



DEMOGRAPHIC RESEARCH

A peer-reviewed, open-access journal of population sciences

DEMOGRAPHIC RESEARCH

VOLUME 52, ARTICLE 29, PAGES 939–970

PUBLISHED 20 MAY 2025

<https://www.demographic-research.org/Volumes/Vol52/29>

DOI: 10.4054/DemRes.2025.52.29

Research Article

Periods of high uncertainty: How fertility intentions in Russia changed during 2022–2023

Elena Vakulenko

Dmitriy Gorskiy

Valeria Kondrateva

Ilya Trofimenko

© 2025 Vakulenko, Gorskiy, Kondrateva & Trofimenko.

This open-access work is published under the terms of the Creative Commons Attribution 3.0 Germany (CC BY 3.0 DE), which permits use, reproduction, and distribution in any medium, provided the original author(s) and source are given credit.

See <https://creativecommons.org/licenses/by/3.0/de/legalcode>.

Contents

1	Introduction	940
2	Literature review	942
2.1	Background	942
2.2	Sources of uncertainty and their influence on fertility	943
2.3	Subjective factors and their role in decision-making during times of uncertainty	944
2.4	Summary of findings and proposed hypothesis	946
3	Data	946
3.1	Data source and sample design	946
3.2	Variable description	948
4	Methodology	952
5	Results	953
5.1	Estimation of binary choice models	953
5.2	Determination of the most important groups of factors	955
5.3	Testing for heterogeneity	955
5.4	Acceleration of reproductive intentions: the honest trees method	956
6	Conclusions	959
7	Acknowledgements	962
	References	963
	Appendix	969

Periods of high uncertainty: How fertility intentions in Russia changed during 2022–2023

Elena Vakulenko¹

Dmitriy Gorskiy²

Valeria Kondrateva³

Ilya Trofimenko⁴

Abstract

BACKGROUND

We study the change in fertility intentions in Russia during the period of socioeconomic shocks in 2022–2023 resulting from the Russia–Ukraine armed conflict.

OBJECTIVE

Our objective is to identify factors that influence decision-making in a low fertility context during a crisis, including both objective characteristics and subjective assessment of the current situation.

METHODS

This paper is based on unique survey results, conducted in May 2023 (N = 7,967). The sample includes Russian citizens aged 18–44 and represents Russia's population by gender, age, and place of residence. The analysis is based on binary choice models (probit) and machine learning techniques (honest trees), which were applied to assess the heterogeneity of the sample.

RESULTS

The most important factors, which accounted for 76% of the explained variance, were linked to a subjective assessment of the situation and the respondent's emotional state: the attitude to the political direction of the country, and feelings of happiness, anxiety, or fear. Traditional objective characteristics such as respondents' age, marital status, and parenthood status play a less important role. We also found that women's fertility decisions are more associated with positive emotions such as happiness and peacefulness

¹ Department of Applied Economics, HSE University, Moscow, Russia. Email: evakulenko@hse.ru.
ORCID: 0000-0002-6457-3196.

² HSE University, Moscow, Russia. ORCID: 0009-0005-6951-0986.

³ HSE University, Moscow, Russia. ORCID: 0009-0004-4417-4317.

⁴ HSE University, Moscow, Russia. ORCID: 0009-0001-7875-1141.

in comparison to men. We observed that subjective factors related to politics, conflict, and emotions amplify each other's effects.

CONCLUSIONS

In times of uncertainty, trust in state policy plays an important role in smoothing the population's reaction to shocks.

CONTRIBUTION

We provide a novel quantitative investigation into the role of subjective perceptions in shaping reproductive intentions during a period of high uncertainty in a low-fertility-rate country through econometric and ML tools, expand the group of factors which measure subjective perceptions including different emotions, attitudes to the country's political course, and government maternity capital programs, and show how they accelerate each other.

1. Introduction

When people decide to have children they consider their individual life plan and various other factors, and the possible impact of shocks that could create a high level of uncertainty. These shocks can take different forms: an economic crisis, a pandemic, climate and natural disasters, armed conflict, etc. People's reproductive plans are identified by measuring their fertility intentions within certain time intervals (Fishbein et al. 1980; Testa, Sobotka, and Morgan 2011). Not every intention is translated into action (Westoff and Ryder 1977; Bongaarts 1992; Kodzi, Johnson, and Casterline 2010; Makarentseva and Biryukova 2023), yet fertility intentions can indicate social trends. Any serious shock affects an individual's long-term plans and can make people change their reproductive intentions. In the 21st century, demographic processes are no longer inert (Billari 2022). In times of uncertainty, reproductive intentions can change and can vary between different groups of people.

This paper studies changes in reproductive intentions among Russian citizens during the period of socioeconomic shocks in 2022–2023, in response to the Russia–Ukraine conflict. Our objective is to identify factors that influence people's decision-making in a period of high uncertainty, and thus assist with the evidence-informed implementation of social and demographic policy measures. Such an objective is especially relevant in view of the declining total fertility rate in Russia – from 1.78 in 2015 to 1.4 in 2023.

According to several studies, it is not merely objective circumstances that mold fertility intentions during times of uncertainty. Rather, a complex interplay of internal sentiments and the future outlook also contribute in a meaningful and substantial way

(Guetto, Bazzani, and Vignoli 2022). This concept is called Narratives of the Future (Vignoli et al. 2020a). Drawing upon the Narratives of the Future framework, we move beyond conventional analyses by incorporating a broader spectrum of subjective factors using econometric tools and machine learning methods (honest trees) to identify the characteristics of the respondents who make different decisions regarding changes in their fertility intentions. This research expands fertility literature by showing the dominant role of subjective perceptions, rather than objective factors, in shaping reproductive decisions amidst uncertainty. We study fertility changes in Russia in 2023, during an armed conflict, when the subjective perception of the crisis is aggravated by discouraging economic prospects, in view of Western sanctions and restrictions. Such a context provides us with a unique opportunity for a natural experiment. In the face of these exogenous shocks, the transformation of reproductive intentions is more noticeable and easier to track. We use unique data that we collected during May 2023 using a sample of Russian citizens of reproductive age. We expand the group of factors that measure subjective perceptions to include different emotions and attitudes to the country's political course and government 'maternity capital' programs.

Our findings show that 76% of the variance in the respondents' fertility intentions is explained by psychological factors and emotions (feelings of anxiety, fear, happiness), their attitude to the country's political direction, and the subjective assessment of their own financial well-being and its dynamics over the previous 12-month period. Fertility intentions are also affected by an individual's objective characteristics, such as age, primarily associated with the physiological deadline for childbearing, parental experience, and marital status. Other objective factors such as employment status or specific employment characteristics appeared far less important in explaining the change in reproductive intentions. These findings are generally consistent with the Narratives of the Future framework for the study of fertility intentions under uncertain conditions (Vignoli et al. 2020a).

We also find heterogeneity in the perception of higher uncertainty. Despite the socioeconomic upheavals, some people have not changed their reproductive intentions, while others have either avoided parenthood or decided in favor of having a child. In particular, we found that the probability of childbearing avoidance or postponement is higher among those Russians who monitor developments in the Ukraine conflict if the feelings of fear and anxiety are accompanied by disapproval of the country's political direction. This is partially downplayed if the respondent also feels satisfied with their life.

The paper is structured as follows. The introduction is followed by a literature review of research on the relationship between reproductive intentions and various types of external shocks and decision-making under uncertainty. This is followed by the data section explaining the sample design and analysis of the descriptive statistics. The methodology section describes the methods of analysis based on binary choice models

(probit model) and machine learning techniques (honest trees). We then rank all the factors by the degree of association and check the heterogeneity of a sample. The conclusion section discusses the findings and limitations and offers some policy recommendations.

2. Literature review

2.1 Background

Since the early 1990s, Russia has experienced significant fluctuations in the fertility rate, influenced by socioeconomic changes, government policies, and demographic trends. Following the dissolution of the Soviet Union, Russia saw a dramatic decline in birth rates. By the late 1990s the total fertility rate had fallen to about 1.2 children per woman.

The early 2000s marked a turning point, as the Russian government implemented various policies aimed at boosting birth rates. These included financial incentives for families, such as the ‘maternity capital’ program introduced in 2007, which provided certificates for families having more than one child. Maternity capital can be used for specific purposes: improving living conditions, children’s education, mother’s pension fund, social adaptation, and integration of children with disabilities. As a result, fertility rates began to rise, reaching approximately 1.7 children per woman by 2014. Despite the substantial financial support provided by the maternity capital program, research indicates that its effectiveness in increasing birth rates has been limited. A study found that the program increased long-term fertility by about 0.15 children per woman (Slonimczyk and Yurko 2014). Regional maternity capital programs have been introduced in various parts of Russia since 2011, which have shown some effectiveness in increasing fertility rates in specific areas (Sorvachev and Yakovlev 2020; Vakulenko, Vasileva, and Fadina 2024).

