

FORECASTING DYNAMICS OF REPRODUCTIVE INTENTIONS IN A RUSSIAN REGION UNDER PRO-NATALIST POLICY

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Abstract

The paper studies forecasting dynamics of reproductive intentions in a Russian region if demography policy measures are reinforced. In 2020, we conducted a survey of Sverdlovsk Region's residents aged 16 to 49. Our results are as follows:

- 1) the respondents are more likely to have a child if additional support measures for families with children are introduced than if they are not;
- 2) the highest chance of having a child if additional support measures are not instituted was found in the following groups: men; respondents in unregistered relationships; those aged 18 to 29 and 30 to 39; childless respondents;
- 3) the highest chance of having a child if the government introduces new support measures was identified in the following groups: men; urban residents; respondents in unregistered relationships; those aged 18 to 29 and 30 to 39; with a university degree; childless; with 3 children;
- 4) a more remarkable growth in evaluating the chance to have a child was found in the following groups: men; rural residents; those aged 30 to 39; with a university degree; divorced; with 2 children.

Considering the results of our study when improving regional demographic policy may help target support measures for reproductive-age population more accurately.

Key words: reproductive intentions, forecasting dynamics, survey, Russian pro-natalist policy

JEL Code: J11, J13.

Introduction

Russia extensively pursues pro-natalist policy; in 2019, it started a national project “Demography”, which aims to preserve population and ensure a steady growth in the population number. The project also tasked each Russian region with increasing birth rates (Passport of the national project “Demography”, 2018). Today, target birth rate indicators in each region can be subdivided into two groups:

- 1) Total Fertility Rate: combined, for a second child, for a third and subsequent children;
- 2) Crude Fertility Rate: in 25-to-29, 30-to-34, and 35-to-39 age groups.

Table 1 illustrates how birth rate indicators are planned in Sverdlovsk region – one of the Russian regions.

Tab. 1: Actual birth rate indicators and targets of the national project “Demography” in Sverdlovsk region

Indicators	2017	Targets of the national project “Demography”					
		2019	2020	2021	2022	2023	2024
Combined	1.759	1.771	1.798	1.816	1.844	1.863	1.888
For a second child			0.610	0.616	0.581	0.559	0.551
For a third and subsequent children			0.422	0.451	0.516	0.550	0.560
For women aged 25 to 29	109.64	112.0	113.7	114.7	116.4	117.6	119.5
For women aged 30 to 34	88.15	94.9	99.7	104.0	109.0	113.5	118.7
For women aged 35 to 39			49.33	51.62	53.67	54.93	58.35

Source: Passport of the national project “Demography”, 2018

According to the national project “Demography”, such a high positive dynamic of birth rate indicators expected should be ensured with a number of support economic, informational, and organisational measures for families with children. Each Russian region reports on the progress of the national project monthly—describes key risks, provides information on the administration of budget and on the milestones of the project. Annually, the regions report on the results (the birth rate indicators achieved).

In 2019 and 2020, most Russian regions did not reach the target birth rate indicators. For example, Table 2 shows the situation in Sverdlovsk region. As is evident in Columns 6 and 7, in 2019 and 2020, the region did not meet any target indicators stipulated in the national project. The most negative dynamic can be observed with the TFR (11.6% lower than expected in 2020), CFR in the 30-to-34 age group (21.9% lower than expected in 2020). At the very end of 2020, the targets of the project were reconsidered; new target indicators were introduced

even for 2020 (Column 8). After the adjustment, Sverdlovsk region happened to meet all targets expected except CFR in the 30-to-34 age group. At the same time, most indicators showed a negative dynamic in 2019-2020 (Column 9).

Tab. 2: Target birth rate indicators achieved in Sverdlovsk region

Indicators	2019		2020			Reaching target, %			2019-2020 growth rate, %
	expected	actual	expected	actual	adjusted	2019	2020	Adjusted in 2020	
A	1	2	3	4	5	6	7	8	9
Total Fertility Rate									
Combined	1.771	1.616	1.798	1.59	1.577	91.2	88.4	100.8	98.4
For a second child		0.585	0.610	0.56	0.55		91.8	101.8	95.7
For a third and subsequent children		0.336	0.422	0.39	0.35		92.4	111.4	116.1
Crude Fertility Rate									
For women aged 25 to 29	112.0	96.6	113.7	96.4	93.6	86.3	84.8	103.0	99.8
For women aged 30 to 34	94.9	81.5	99.7	77.9	88.0	85.9	78.1	88.5	95.6
For women aged 35 to 39		44.99	49.33	46.1	44.2		93.5	104.3	102.5

