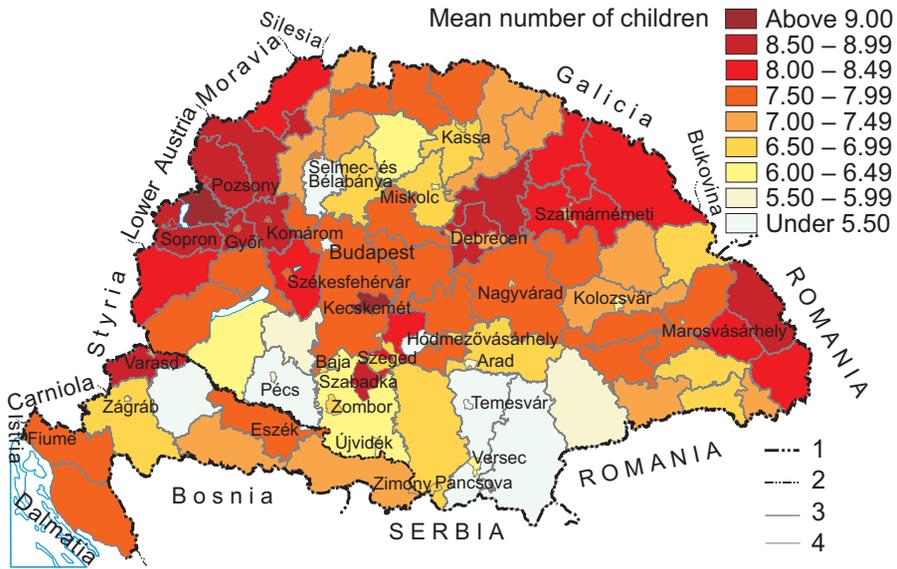


Fig. 4. Total marital fertility rate in the counties and the cities in 1910. – 1–4 = For explanation see Fig. 1.

Religion as the third demographic factor

As we have seen from the above data series, the urban social existence, strongly connected to such relevant variables as industrialisation, infant survival rate, proportion of literates, educational level, secularization, etc., had a greater impact on overall fertility than other factors. If we aspire to define a hierarchy of causes, the level of urbanization should be named as the primary demographic factor. In order to be able to rank the other causal factors, hereinafter we examine only the county data, omitting the cities.

Suppose that religion determines marital fertility rates in all counties. In this imaginary case a given denomination would show similar values everywhere, and childbearing of total population would depend on religious composition in each county. In fact, the county values of marital fertility of denominations and of total population have positive correlation with each other. (Therefore denominational values do the same generally also.)

It means that not the religion but a geographical factor determines the level of marital fertility in the counties. It is important to emphasize that the use of the adjective 'geographical' is a compelled solution because we do not know exactly the concrete variables causing the formation of demographic regions on county level in the Carpathian Basin; the fact we know is that

the development of them is 'probably the result of a mutual impact on each other by very complicated demographic and socio-economic factors', and 'it could not be succeeded to explore the economic, social, political, psychological and, supposed, other movers of the fertility reduction in Hungary so far' (DÁNYI, D. 1977, p. 61; 1994, p. 111).

On our following maps we compare the *general* marital fertility rates of the total population, of Roman Catholics and of Calvinists in the counties and the cities in 1930, in the post-Trianon territory of Hungary⁷ (figures 5, 6 and 7).

The cartograms reinforce the fact of correlation between the county values of the involved groups. In some counties we do not experience the parallel territorial formation of the values, therefore the correlation is not an absolute phenomenon. However, it is evident that marital fertility of Roman Catholics is higher everywhere than that of Calvinists.⁸ It means that the religious component is relevant also behind the geographical factor.

