Introduction

The reproductive behavior among refugees and forced migrants has been the object of research in recent years. The effect of the refugees and their fertility on sustainable development, including ecological impact, was also taken into consideration (see Alola et. al (2023) for the comparison of the main recipients of refugees Sweden and Lebanon). Scandinavian registers allow to trace birth histories and integration of the refugees in Sweden (see Carlsson (2023) for the former Yugoslavian refugees) and also fertility among refugees in Norway (Andersen, Adserà & Tønnessen, 2021; Adserà, Andersen & Tønnessen, 2022). In the USA a research was carried out on the fertility of Indochinese refugees (Rumbaut & Weeks, 1986). Abbasi-Shavazi et al (2015) provided a detailed analysis of fertility differences among the local population and Afghani refugees in Iran based on census sample micro-data.

The extensive migration of the last decade led to further studies in this field. First, we should highlight the research on Syrian refugees considered both in Western Asia and Middle East countries like Jordan, Lebanon, Turkey (Kabakian-Khasholian et al, 2017; Coşkun et al., 2020; Sieverding et al., 2020; Çağatay, Keskin & Ergöçmen, 2020; Skirbekk, 2022; Akyon et al 2023; Van Raemdonck, 2023), and in Europe (Buber-Ennser et al., 2018). Second, there is analysis of reproductive behavior and health observation of Venezuelan displaced people in Colombia (Rivillas-García et al., 2021; Amuedo-Dorantes et al., 2023). Third, we should mention the Hossain & Hossain (2023) work on fertility intentions of the Rohingya – the Forcibly Displaced Myanmar nation in Bangladesh.

Not only Russia's invasion in Ukraine led to the emergence of a huge number of Ukrainian refugees (estimated by UNHCR as almost 6.3 mln. in November 2023), who fled to Europe, Russia, and the Americas, but also forced many Russians, who did not support the aggression, to leave their home country. According to different sources (Darieva, Golova, & Skibo, 2023; Re:Russia, 2023), the number of Russian migrants of 2022-2023 can be assessed from 500 thousand to 1 mln. Based on Re:Russia (2023) the numbers fluctuate between 800 – 900 thousand, while about 15% have returned home. Nevertheless, so far there are no thorough or reliable academic publications regarding the estimation of the Russian migration flows. For example, the statistics on residence permits for the Russian citizens in the EU (Eurostat 2023) for 2022 do not demonstrate significant changes in the age distribution of the persons who received it. There is also a rise in absolute figures in comparison with 2020 and 2021 but the latter is observed for everyone, as 2020 and 2021 were pandemic years.

The main characteristics, the source regions, the countries of destination for the Ukrainian refugees of the new wave became a recent object of research (see e.g., Leasure et al. 2023), and some preliminary statistics on their reproductive behavior have already been obtained. The survey observing the integration of the Ukrainian refugees was held in Germany by the consortium of the research centers (see e.g. Brücker et al (2022, 2023)) and the intentions of the refugees to return home were traced by IFO Institute in Munich; the refugees' traces were found in the Labour Force Sample Survey (LFSS), in Czechia. Several papers are devoted to the integration of Ukrainian refugees into Polish society (see e.g. Długosz (2023), Duszczyk et. al (2023), Kaczmarczyk (2023)).

At the same time, none of such attention is paid to the recent migration wave from Russia. There have been several attempts to estimate the flows and stocks of Russian migrants and the records on their source regions, as well as their social and economic status using big data (Anastasiadou, Volgin & Leasure, 2023), online surveys and qualitative methods (Kamalov et al., 2023; Kuleshova et al, 2023). However, the precise number and the location of Russian

migrants remain unclear since they don't get any formal support from the host countries, so the official statistics do not exist either.

Russian migrants of 2022-2023 could hardly be described as refugees in their purest sense. According to the UNHCR definition "refugees are people who have fled war, violence, conflict or persecution and have crossed an international border to find safety in another country. They often have to flee with little more than the clothes on their back, leaving behind homes, possessions, jobs and loved ones."

The 1951 Refugee Convention, a key legal document, defines a refugee as: "someone who is unable or unwilling to return to their country of origin owing to a well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group, or political opinion."

