

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/273294506>

Responding to population policy – which women can provide the greatest demographic benefit in Serbia?

Article in *Zbornik Matice srpske za drustvene nauke* · January 2014

DOI: 10.2298/ZMSDN1448541V

CITATIONS

7

READS

21

3 authors, including:



Petar Vasić

University of Belgrade

31 PUBLICATIONS 97 CITATIONS

[SEE PROFILE](#)



Mirjana Devedzic

University of Belgrade

33 PUBLICATIONS 88 CITATIONS

[SEE PROFILE](#)

Some of the authors of this publication are also working on these related projects:



Researching Demographic Phenomena for the Purpose of Public Policies in Serbia [View project](#)

RESPONDING TO POPULATION POLICY – WHICH WOMEN CAN PROVIDE THE GREATEST DEMOGRAPHIC BENEFIT IN SERBIA?¹

PETAR VASIĆ

E-mail: vasic.dem@gmail.com

VERA GLIGORIJEVIĆ

E-mail: vera.gligorijevic@gmail.com

MIRJANA DEVEDŽIĆ

E-mail: mdedvedzic@gmail.com

University of Belgrade, Faculty of Geography
Studentski trg 3/III, 11000 Belgrade, Republic of Serbia

ABSTRACT: Population policy measures address all fertile women in Serbia, and the aim is to mobilize the largest number of women to give birth. Although strong response is desirable, not all women react, or at least not to the same extent, to the population policy measures which are financially based in Serbia. In this paper our intention was to identify which categories of fertile women could give greatest demographic benefit in the near future considering current population policy measures. We assumed that age and socioeconomic characteristics are the most relevant for the different response of women. Considering past structural changes of women population, and population projection results, we tried to define which categories of fertile women can give the greatest demographic benefit to the increase of birth level until 2041.

KEYWORDS: population policy, population projections, age structure, educational structure, fertility level

INTRODUCTION

Direct political response of Serbia, after 2002, regarding the fertility is based on the Law on Financial Support for Families with Children, and the

¹ This paper is the result of work on the project *Research of demographic phenomena in the function of public policies in Serbia* (47006) financed by the Ministry of Education and Science of RS.

Pronatalist Strategy. The mentioned law has two basic financial measures: full compensation of salary to the working parent (mother or father) during parental leave, and the parent allowance for the first, second, third and fourth child of the mother [Basten and Frejka 2014]. Since a whole spectre of socioeconomic characteristics of fertile women, and their age, are highly significant for their reproductive norms and childbearing, we analyzed differences in number and structure of birth according to Demographic yearbook data. The year of 2002 can be considered as the first year of systematic attempt of the government to become involved in childbearing, so we followed the time series from 2002 to 2012. Even though there is a whole spectre of socioeconomic characteristics of fertile women which are significant for decision making regarding the fertility, we focused only on educational level of women which is in our opinion one of the most significant characteristics that determine woman's reproductive behavior. Thus, the number and structure of live births by birth order were analyzed, and by age and educational level of mother.

With respect to the type of birth analysis, we tried to show if, and to what extent, reproductive behavior of women of different age and educational level differed and changed in the above mentioned period. Also, we tried to discover which analyzed categories of fertile women responded to the pronatalist measures.

FERTILITY CHANGE WITH RESPECT TO THE AGE OF THE MOTHER

Birth order structure considering the age of the mother can show qualitative change in the live birth structure. We can describe that change by using the *age specific average birth order* indicator to the birth of the fourth child, which was defined by authors for the purpose of these analyses. Only the first four birth orders were taken because they are only covered by the population policy measures. If we multiply each birth order (1, 2, 3, and 4) by its relative share in the total births of specific age group, and sum all four results, we can show changes in birth order structure over one period.

