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**AGEING OF THE FEMALE FERTILE POPULATION IN SERBIA -**  
**TERRITORIAL ASPECTS**

**(Séance / Session 3)**

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**Abstract:** The paper analyzes ageing of the fertile contingent in Central Serbia and Vojvodina in relation to the reproduction, as well as in relation to birth postponing. It also covers the spatial aspects of this ageing. A long-time ethno-demographic polarization was the basis for territorial differentiation of natural dynamics, whereas the latest period is featured by homogenization and reduction of differences to a smaller territory. To what extent is all this related to the age structure of fertile women? The paper tries to answer this and some other, related questions. The analysis of age structure covers the period after the WW2, more precisely the three census years (1953, 1981 and 2002) that represent different situations in the country. Due to methodological constraints, territory-related aspects are analyzed for the period after 1981. Vital statistics data are used to explain changes in specific fertility in relation to age.

**Keywords:** fertile contingent, birth postponing, ageing, Serbia

**Résumé:** L'article analyse le vieillissement du contingent fertile en Serbie centrale et en Voïvodine dans le cadre de la reproduction, ainsi que par rapport à la naissance report. Il couvre également les aspects spatiaux de ce vieillissement. Une polarisation de longue date ethno-démographique a été la base de différenciation territoriale du mouvement naturel, alors que la dernière période est caractérisée par l'homogénéisation et la réduction des différences par rapport à un territoire plus petit. Dans quelle mesure tout cela est lié à la structure par âge des femmes fertiles? Le document tente de répondre à cela et quelques autres, des questions connexes. L'analyse de la structure par âge couvre la période après la 2ème guerre mondiale, plus précisément les trois années de recensement (1953, 1981 et 2002) qui représentent des situations différentes dans le pays. En raison de contraintes méthodologiques, les aspects liés au territoire sont analysés pour la période après 1981. les statistiques de l'état civil de données sont utilisés pour expliquer les changements de la fécondité spécifiques en rapport avec l'âge.

**Mots -clés:** fertiles contingent report des naissances, le vieillissement, la Serbie

Low fertility (below replacement level) and population aging are among most important and interrelated features of population development in Central Serbia and Vojvodina. Although in the modern period socioeconomic factors and reproductive norms dominantly affect the level of fertility, the size and age structure of the fertile contingent represent an important demographic context of reproduction. Mechanisms of population momentum and the need to find appropriate measures to encourage childbearing also indicate the importance of the issue. This is especially important when regional differences are really evident. In Serbia, they were really high for a long time, as a result of different pace of demographic transition.

The main feature of the population reproduction in Serbia in the second half of the 20th century is the coexistence of two opposing reproduction patterns based on ethnicity. The model of high fertility and extended reproduction features the Albanian, Rom and Muslim (Bosniak) population, whereas the model of low fertility and insufficient reproduction features Serbs and other ethnicities. Such contradictions in the natural population dynamics have created a corresponding spatial-demographic imbalance. In a period of post-war development of Serbia, demographic differences between its macro-entities (Central Serbia and its provinces - Vojvodina and Kosovo) were extreme in Europe. General fertility rates in the southern province in certain years were 3.5 times higher than in Vojvodina, which in the relatively small territory of Serbia has caused huge disproportions in the total regional population dynamics and fertile potential. The polarization was established at both mezzo- and micro-levels, which has further sharpened the problem of relocation of demographic resources.

New social reality that Serbia faced during the 1990s has caused a lack of data for Kosovo and revealed other methodological problems as well. The vital events of population that lives abroad for more than one year has been available in the vital (but not in the census) statistics up to 2005, and there are also contradictions in the census and vital statistics of refugees. At the global level, such a methodology does not change the demonstrated long-term trends, but affects the real quantification of vital events.

After the crisis period from the end of the 20th century, trends and regional differences are considered in the new spatial context, within the central Serbia and Vojvodina. This part of Serbia is characterized by a continuous decline in fertility in the second half of the 20th century. The fertility has started to decline in 1954th year. At that time, the values of crude birth rates have already fell from 25 per thousand to below 20 per thousand, further declining to only about 10 per thousand during 1990s. According to Statistics Institute of Serbia, in 2008 the crude birth rate was 9.8 per thousand in central Serbia and 9.5 per thousand in Vojvodina. Fluctuations in the number of live births during the second half of the last century depended much on the changes in the size and age structure of the fertile contingent. Thus during the entering of the baby boom generation into the optimal reproductive period an increase of fertility rates has been recorded.

At the mezzo- and micro-levels, intense migration and population redistribution have varied the spatial distribution of the female fertile contingent and the level of fertility. Most recently, relative homogeneity of fertility is observed at the level insufficient for population reproduction, and further downward trend in fertility both in the absolute and relative terms, delayed childbearing, and the lack of reproductive potential in certain territories prevent their revitalization. The long ethno-demographic polarization that is the basis of territorial differentiation of population dynamics is still present, but was reduced to a smaller territory.

In this paper we explore the size and age composition of female fertile population, its regional distribution, as well as aging of the fertile potentials as a demographic determinant of fertility. The optimal proportion of women in the reproductive period in the fertile contingent is analyzed, as well as its average age. We also investigate changes in fertility by age in the period from 1950 to 2007 and describe different phases of different fertility interrelations of women by five-year age groups and their participation in reproduction. In addition to the process, special attention is paid to redistribution of fertile potentials at the municipality level.

## **Research Methodology**

The paper is based on population censuses as sources of data on the size and age composition of the fertile contingent, as well as on the vital statistics data that help determine trends of fertility, birth postponing, and age model of births. The sources used included the 1953, 1981 and 2002 census data, the latest available data on vital events, and estimates of the age composition of women. The three census years have been selected to represent three different contexts in the country. The 1953 census was the first detailed census after World War II. It has been conducted in the time of the initial development momentum and still strong patriarchal traditionalism and education. The proclaimed equality of men and women during the socialist period, access to education and employment for women, and even very good social conditions for birthgiving and harmonization of family and professional affairs, feature the period of relative stability in the country, represented by the census in 1981. The last census in 2002 was conducted after a decade of major political, economic and social disruptions, wars, isolation and financial crisis. Difficulties in comparison caused by different enlistment methodologies used during the last census are alleviated by using data on female population in the country for the previous censuses. It has been eight years since the last census, so estimates for 2008 were used to sketch the latest situation. The paper discusses the number and fertility of women in the optimal age of childbearing, from 20 to 35.