Russian migrants of 2022-2023 fit only partially the definition mentioned above. Moreover, a significant number (including those married and with children) left the country after their employers had withdrawn their business from the Russian Federation. Thus, it should be taken into account that some of those who left might not have intended to relocate. At the same time, just like in case with refugees in their classical sense, the necessity to flee their country occurred under the shock conditions and many are either unable to return due to the risk of being prosecuted or unwilling to be called up for military action. Therefore, we assume that their behavior can generally be comparable to that of refugees.

To fill the gap in data on Russian migrants, this article is devoted to the analysis of fertility intentions among Russian migrants who left Russia after the Russian invasion in Ukraine on 24.02.2022.

The key objective was to define the main determinants of fertility intentions (as it is too early to assess their realization) of the Russian migrants within 1 – 1.5 years after the burst of Russia's military activity in Ukraine and subsequent migration. We expect the postponement of childbearing for the people who migrated from Russia after the beginning of the armed conflict compared to the respondents with similar socio-economic and demographic status who stayed in Russia, and those Russian migrants who moved abroad slightly earlier.

Talking about the Russians already living abroad before the invasion and pandemics we should claim that their numbers are not that easy to estimate. There have been several attempts to do this, and the figures for 2019 were close to 2 mln., based on the data of the consular office and the UN data (Ryazantsev, Pismennaya & Ochirova, 2021) for the countries outside post-Soviet space. The figures for post-Soviet space are much higher mainly due to the fact that people were born or migrated back in the Soviet period (so formally they are the Russian-born citizens of these states). The majority of migrants from Russia living abroad before the invasion had left the country within 2019-2021. So they didn't have enough time for the adaptation either. On the other hand, we assume that their choice to migrate was deliberate and they had time to prepare for the movement, while the post-conflict migrants had to make decisions in rather tight time and resource constraints.

To get the results, we held two online surveys. One was offered to Russian migrants, another – to those who stayed in Russia. We used the snowball method together with the posted link to the survey on social media to find respondents in online chats.

We took into consideration not only women's fertility intentions, as it is generally done in the majority of the studies, but also those of men. The choice is due to the fact that the migration after the beginning of the conflict in Ukraine involved more men than women (the distortion is not as high as in the case of Syrian refugees, but, nevertheless, visible). The hypotheses were tested with the binary logistic regressions.

Theoretical framework

Fertility intentions are traditionally associated with numerous socio-economic factors including employment status (Alderotti et al., 2021), housing conditions (Vignoli et al., 2013), financial support (Hanappi et al., 2017), and others. One can find a systematic literature review of fertility intentions and its determinants at micro-, meso-, and macro-levels (Balbo et al., 2013). At the micro- or individual level fertility is influenced by age, education (Berrington and Pattaro, 2014), financial status, health, happiness, and childbirth intentions. Marital status, partnership satisfaction, and gender role attitude play a significant part in fertility intentions realization at the meso level, so do cultural and political settings at the macro level. One of the latter reviews additionally provides exeo-level with job characteristics, urban residents' status, and housing conditions factors (Hashemzadeh et al., 2021). The uncertainty of these primarily economic factors on the exeo-level, which are not subject to direct individual control (for instance, losing a job, reductions in income, or unstable work) may negatively affect fertility. At the same time, the influence of fixed-term job contracts and precarious jobs on fertility intentions is controversial and channeled by subjective well-being (Vignoli et al., 2020). Moreover, according to Vignoli et al. (2022), negative narratives of the future are more crucial factors in fertility intentions than the actual economic condition. It is not clear whether these subjective well-being narratives can channel both uncertainty and shock conditions such as "shock mobility" (Xiang, 2021). Thus, migration caused by armed conflicts and other factors threatening security along with other basic needs does not simply strengthen the overall uncertainty of the modern VUCA World for individuals, but represents a shock condition, as well as situations caused by the urge to migrate. Fertility in such highly distressing circumstances requires special consideration, and migrant fertility as a special type of fertility under shock conditions has its theoretical frameworks.

The following (mainly overlapping) theories behind migrant fertility can be indicated based on the existing literature (one of the classifications, by Mussino & Cantalini, 2022). First of all, the socialization theory shows that the main fertility preferences of migrants are formed back in childhood, and in this case, the first generation demonstrates patterns close to the ones in their country of origin (Andersson, 2004; Milewski, 2010; Mussino & Strozza, 2012b; Impicciatore et al., 2020).