Since 2015, Russia has experienced a renewed decline in birth rates, raising concerns about the country’s long-term demographic trajectory, with estimates indicating a Total Fertility Rate (TFR) of approximately 1.4 by 2023. This decline underscores the need to examine the interplay between objective economic and political factors and subjective individual perceptions and intentions regarding childbearing.

The decline in TFR has coincided with a period of escalating economic instability triggered by the conflict in Ukraine, which began in 2014 and intensified significantly in 2022. Notably, most Russian citizens – aside from those in certain border areas – have not directly experienced the most severe consequences of the conflict since 2022, such as bombings or displacement. However, the population has had to contend with significant challenges, including a sharp stock market collapse and mandatory

mobilization in 2022. In addition, extensive sanctions imposed during this time have fostered a pervasive climate of uncertainty. Although these sanctions were primarily intended to apply economic and political pressure on Russia (Caprile and Delivorias 2023), their effects on the daily lives of Russian citizens and their reproductive choices warrant closer analysis. Contrary to initial expectations, the sanctions have inadvertently encouraged economic self-sufficiency and protectionism (Galbraith 2024), which may have softened some immediate economic impacts. Nonetheless, the broader economic environment remains unstable, with fluctuations in energy markets and trade systems (Niknami 2024) contributing to an ongoing sense of unpredictability that likely influences family planning decisions. At the micro-level, the economic repercussions of the sanctions and the conflict have impacted all segments of the Russian population (Caprile and Delivorias 2023). The upper-middle class has faced challenges in international travel and conducting business with Western partners, while the middle and lower classes have been affected by rising living costs and the withdrawal of numerous international brands from the Russian market. These factors collectively shape the economic and social context in which reproductive decisions are made.

2.2 Sources of uncertainty and their influence on fertility

Understanding the potential impact of the ongoing economic instability on future birth rates requires a nuanced examination of individual reproductive decision-making. While actual birth data is only available retrospectively, a common approach is to analyze reproductive intentions (Westoff and Ryder 1977), which represent individuals' stated plans and desires regarding childbearing. In Russia in 2020, approximately 40% of positive and 97% of negative fertility intentions were implemented in the following three years (Makarentseva and Biryukova 2023).

This gap between intention and action underscores the significant role that unforeseen circumstances and external factors play in shaping reproductive outcomes. The conversion of reproductive intentions into actual fertility behavior is often mediated by a range of different unexpected exogenous shocks, due to the flexible nature of intentions (Kodzi, Johnson, and Casterline 2010). A substantial amount of research points to a procyclical relationship between economic conditions and fertility due to declining disposable income. This has been observed in most major crises in recent years, including the Great Recession of 2007–2009, the oil crisis of the 1970s, and the collapse of the USSR (Ogawa 2003; Philipov and Kohler 2001; Adsera 2011; Goldstein et al. 2013), although classical microeconomic studies suggest the possibility of the opposite effect, explaining it by the lower opportunity 'cost' of children in a period of crisis (Becker 1960; Becker and Lewis 1973).

Beyond economic factors, other types of societal disruption, such as armed conflict, can also significantly impact reproductive decisions and outcomes. Research addressing the effects of armed conflict on fertility is limited, with most studies focusing on the African continent. These studies generally suggest that birth rates decline during armed conflict and are primarily short-term (Woldemicael 2010; Blanc 2004; Agadjanian and Prata 2001). This temporary decline has been linked to factors such as reduced opportunities for conception due to the absence of male partners who are engaged in warfare (Blanc 2004), as well as the increased uncertainty and survival fears which accompany such crises (Agadjanian and Prata 2001). Consistent with these findings, recent research examining the impact of political uncertainty and armed conflict in Eastern Ukraine in 2021 has also identified a decline in reproductive intentions. Specifically, Perelli-Harris, Gerber, and Hilevych (2024) highlight that this decline is driven by concerns about providing for children in precarious circumstances, the psychological strain of living in a conflict zone, and the gendered aspects of childbearing decisions. These observed declines point towards a crucial role for subjective factors, such as perceived risk and emotional response, in shaping fertility decisions during times of societal instability.

2.3 Subjective factors and their role in decision-making during times of uncertainty

Traditionally, when studying fertility, the focus is on objective observable characteristics such as age, gender, levels of education and material wealth, marital status, and housing conditions (Becker 1960; Gustafsson 2001; Kneale and Joshi, 2008). However, there is a problem in assessing the impact of external factors through the prism of only objective indicators as it does not consider individual reactions. Fertility decisions are shaped by a complex interplay of observable factors and deeply personal, subjective perceptions. The influence of these subjective perceptions becomes particularly pronounced during periods of increased uncertainty.

The theoretical concept that recognizes the limits of the approach where fertility trends are studied in relationship to economic factors while potentially overlooking the significant role of individual factors is Narratives of the Future (Vignoli et al. 2020a). This approach is similar to the life-course theory of fertility, which was popular in sociological literature (Huinink and Kohli 2014). The Narratives of the Future framework suggests that objective constraints, individual expectations, and imaginaries become synthesized during the decision-making process and are shaped into a narrative of the future, which guides intentions and subsequent actions. Fertility decision-making is a good example of a fundamental uncertainty situation in which individual expectations,

perceptions, and narratives of the future are no less important than structural constraints and past experience, because objective conditions alone cannot predict reproductive intentions: similar external factors do not necessarily shape similar choices (Vignoli et al. 2020a).

The empirical literature argues that during periods of uncertainty a complex of internal experiences and opinions about a possible future affect reproductive intentions (Perelli-Harris, Gerber, and Hilevych 2024; Trinitapoli 2023; Gatta et al. 2022; Guetto Bazzani, and Vignoli 2022; Trinitapoli and Yeatman 2011, 2018). Subjective expectations concerning a decline in income level and the duration of a recession can have a greater impact than the actual situation itself (Matera et al. 2023; Lappegård et al. 2022). For example, after the collapse of the USSR, fertility declined in all post-communist countries, although economic deterioration in Russia or Bulgaria was much more severe than in the Czech Republic or Slovenia (Philipov and Dorbritz 2003; Sobotka, Skirbekk, and Philipov 2011). Individuals' subjective perceptions of employment uncertainty, including feelings of anxiety and a lack of confidence in their future financial stability, have been shown to influence reproductive intentions and outcomes (Gatta et al. 2022). This is also related to the diversity of modern media, since a positive or negative reflection of the state of the economy in the news can influence people's decisions (Guetto et al. 2023). Thus, general uncertainty in society is not to be attributed exclusively to the actual political or economic situation or the direct impact of an external shock but is also related to the subjective perception of crisis.

This subjective perception of crisis, and its impact on fertility intentions, is further moderated by the level of societal trust. Research shows that the degree of reaction to shock depends largely on the level of social trust (Aassve, Moglie, and Mencarini 2020). Society's concept of social trust depends on the level of criminal activity and corruption in a country, the degree of income inequality, the quality of financial institutions, and the overall level of economic growth. Social trust is based on a sense of security, which can be ensured by means of government assistance programs that help reduce the level of uncertainty and allow for longer-term planning, and ultimately impact fertility intentions positively. Empirical evidence confirms that when there is a crisis the fertility decline is less pronounced in regions where social trust is high (Aassve, Moglie, and Mencarini 2020). There is also empirical evidence that positive ideas about the future play a more significant role during periods of negative crises and vice versa (Vignoli et al. 2022; Lappegård et al. 2022). It is argued that contemporary fertility research should shift, in part, to assessing how people construct their narratives about the future in order to deal with uncertainty, and how these narratives relate to both objective economic constraints and subjective perceptions (Vignoli et al. 2020b).

2.4 Summary of findings and proposed hypothesis

To sum up, to some extent the literature has addressed the relationship between the subjective perception of external shocks that are a source of uncertainty and reproductive intentions. This study contributes to the existing literature on fertility intentions by demonstrating the outsized role of subjective factors and perceptions in shaping reproductive decisions during periods of heightened uncertainty. While traditional research often emphasizes objective socioeconomic indicators in explaining fertility trends, our paper tests the hypothesis that subjective perceptions become even more critical in revealing change in fertility intentions during times of instability. Employing unique survey data collected in Russia during a period of heightened uncertainty surrounding the armed conflict in May 2023, this study examines shifts in fertility intentions. We propose various measures of the subjective perception of current events, including not only subjective assessments of income and welfare, positive emotions, and feelings of anxiety and fear, but also attitude towards state policy. In the literature presented above, studies focus on the issue of individual perceptions related to socioeconomic disturbances. We argue that the same shocks will not have the same impact on all people due to their different judgements and psychological states. We test the heterogeneity of respondents by age, gender, and parenthood status. We also show how the subjective factors accelerate in relation to each other by employing the honest trees method.