To suit the analysis, vital statistics data either correspond in time to the census data, or are given for the entire postwar period, in order to define the process and the transformation trend of fertility.

Finally, territorial differences are analyzed at the level of macroentities – Central Serbia and Vojvodina, and at the municipal mezzo-level. Pursuant to the availability and method of classification of published data, smaller-size territorial units are processed only for recent census years, and not for 1953. The paper also shows two example municipalities (a high-fertility one (Tutin) and a low fertility one (Crna Trava)), in order to illustrate the polarized demographic reproduction.

## **The size of fertile contingent**

From 1953 to 1991, the same tendency of changes of the number of women in the fertile contingent featured Central Serbia and Vojvodina. More numerous baby-boom generations have entered the reproductive age condition, so that up to 1971 the number of women in the fertile contingent has increased by 317 thousand. After that, it declined by 211 thousand. In the last period, between the two censuses, a divergence occurred: in Central Serbia the downward trend has continued, while in Vojvodina, as a traditional recipient of the refugee

population, the number of women in the fertile age has increased in 2002 due to the immigration from the crisis territories of the former Yugoslavia. Based on the size of the fertile contingent as estimated by the Serbian Bureau of Statistics (SBS) in 2002, the decline in the number of reproduction-aged women has continued rapidly in both macro-entities after the census, at an average annual rate of -9.9 per thousand. The size of the fertile contingent in 2008 has approached that of 1953, when it was under the influence of war losses and reduced fertility during the war (Table 1).

Table 1 - The dynamics of the number of women in the fertile contingent

	1953.	1961.	1971.	1981.	1991.	2002.	2008.
Serbia	1703548	1727303	2020504	1892690	1864002	1809317	1704735
Central Serbia	1233864	1252291	1484973	1395864	1382061	1312721	1240483
Vojvodina	469864	475012	535531	496826	481941	496596	464252

Source: The 1953, 1961, 1971, 1981, 1991, and 2002 censuses. The estimates for 2008, SBS.

Looking at inter-census periods, the largest increase was recorded in the period 1961-1971. The number of women in the fertile contingent in Serbia in that period was growing at an average of 29,320 per year, i.e. for every 1000 women from the fertile period there were on average 17 new ones each year. After 1971, the number of women in the fertile contingent was constantly reducing at a varying rate, while the total population of the country was growing. The average annual rate of change of the fertile contingent has reached its lowest values in the period 1971-1981, when they were negative, and ranged from -6.2 per thousand in Central Serbia to -7.5 per thousand in Vojvodina. It is a time of mass emigration of the most vital part of the population, as well as of the inflow of less sized generations into the fertile contingent. In the next period, the decline has slowed down. It has increased again in the last inter-census period in Central Serbia (-4.7). Contrary to that, taking into account that the population of Vojvodina is less than that in Central Serbia, and that the influx of refugees in these two territories was almost identical, it can be noted that from 1991 to 2002 the negative trend has stopped in Vojvodina and an increase of 14,655 fertile women was recorded (Table 2). All of these changes have been shaped by earlier trends in fertility, except in the last period that was predominantly featured by forced migration.

Table 2. Absolute increase, the average annual growth, and the average annual growth rate of the fertile contingent, in the period 1953-2002

Territory	Year	1953-1961.	1961-1971.	1971-1981.	1981-1991.	1991-2002.
Serbia	R	23755	293201	-127814	-28688	-54685
	$\bar{R}$	2969,4	29320,1	-12781,4	-2868,8	-4971,4
	$\bar{r}$	1,7	15,6	-6,5	-1,5	-2,7
Central Serbia	R	18427	232682	-89109	-13803	-69340
	$\bar{R}$	2303,4	23268,2	-8910,9	-1380,3	-6303,6
	$\bar{r}$	1,9	17,0	-6,2	-1,0	-4,7
Vojvodina	R	5148	60519	-38705	-14885	14655
	$\bar{R}$	643,5	6051,9	-3870,5	-1488,5	1332,3
	$\bar{r}$	1,4	12,0	-7,5	-3,0	2,7

Source: The 1953, 1961, 1971, 1981, 1991, and 2002 censuses. SBS

### Age structure fertile contingent

Age structure of the fertile contingent is important from the perspective of procreation, due to differentiation of fecundity by age. The process of demographic aging is certainly evident also in the internal age composition of the fertile contingent, so the sizes of generations that enter it today are smaller than those that have entered it earlier. The extension of life expectancy is the reason why the increase of the number of women in the fertile contingent in 1981 with respect to 1953 was not followed by the increase of the proportion in the total number of women. It is the same case is with the optimal fertile contingent and its participation in the fertile contingent. Both proportions show a downward trend. The increasing numbers of postfertile women and women over the optimal age for childbearing are mechanisms of these participatory changes. Namely, in the territory of Serbia the participation of prefertile contingent has decreased from 25.9% in 1953 to 15.0% in 2002, while the share of the postfertile contingent has increased from 20.4% to 37.8%. Specifically, in central Serbia and Vojvodina the participation of age groups from 0 to 34 has decreased, while the age groups of 35 and more have increased. In this age redistribution, the proportion of fertile women in the female population has decreased from 53.7% in

1953 to 47,0% in 2002, and to 45.1% in the estimates for 2008. The optimal contingent has participated in the beginning of the century with 41.0% in the fertile population and with only 19% in the female population, but it is important that, unlike the fertile contingent, it has got reduced in size for 106 thousand compared to 1953. The relations showing the greater participation of fertile women in Vojvodina than in central Serbia, but also the opposite when it comes to the optimal contingent, have remained unchanged in the next period as well. In addition to this continuity, there is a notable change in 2008 – an increased participation of the fittest to reproduction, because of the significant reduction of the youngest fertile group from 15 to 19, the influence of the inherited age structure, and internally displaced persons.