Table 1: Age specific average birth order to the birth of the fourth child

Age	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
15–19	1.20	1.22	1.23	1.26	1.24	1.23	1.23	1.24	1.25	1.24	1.27
20–24	1.43	1.46	1.46	1.50	1.50	1.45	1.46	1.47	1.47	1.46	1.46
25–29	1.66	1.69	1.68	1.69	1.67	1.62	1.61	1.59	1.58	1.58	1.58
30–34	1.85	1.88	1.84	1.88	1.84	1.79	1.77	1.76	1.74	1.72	1.72
35–39	1.98	1.99	1.97	2.01	1.98	1.93	1.94	1.89	1.87	1.86	1.86
40–44	2.03	1.99	1.92	1.93	1.96	1.89	1.93	1.87	1.85	1.85	1.87
45–49	1.72	1.91	2.06	1.89	1.63	1.92	1.93	1.56	1.91	1.60	1.52
Total	1.615	1.646	1.637	1.672	1.657	1.614	1.621	1.619	1.617	1.611	1.618

Resource: Authors calculations

In the first part of the period, from 2002–2005, the age groups from 15 to 29 years had increased share of the third and fourth birth order in total live births, and at the same time they had decreasing share of the first and second birth order in total live births. On the other hand, women from 30 to 39 years of age had increased share of all four birth orders in total live births in the same period.

In the second part of the period, from 2006–2012, the age groups from 15 to 29 had decreased share of all four birth orders in total live births, except for the first born child in the age group from 25–29 (+1.5%). At the same time, women aged 30 to 44 had increased share of the first three birth orders in total live births. If women aged 15 to 29 are considered cummulatively as one age group, it can be seen that only third and fourth birth order in 2005 and 2006, respectively, increased their shares, while the first and the second birth order shares decreased in the analyzed period. These changes may have been the result of the changing age structure of the fertile women, so we considered these changes and standardized age structure by the year 2002 (Chart 1). Ageing of reproductive women occurred parallelly with marriage delay, first child-bearing, and reduction of higher-order births [Devedžić and Mucić 2011]. All trends were the same, only the decrease rate was slightly slower.

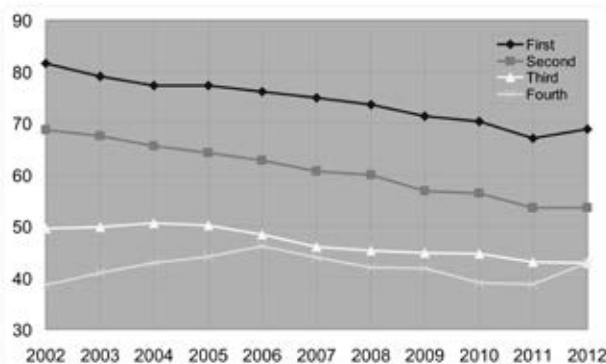


Chart 1: *Relative share of live births by mothers aged 15–29 by birth order*

At the end of the period, women aged 15–29 gave birth to 17,442 children less than at the beginning of the period. Even with changed age structure of the fertile women, the shortage of children would still be large, 16,298.

If we analyze the age specific fertility rates (ASFR), it can be seen that the change was not equal throughout the period. Women below 30 years of age showed the greatest decrease in the first part of the period. Until 2005, women aged 15–19 had 34.4% of their ASFR decrease, women aged 20–24, had 37.0, and women aged 25–29 had 78.3% of their ASFR decrease. At the same time, women aged 30–34 had only 4.8% of their ASFR increase, women aged 35–39 had 13.2, and women aged 40–44 had 0.0% of their ASFR increase. ASFR level for women aged 45–49 was too low to make any conclusions (Chart 2).