3. Data

3.1 Data source and sample design

The data for our analysis were collected by the VCIOM: Russia Public Opinion Research Center on behalf of HSE University in May 2023 through a VCIOM-Online internet panel, a probability-based panel that ensures high representativeness of the Russian population aged 18 and older with access to mobile phones and the internet. The panel was developed using a rigorous two-stage methodology, beginning with respondent recruitment via random-digit-dialing (RDD) telephone surveys. This method involves generating random phone numbers from the full range of active and potential mobile numbers registered in Russia, ensuring complete coverage of the population.

To maintain proportional representation across federal districts, adjustments are made to account for differences in respondent accessibility and regional time zones. For instance, while residents of urban centers like Moscow may be easier to reach, additional efforts are made to ensure that less accessible regions such as rural areas are adequately

represented. Calls are made at appropriate local times, and at least eight call attempts are made for each number. Once contacted, respondents are invited to join the panel, after which they complete a demographic questionnaire.

Panelists are selected for surveys based on specific sampling strategies tailored to the study's goals. For this particular survey, invitations were sent to all panel members aged 18–44, and each respondent received a unique, secure hyperlink to complete the questionnaire online. Respondents were given one week to participate, with reminders sent periodically. Quality control measures, including checks for response patterns and completion times, were applied to ensure the reliability of the collected data. The final sample of 7,967 responses represents a diverse cross-section of the population and is suitable for generalizing results to the broader demographic. The data are representative of the general population except for the small fraction of Russians without mobile phones, which Rosstat estimates to be around 3% of those over the age of 15 as of 2023.

While there are general concerns that Russians may be unwilling to respond to surveys, particularly regarding sensitive political questions, evidence suggests that cooperation rates in Russia had not dropped significantly in 2022 (Rosenfeld 2022). Despite fears of increased self-censorship, studies show that non-response rates even for sensitive topics have remained relatively stable, indicating that Russians are generally still willing to answer truthfully (Zvonovsky and Khodykin 2024). The non-response rate has remained at around 83.5%, the same level as in 2021. Moreover, the global trend of declining survey response rates, driven by factors like privacy concerns and reduced attention spans, suggests that any reduction in participation cannot be attributed solely to the political situation in Russia (Brick and Williams 2013). In our survey the non-response rate is even lower, at 82.5%. We attribute this lower rate to the non-political nature of the topic, as it is focused on fertility rather than political issues.

Since our aim is to study the reproductive intentions of people interested in having a child, we only consider questionnaires from respondents who answer that they wanted to have children a year ago (3,287 respondents). The reduced sample is not biased. 47.6% were women and 52.4% were men (Rosstat 2024). The age distribution is bimodal, with peaks at the age of 23 and 34 (Appendix, Figure A-1). The age distribution is skewed to the right, which roughly corresponds to the demographic situation in the country (the demographic 'trough' due to the crisis of the 1990s) (Kohler and Kohler 2002). A typical respondent in the reduced sample according to modal values is a married employed urban resident with a higher education, good housing conditions, and living in their own two-room apartment. In the past year their level of anxiety increased, but they are supportive of the country's political direction. Although belonging to the mid-income segment of society, their welfare worsened in the past year. Our respondents have, on average, 1.6 children, but the average desired number of children is 2.7. Table 1 contains the

descriptive statistics of the main sociodemographic characteristics of the sample and the variables included in the following analysis.

3.2 Variable description

Research suggests a relationship between economic factors, individual characteristics, and reproductive intentions. Sociodemographic characteristics (gender, age, place of residence, educational level, health status, marital status, and parenthood status), housing conditions, and income level indicators are the main control regressors used in the models explaining changes in fertility intentions. In our model we also considered the variable of residence proximity to the border between Ukraine and Russia. Our assumption is that respondents living near conflict-affected areas are associated with negative changes in their fertility intentions. To compose this variable, we used the data on the level of responsiveness and preparedness assigned to a particular region ('On measures taken in the constituent entities of the Russian Federation in connection with the Decree of the President of the Russian Federation of October 19, 2022 No. 756'). Another explanatory variable described whether a respondent or their family members had had COVID-19. Research has shown that personal experience with the coronavirus could impact later fertility intentions, although it is not quite clear in what way (Wang, Gozgor, and Lau 2022; Vakulenko, Makarova, and Gorskiy 2022; Vakulenko, Mitrofanova, and Gorskiy 2023; Guetto Bazzani, and Vignoli 2022).

A separate set of explanatory variables that is less studied in fertility research is used to assess the emotional state of the respondents and their overall life satisfaction (Philipov 2002). In our research we analyze how peace, happiness, and feelings of anxiety and fear relate to fertility intentions. In addition, as proxy variables to measure trust in the government we included in our model subjective opinion on the country's political direction and the role of the federal 'maternity capital' program in making a decision about having children.

The full list of explanatory variables with descriptive statistics is given in Table 1. The variables described above were divided into the following semantic blocks: individual characteristics, employment and income, parenthood status and marital status, housing conditions, health state, emotional state, and attitude to the country's political direction. Our main hypothesis relates to the variables regarding emotional state and the country's political direction.

Table 1: Explanatory variables used in regressions

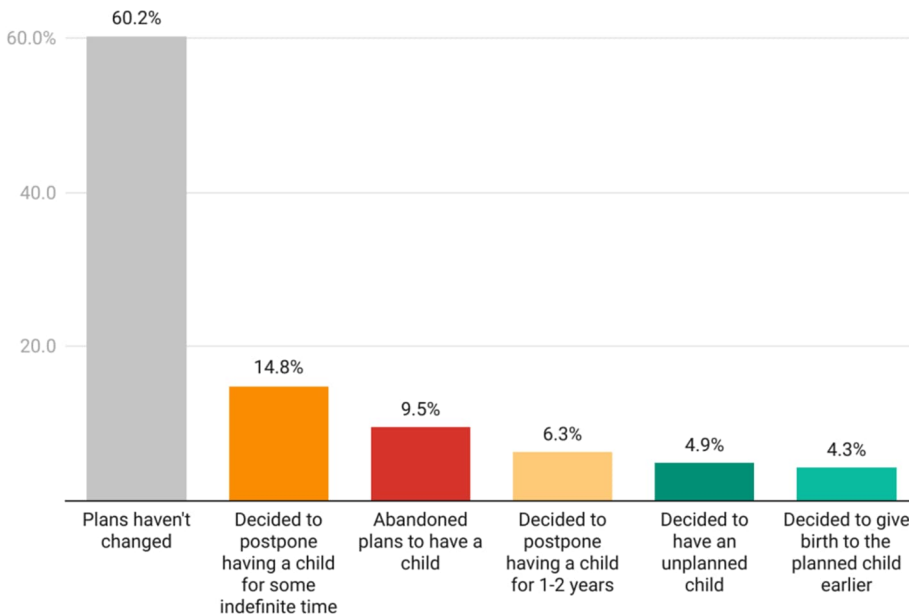
Semantic block	Variable	Mean	SD	Min	Max
Individual characteristics	<i>Age</i>	33.59	6.57	18	44
	<i>Woman</i>	0.43	0.49	0	1
	<i>Moscow and St. Petersburg</i>	0.16	0.37	0	1
	<i>Village</i>	0.07	0.27	0	1
	<i>Living in proximity to Russia- Ukraine border</i>	0.35	0.47	0	1
	<i>Higher education</i>	0.75	0.43	0	1
	<i>Source of news: internet</i>	0.88	0.31	0	1
Employment and income	<i>Employed (without those on maternity leave)</i>	0.83	0.37	0	1
	<i>Mid-income (respondent's attitude)</i>	0.39	0.48	0	1
	<i>High-income (respondent's attitude)</i>	0.01	0.07	0	1
	<i>Income increased (respondent's attitude)</i>	0.20	0.40	0	1
	<i>Income did not change (respondent's attitude)</i>	0.37	0.48	0	1
Parenthood and marital status	<i>In a relationship</i>	0.18	0.39	0	1
	<i>Married</i>	0.52	0.49	0	1
	<i>Has children</i>	0.52	0.49	0	1
Housing conditions	<i>Purchased house in the past year</i>	0.11	0.32	0	1
	<i>Own house</i>	0.93	0.25	0	1
	<i>Number of rooms</i>	2.28	1.12	1	10
	<i>Good housing conditions (respondent's attitude)</i>	0.51	0.49	0	1
	<i>Satisfactory housing conditions (respondent's attitude)</i>	0.40	0.49	0	1
	<i>Mortgage</i>	0.19	0.39	0	1
Health status	<i>Poor state of health</i>	0.02	0.15	0	1
	<i>Personal experience with coronavirus disease</i>	0.91	0.27	0	1
Emotional state	<i>Feeling anxiety (in the past week)</i>	0.31	0.46	0	1
	<i>Feeling peacefulness (in the past week)</i>	0.19	0.39	0	1
	<i>Feeling happiness (in the past week)</i>	0.24	0.43	0	1
	<i>Feeling fear (in the past week)</i>	0.22	0.41	0	1
	<i>Feeling anxiety (in the past year)</i>	0.63	0.48	0	1
	<i>Feeling satisfied with life</i>	0.62	0.48	0	1
Attitude to the country's political direction	<i>Supports the country's political direction</i>	0.51	0.49	0	1
	<i>Did not answer the question on attitude to the country's policies</i>	0.14	0.35	0	1
	<i>Maternity capital as meaningful financial assistance (respondent's attitude)</i>	0.44	0.49	0	1
	<i>Monitoring conflict developments in Ukraine</i>	0.93	0.25	0	1

Note: All dummy variables (see columns with min and max value) take the value 1 for the designated category, zero otherwise. For example, higher education – 1, 0 – otherwise.