Table 3 - Participation of the fertile contingent in the total female population and participation of the optimal fertile contingent in the fertile contingent (%)

Territory	Serbia			Central Serbia			Vojvodina		
	1953.	1981.	2002.	1953.	1981.	2002.	1953.	1981.	2002.
Number of women	3172089	3795836	3852071	2283044	2785281	2805021	889045	1010555	1047050
F (15-49)	1703548	1892690	1809317	1233864	1395864	1312721	469684	496826	496596
F (20-34)	847269	872359	741021	621061	645822	540629	226208	226637	200392
15-49 %	53,7	49,9	47,0	54,0	50,1	46,8	52,8	49,2	47,4
(20-34)/(15-49)	49,7	46,1	41,0	50,3	46,3	41,2	48,2	45,6	40,4
20-34 %	26.7	23.0	19.2	27.2	23.2	19.3	25.4	22.4	19.1

Source: Calculations based on 1953, 1981, and 2002 censuses. SBS.

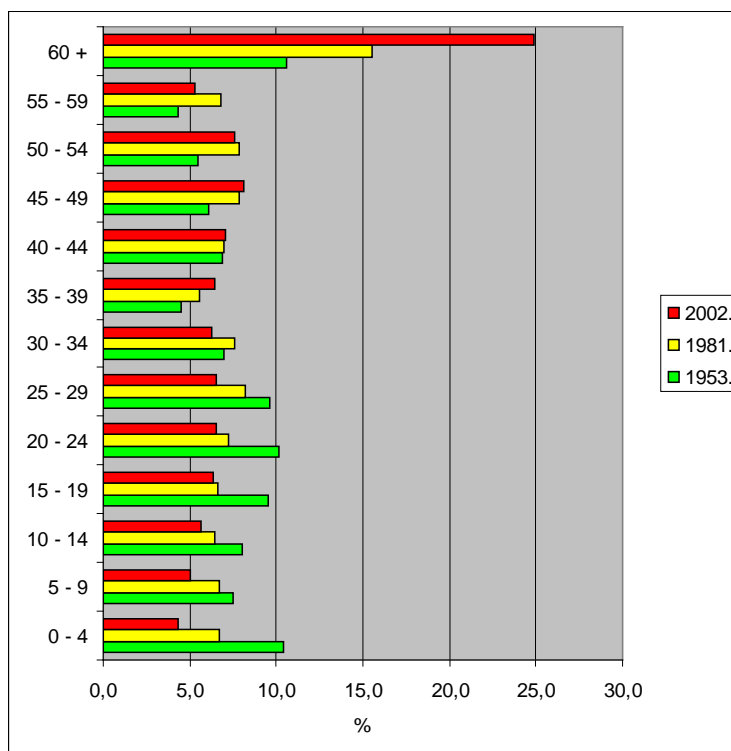


Figure 1. Age structure of women in the Republic of Serbia in 1953, 1981, and 2002.

The decreasing share of the pre-fertile contingent shapes the demographic fate of our country. The reduction of the fertile potential, accompanied by the reduction of reproductive norms and the current total fertility rate of 1.4, is an alarming predisposition of future fertility trends.

One indicator of the process of demographic aging of the fertile potentials is their average age. At all three territorial level under this study, there was an increase in this indicator. At the country level, women in their

reproductive age in 2002 were by 2.7 years older than in 1953, i.e., from 1953 to 2002 the average age of the fertile contingent rose from 30.5 to 33.2. The average age of the fertile contingent in Central Serbia rose from 30.2 to 33.2 years, and for 3 years, and in Vojvodina from 31.1 to 33.2, i.e. by 2.1 year. The increase was the lowest in Vojvodina because the demographic aging has started there earlier and in the base year the value of this indicator has already been one year higher than in Central Serbia.

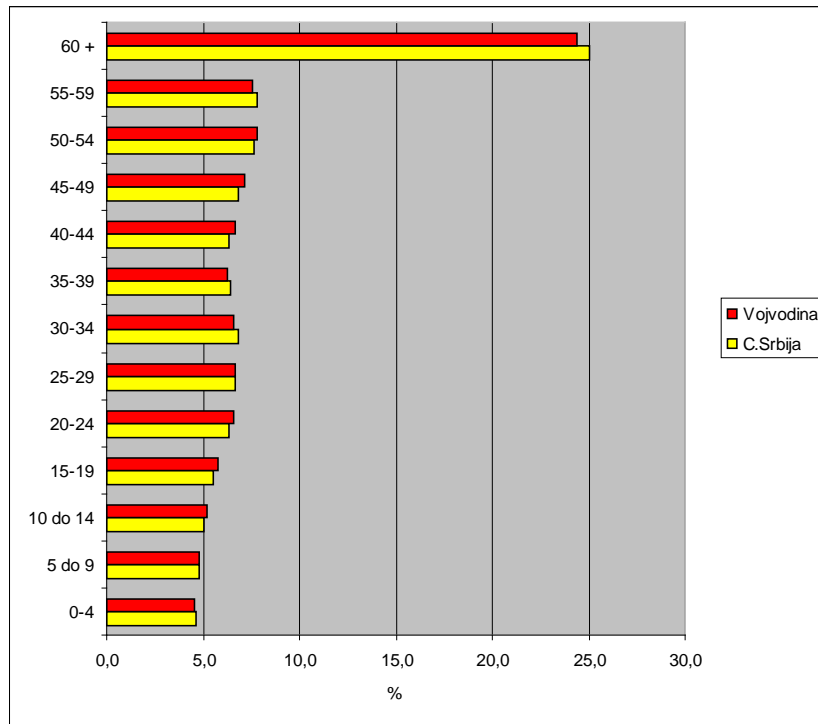


Figure 2: Age structure of women 2008 in Central Serbia and Vojvodina (estimates)

### Regional aspects

Differences between central Serbia and Vojvodina in terms of trends, changes in share, and age composition of the fertile contingent during the studied period had a tendency to reduce and are today almost non-existent. A more detailed insight into the distribution of the fertile potential of Serbia is available at the municipal level.