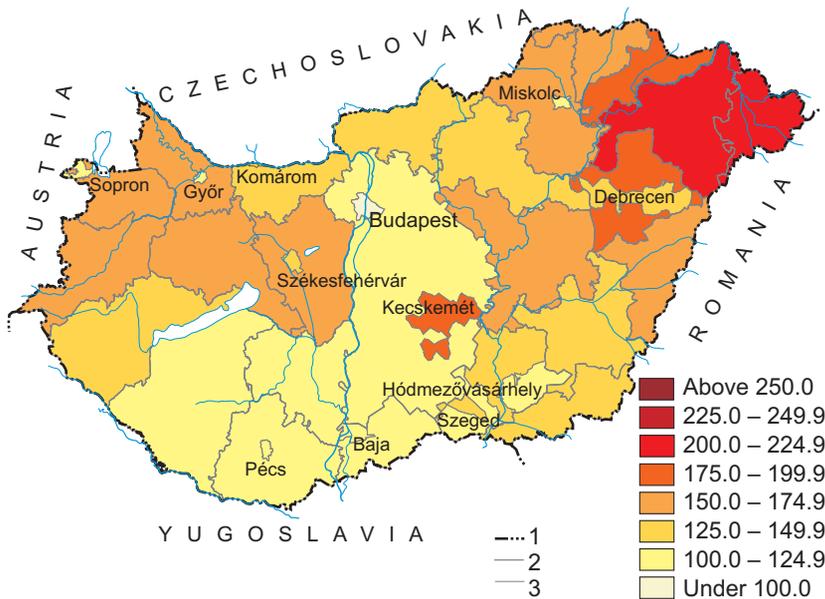
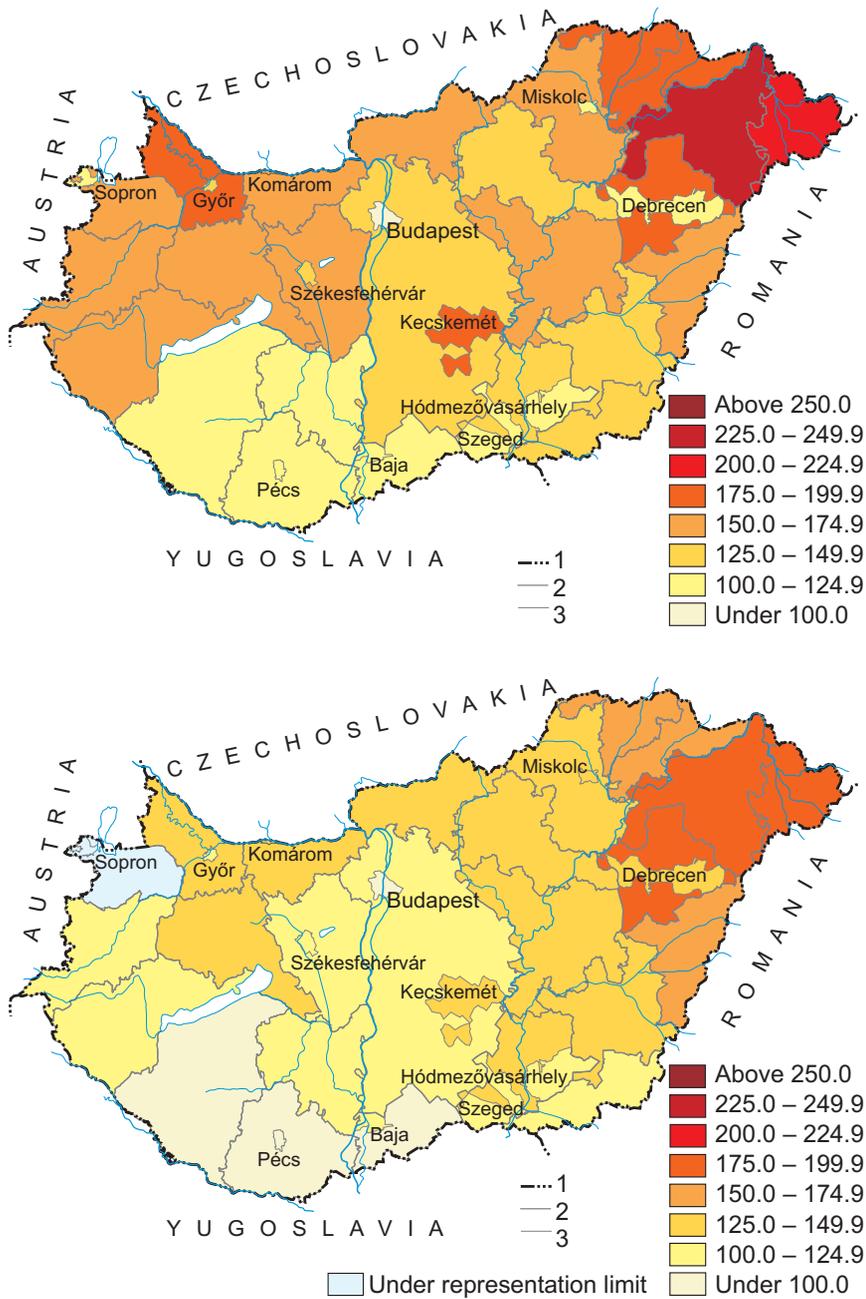


Fig. 5. General marital fertility rate of the total population in the counties and the cities in 1930 (%). – 1 = state border; 2 = county border; 3 = city boundary

⁷The values can not be compared totally with each other only in Sopron county where Calvinists did not reach the representation limit mentioned in the chapter on methodology.