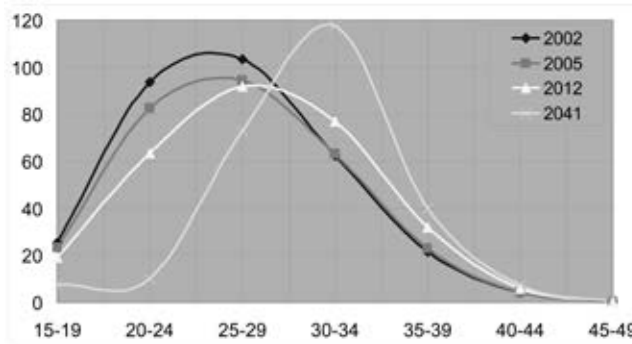


Chart 2. Age Specific Fertility Rates

Obviously, the decrease of ASFR in women below 30, and increase of ASFR in women who were 30 and above, did not occur simultaneously. The ASFR decrease of women below 30 took place first and it was followed by ASFR increase of women who were 30 and above. It can be easily concluded that those were the same women postponing their maternal role. If we translate this to cohorts (meaning year of birth of the women), we can say that women born around 1975 and earlier, are the main carriers of further fertility change, regarding childbirth postponement and ASFR decrease. Projection of ASFR levels until 2041 show that the fertility pattern has a tendency of shortening the effective reproductive period, postponing the childbirth, concentrating childbirth at the age from 30 to 34, and reducing the Total Fertility Rate level (TFR). With further decrease of TFR level, linear projection, considering previous TFR trends, shows that TFR may fall to 1.28 in 2041 (Chart 3).

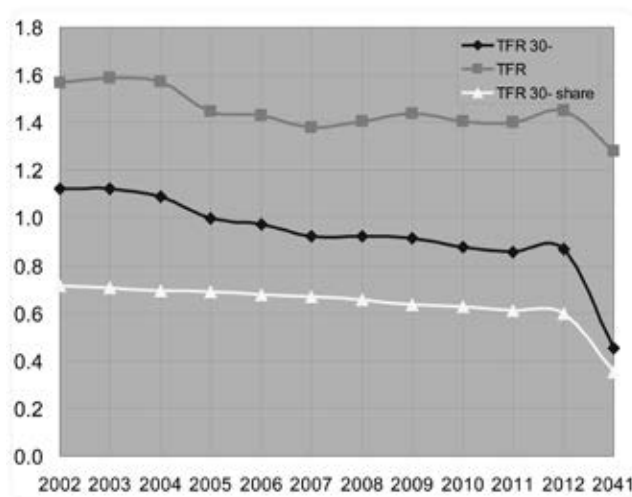


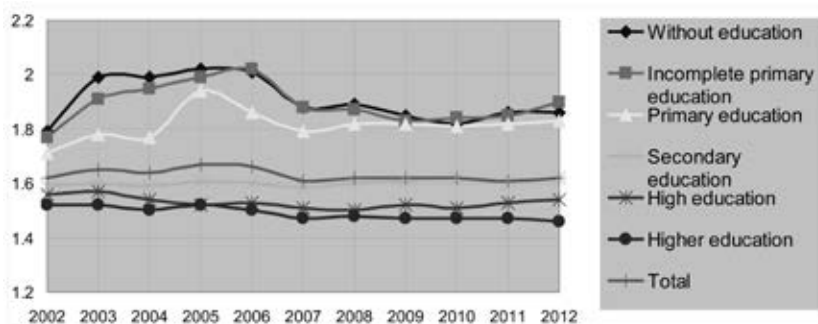
Chart 3. TFR, TFR for women below 30, share of TFR 30+ in overall TFR

Childbirth postponement can be best seen through TFR structure. As transversal indicator, TFR contains ASFR values of all age groups, so the contribution of each age group in TFR can be measured. As it can be seen from Chart 3, contribution to TFR by women who are under 30 is continuously reducing in the analyzed period. At the beginning of the period, relative share of TFR of women below 30 in overall TFR was 71.5%, and it was continuously decreasing until it reached 59.9% in 2012. If previous trends continue, relative share of TFR 30- in overall TFR may fall to 35.5% in 2041. In other words, in 2002, women below 30 were contributing to TFR with more than two thirds, and in 2041 they may contribute to TFR with just a little over one third!

FERTILITY CHANGE WITH RESPECT TO EDUCATIONAL LEVEL OF THE MOTHER

Educational structure of population in a country can directly point to socio-cultural development level of that country. Also, educational structure of population in one country can be an indirect determinant of a large number of social, and among them, demographical phenomena. Among demographical phenomena, the below replacement fertility especially stands out in Serbia. Besides the whole specter of other determinants affecting reproduction level of a population, educational level of a female population is taking special place regarding the childbirth decision making [Vasić, 2013]. In the same manner as in the first part of the paper, we will start the fertility analysis with average birth order by mother's education to the birth of the fourth child (Chart 4).