Distribution of municipalities by the share of the fertile contingent in the women population reveals that in the early 1980s in almost all municipalities in Serbia fertile women constituted more than 40% of women. The largest concentration, but also the largest polarization, was noted in the municipalities of Belgrade, where three categories have emerged: downtown municipalities and southeast periphery municipalities with a share of less than a half, the northwest suburban municipalities with a share greater than 55%, and other municipalities with a share from 50 to 55%. This structure is a function of migration of the reproductive and working-age population throughout the postwar period, as well as of the direction of urban expansion of Belgrade. Consistent percentage of shares in certain municipalities represent a kind of mimicry because they do not reflect explicitly the influence of the growth of postfertile contingent and of the decline of the prefertile contingent. However, comparative charts of the share of the fertile contingent in the total female population and the share of the optimal fertile contingent in the fertile population, and especially the charts of the average age of fertile potentials, reveal the effects of low and high fertility, especially in the municipalities bordering Montenegro and Macedonia.

The transformation in the next 20 years has developed to reduce the share or to keep it at stagnation. From 1981 to 2002, the number of municipalities in Central Serbia with the participation of less than 40% has notably increased (from 1 to 24), and the number of municipalities where it is greater than 50% has decreased (from 41 to 9). In 2002, there were five municipalities where the women fit for reproduction have participated by less than a third of the female population. Weakened reproductive potentials are typical for depopulated

municipalities in Eastern Serbia. Population aging has affected Belgrade as well, and has changed its features from 1981. The distribution of Vojvodina, in turn, reveals the absence of both municipalities with low shares (less than 40%) and those with high shares (above 55%), and the domination of those where women fit for reproduction participate with 45-50%. Immigration during 1990s has strengthened capacities of certain municipalities in Vojvodina, and the provincial capital of Novi Sad has remained a territory with the best age composition for reproduction in the northern province.

Estimates for 2008 show a greater diversification of the municipalities, based on the observed share in Central Serbia than in Vojvodina, and their concentration to a lower share. In Vojvodina, there is an apparent concentration towards higher shares.

Table 4 – The number of municipalities with a certain share of fertile contingent in the total female population and a share of optimal fertile contingent the total fertile contingent

	CENTRAL SERBIA			VOJVODINA			CENTRAL SERBIA			VOJVODINA		
	1981	2002	2008	1981	2002	2008	1981	2002	2008	1981	2002	2008
	15-49 /total female population (%)						20-35 /15-49 (%)					
Up to 30	0	2	2	0	0	0	0	0	0	0	0	0
30-35	0	3	6	0	0	0	1	2	2	0	0	0
35-40	1	19	18	0	0	0	10	48	20	2	31	11
40-45	19	33	58	4	11	1	39	60	78	23	14	32
45-50	53	48	28	30	31	26	58	5	16	19	0	2
50-55	34	9	4	11	3	18	6	0	0	1	0	0
55+	7	0	0	0	0	0	0	0	0	0	0	0
∑	114	115	116	45	45	45	114	115	116	45	45	45

Note: Estimates for 2008.

Changes in the share of women in the optimum age for giving birth in the total fertile population by municipality indicate several key features. In 1981 the share of 40% to 50% predominated, with shares approaching the upper limit were characteristic of the developed areas. The share of more than 50% was present in some municipalities of Belgrade, in Kragujevac (a strong industrial center at that time), and in Stara Pazova (located in the periurban zone of Belgrade). There is an obvious influence of migration and concentration of the fertile potential of the most developed and most perspective areas. Only 13 depopulated peripheral municipalities and municipalities located in the vicinity of the development centers that have "swallowed" their surroundings had less than 40% of women capable of childbearing. The lowest shares, less than a third, had the municipality of Gadžin Han, where due to the strong immigration and population aging women fertile potential is reduced both in absolutely and relatively. Ten years later, the zones of larger and smaller share are even more clearly established, the former showing a clearer correlation with the ethnic composition. Thus, in high-fertility municipalities of Bujanovac and Preševo over one half of women from the fertile contingent were in the best age for reproduction. In contrast to them, in the eastern territory of Serbia and in the immediate urban core of Belgrade the corresponding percentage ranged between 35 and 40. The last census shows that the share of 20-34 age in the fertile contingent in any municipality does not exceed one half of the fertile contingent, and the number of municipalities where it is below 40% grows. If a transition from a smaller to a larger percentage is noted, it is due to the extraordinary impact of migration during the last inter-census period. In the heart of the spatial patterns is the pattern of fertility by ethnicity, i.e. the dual model of reproduction in Serbia, as well as the direction of the axis of development of the first and second order, which were either featured by immigration or have slowed the emigration. Polarization on the basis of the share of fertile women is present in Southeast Serbia, where it corresponds to the polarization of fertility.

The age of fertile women is not a determining factor of the spatial distribution of fertility because it shows a higher degree of homogenization, but it certainly defines the reduced fertile potentials and fertility processes in the future. With regards to the average age of the fertile contingent, it is interesting that from 1981 to 2002 the average age of the fertile contingent has got reduced in 11 municipalities, while in the others it has increased. It was caused by immigration of refugee population, as well as by the size of the generations coming into and out of the fertile period in municipalities with high fertility. The average age in most municipalities in this period has mainly grown for one year. At the beginning of the 21st century, only four municipalities in Serbia, all with a major Muslim population, had a fertile contingent younger than 32 years on average. In 1981, the average age varied from 29.1 in Tutin to 34.1 in Gadžin Han and Svrlijig, and in 2002 from 30.2 in Tutin to 34.2 in Crna



Trava. Most municipalities in central Serbia and Vojvodina at the beginning of this century had a fertile contingent between 33 and 34 years old on average (i.e., coming out of the optimal reproductive period).

The distribution of fertile women share in the total population has shown the highest concentration in Belgrade, Novi Sad and some municipalities of Western and Southwestern Serbia, where they account for more than a quarter of the population. In Eastern Serbia, a zone is formed with the female reproductive contingent shares below 20%. Participation of the optimal fertile contingent in the general population once again highlights the potential reproductive advantage of the largest cities and municipalities with high fertility in Southern Serbia, because only there it makes more than 10% of the population.