Source: Passport of the national project “Demography”, 2018; author’s calculations

To forecast possible ways for reaching the birth rate indicators stipulated in the national project “Demography”, it is necessary to monitor the reproductive intentions in the regions and identify the factors affecting them. This subject is extensively studied in many countries (Ewemooje, Biney & Amoateng, 2020; Kulathinal & Saavala, 2015; Marteleto et al., 2017). A specific aspect of these studies is reproductive intentions considered as an element of reproductive behaviour and a relationship between reproductive intentions and a childbirth (Mynarska & Rytel, 2018). Our research aims to assess the forecasting dynamics of the reproductive intentions of different socio-demographic groups in the Russian region in case demographic policy measures are reinforced.

1 Data and Methods

In January—March 2020, we surveyed Sverdlovsk Oblast residents aged 18 to 49. The sample was based on statistical data on population in child-bearing age (1876861 people) and on the populations' distribution according to age, gender, and a type of settlement (urban or rural). We sampled 619 people (4% bias with 0,954 reliability) (Database of the scientific project «Demographic Well-Being of Russia»).

For the analysis, we chose questions on respondents' assessment of a probability to have a child in the near future. The respondents assessed the probability to have a child within the next 3-4 years for two cases: if new measures to help families with children are not implemented and if they are implemented. The assessment was made on a scale of 0 to 11, where 0 stood for no possibility to have a child and 10 for quite a strong possibility to have a child.

To analyse the assessments received, we used descriptive statistics — the median and quartiles — as value distributions of these assessments had discernible outliers. To compare the assessments in two cases (“there will not be any new measures” and “there will be new measures”), we used a Wilcoxon Signed-Ranks test. It is known to be usually recommended for small samples because with a large sample the distribution of this test tends to be close to normal (Burkner, Doeblner, & Holling, 2017; Orlov, 1999). In case of large samples, the Wilcoxon test is recommended to be converted into a z -score. Since we used IBM SPSS Statistics 23.0 for the analysis, the Wilcoxon test was converted into the z -score automatically.

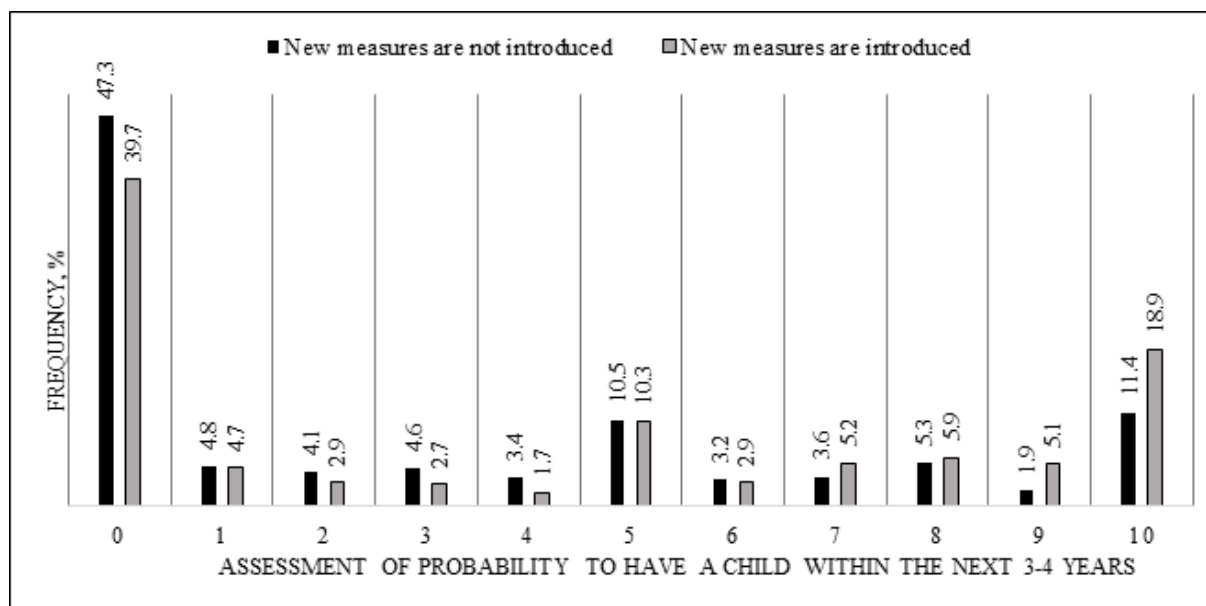
We calculated the difference in assessments of a probability to have a child with or without new demographic policy measures in groups of the respondents, determined by specific socio-demographic parameters of gender, age, marital status, the number of children, education level, and a settlement type.