Below we explain the descriptive statistics for the variables that refer to the psychological state of respondents, their subjective perception of events in the country, and changes in their financial wellbeing. These variables can indicate how deep the effect of uncertainty has been, and as such can be used to confirm the theory of Vignoli et al. (2020a).

When answering the question: Do you think our country has been following the right political course? respondents were divided. Over half (54.5%) said the country was heading in the right direction, 33.1% said the country was going in the wrong direction, and the remaining respondents found it difficult to answer. 45% considered the federal maternity capital program to be meaningful financial assistance. 64.2% reported feeling anxiety more frequently in the past 12 months. 41.2% reported that their financial wellbeing was getting worse and 37.2% that it remained unchanged. The remaining respondents said their (financial) welfare had improved. Importantly, the overwhelming majority (93%) were monitoring conflict developments in Ukraine.

We conducted the survey in May 2023. Our research focused on changes in the fertility intentions of the respondents in the past 12 months. It was assumed that people do not understand the concept of time literally and associate changes in their intentions with the most significant events of the past year; however, we did not want to push them to think of the beginning of the Russia–Ukraine conflict in February 2022. To create the ‘change in fertility’ variable we combined the responses to two questions: “Have your plans to have (another) child changed in the last 12 months?” and “How exactly have your plans to have (another) child changed in the last 12 months?” Respondents who answered “No” to the first question fell into the “Plans have not changed” category. The remaining categories were taken from the second question. All categories and the number of respondents who fell into each of them are presented in Figure 1. Most respondents (60.2%, 2,004 respondents) reported no change in their fertility intentions. 14.8% (492 respondents) planned to postpone childbirth for an indefinite period, 6.3% planned to postpone childbirth for 1–2 years (210 respondents), 9.5% of respondents decided not to have children (316 respondents), and 9.2% (305 respondents) decided in favor of an earlier childbearing time.

Figure 1: Change in fertility intentions

For further analysis we split the respondents into two groups. One group was composed of those who postponed parenthood or decided not to have a child. The second group included those who decided to have a child earlier than planned, whose child was unplanned, or made no changes to their plans. Table 2 presents the key characteristics of these two groups. Postponement decisions were more often made by younger respondents, while older people chose to start parenthood sooner. The latter also had better housing conditions and supported the country's political direction, compared to those who decided to postpone childbearing.

In addition, a correlation analysis was conducted. There are relatively high correlations between the variables describing emotions: Happiness was positively correlated with calmness (0.72), and fear was positively correlated with anxiety (0.78). There is an average level of correlation between the variables 'Feeling anxiety (in the past year)' and 'Supporting the country's political direction' (0.43). We show how the subjective factors accelerate each other in section 5.4.

Table 2: Characteristics of the respondents by change in reproductive intentions

Change in reproductive intentions	Gender	Age	Housing conditions	Frequency of anxiety	Support the country's political direction	Change in financial wellbeing	Life satisfaction
Postponed N = 1,080	female	25–34 years old	Satisfactory	Increased	Rather disagree	Worse	Rather satisfied
Earlier parenthood or no change N = 2,309	male	35–44 years old	Good	Increased	Rather agree	Did not change	Rather satisfied

Note: The table shows modal values. Initially, the variables were categorical, ranging from 1 to 4 (from negative to positive). Subsequently, in the regression analysis we used binary variables, whose descriptive statistics are presented in Table 1.

4. Methodology

To identify the factors that are correlated with changes in reproductive intentions, we estimate a probit model, where the dependent variable takes the value 1 for those who decided to postpone or avoid childbearing, and 0 for those who either did not change their decision to have a child, decided to have a previously unplanned child, or decided to have a planned child earlier (see Table 2). Since the number of observations for each type of change is not enough for estimating multinomial logit models, we enlarged the groups to distinguish only between ‘positive’ and ‘negative’ changes. The full list of explanatory variables can be seen in Table 1 above and is discussed in the data section.

We used several methods to determine the strongest factors influencing change in reproductive intentions. First, based on the probit model, we considered the average marginal effect for standardized variables, and, second, we used the Shapley vector (Israeli 2007) to decompose the coefficient of determination (Pseudo R-squared).

Machine learning methods in economics, developed in Athey and Imbens (2015), were used to test the heterogeneity of selected variables. These authors show that the honest tree method can access the heterogeneity of estimates and automatically determine variables which further accelerate fertility decisions. We opted to use this method because it allows us to estimate not only the coefficients of regressors for different subsamples, but also the confidence intervals of these coefficients.⁵ We used this method to

⁵ To make this estimation, the sample is randomly divided in two halves. One half is split into subsamples (leaves), and the second is used to assess the standard errors of such a split. To define the tree depth (number of leaves), we also assessed the magnitude of the AUC (the area under the ROC curve) for predicting the binary variable (the decision to postpone childbearing) in the second half of the sample.

demonstrate that subjective factors, while often highly correlated, can also amplify each other's effects, and in some cases even override them.

5. Results

5.1 Estimation of binary choice models

We analyzed the binary choice models and found that reproductive intentions were influenced by the respondents' subjective attitude to the situation in the country and their subjective assessment of wellbeing. The likelihood of postponing or avoiding childbearing was positively associated with feeling anxiety (p-value = 0.000) and fear (p-value = 0.000). The respondents who did not change their fertility intentions or decided in favor of earlier childbearing were more likely to support the country's political direction (or to find it difficult to answer this question), to consider the federal maternity capital program as meaningful financial assistance (p-value = 0.000), to report financial stability (p-value = 0.000) or improved financial well-being over the past year (p-value = 0.000), and to report feeling satisfaction with life (p-value = 0.014).

Regarding control variables, women, in comparison to men, were more likely to postpone or avoid parenthood (p-value = 0.000). The age marginal effect was nonlinear: respondents under 31 years were more likely to avoid or postpone childbearing, while older respondents did not change their decision or decided in favor of earlier childbearing (Table 3). The likelihood of postponing or avoiding childbearing was positively correlated with previous parenthood (p-value = 0.000) and being in a relationship (p-value = 0.001). A variable indicating number of children was introduced into the model, but a test for equality of category coefficients showed that number of children can be merged into a dummy variable where 1 is the presence of at least 1 child and 0 is their absence.

When ranking the factors by the magnitude of the average marginal effect, the greatest influence was exerted by variables associated with the subjective assessment of current events or emotions. For those respondents who supported the country's political direction, the probability of avoiding or postponing parenthood dropped by 17.2 percentage points, all other things being equal. Fear and anxiety, by contrast, demotivated respondents and the probability of parenthood avoidance increased by 10.2 and 9.52 percentage points, respectively. Among objective indicators, only parenthood status had a comparable degree of influence: for the respondents with children, the likelihood of postponement increased by 11.1 percentage points (see Table 3).

In other words, indirect evidence suggests that people are less likely to change their fertility intentions or decide in favor of earlier childbearing when they trust the

government. This is consistent with the results of Aassve, Moglie, and Mencarini (2020). Another important relationship is observed between fertility intentions and emotional state: happy people intend to have children, but those who feel fear or anxiety do not. By contrast, such factors as health status, housing conditions, and the proximity of the Russian-Ukrainian border were insignificant.