Chart 1. Participation of the fertile contingent in the total female population in 1981 and 2002.

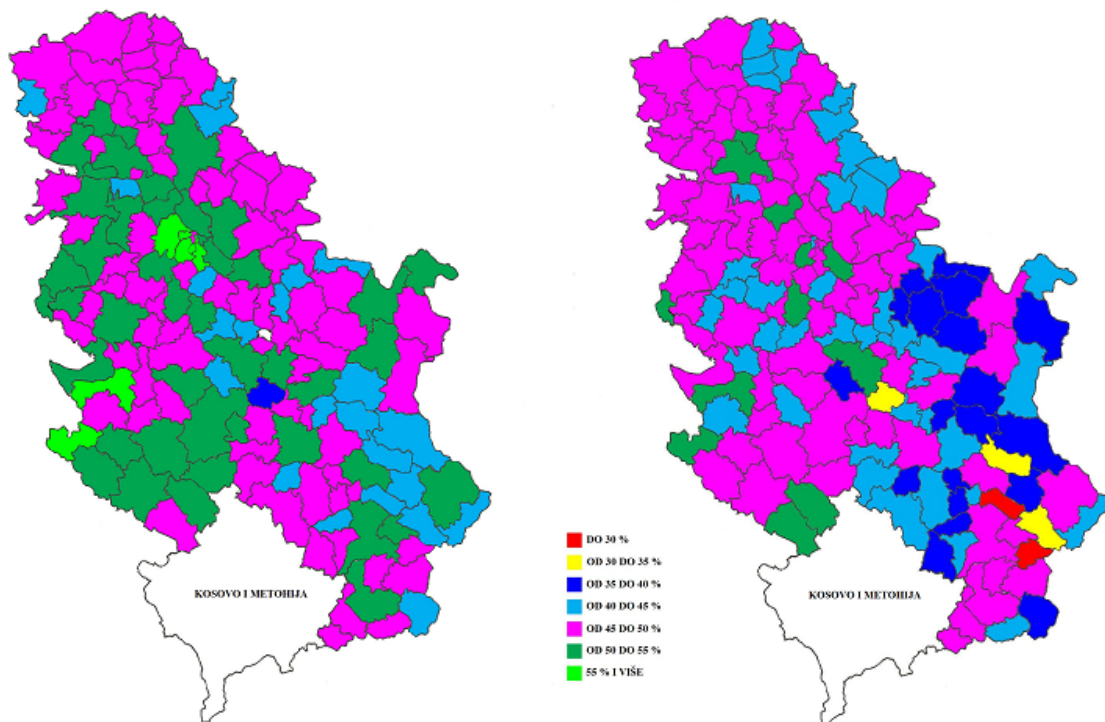


Chart 2 – Participation of the optimal fertile contingent in the fertile contingent in 1981 and 2002.

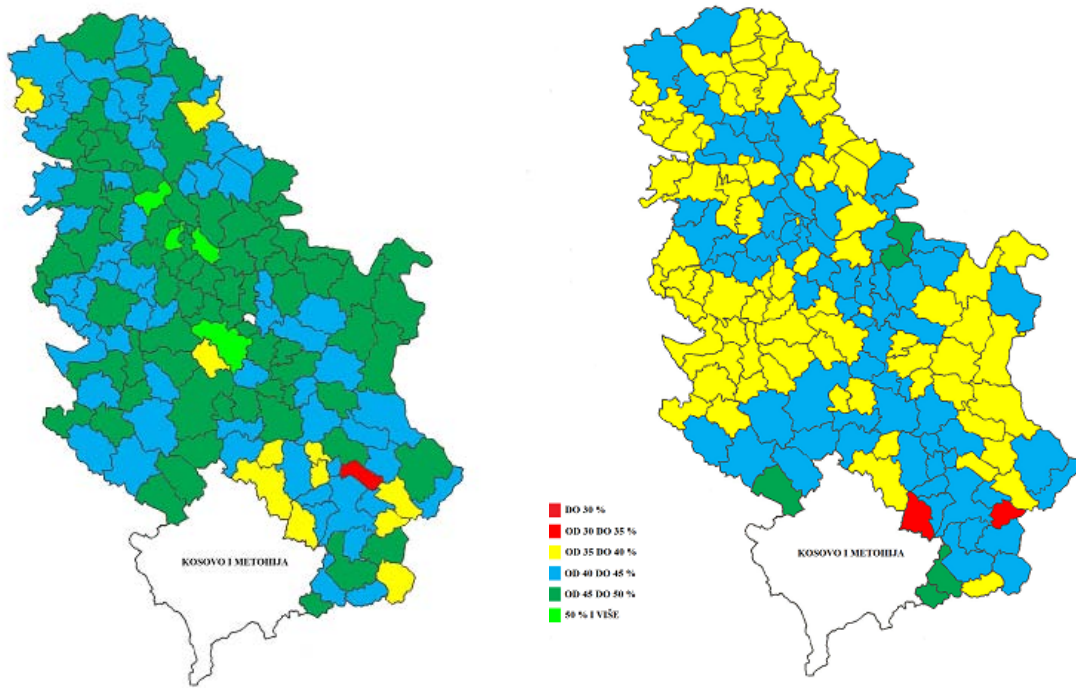
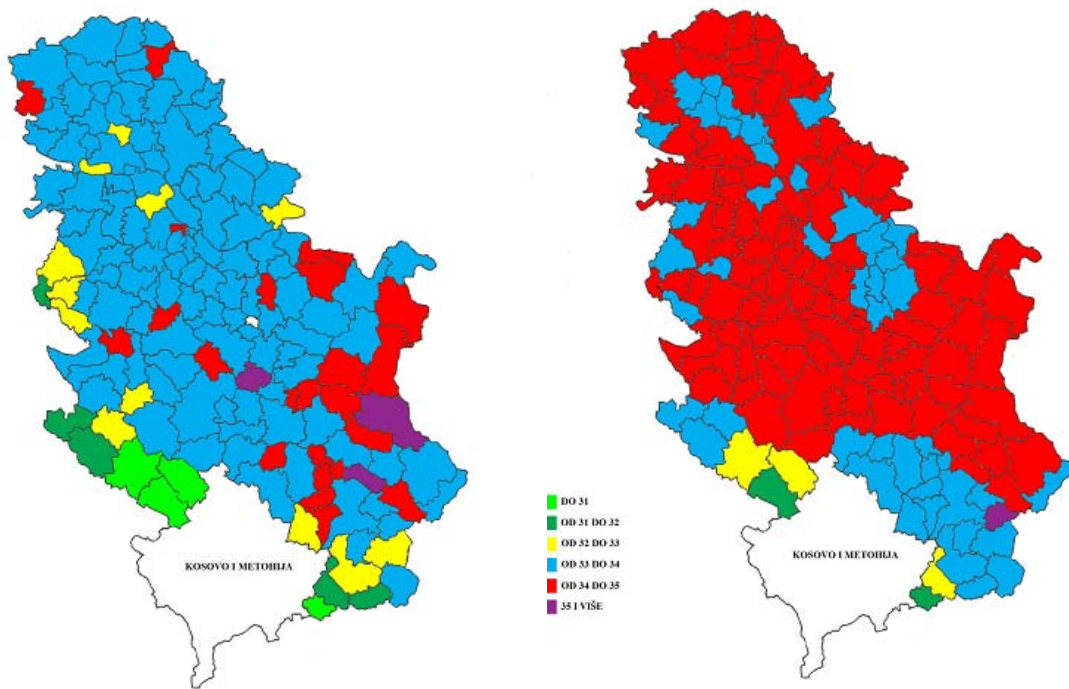