2 Results

The core results of our analysis are as follows:

1. The respondents assess the probability to have a child if new measures to support families with children are implemented higher, then if they are not implemented (Figure 1). Table 3 shows descriptive statistics for the distribution of assessments.
2. Statistically significant differences of two probability assessments appear in almost every socio-demographic group of the respondents (Table 4).

Fig. 1: Distribution of respondents' assessments if new measures to support families with children are implemented or are not implemented



Source: survey data; author's calculations

Tab. 3: Descriptive statistics for assessment of probability to have a child within the next 3-4 years

Assessment of probability to have a child	N	Mean	Std. Dev.	Median	Mode	1 st Quartile	3 rd Quartile
If new measures are not introduced	588	3.10	3.659	1.00	0	1.00	3.50
If new measures are introduced	592	4.13	4.080	3.50	0	6.00	8.00

Source: survey data; author's calculations

3. The highest probability of having a child if no additional government support measures are implemented appears in the following groups of the respondents: men; those in an unregistered marriage; those aged 18-29 and 30-39; those without children.

4. The highest probability of having a child if additional government support measures are implemented appears in the following groups of the respondents: men; those living in cities; those in an unregistered marriage; those aged 18-39 and 30-39; people with higher education; those with no children and 3 children.

Tab. 4: Descriptive statistics for assessment of probability to have a child within the next 3-4 years

Socio-demographic groups of respondents	Probability of having a child (median/upper quartile)		Wilcoxon Signed-Ranks test			
	If additional measures are not introduced	If additional measures are introduced	Sum of Ranks		Z	p
			Negative Ranks	Positive Ranks		
Gender						
Men	3/6	5/9	639.00	5916.00	-7.484	.000
Women	0/5	1/7	367.50	2117.50	-5.138	.000
Age						
18-29	4/8	6/10	692.00	3136.00	-5.189	.000
30-39	3/7	5/9	171.50	1781.50	-5.666	.000
40-49	0/0	0/4	12.00	618.00	-4.977	.000
Type of settlement						
Urban	2/6	5/9	1782.50	12752.50	-8.558	.000
Rural	0/3	0/5	8.50	96.50	-2.790	.005
Education						
Intermediate vocational training	0/5	2/7	59.50	375.50	-3.438	.001
Higher education	1/5	5/8	697.00	6443.00	-7.639	.000
Marital status						
Registered marriage	1/5	3/8	172.00	4878.00	-8.114	.000
Unregistered marriage	6/10	6/10	125.50	280.50	-1.772	.076
Divorced	0/4	0/8	3.50	62.50	-2.628	.009
Was never married	2/6	4/7	229.50	716.50	-2.953	.003
Parental status						
No children	4.5/8	6/10	618.50	3122.50	-5.412	.000
1 child	2/5	3/7	94.50	986.50	-4.889	.000
2 children	0/2	0/5	93.00	897.00	-4.703	.000
3 children	0/8	5/10	2.00	26.00	-2.047	.041

Source: survey data; author's calculations

5. The following groups of respondents showed a greater increase in assessing the probability of having a child if new support measures for families with children are introduced: men (1.67 medians ratio, 1.5 upper quartiles ratio), people living in rural areas (1.67 upper quartiles ratio), respondents aged 30-39 (1.67 medians ratio, 1.29 upper quartiles ratio), respondents with higher education (5 medians ratio, 1.6 upper quartiles ratio), divorced people (2 upper quartiles ratio), respondents with 2 children (2.5 upper quartiles ratio).

3 Discussions

The results obtained do not allow us to forecast the birth rate in the region due to several reasons.

Firstly, reproductive intentions are only one element of reproductive behaviour. For instance, Russian sociologist Antonov's structure of reproductive behaviour includes a need for children, social reproductive norms, and reproductive attitudes. At the same time, according to Antonov, neither a need for children, nor living conditions on their own predetermine results of reproductive behavior. These outcomes stem from the interaction of personal values, attitudes, motives, and needs. This interaction determines the situation as favorable or unfavorable for satisfying a need for children (Antonov, 2012). At the same time, reproductive behaviour is expressed not only in actions and reproductive events, but also in changes of these internal structures, beliefs, attitudes and motives.