Chart 4: *Education specific average birth order to the birth of the fourth child*



Resource: Authors calculations

Structural changes in live births are quite diversified in the analyzed period, when educational level of the mother is concerned. Again, in some modalities we have opposite trends in the first, and in the second part of the period. First three categories of women with lowest education show structural improvement in the first part of the period, influencing the improvement of total birth order structure. Therefore, in 2005, the women without education

increased average birth order by 12.8%, women with incomplete primary education by 12.4%, and women with primary education by 13.5%. In the same period, women with secondary education increased birth order structure by 1.3%, while women with high education decreased average birth order structure by 2.6%, and women with higher education remained at the same level of birth order structure.

The second part of the period brought opposite trend to the three lowest categories. From 2006 to 2012, the women without education decreased average birth order by 7.9%, women with incomplete primary education by 4.5%, and women with primary education by 5.7%. At the same time, women with secondary education remained at almost the same level (+0.6%), women with high education increased average birth order by 1.6%, and women with higher education decreased average birth order by 3.9%. As for the total average birth order, from 2002 to 2005, it increased from 1.62 to 1.67, and dropped again to 1.62 in 2012.

If we analyze each birth order separately with respect to mother's education, we can show intensity of the change considering the change of population educational structure. First, we have to show educational structure of the female population to see how it could affect the live birth structure by mother's education (Table 3).

Table 3. *Estimation of the female population educational structure 2002–2012*

Educational attainment	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Without education	8.56	8.08	7.60	7.11	6.63	6.15	5.66	5.18	4.70	4.21	3.72
Incomplete primary education	18.64	18.09	17.54	16.99	16.44	15.89	15.34	14.79	14.24	13.68	13.12
Primary education	24.72	24.36	24.00	23.64	23.28	22.92	22.56	22.20	21.84	21.50	21.16
Secondary education	36.43	37.27	38.10	38.94	39.77	40.61	41.44	42.28	43.11	43.95	44.79
High education	4.11	4.26	4.41	4.57	4.72	4.87	5.03	5.18	5.33	5.49	5.65
Higher education	5.76	6.32	6.88	7.44	7.99	8.55	9.11	9.66	10.21	10.77	11.33

Resource: Authors calculations

As the educational structure of the female population changed, it was expected that live birth structure by mother's education would change as well. As the live birth structure by mother's education changed, we cannot know whether that happened because female population educational structure changed or women of different educational attainment changed their reproductive behavior. Therefore, we standardized it with basic educational structure from 2002. This way, each birth order by mother's education can show us if women of different educational attainment changed their reproductive behavior. Since we know that majority of live births came from the mothers with secondary, high, and higher education, and that it is continuously rising, the changes by birth order of these categories are presented (Chart 5).

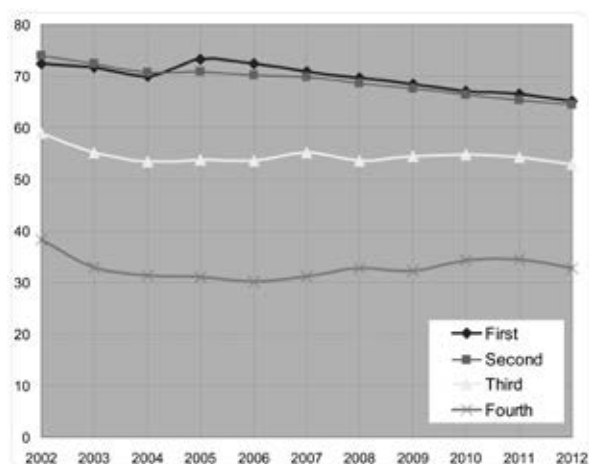


Chart 5. *Relative share of live births by mothers with secondary, high, and higher education (aggregate) in each birth order*

If we do not consider female population educational structure change, we can say that women with three highest educational modalities raised their relative share in each birth order. Therefore, three higher educational categories increased relative share in first birth order by 14.5%, second birth order by 11.9%, third birth order by 11.7%, and fourth birth order by 5.5%. Actually, these educational categories of women (considering educational structure change) would have reduced relative shares in each birth order. Therefore, the relative share in the first birth order dropped by 7.3%, in the second birth order by 9.6%, in the third by 6.0%, and in the fourth birth order by 5.4%. If this trend continues, we may expect that relative share of these categories aggregately drops to 46.0% of the first born, to 39.1% of the second born, to 37.1% of the third born, and to 18.6% of the fourth born children. It is obvious, and expected, that these categories reduce their fertility level, but it would be interesting to see to what extent different educational categories of women postpone childbirth. Considering the overall fertility decline and childbirth postponement trend, it would be significant to show childbirth postponement by birth order, and educational attainment of mother (Table 4).