Chart 3 – The average age of the fertile contingent in 1981 and 2002

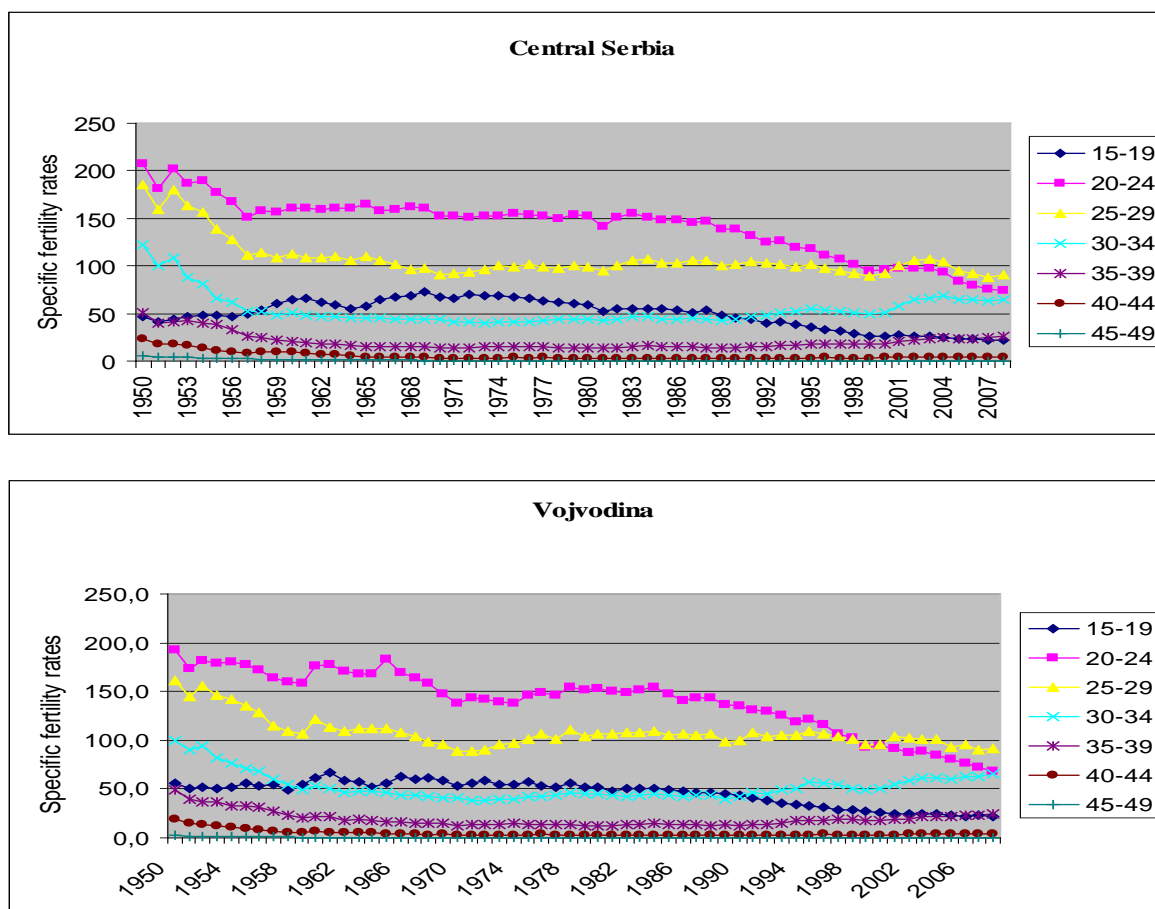


## Age model of birth

Aging of the fertile contingent is happening in parallel with the delayed marriage and first childbearing, and by reduction of higher-order births. Total fertility rates that would ensure the replacement of generations in Central Serbia and Vojvodina do not exist since the end of the 1950s (1957).

Specific fertility rates by age show a change in the age model of birthgiving. During the 57 years studied, a common characteristic observed is that the highest rates have been achieved by women of optimal age for birthgiving (from 20 to 25), and the lowest rates have been achieved by the oldest part of fertile contingent. Based on these the difference, four periods can be distinguished: the first period extended until the end of 1950s; the second, very long one, since the end of 1950s to early 1990s; the third period that covered the last decade of the last century; and the last period, representing first eight years of the 21st century. Changes in birth patterns by age show the importance of internal age composition of the fertile contingent.