Secondly, we did not study which specific support measures for families with children might lead to a higher probability of having a child. This question was formulated quite loosely as it was important for us to determine an increase in the probability of having a child in an abstract situation—when new measures are implemented. We cannot exclude the fact that our respondents were not aware of some of the measures currently being implemented to support families with children. Consequently, if they had found out about them, it might also have influenced a reproductive decision as much as the introduction of a new measure.

Thirdly, our results are relevant to studying the effectiveness of demographic policy measures in general; this issue is one of the most controversial in the demographic literature. Kuchmaeva, for example, argues that the issue does not have an obvious solution in Russia and associates it with a lack of a consolidated statistical assessment on how effectively the state regulates the institution of family (Kuchmaeva, 2017). There are more stronger positions that deny the effectiveness of demographic policy because it does not increase the births, but only shifts them to an earlier date (Van de Kaa, 2006).

At the same time, the results obtained allow us to identify those target population groups which, according to their own estimates, have a higher potential to make positive reproductive decisions if demographic policy is improved. As part of the national project "Demography", new measures are quite often adopted both at the federal and regional levels. Thus, special attention should be paid, firstly, to their compliance with the interests of the socio-demographic groups identified in our study, and, secondly, to the purposeful promotion of the measures taken within their media space.

Conclusion

Our research allowed us to identify the socio-demographic population groups that have a higher potential to make positive reproductive decisions if new measures to support families with children are implemented. Considering the results obtained through the study to improve regional demographic policy will help introduce more targeted support measures to the population in reproductive age. This, in turn, will create an environment for meeting regions' goals to increase the birth rate.

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References

- Antonov, A. I. (ed.) (2012). *Sociology of the Family*. Moscow: Infra-M.
- Burkner, P.C., Doebler, P., & Holling, H. (2017). Optimal design of the Wilcoxon-Mann-Whitney-test. *Biometrical Journal*, 59(1), 25-40. doi: 10.1002/bimj.201600022.
- Database of the scientific project «Demographic Well-Being of Russia» on the IBM SPSS Statistics Platform* (2020, August 18, no. 2020670022). Copyright holders are Federal Research Sociological Center of the Russian Academy of Sciences, Rostovskaya, T.K., Ryazantsev, S.V., Kuchmaeva, O.V., & Shabunova, A.A. Retrieved from <http://xn--2020-43drgi3a1bwz7c9i.xn--plai/sample-page/>
- Ewemooje, O. S., Biney, E., & Amoateng, A.Y. (2020). Determinants of fertility intentions among women of reproductive age in South Africa: evidence from the 2016 demographic and

health survey. *Journal of Population Research*, 37(3), 265-289. doi: 10.1007/s12546-020-09246-w.

Kuchmaeva, O.V. (2017). Modern problems of evaluating the effectiveness of family policy in the Russian Federation. *Statistics and Economics*, 5, 85-93. <https://doi.org/10.21686/2500-3925-2017-5-85-93>

Kulathinal, S., & Saavala, M. (2015). Fertility intentions and early life health stress among women in eight indian cities: testing the reproductive acceleration hypothesis. *Journal of Biosocial Science*, 47(5), 632-649. doi: 10.1017/S0021932014000261.

Marteletto, L.J., Weitzman, A., Coutinho, R.Z. & Alves, S.V. (2017). Women's Reproductive Intentions and Behaviors during the Zika Epidemic in Brazil. *Population and Development Review*, 43(2), 199-227. doi: 10.1111/padr.12074.

Mynarska, M., & Rytel, J. (2018). From motives through desires to intentions: investigating the reproductive choices of childless men and women in Poland. *Journal of Biosocial Science*, 50(3), 421-433. doi: 10.1017/S0021932017000190.

Orlov, A.I. (1999). What kind of hypotheses can be tested using a two-sample Wilcoxon test? *Industrial Laboratory*, 65(1), 52-56.

Passport of the national project "Demography" (2018, December 24). Retrieved from <https://mintrud.gov.ru/ministry/programms/demography>

Van de Kaa, D. (2006). Temporarily New: On Low Fertility and the Prospect of Pro-natal Policies. *Vienna Yearbook of Population Research*, 4, 193-211. doi: 10.1553/populationyearbook2006s193.

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