Secondly, the selectivity hypothesis argues that migrants' values and preferences might be the factors that lead to the migration. The absolute majority of migrants tend to have certain values and preferences, according to which they migrate, and do not stay in the country of origin. These values are more in line with the values of the country they are moving to. (Van Tubergen et al., 2004; Bagavos et al., 2008; FitzGerald, 2012). In this case, a fast convergence to the fertility levels of the country of destination among the migrants could be expected due to the preselection process.

Thirdly, the adaptation hypothesis explains the long-term differences, as well as the gradual convergence of migrants with the birth rate of the local population (Goldstein & Goldstein, 1981; Andersson, 2004; Milewski, 2007; Tønnessen & Mussino, 2020). However, Hwang & Saenz (1997) conclude that, to distinguish between the selection and adaptation theories, stayers from the countries of origin should be taken into consideration as well.

Fourthly, the interrelation or the life course hypothesis observes migration and childbearing as synchronized parallel careers and in this case highlights that migration is often driven by motives related to family formation (Mulder & Wagner, 1993; Andersson, 2004; Milewski, 2007, Mussino & Strozza, 2012a). These effects work in various directions for the different countries: when migrants come from higher-fertility countries, both the adaptation and interrelation hypotheses decrease fertility after a certain period of stay in the country of destination; if migrants move from lower-fertility countries the process will develop in one of these two directions (Mussino & Cantalini, 2022; Tønnessen & Mussino, 2020).

Finally, the disruption theory views the migration process as stressful and that has a direct negative impact on childbearing in the short term perspective before and after migration

(Hervitz, 1985; Ford, 1990; Milewski, 2010). However, regarding groups of people who made the decision under the shock conditions, we expect a longer period of childbearing postponement after migration and a shorter postponement before it.

In our research, we refer to the disruption theory as the main explanatory one, and therefore our **hypothesis #1** is: *fertility intentions among the migrants from Russia who left the country soon after the beginning of the invasion of Ukraine are lower than those of the stayers and the migrants who had left Russia earlier.*

Traditionally, researchers deal with the actual fertility. In our case, we cannot deal with actual fertility, as the time between the survey and the migration of the majority of the respondents is about one year. Therefore, we appeal to the analysis of short-term fertility intentions that is also used in the literature (see, for example, Mussino et al, 2023). Fertility intentions are essential in the framework of the Theory of Planned Behaviour (Ajzen and Fishbein 2005). Other works have revealed the complexity of the concept of fertility preferences (Ajzen and Klobas 2013).

The individual socio-economic situation can be important for fertility intentions as well. For example, the results of the research could be influenced by economic crisis as a macroeconomic shock, when there is a strong negative effect of the poor economic conjuncture on fertility intentions (Blossfeld and Hofmeister 2007; Busetta et al. 2019; Mussino et al, 2023). At the microeconomic level, Alderotti, Mussino & Comolli (2023) also suggest that, during the initial phase of the recent economic and financial crisis, the probability of having a child decreases for migrants with unstable careers or low-skilled occupations more than for natives, at least for Italy and Sweden.

Literature shows the existence of a "refugee entry effect", or a gap in employment, during the first years after arrival, when refugees are compared to other groups of migrants (Bakker et al., 2017; Bevelander & Pendakur, 2014; Brell et al., 2020; Chin & Cortes, 2015; Adserà, Andersen & Tønnessen, 2022). Okun & Kagya (2012) explain the low fertility rates of immigrants from post-Soviet countries in Israel due to the economic uncertainty and hardship experienced during an unexpectedly long and difficult transition period. The long-term effects of these hard times are discussed in the literature and in the long run lead to different effects, e.g. higher investments in human capital for several generations ahead (Becker et. al, 2020).