Chart 3. Specific fertility rates by age groups



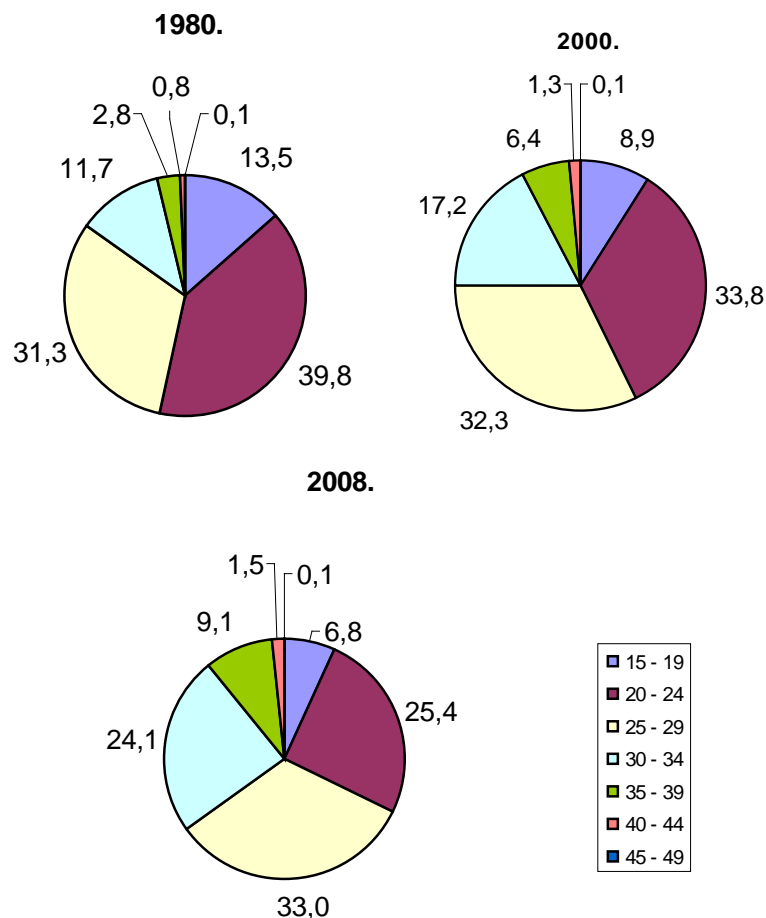
In the first period, declining trends of fertility in all age groups except the youngest are clear (especially in central Serbia). Changes that occur after that actually define a new pattern and show the growing importance of women aged 15 to 19 for reproduction, compared to those from 30 to 34. Given that this is the age when the births of higher order (in which the older groups participate more) decrease, shortening of the fertile period and childbearing in the first years of marriage (the dominant social context of reproduction) certainly determine the redistribution of the childbearing age observed. The change in the age model in the third period again establishes a situation that featured the Mid XX century, but the increase in the fertility rates of older women (30-34 and 35-39) and the decrease in the rates of the youngest (15-19 and 20-24) are caused by the modernization of the reproductive behavior, as well as by the crisis in Serbia, sublimed by the postponement of births. The latest period starts in the context of a relative political stability in Serbia, where for the first time the fertility of women 25-29 years old overcomes the fertility of the five years younger age group, whereas the specific fertility on the 15-19 age group is almost equated with the fertility of the 35-39 age group.

Fertility by age at the beginning of the new century is significantly different from that of fifty years ago. Not only that a redistribution of the fertility level has happened in different age groups and that some groups have cut-off their fertility to one half, but the rates vary in a much smaller range.

The distribution of live births by age of the mothers confirms the of change of the importance of individual age groups to reproduction. The years selected (Figure 4) are not exceptions; mothers aged 15 to 19 have halved their share in birthgiving from 1980 to 2008. The reduction features the next group as well, whereas the larger (and older) part of the optimal fertile contingent has increased its share in reproduction. The increase of the importance of women older than 30 years is particularly interesting. As early as in 2000, they were carried a quarter of the total number of live births, and in 2008 over a third (34.8%). Until the beginning of the century, this phenomenon was attributed to postponed childbearing caused by the crisis. The latest data show that this is a more durable change and that among women older than 35 years, only the group from 45 to 49 does not change its participation, while all the others rise. This profile of fertility by age stands out from East European models and approaches the one in West European countries, i.e. the countries in which the transition has advanced.

Birth postponement is also confirmed by the mothers' age (middle) at birthgiving, which from 1981 to 2008 has risen in Serbia from 26 to 27.9, and for two years in central Serbia and Vojvodina. The mothers' age at first birth has increased for even three years, from 23.4 to 26.5. The aging of first birthgiving, and the fact that 75% of women aged 20-25, 43.3% aged 25-29, and 21.2% aged 25 -30 do not participate in birthgiving (according to the 2002 Census), clearly speak about the postponement of childbearing. However, a large (and almost constant in the last two censuses) percentage of women who come out from the reproductive period and have participated in births, explains that a significant cause of the falling fertility is the reduction of reproductive norms. The proportion of women who cannot bear and are at the end of reproductive period does not exceed the values characteristic of Eastern Europe, ranging from 5 to 10%.