⁸As Table 3 shows, even Calvinists had higher marital fertility, compared to the Roman Catholics, on country-wide level in 1930. The reason of this apparent inconsistency arises from the different distribution of both denominations: the majority of Calvinists concentrated in the most fertile region, while Roman Catholics are scattered almost equally all over the county.



Figs. 6, 7. General marital fertility rate of the Roman Catholics (above) and Calvinists (down) in the counties and the cities in 1930 (‰). 1–3 = For explanation see Fig. 5.

Our purpose, by the following figure, is to get a common, exact and clear picture on mutual relations among the geographical and denominational factors. The point-diagram, by its regression lines, shows the correlation between the general marital fertility rates of the total population and those of each denomination on county level. Therefore the vertical rows of diagram elements, which can be perceived hardly because of the large quantity of the points, mark the religious groups of each county (*Figure 8*). (Denominational groups of the cities, as it was mentioned before, are not implicated into the diagram.)

The positive regressions prove that the 'geographical' cause determines the fertility level of the counties (of which the demographic regions are made), while the the parallel lines indicate another rule: the religious fact determines the standard sequence of fertility rates among some denominations, independently of their territorial positions. (The above correlations can be observed related to the other demographic component, the nupciality, however in this case the role religion, in absence of parallel lines, can not be demonstrated.) Considering the previously mentioned fact that in total the level of urbanization is the most influential social factor, the geographical cause should be called as secondary, and the religious one is as third demographic factor.

A question arises as to how detectable is the demographic role of religion exactly. The effect on fertility by a given denomination can be defined by calculating the county general marital fertility without the involved church, that is by subtracting the absolut numbers of corresponding legitimate births and 15–49 year old married women. The difference between the original and the resulting rates shows that to what extent the given denomination strength-

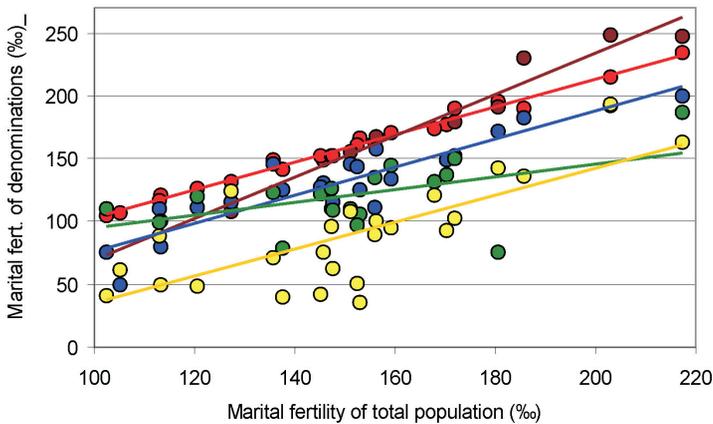
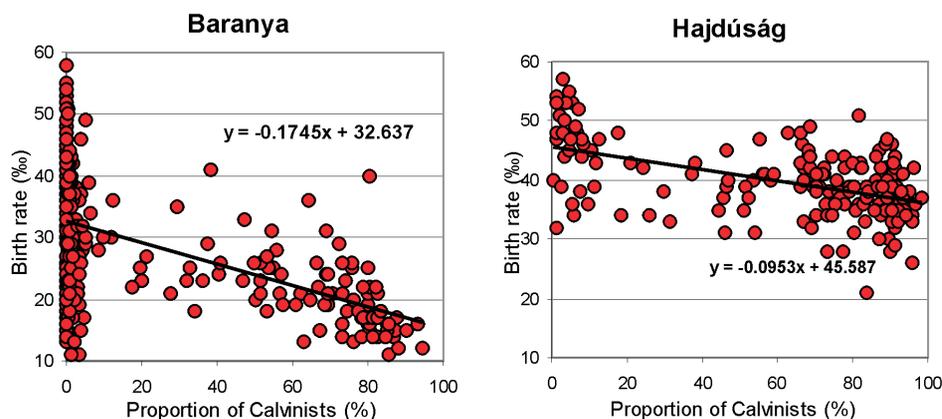