In this case, as Russian migrants are more or less homogeneous in their educational status, and too little time has passed since they arrived to make any long-term conclusions, we also formulate our second hypothesis about the positive impact of stability on fertility intentions. Therefore, **hypothesis #2** is: *both high subjective income and stable legal status (legalization, documents and intention to stay in the host country) have a positive impact on the fertility intentions of Russian migrants.*

We should also keep in mind, that we deal with migrants who came from the country with a generally low fertility (Russia had a fertility 1.42 in 2022, and for 2021 it was 1.5) to the countries with different levels of fertility, sometimes a relatively higher one, but not the typical welfare state countries with the generous family policy, or almost without it. The literature on fertility demonstrates mainly the effect of migrants' convergence with the level and patterns of the host countries. Nevertheless, taking into consideration the papers on Russian migrants and their descendants, the convergence process is observed; still, the number of births is lower and the reproductive model works not exactly as in the host countries. This effect is observed for the migrants, sourced from Russia, for Sweden (Mussino, Wilson & Andersson, 2021), Norway (Tønnessen & Mussino, 2020), and Israel (Nahmias 2004; Okun & Kagya 2012). Also, the analysis of the recent Serbian Census 2022 demonstrates lower completed fertility among Russians in comparison with the Serbs (Serbia Census, 2023).

Within the post-Soviet Baltic States, where it is possible to observe fertility of several generations of former Russian migrants, the situation is also close to European, as there is partial integration in countries like Estonia. Puur et al. (2017, 2018) in the analysis of both

fertility intentions and actual fertility of Russian migrants and their descendants in Estonia, comparing non-migrants in Estonia and Russia, show that Russian migrants and their descendants have fertility intentions and patterns more similar to those of their counterparts in Russia than to those of the Estonians. Nevertheless, aspects strictly related to integration, such as language proficiency and having a local partner are linked to higher chances of adopting typical host country fertility intention patterns and their realization among migrants and their descendants. These findings indicate that cultural embeddedness matters when shaping fertility intentions.

For the post-Soviet countries with higher fertility and reliable statistics (Kazakhstan and Kyrgyzstan), the fertility of Russians is considered to be much lower than that of the local population, even after the control of the socio-economic status, but in comparison with the fertility in Russia, the results could be different (Agadjanian, Dommaraju & Nedoluzhko, 2013; Spoorenberg, 2015; Nedoluzhko, 2021). The available current results based on e.g. Finland statistics for 2022 (Statistics Finland, 2023) also approve the lower level of fertility among Russians in comparison with the local population or the majority of other migrant populations.

However, the convergence effect is observed after certain adaptation, and the difference in social policy and expected social benefits of the countries is likely to be more important for the desired fertility.

We check the smoothing effect of socio-economic wellness on the shock conditions and fertility intentions. In this case, our **hypothesis #3** is: *the welfare regime and the level of the country's socio-economic development can increase fertility intentions of Russian migrants*. Here we can conclude that in Balkan and post-Soviet countries of destination, popular among Russian migrants and where the family and social policies are not so strong, fertility intentions of Russian migrants will be significantly lower than in the EU countries. For the same reason the lower intentions could be specific for the post-Soviet countries, while the higher ones can be observed among developed and developing (there aren't many) countries outside the EU. The literature shows that the access to childcare facilities both among recently arrived migrants (Eremenko & Unterreiner, 2023) and those of the second generation (Maes et al, 2023) could be lower in comparison with the native population, but within the first years after arrival migrant groups might basically follow the local patterns.

Data and methods

Data collection

The empirical analysis is based on the data drawn from two similar online surveys carried out by the authors in May – October 2023. The first survey sampled those Russian citizens who left Russia either before the invasion in Ukraine, or after it had started ("the migrants"). The second survey sampled those who stay in Russia ("the stayers") – the control group of respondents.

Both surveys used the snowball method to find respondents. Additionally, the survey for migrants was shared in Telegram channels for Russian migrants (Kovcheg, Scholars Without Borders, etc.) and Facebook and Telegram channels for Russians abroad (including channels for parents). The survey for stayers also was distributed in city-district and parental groups in Vkontakte (Russia's biggest online social network).

The survey did not include any questions related to respondent's attitude toward politics or Russian military activity in Ukraine. This was done on purpose to survey those who don't show interest in politics and/or any type of activism. Most respondents from the migrant sample were those Russians, who "voted by feet" in response to the shock conditions, avoiding any form of activism. The control group – *the stayers* – are those who didn't react at the beginning of the armed conflict in Ukraine, and stayed in the home country, so, according to the disruption theory, we don't assume them to be under shock conditions.