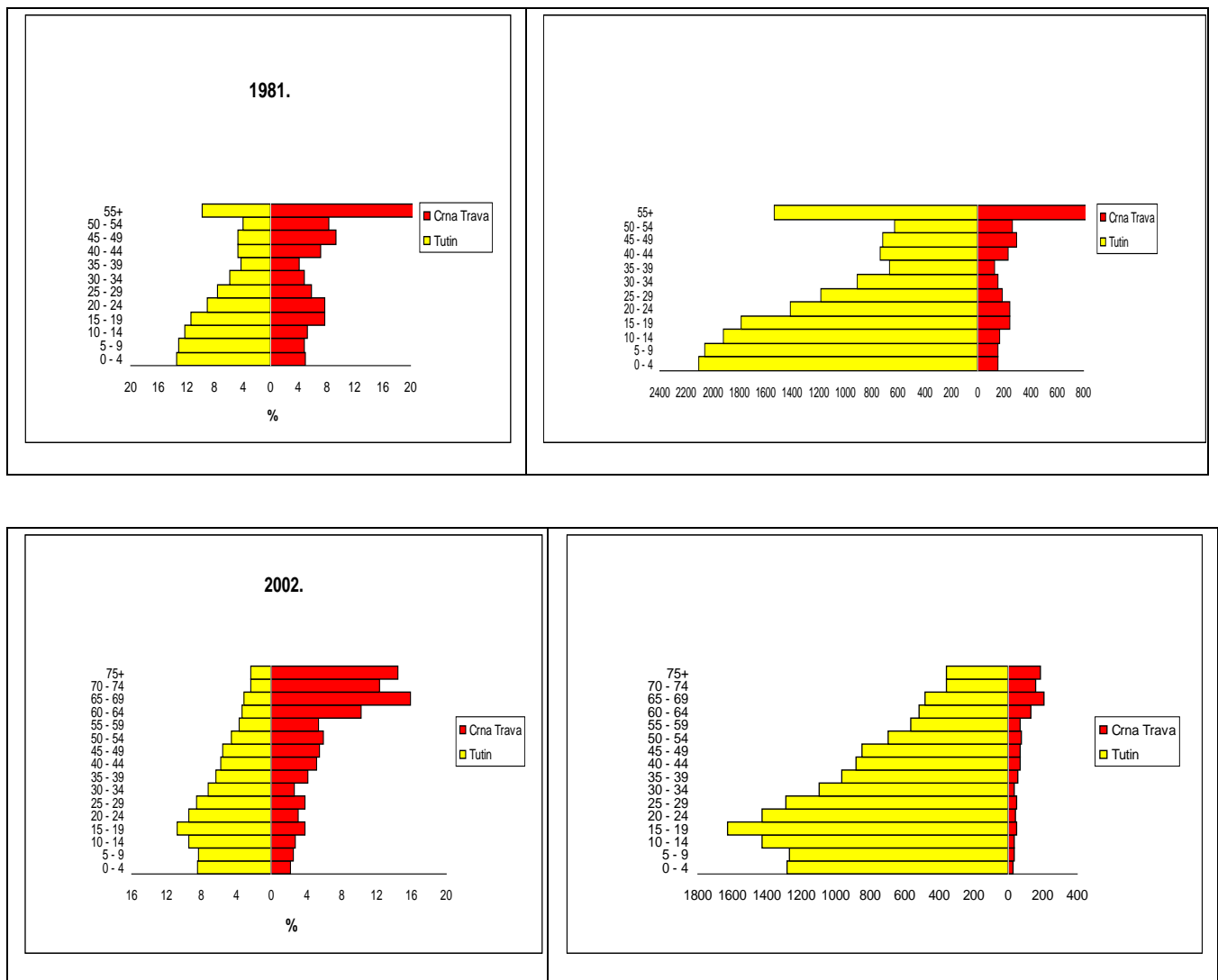
Chart 4. The distribution of live births in Serbia by mothers' age in 1980, 2000, and 2008.



### An case of two municipalities

At the level of macroentities, there are no significant differences neither w.r.t. the analyzed reproductive behavior, nor w.r.t. the age composition of the fertile contingent; on the contrary, one can speak of homogenization. There is a greater diversity at the level of municipalities, but it is getting smaller and reduced to a small territory of certain municipalities in the South and Southeast Serbia. In order to illustrate this diversity and its range, two example municipalities are considered here in more details. Both are featured by emigration, and both are peripheral and from underdeveloped areas, but their ethnic composition is different. The aging of the fertile contingent is present in both municipalities, but the secular decline of fertility in the municipality with the Serbian population has decimated both the migration and the reproductive potentials, whereas the negative migration balance in the municipality with the Muslim population has been compensated by numerous births. The age pyramid of the female population in these two municipalities in 1981 and 2002 shows diametrical differences, both in the number and in the age composition of the fertile contingent. If the different reproductive modes (norms) in the two are taken into account as well, it is obvious that at the mezzo-level there will exist large differences in fertility. In the context of the transition-based reduction of specific fertility rates by age, the effects of population momentum will influence the further differentiation of fertility.

Chart 5. Age composition of the female population in the municipalities of Tutin and Crna Trava, relative and absolute indicators



Fertility by age shows that during the crisis period in each municipality, as well as all over Serbia, there has been a delay and a maximum shift of births towards the older age group. In the latest period, in the low-fertility municipality there is an extreme concentration of births in the optimal age for childbearing, especially in the age

group of 25-29. In the past few years, women younger than 20 and older than 35 almost did not participate in reproduction. In the second, high-fertility municipality, the specific fertility is also the largest in the 25-29 age group, but the reproduction begins earlier and ends later.

Chart 5 was created based on the relative and absolute indicators, to show not only the structural differences of female population, but also the huge difference in the number of women capable of reproduction.

## **Conclusions**

Fertility decline and an advanced demographic aging in Serbia, as well as the fact that it is traditionally an emigration country, reduce the country's reproductive potentials for the future. The need of revitalization and a growing demographic imbalance of work-capable (especially active) population, and the old and inactive one, bring to focus the research of fertile contingent as the carrier of the necessary increase in the total fertility in Serbia. So far, the dynamic flows and structural changes of the fertile contingent reflect its decreasing and aging, which constrains its effects on the stability of population development in the context of an assumed growth of total fertility rate, due to the population momentum. The territorial redistribution of reproduction-aged women had a trend of reducing the differences and the concentration in high-fertility municipalities that, although featured by emigration, have the best internal composition of fertile-age women. These are the municipalities with a major Muslim and/or Albanian population. Even the urban centers, which during the post-war development and due to migration have taken the role of the carriers of reproduction, have weakened their fertile potential. Still, they show a comparative advantage over the largest part of Serbia.

The distribution of births by age shows that the older part of the fertile contingent has a growing importance in reproduction due to the delayed childbearing. In most European countries, this part is recognized as an important lever for the fall of fertility, because the postponement of reproduction to the age of a weakened fecundity certainly leads to the failure to have a desired number of children. The age model of births in Serbia is similar to that in West European countries. Still, some of these countries have stabilized the fertility at a level higher than that in Serbia, although the number of women that participate in reproduction in Serbia is higher. Hence it is obvious that the mechanisms for the promotion of birth are not exhausted, and that fertile potentials are not used optimally.

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