Fig. 8. General marital fertility rate of denominations compared with the same index of affected counties in 1930. – Coloured balls: Red = Roman Catholics; Brown = Greek Catholics; Blue = Calvinists; Green = Evangelists; Yellow = Jews (No data for Orthodoxes)

ened or weakened the childbearing of the total county. A 1910 example of two counties, belonging to the same demographic region: while the marital fertility would be lower by 7.1 perthousand points in Hajdú county, and by 11 perthousand points in Szabolcs county without Catholics, the same rates would be higher by 21.7 perthousand points in Hajdú, and by 6.5 perthousand points in Szabolcs county without Calvinists. The marital fertility of the total county population is determined more by Calvinists in Hajdú county, and more by Catholics in Szabolcs county. So in fact not only fertility values, but the residential rate of churches also plays a role in demographic processes.

The manifestation of the religious factor at the beginning of the 20th century will be illustrated by a comparative example on Baranya county and Hajdúság region. Main parameters of these areas are deviated absolutely from each other, including topography, dominant type of settlements, total fertility rate and religious character. The purpose of the comparison is to demonstrate, first of all, the correlations between the proportions of Calvinists and the birth rates in the localities, second of all, the similarity of the correlations in the two areas, which are different in almost every aspect. (Birth rate is 'weaker' than fertility rates we use here, but related to the local administrative level only this kind of demographic index is published in the corresponding census database.) The diagram elements indicate, of course, the settlements of the examined counties (*figures 9, 10*).

As it is reflected in the negative correlations, the bigger the proportion of Calvinists, the smaller the birth rate is in a settlement. The graphs illustrate spectacularly the second and the third factor alike: most of the elements are distributed within different domains along the y-axes in each diagram, but the



Figs. 9, 10. The coherence between the proportions of Calvinists and the birth rates in the settlements of Baranya county and Hajdúság region between 1901 and 1910

regression lines close similar angles. Within the $y = ax + b$ function the b means the second, and the a means the third demographic factor, thus the previous one determines the position of regression line along the y-axis, and the latter one determines its angle.

Religious or ethnic determination? The case of South Transdanubia

So far we have not taken into consideration the so-called cover-variables. In the Carpathian Basin denominations had significant overlaps with the ethnic groups at that time (which means, according to the early statistical standard, native groups), and automatically raises the necessity to examine the possible demographic role of ethnic groups. Regions with lowest fertility are suitable fields to find the appropriate variable being more responsible for fertility reduction.

According to Paul DEMENY ‘we can isolate at least three “leading” groups. In the Transdanubian region, the nucleus of change is found among the Protestant (Calvinist) Hungarian population. In the Banat region, the leaders were Roman Catholic and German. Further to the east, in Krassó-Szörény, early fertility decline is a characteristic of the Greek Orthodox Rumanian population’ (DEMENY, P. 1972, pp. 170–171). As DEMENY added, we can speak about diffusion of birth control in the affected areas: the attitude-transfer in South Transdanubia took place through denominational channels – Roman Catholics imitated Calvinists’ demographic behaviour three decades later –, while in the Banat region the process of fertility reduction was led by ethnic groups: Hungarians and Serbs followed the German and Rumanian pattern with delay.⁹

In the following we try to concretize the real demographic impact of religions and ethnics in Baranya, the least fertile county of South Transdanubia. The population here, in religious and ethnic aspects, can be divided essentially into two groups: Roman Catholics and Calvinists, as well as, Hungarians and Germans. Comparing their marital fertility rates, it becomes apparent that which was the more appropriate observations during the only-child debate in connection with the demographic deficit of Hungarians and Calvinists (*Table 4*).

Table 4. Marital fertility rates of the relevant South Transdanubian denominations and ethnics in 1910

Territory	Roman Catholic	Reformed	Hungarian	German	Together
	‰				
Baranya	149.3	79.5	125.1	165.6	138.5
Hungarian K.	210.6	191.0	204.8	177.9	201.9

⁹ One should note that diffusion was not only a sociological but also a cultural and a geographical notion at that time, as it was regarded as a flow of information on contraception among the social strata (BECKER, G.S. 1960).