Table 3: Average marginal effects for probit model⁶

Semantic block	Variable	Marginal effect	Std. errors	p-value
Individual characteristics	Age	−0.004	0.001	0.006
	Woman	0.063	0.016	0.000
	Moscow and St. Petersburg	0.036	0.020	0.067
	Village	−0.037	0.029	0.199
	Living in proximity to Russia–Ukraine border	−0.014	0.018	0.632
	Higher education	−0.007	0.015	0.449
	Source of news: internet	0.044	0.026	0.087
Employment and income	Employed	−0.019	0.021	0.363
	Mid-income	−0.026	0.016	0.111
	High-income	−0.030	0.091	0.739
	Income increased	−0.073	0.021	0.000
	Income did not change	−0.109	0.017	0.000
Parenthood and marital status	Being in relationship	0.072	0.022	0.0001
	Married	0.038	0.021	0.064
	Has children	0.111	0.019	0.000
Emotional state	Feeling anxiety in the past week	0.008	0.018	0.670
	Feeling peacefulness in the past week	−0.025	0.023	0.276
	Feeling happiness in the past week	−0.038	0.021	0.070
	Feeling fear in the past week	0.102	0.019	0.000
	Feeling anxiety in the past year	0.095	0.018	0.000
	Feeling satisfied with life	−0.042	0.017	0.014
Attitude to the country's political direction	Supports the country's political direction	−0.172	0.017	0.000
	Did not answer the question on attitude to the country's political direction	−0.070	0.023	0.003
	The federal maternity capital program is meaningful financial assistance	−0.092	0.015	0.000
	Monitoring conflict developments in Ukraine	0.028	0.032	0.377

Note: Number of observations is 3,287. Area under ROC is 0.8. Pseudo R-squared is 0.2. The model also included variables from the health status and housing conditions blocks; however, they are not presented in the table, as their p-values are greater than 0.1. These results can be provided by the authors upon request.

⁶ The dependent variable takes the value 1 for those who decided to postpone or avoid childbearing, and 0 for those who did not change their decision to have a child, decided to give birth to a previously unplanned child, or gave birth to a child earlier than planned.

5.2 Determination of the most important groups of factors

To identify the factors with the strongest contribution to the explained variance, we performed a Pseudo R-squared Shapley vector decomposition (Israeli 2007). The results are shown in Table 4.

Table 4: Pseudo R-squared decomposition by group of factors

Semantic block	Shapley value, %
Emotional state	31.97
Attitude to the country's political direction	28.34
Employment and income	13.94
Individual characteristics	12.75
Parenthood and marital status	7.79
Housing conditions	3.30
Health status	1.90

The groups of factors related to emotional state and feelings (anxiety, happiness, peacefulness, fear) and attitude to the country's political direction have the greatest explanatory power, 31.97% and 28.34% respectively. The subjective assessment of financial wellbeing explains 12.75% (Table 4). Objective factors have less influence on fertility intentions.

The consistency of ranking was also validated through various machine learning methods such as lasso regression, generalized linear model (GLM), and random forest. The results are available upon request.

5.3 Testing for heterogeneity

Several Chow tests were performed to access the sample for heterogeneity. We constructed separate subsamples grouping the respondents by age (under or over 30 years old), parenthood status (with or without children), and gender. In the first two cases, the null hypothesis of the equality of coefficients for the two subsamples was not rejected at any reasonable significance level. However, Chow's test for the gender-based subsample showed that it is necessary to estimate regressions for each subsample separately (p-value = 0). The results of the regressions estimated separately for men and women are included in the Appendix (Table A-1). A set of significant variables differed slightly for men and women: variables of positive emotions – happiness and peacefulness – were important (p-value = 0.089, -0.083, p-value = 0.072, -0.080 respectively) for women but not for men. In the regression for men, income variables were found to be important (p-value = 0.041, -0.033 for mid-income, p-value = 0.045, -0.091 for high income).

For women, the importance of positive emotions could stem from societal expectations that prioritize emotional well-being and harmonious relationships. By contrast, the significance of men's income might be rooted in traditional gender roles that link masculinity to financial success and provision. As suggested by broader research on gender and societal change (Goldin 2024), these findings indicate that emotional and economic factors may have distinct roles in shaping outcomes for women and men due to differing societal pressures and expectations.

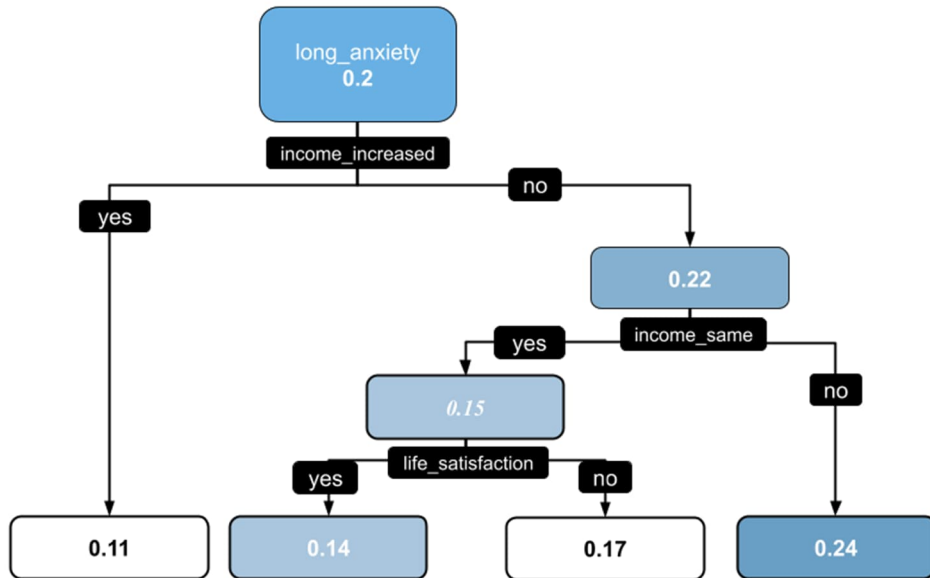
However, it is also noteworthy that while the specific drivers differed somewhat by gender, the core variables that were significant in the overall regression (support for the country's political direction, parenthood status, and feelings of fear and anxiety) remained significant for both men and women. This suggests a shared baseline of influential factors, while gender introduces nuanced variations in the relative importance of emotional and economic considerations.

5.4 Acceleration of reproductive intentions: the honest trees method

In this section, the honest trees method allows us to further group respondents. For this purpose, we consider variables that may reflect a response to ongoing events or serve as the source of such a response: feelings of anxiety (in the past year), monitoring conflict developments in Ukraine, and perceptions of changes in income (in the past year). These variables have the most notable results. We aim to understand which variables the model selects for further grouping. The same set of regressors is used as in the binary choice model.

Below, we illustrate the capability of the honest trees method by focusing on the variable 'feeling anxiety in the past year' and its heterogeneity effect (Figure 2). Life satisfaction mitigates anxiety. Respondents with higher life satisfaction (28% of the total sample) are less likely to avoid childbearing: the coefficient for the entire sample is 0.20, compared to 0.14 for this specific subsample ($p\text{-value} = 0.0001$). The correlation of anxiety with fertility-decision change increases for respondents who perceive their income as decreasing (the estimate is 0.24 versus 0.20).

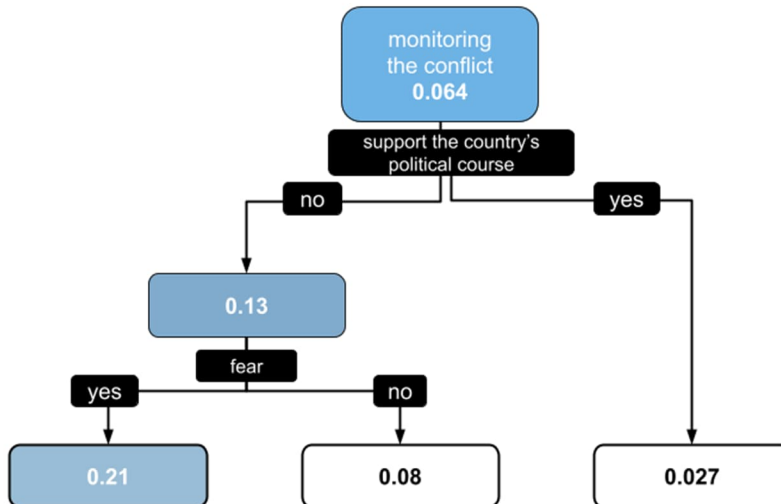
Figure 2: Estimation of a tree with five leaves for the variable ‘long-term anxiety’



Note: The numbers represent the coefficient for each split, with blue leaves indicating splits with p-value < 0.1.

Among those who are monitoring the conflict developments in Ukraine, we identified a group of respondents who do not support the country’s political direction and report feeling fear more often (Figure 3). These people are even more likely to avoid childbearing (the estimate is 0.21 for the subsample versus 0.064 for the full sample).