It is very interesting that there are opposite changes in the mean age of mother with respect to educational attainment, but it is even more interesting that there are opposite changes in the mean age of mother by order of live born children. Women without education increased mean age at birth (MAB) of first two birth orders, but significantly decreased MAB for third and fourth birth order. At the same time, women with incomplete primary education, and primary education decreased MAB of all four birth orders, and only women with secondary education increased MAB of all four birth orders. Women with high and higher education increased MAB of first two birth orders, and decreased MAB of third and fourth birth order. It is important to emphasize that MAB

Table 4. Mean age of mother with respect to the order of live born children and educational attainment

Educational attainment	Year	First	Second	Third	Fourth
Without education	2002	20.0	22.0	25.7	27.5
	2012	21.3	22.7	24.3	26.8
Incomplete primary education	2002	21.7	23.1	26.4	28.8
	2012	20.7	22.2	25.3	27.8
Primary education	2002	23.3	25.6	28.9	31.2
	2012	22.9	25.5	28.8	30.5
Secondary education	2002	25.2	27.8	30.9	33.2
	2012	26.8	29.1	31.5	33.6
High education	2002	28.4	31.0	33.8	35.7
	2012	29.5	31.4	33.4	34.5
Higher education	2002	30.6	32.9	35.4	37.4
	2012	31.0	33.0	35.2	36.9

Resource: Authors calculations

of first born child increased from 25.3 to 27.7 years, MAB of the second born child increased from 27.8 to 29.6 years, and MAB of the third born child from 30.1 to 31.0 during the investigated period. However, MAB of the fourth born child slightly decreased from 31.6 to 31.5.

If MAB is analyzed by birth order, we can see which educational category of women has determined the direction of MAB change. At first two birth orders, situation is rather clear, almost all educational categories increased MAB. MAB of the third birth order showed an increase, but although all educational categories showed decrease, the secondary education category showed increased MAB. As for the fourth birth order of MAB, the situation is almost the same, except the secondary education category which continued with the same trend but it minimized the increase.

CONCLUSION

The analysis of age specific indicators gave several conclusions. First, the total average birth order during the investigated period shows a decrease. Secondly, the period from 2002 to 2005 can be marked as a period of certain fertility level rehabilitation at all ages which is well known as the post-crisis period. Thirdly, age group from 20 to 29 can be marked as the main age group reducing the number of live births and postponing the childbirth. Main change in this age group happened in the first two birth orders. One in five first born children was born after the age of 30 in 2002, and one in three first born children was born after the age of 30 in 2012. One in three second born children was born after the age of 30 in 2002, and one in two second born children was born after the age of 30 in 2012. Total number of live births reduced by 13.9%, and the number of

live births by women under the age of 30 reduced by 31.0%. Generations born around 1975 and earlier, significantly postponed childbearing to the ages after 30. Increased importance of women over 30 is particularly interesting; in 2000, a quarter of the total number of live births was given by them, in 2008 it was over a third (34.8%) [Devedžić and Mucić 2011], and in 2012 it was even 41.9%.

The analysis of educational attainment of mother gave the following conclusions. Average birth order at three lowest modalities showed increase until 2005, and then a decrease until the end of the period. Average birth order at three highest modalities showed slight decrease during the whole period. It is clear that three highest educational categories of women lead to the negative trend of the fertility level decrease and childbirth postponement. By analyzing the changes of birth order, these educational categories showed the most intense changes at first two birth orders. During the investigated period, standardized relative share of first and second born children by these educational categories (aggregate) dropped from three out of four, to two out of three at the end of the period. If the current trends continue, we may expect that less than one out of two of the first and second children will be born by these educational categories (standardized) in 2041. As for childbirth postponement by birth order, and educational level of the mother, the main change may be described as serious postponement of first and second born children and the most serious childbirth postponement of all four birth orders by women with secondary education.