According to data of the 1910 census, Germans were Catholics, Hungarians belonged to both churches, and Calvinists were Hungarians in Baranya; the total county proportion of other overlap was very slight. Essentially we can separate three big groups of inhabitants in the county: Roman Catholic Hungarians, Reformed Hungarians and Roman Catholic Germans, but in statistical sense we can regard, considering the above-mentioned cross data, Calvinist Hungarians simply as “the” Calvinists, and Catholic Germans as “the” Germans, therefore both latter groups’ marital fertility rate can be calculated by the estimation formula discussed in the methodology chapter. The same index of the third group, Roman Catholic Hungarians, can be computed in an easy way.¹⁰ According to the final results, the marital fertility rates were as follow: Calvinists: 79.5‰; Germans: 165.5‰; Roman Catholic Hungarians: 137.1‰.

The difference between the rates is higher in case of groups belonging to different churches than among groups of different ethnicities (58 and 29 thousandth points). Therefore in Baranya county, the religion played more significant role in the development of marital fertility than the ethnicity did. We can draw the same conclusion in other South Transdanubian counties, but an opposite causal hierarchy prevails in the Banat and South Transylvania, where marital fertility was formed mainly by the ethnic ties, as DEMENY stated first,¹¹ and the differences of denominational fertility rates were determined by ethnic compositions of the local religious groups.

¹⁰ As a first step we need to calculate the two elements of the marital fertility rate, the numbers of legitimate births and married women within the Roman Catholic Hungarian population. It can be done in two ways: taking the given number of Calvinists from the total number of Hungarians, or repeating the same procedure in case of Germans and Roman Catholics. The difference between the results is very small (legitimate births: 2,996 and 2,995, married women aged 15–49: 21,379 and 22,300), and when the quotient is formed from them, we use the mean values of the corresponding figures. Due to methodological aspects, during our procedure in theory we need to suppose that the proportions of the religious and ethnic overlaps are same in case of total county population, legitimate newborn babies and married women aged 15–49.

¹¹ We would complete DEMENY’s statements about the Banat region: in religious context it were not the Roman Catholics but the Orthodox, in ethnic respect it were not the Germans but the Rumanians, who were leaders in fertility decline, similarly to the neighbour county, Krassó–Szörény (calculating only with the relevant religious and ethnic groups). Using our estimation formula, we can describe the general marital fertility rates of the ethnic and religious groups in the Banat region, accurately in Temes county from 1910, i.e. Hungarians: 217‰, Germans: 158‰, Rumanians: 106‰, Serbs: 184‰, Roman Catholics: 169‰, Orthodoxes: 127‰.

Summary and conclusions

The general fertility rate was reduced by 40% in Hungary between 1910 and 1930. The main reason of the strong decrease was primarily the tumble of marital fertility between 1920 and 1930. The general fertility of most of the denominations declined in similar degrees between 1910 and 1930, except for Orthodox and Greek Catholic believers, whose rates began to decrease only in the second decade. Denominational values showed significant deviations: Greek Catholics' fertility values moved in an outstandingly high, while that of Jews in especially low domain, while the others produced average rates being close to each other.

Several reasons could cause differences between the demographic characters of denominations, such as proportions of urbanized and rural population, educational level, employment structure, infant and child mortality, religious and ethnical overlapping and, last but not least, the denominational culture itself.

In the Carpathian Basin the marital fertility could be characterized by geographical differences of the values, hereby different sized demographic regions formed, each of them extended onto many counties. These areas, being either high or low, could not be connected with the economical, ethnic and denominational regions. The county values of nupciality and marital fertility were primarily determined not by the religion, but by the so-called geographical factor. However, it can be observed that denominational marital fertility values showed the same or similar sequence in several counties.

The geographical cause, which fundamentally determines the marital fertility level of a given region, is called secondary demography factor (considering that urbanization can be regarded as primary one), and the religious/cultural cause, which can be connected to the sequence of the same indices of denominations, is called third secondary demographic factor. The latter one could also have a limited influence on the overall fertility in the counties, but its degrees depended on the religious complexion of the affected area.

Because of the significant overlaps between denominational and ethnic groups, it is ambiguous that the secondary demographic factor can be interpreted religious or ethnic phenomenon. As it is proved by the examinations, the causal role of denominations and ethnics was different in the regions. For instance, religion was a more determining factor than ethnicity in South Transdanubia, and the reverse was true for the Banat and South Transylvania.

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