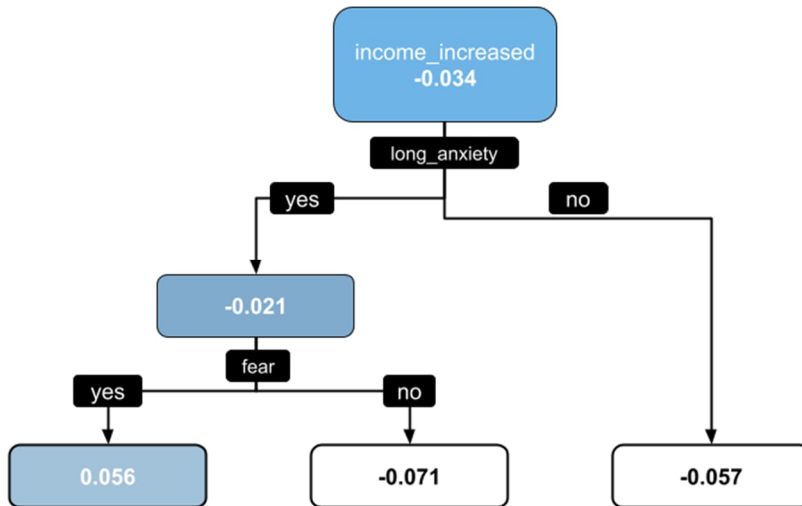
Figure 3: Estimation of a tree with three leaves for the variable ‘monitoring the conflict developments in Ukraine’



Note: The numbers represent the ATE for each split, with blue leaves indicating statistically significant splits.

Perceptions of improved financial wellbeing generally reduce the likelihood of delaying or deciding not to have a child (Figure 4). However, significant splits occur based on feelings of fear and anxiety. According to the resulting estimates, respondents who perceive their financial situation as improving but still experience fear and anxiety are more likely to negatively change their reproductive intentions (coefficient is 0.056 versus -0.034 for the whole sample).

Figure 4: Estimation of a tree with three leaves for the variable ‘income increased’



Note: The numbers represent the coefficient for each split, with blue leaves indicating splits with p-value < 0.1.

Thus, heterogeneity was identified for each of the variables considered. Notably, in all trees, significant splits were found for subjective variables. Strong negative emotions, such as feelings of anxiety and fear, were particularly prominent sources of heterogeneity. At the same time, we observe that all subjective factors, despite sometimes being highly correlated, accelerate each other. For instance, the influence of fear and anxiety can override the positive effects of improving financial well-being.

6. Conclusions

The growing anxiety worldwide is further worsened by increasing geopolitical conflicts and rising political tensions. Heightened divisions within societies, fueled by polarization and social unrest, contribute to a broader sense of instability. This uncertainty, combined with economic challenges, exacerbates mental health issues. Indicators reveal that mental ill-health remains elevated: in 2022 the share of the population reporting symptoms of depression was at least 20% higher than pre-pandemic levels (OECD 2023). Young adults, especially those aged between 18 and 24, are disproportionately affected. A 2022

survey found that 66% of individuals in this age group reported moderate to severe stress-related symptoms, compared to only 25% of those aged 65 and older (Statista 2025). These age-specific vulnerabilities are crucial for understanding shifts in fertility intentions, as younger people, facing heightened stress levels and uncertainty, may be more likely to delay or avoid having children. In low-fertility countries, such widespread uncertainty can further discourage having children, compounding demographic challenges. Our findings align with this broader pattern, as fertility intentions in Russia during 2022–2023 reflect the global interplay between personal and societal uncertainty.

Our research focused on changes in the fertility intentions of respondents in Russia in 2022–2023, during a period of high uncertainty. Most respondents (60%) did not change their fertility intentions, some respondents (31%) decided to postpone having or not have a child, and others (9%) even made the decision to have a child earlier than planned. This variety of choices is mostly explained by subjective factors (76% of the explained dispersion in the probit models), namely attitude to ongoing events, psychological state, and corresponding emotional reaction. These findings appear consistent with the theoretical concept (Vignoli et al. 2020a). We found that in a period of high uncertainty, subjective factors play a more important role than traditional factors. Negative assessments of one's own life and finances decrease fertility intentions. We found a heterogeneous effect of emotions by gender, potentially reflecting deeper societal gender dynamics as discussed in broader economic and social research (Goldin 2024).

Postponement or avoidance of parenthood are associated with factors such as feelings of anxiety and fear, as well as disapproval of the country's political direction, parental experience, and marital status. Others decide in favor of having a child, i.e., earlier childbearing or higher probability of having a child, despite the uncertainty and economic shocks. These decisions are supported by subjectively assessed factors such as feeling happiness, financial stability, or increased financial well-being, the meaningfulness of the federal maternity capital program, and facing physiological deadlines due to age. When a respondent does not support the country's political direction, the probability of postponing childbearing increases by 18 percentage points. Similarly, feelings of fear and anxiety increase the probability of a negative change in fertility intentions by 10 percentage points: the correlation is comparable to the parenthood status variable. We found that the probability of childbearing avoidance or postponement accelerates if feelings of fear and anxiety are accompanied by disapproval of the country's political direction, especially among Russians who monitor the Ukraine conflict. This estimate is partially decreased if the individual is satisfied with their life.

The results of our analysis indicate that in times of uncertainty, trust in the state's policies plays an important role in smoothing the population's reaction to the subsequent shocks. The Russian government is a powerful opinion-maker, producing 'shared narratives', and we uncovered the relationship between government and personal

narrative: Increasing social trust will help reduce anxiety and increase the likelihood of reproductive intentions. The literature notes that it is easier to correct negative emotions and distrust of government policies during periods of crisis among young people (Aassve, Moglie, and Mencarini 2020). For women, but not for men, reproductive intentions are associated with positive emotions, that is, feelings of happiness and peacefulness, and overall satisfaction with life, while for men, changes in fertility intentions are strongly associated with subjective assessment of income conditions – but anxiety is a strong predictor of fertility decisions for both sexes. This could be further evidence that during times of sudden economic and social change, women tend to focus on the present and future while men are more connected to the past, as shown by Goldin (2024). We expand the results of Vignoli et al. (2020b) by introducing the role of trust in the government as a major building block in personal narratives about the future. During the crisis we also see the importance of long-term anxiety and fear for negative fertility decisions (complementing the results of Billari 2009 and Mencarini et al. 2018), which are connected to the contribution of personal happiness in low-fertility countries.

The results of our research should be interpreted with caution due to limitations in the study design. First, we do not have information in our data about person-specific risk aversion or personality, which is necessary to account for the possibility that the results are driven by systematically more optimistic or pessimistic individuals or those willing to take risks. We partially account for this by including feeling anxiety in the past week (short-term) and in the past year (long-term). Second, due to the cross-sectional nature of our data we cannot compare the percentage changes in reproductive intentions obtained in our study in a time of uncertainty and shocks with corresponding values in times of stability. Even during stable times, there are always people who decide to postpone or avoid childbearing. Third, we analyze fertility intentions which are collected retrospectively because we ask respondents about changes in their intentions during the last 12 months. They may forget their reproductive plans. Although the survey's response rate of 17.5% could be another limitation of the study, we emphasize the sample's representativeness. Solving the problems associated with these limitations may be an area for future research. A potential topic could be the analysis of media channels as one of the factors influencing narratives of the future and their impact on the reproductive intentions of Russians, similar to Guetto et al. (2023) for Italians. It is also important to estimate and then compare the percentage of changes in reproductive intentions in periods of different levels of uncertainty. A closer analysis of gender dynamics within households related to fertility decision-making, especially after the conflict ends, is also a promising area for future research.

7. Acknowledgements

This article is the result of a project implemented as part of the Basic Research Program at the National Research University Higher School of Economics (HSE University). The authors are grateful to Svetlana Biryukova, Alla Makarentseva, and anonymous reviewers for their valuable comments, which substantially improved the paper.