Finally, in the effort to identify potential demographic reservoir for replacement fertility, we found the main carriers of further fertility decline, and overall negative trend in fertility patterns. If we would have to define the main carrier of these trends, it would be the woman under 30, with secondary education attainment. Obviously, the population policy measures were not defined very well because the main carriers of the fertility change have not reacted to these measures at all, not even at the beginning of the period! Things additionally changed, so even the first, and second born children have to be in the focus of population policy. In addition, population policy measures are not defined to stop or slow down the childbirth postponement, obviously that they have to be age specific. It seems not very natural that averagely educated women play so significant role in the fertility level decrease and childbirth postponement. It must be that the long-term socio-economic crisis affected the core of fertile population forcing it to fertility pattern modernization, even the (theoretically) necessary terms have not emerged! Serbia definitely does not have enough money “to buy needed children for the real price”, so the population policy measures do not have to be financially defined, but directed to diminish structural difficulties for future parents. Conclusion of all conclusions is that, at this point, there is no category of women that can provide any demographic benefit in the near future.

REFERENCES

- Васић П. (2013). Образовна структура жена које су рађале и структура рађања у Србији од 2002. до 2011 – неосетљиве на популациону политику? *Становништво југоисточне Србије: култура, националистичка политика и демографска репродукција у југоисточној Србији*, Зборник радова, Ниш: Филозофски факултет; Центар за

- социолошка истраживања; Центар за научноистраживачки рад САНУ и Универзитета, 81–100.
- Девеџић, М. и М. Муџић (2011), Промене обима и старосног састава фертилног контингента у Србији, *Демографија*, Институт за демографију Географског факултета, Београд, 8: 115–130
- Basten, S. and T. Frejka (2014). *Fertility Patterns in Formerly Socialist Countries of Europe: Are They Converging with the West?* Boston, MA
- Census of Population (2002). *Households and Dwellings in the Republic of Serbia – Educational Attainment and Literacy*, SORS, 2003. Belgrade.
- Census of Population (2011). *Households and Dwellings in the Republic of Serbia – Age and Sex*, SORS, 2012. Belgrade.
- Census of Population (2011). *Households and Dwellings in the Republic of Serbia – Educational Attainment, Literacy and Computer Literacy*, SORS, 2012. Belgrade.
- Demographic Yearbook in Republic of Serbia*, SORS, 2002–2012, Belgrade.

INTERNET SOURCES

webrzs.stat.gov.rs/WebSite/Public/ReportResultView.aspx – *Population Projections*

ОРИГИНАЛНИ НАУЧНИ РАД

РЕАКЦИЈА НА ПОПУЛАЦИОНУ ПОЛИТИКУ – КОЈЕ ЖЕНЕ МОГУ
НАЈВИШЕ ДОПРИНЕТИ ДЕМОГРАФСКОМ РАЗВОЈУ СРБИЈЕ?

ПЕТАР ВАСИЋ

Е-адреса: vasic.dem@gmail.com

ВЕРА ГЛИГОРИЈЕВИЋ

Е-адреса: vera.gligorijevic@gmail.com

МИРЈАНА ДЕВЕЏИЋ

Е-адреса: mdevedzic@gmail.com

Универзитет у Београду, Географски факултет
Студентски трг 3/III, 11000 Београд, Република Србија

САЖЕТАК: Мере популационе политике се односе на све фертилно способне жене у Србији а циљ је мобилизација што већег броја фертилно способних жена. Иако се очекивала значајна реакција, нису све жене једнако реаговале на мере популационе политике које су у Србији финансијске природе. У раду је представљен покушај одређивања категорије жена које би у ближој будућности дале значајан допринос демографском развоју, имајући у виду актуелне мере популационе политике. Наша претпоставка је да су године и социоекономске карактеристике пресудноутицале на на реакцију жена. Узимјући у обзир претходне структурне промене код женске популације као и резултате популационих пројекција, покушали смо да утврдимо које су то категорије фертилно способне женске популације која може значајно допринети повећању броја рођених до 2014. године.

КЉУЧНЕ РЕЧИ: популациона политика, популационе пројекције, структура годишта, структура образовања, степен плодности