References

- Aassve, A., Moglie, M.L., and Mencarini, L. (2020). Trust and fertility in uncertain times. *Population Studies* 75(1): 19–36. doi:[10.1080/00324728.2020.1742927](https://doi.org/10.1080/00324728.2020.1742927).
- Adsera, A. (2011). Where are the babies? Labor market conditions and fertility in Europe. *European Journal of Population/Revue européenne de Démographie* 27(1): 1–32. doi:[10.1007/s10680-010-9222-x](https://doi.org/10.1007/s10680-010-9222-x).
- Agadjanian, V. and Prata, N. (2001). War and reproduction: Angola's fertility in comparative perspective. *Journal of Southern African Studies* 27: 329–347. doi:[10.1080/03057070120050000](https://doi.org/10.1080/03057070120050000).
- Athey, S. and Imbens, G. (2015). Recursive partitioning for heterogeneous causal effects. *Proceedings of the National Academy of Sciences* 113(27): 7353–7360. doi:[10.1073/pnas.1510489113](https://doi.org/10.1073/pnas.1510489113).
- Becker, G. and Lewis, H. (1973). On the interaction between the quantity and quality of children. *Journal of Political Economy* 81(2): 279–288. doi:[10.1086/260166](https://doi.org/10.1086/260166).
- Becker, G.S. (1960). An economic analysis of fertility. In: Roberts, G.B. (ed.). *Demographic and economic change in developed countries*. New York City: Columbia University Press: 209–240.
- Billari, F. (2009). The happiness commonality: Fertility decision in low-fertility settings. In: United Nations (ed.). *How generations and gender shape demographic change: Towards policies based on better knowledge: Conference proceedings*. New York: United Nations: 7–38.
- Billari, F. (2022). Demography: Fast and slow. *Population and Development Review* 48(1): 9–30. doi:[10.1111/padr.12464](https://doi.org/10.1111/padr.12464).
- Blanc, A.K. (2004). The role of conflict in the rapid fertility decline in Eritrea and prospects for the future. *Studies in Family Planning* 35(4): 236–245. doi:[10.1111/j.0039-3665.2004.00028.x](https://doi.org/10.1111/j.0039-3665.2004.00028.x).
- Bongaarts, J. (1992). Do reproductive intentions matter? *International Perspectives on Sexual and Reproductive Health* 18(3): 102–108. doi:[10.2307/2133409](https://doi.org/10.2307/2133409).
- Brick, J. and Williams, D. (2013). Explaining rising nonresponse rates in cross-sectional surveys. *The ANNALS of the American Academy of Political and Social Science*. 645(1): 36–59. doi:[10.1177/0002716212456834](https://doi.org/10.1177/0002716212456834).

- Caprile, A. and Delivorias, A. (2023). EU sanctions on Russia: Update, economic impact and outlook. (BRIEFING EPRS | European Parliamentary Research Service). Strasbourg
- Fishbein, M., Jaccard, J., Davidson, A., Ajzen, I., and Loken, B. (1980). Predicting and understanding family planning behaviors. In: Ajzen, I. and Fishbein, M. (eds.). *Understanding attitudes and predicting social behavior*. Englewood Cliffs, NJ: Prentice Hall.
- Galbraith, J.K. (2024). The gift of sanctions: An analysis of assessments of the Russian economy, 2022–2023. *Review of Keynesian Economics* 12(3): 408–422. doi:10.4337/roke.2024.03.10.
- Gatta, A., Mattioli, F., Mencarini, L., and Vignoli, D. (2022). Employment uncertainty and fertility intentions: Stability or resilience? *Population Studies* 76(3): 387–406. doi:10.1080/00324728.2021.1939406.
- Goldin, C. (2024). Babies and the macroeconomy. (NBER Working Papers 33311). Cambridge, MA: National Bureau of Economic Research. doi:10.3386/w33311.
- Goldstein, J.R., Kreyenfeld, M., Jasilioniene, A., and Örsal, D.K. (2013). Fertility reactions to the Great Recession in Europe. *Demographic Research* 29(4): 85–104. doi:10.4054/DemRes.2013.29.4.
- Guetto, R., Bazzani, G., and Vignoli, D. (2022). Narratives of the future and fertility decision-making in uncertain times. An application to the COVID-19 pandemic. *Vienna Yearbook of Population Research* 20: 223–260. doi:10.1553/populationyearbook2022.res1.6.
- Guetto, R., Morabito, M.F., Vollbracht, M., and Vignoli, D. (2023). Fertility and media narratives of the economy: Evidence from Italian news coverage. *Demography* 60(2): 607–630. doi:10.1215/00703370-10607928.
- Gustafsson, S. (2001). Optimal age at motherhood. Theoretical and empirical considerations on postponement of maternity in Europe. *Journal of Population Economics* 14(2): 225–247. doi:10.1007/s001480000051.
- Huinink, J. and Kohli, M. (2014). A life-course approach to fertility. *Demographic Research* 30(45): 1293–1326. doi:10.4054/DemRes.2014.30.45.
- Israeli, O. (2007). A Shapley-based decomposition of the R-square of a linear regression. *Journal of Economic Inequality* 5: 199–212. doi:10.1007/s10888-006-9036-6.

- Kneale, D. and Joshi, H. (2008). Postponement and childlessness: Evidence from two British cohorts. *Demographic Research* 19(58): 1935–1968. doi:10.4054/DemRes.2008.19.58.
- Kodzi, I.A., Johnson, D.R., and Casterline, J.B. (2010). Examining the predictive value of fertility preferences among Ghanaian women. *Demographic Research* 22(30): 965–984. doi:10.4054/DemRes.2010.22.30.
- Kohler, H.P. and Kohler, I. (2002). Fertility decline in Russia in the early and mid 1990s: The role of economic uncertainty and labour market crises. *European Journal of Population. Revue européenne de Démographie* 18: 233–262. doi:10.1023/A:1019701812709.
- Lappegård, T., Kristensen, A.P., Dommermuth, L., Minello, A., and Vignoli, D. (2022). The impact of narratives of the future on fertility intentions in Norway. *Journal of Marriage and Family* 84(2): 476–493. doi:10.1111/jomf.12822.
- Makarentseva, A. and Biryukova, S. (2023). Factors, consistency, and realization of reproductive intentions in Russia. *Monitoring of Public Opinion: Economic and Social Changes* 2: 31–56. (in Russian) doi:10.14515/monitoring.2023.2.2379.
- Matera, C., Dommermuth, L., Bacci, S., Bertaccini, B., Minello, A., and Vignoli, D. (2023). Perceived economic uncertainty and fertility intentions in couples: A dyadic extension of the theory of planned behaviour. *Journal of Family and Economic Issues* 44: 790–806. doi:10.1007/s10834-022-09872-x.
- Mencarini, L., Vignoli, D., Zeydanli, T., and Kim, J. (2018). Life satisfaction favors reproduction. The universal positive effect of life satisfaction on childbearing in contemporary low fertility countries. *PLoS ONE* 13(12): e0206202. doi:10.1371/journal.pone.0206202.
- Niknami, R. (2024). European Union energy sanctions against Russian Federation and its impact on their trade system (2022–2024). *Central Eurasia Studies* 17(1): 363–390. doi:10.22059/jcep.2024.379436.450236.
- OECD (2023). Health at a glance 2023: OECD indicators. Paris: OECD Publishing.
- Ogawa, N. (2003). Japan's changing fertility mechanisms and its policy responses. *Journal of Population Research* 20(1): 89–106. doi:10.1007/BF03031797.
- Perelli-Harris, B., Gerber, T., and Hilevych, Y. (2024). Uncertainty and fertility in Ukraine on the eve of Russia's full-scale invasion: The impact of armed conflict and economic crisis. *European Journal of Population* 40(28). doi:10.1007/s10680-024-09713-7.

- Philipov, D. (2002). Fertility in times of discontinuous societal change. In: Kotowska, I.E. and Jozwiak, J. (eds.). *Population of Central and Eastern Europe: Challenges and opportunities*. Warsaw: Statistical Publishing Establishment: 665–690.
- Philipov, D. and Dorbritz, J. (2003). Demographic consequences of economic transition in countries of Central and Eastern Europe. (Population Studies 39). Strasbourg: Council of Europe.
- Philipov, D. and Kohler, H.P. (2001). Tempo effects in the fertility decline in Eastern Europe: Evidence from Bulgaria, the Czech Republic, Hungary, Poland and Russia. *European Journal of Population / Revue européenne de Démographie* 17(1): 37–60. doi:10.1023/A:1010740213453.
- Rosenfeld, B. (2022). Survey research in Russia: In the shadow of war. *Post-Soviet Affairs* 39(1–2): 38–48. doi:10.1080/1060586X.2022.2151767.
- Rosstat (2024). Population of the Russian Federation by gender and age (2024). Moscow: Federal State Statistics Service. <https://rosstat.gov.ru/compendium/document/13284>.
- Slonimczyk, F. and Yurko, A. (2014). Assessing the impact of the maternity capital policy in Russia. *Labour Economics* 30(C): 265–281. doi:10.1016/j.labeco.2014.03.004.
- Sobotka, T., Skirbekk, V., and Philipov, D. (2011). Economic recession and fertility in the developed world: A literature review. *Population and Development Review* 37(2): 267–306. doi:10.1111/j.1728-4457.2011.00411.x.
- Sorvachev, I. and Yakovlev, E. (2020). Short- and long-run effects of a sizable child subsidy: Evidence from Russia. (IZA Discussion Papers 13019). Bonn: Institute of Labor Economics. doi:10.2139/ssrn.3416509.
- Statista (2025). Percentage of individuals worldwide reporting moderate to severe symptoms of stress, depression, and anxiety in 2022, by age group. <https://www.statista.com/statistics/1400861/percentage-of-individuals-reporting-symptoms-of-stress-depression-anxiety-by-age-group-worldwide/>.
- Testa, M., Sobotka, T., and Morgan, P. (2011). Reproductive decision-making: towards improved theoretical, methodological and empirical approaches. *Vienna Yearbook of Population Research* 9: 1–9. doi:10.1553/populationyearbook2011s1.
- Trinitapoli, J. (2023). *An epidemic of uncertainty: Navigating HIV and young adulthood in Malawi*. Chicago, IL: University of Chicago Press. doi:10.7208/chicago/9780226825700.001.0001.

- Trinitapoli, J. and Yeatman, S. (2011). Uncertainty and fertility in a generalized AIDS epidemic. *American Sociological Review* 76(6): 935–954. doi:10.1177/0003122411427672.
- Trinitapoli, J. and Yeatman, S. (2018). The flexibility of fertility preferences in a context of uncertainty. *Population and Development Review* 44(1): 87. doi:10.1111/padr.12114.
- Vakulenko, E., Makarova, M., and Gorskiy, D. (2022). Reproductive intentions and fertility trends in different countries during the COVID-19 pandemic: An analytical review of studies. *Demographic Review* 9(4): 138–159. (in Russian). doi:10.17323/demreview.v9i4.16747.
- Vakulenko, E., Mitrofanova, E., and Gorskiy, D. (2023). Reproductive intentions of Russians with children at the beginning of COVID-19 pandemic. *Voprosy Ekonomiki* 2023(4): 85–102. (In Russian) doi:10.32609/0042-8736-2023-4-85-102.
- Vakulenko, E., Vasileva, U., and Fadina, E. (2024). Review of regional maternity capital programmes in Russia 2011–2023. *Population and Economics* 8(2): 114–132. doi:10.3897/popecon.8.e115173.
- Vignoli, D., Bazzani, G., Guetto, R., Minello, A., and Pirani, E. (2020a). Uncertainty and narratives of the future: A theoretical framework for contemporary fertility. In: Lynch, S.M. (ed.). *The Springer Series on Demographic Methods and Population Analysis* 51: 25–49. doi:10.1007/978-3-030-48519-1_3.
- Vignoli, D., Bazzani, G., Guetto, R., Minello, A., and Pirani, E. (2020b). A reflection on economic uncertainty and fertility in Europe: The narrative framework. *Genus* 76(28). doi:10.1186/s41118-020-00094-3.
- Vignoli, D., Minello, A., Bazzani, G., Matera, C., and Rapallini, C. (2022). Narratives of the future affect fertility: Evidence from a laboratory experiment. *European Journal of Population* 38: 93–124. doi:10.1007/s10680-021-09602-3.
- Wang, Y., Gozgor, G., and Lau, C.K.M. (2022). Effects of pandemics uncertainty on fertility. *Frontiers in Public Health* 10. doi:10.3389/fpubh.2022.854771.
- Westoff, C.F. and Ryder, N.B. (1977). The predictive validity of reproductive intentions. *Demography* 14(4): 431–453. doi:10.2307/2060589.
- Woldemicael, G. (2010). Declining fertility in Eritrea since the mid-1990s: A demographic response to military conflict. *International Journal of Conflict and Violence* 4(1): 149–168. doi:10.4119/ijcv-2821.

Zvonovsky, V. and Khodykin, A. (2024). Problem of response rates in surveys on the Russian–Ukrainian conflict. *Monitoring of Public Opinion: Economic and Social Changes* 4: 3–26. (In Russian). doi:[10.14515/monitoring.2024.4.2549](https://doi.org/10.14515/monitoring.2024.4.2549).

Appendix

Figure A-1: Age distribution of respondents

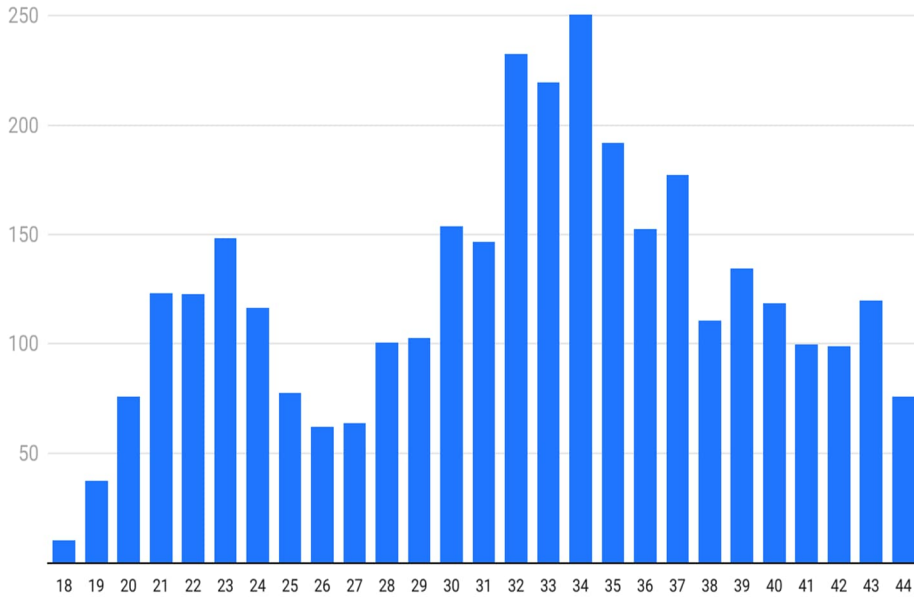


Table A-1: Marginal effects for the probit model, men and women

Semantic block	Variable	Female			Male		
		Marginal effect	Std. errors	p-value	Marginal effect	Std. errors	p-value
Individual characteristics	Age	–0.001	0.002	0.438	–0.003	0.002	0.042
	Moscow and St. Petersburg	0.003	0.031	0.925	0.035	0.023	0.129
	Village	–0.027	0.041	0.516	–0.078	0.047	0.099
	Living in proximity to Russia–Ukraine border	–0.022	0.023	0.348	–0.003	0.019	0.862
	Higher education	–0.011	0.014	0.411	–0.010	0.010	0.288
	Source of news: internet	0.031	0.036	0.386	0.112	0.040	0.005
Employment and income	Employed	–0.032	0.027	0.242	–0.031	0.035	0.365
	Mid-income	–0.010	0.012	0.436	–0.033	0.009	0.001
	High-income	–0.232	0.047	0.210	–0.056	0.026	0.044
	Income increased	–0.097	0.031	0.002	–0.069	0.028	0.011
	Income did not change	–0.131	0.025	0.000	–0.100	0.021	0.000
Parenthood and marital status	Being in relationship	0.019	0.029	0.510	0.086	0.0231	0.000
	Married	0.024	0.011	0.034	0.005	0.010	0.580
	Has children	0.121	0.028	0.000	0.105	0.023	0.000
Housing conditions	Purchased house in the past year	0.009	0.037	0.811	–0.042	0.030	0.162
	Own house	0.035	0.053	0.513	–0.026	0.040	0.517
	Number of rooms	0.011	0.010	0.304	–0.021	0.009	0.289
	Good housing conditions	0.002	0.014	0.895	0.016	0.011	0.136
	Satisfactory housing conditions	–0.013	0.025	0.614	0.046	0.020	0.196
	Mortgage loan	0.019	0.028	0.497	0.0105	0.023	0.649
Health status	Poor state of health	–0.020	0.041	0.634	–0.022	0.030	0.463
	Personal experience of coronavirus disease	0.045	0.046	0.327	0.054	0.043	0.205
Emotional state	Feeling anxiety in the past week	–0.015	0.015	0.325	–0.020	0.013	0.140
	Feeling peacefulness in the past week	–0.080	0.037	0.032	–0.003	0.032	0.928
	Feeling happiness in the past week	–0.083	0.032	0.009	–0.031	0.030	0.304
	Feeling fear in the past week	0.070	0.025	0.004	0.148	0.020	0.000
	Feeling anxiety in the past year	0.102	0.030	0.001	0.118	0.024	0.000
	Feeling satisfied with life	0.032	0.014	0.024	0.009	0.011	0.412
Attitude to the country's political direction	Support the country's political direction	–0.169	0.027	0.000	–0.182	0.021	0.000
	Did not answer the question on attitude to the country's political direction	–0.044	0.035	0.205	–0.0859	0.034	0.011
	Maternity capital is meaningful	–0.108	0.022	0.000	–0.078	0.019	0.000
	financial assistance						
	Monitoring conflict developments in Ukraine	–0.011	0.040	0.790	0.089	0.059	0.130
Observations		1,472			Observations	1,815	
Prob > chi2		0.006			Prob > chi2	0.000	