To obtain data for explanatory and control variables, both groups of respondents were asked to answer questions related to their socio-economic and demographic characteristics.

The dependent variable (fertility intentions) is based on the answer to the question about the reproductive plans of the respondent. The first one is "an intention to have more children". This is a binary variable that is assigned as 1 – if the respondent answers they want to give birth to the first or/another child, as 0 – if the respondent does not want to have children. In some models we will additionally use the dependent variable demonstrating a stronger shock of the migrants' "intention not to have children that was made by the respondent due to migration" (that is also a binary variable).

Additionally, migrants were asked questions concerning their life in the host country and changes in their socio-economic and demographic characteristics after migration: date of migration, current host country, legal status, employment, changes in subjective income, desire and opportunity to stay in the host country, etc.

Data description

Both surveys provided us with a total sample of 491 respondents: 188 (38.3%) **stayers**, and 303 (61.7%) **migrants**. Among the migrants we can derive two sub-samples 266 (54.2%) respondents who left Russia after the beginning of the armed conflict **(the new-wave migrants)**, and 37 (7.5% of the total sample or 12.2% of migrants) respondents who migrated before the beginning of the armed conflict **(the old-wave migrants**). For the purpose of the analysis, we tend to study the **new-wave migrants** and the **old-wave migrants** together.

According to the obtained data, Russian migrants currently live in different host countries. Our sample doesn't show the existing distribution of Russian migrants across host countries, nor does it coincide with the results of other studies of Russian migrants (see Table 1), Nevertheless, we assume that our results are representative since there is still vigorous movement of Russian new-wave migrants from one host country to another.

Table. 1. Host countries for Russian migrants by different sources*

Current (May 2023)		Outrush (end of 2022)		The Economist (August 2023)	
Kazakhstan	25.8	Turkey	26	Serbia and Montenegro	26.8
Finland	13.6	Georgia	25.5	Kazakhstan	18.3
Georgia	11.9	Armenia	12.2	Armenia	13.4
Serbia and Montenegro	8.6	Serbia and Montenegro	4.3	Turkey	11.0
Germany	6.3	Israel	3.2	Israel	9.1
Israel	3.6	Uzbekistan	2.1	EU	6.1

Armenia	3.0	Others	26.7	Georgia	7.9
Turkey	2.6			USA	3.7
Others	24.5			Others	3.7

*the Economist and Outrush collected data only on the new-wave migrants
Sources: (1) authors' survey;
(2) ***https://outrush.io/eng***
(3) ***https://www.economist.com/graphic-detail/2023/08/23/russians-have-emigrated-in-huge-numbers-since-the-war-in-ukraine***

The inter-country distribution of the new-wave and the old-wave migrants is different, e.g. about ⅔ of the old-wave migrants are now based in Europe (the majority (62%) – in the EU countries) in contrast to the new-wave migrants – 36% live Europe (and only 26% are in the EU countries).

To compare socio-economic characteristics of the migrants and the stayers, we use descriptive statistics (see Table 2). The statistical significance in difference between migrants and non-migrants is assessed by the Mann-Whitney U-test for the continuous variables and by Chi-square in the case of the binary variables.

A notable characteristic of Russian migrants is, of course, their high level of education. However, these results are predictable, as the researchers of the Russian migration after the invasion highlight the exceptionally high level of the human capital of the flow (Geiger & Syrakvash, 2023; Prashizky, 2023; Wachs, 2023). A relatively high proportion of highly educated people are found in the surveys on Ukrainian refugees as well (Kohlenberger et al, 2023).

Table 2. Descriptive statistics of socio-economic characteristics of the migrants and the stayers

	Mean		Median		
	Migrants	Stayers	Migrants	Stayers	p
Children (for all)	0.85	1.3	0	1	<0.001*
Children (for respondents with children)	1.71	1.71	2	2	0.866
Age	36.3	37.1	35	36.5	0.146
Income (subjective)	4.37	3.83	5	4	<0.001**
Higher education (university: bachelor, specialist or master; or degree)	92.70%	84%			0.002**
Marital status (married or partnered)	76.60%	74.20%			0.55
Lives in capital	70.90%	68.10%			0.52
Fertility intention (desire to have at least one more child)	34%	33.30%			0.877
Gender (women)	50.80%	88.30%			<0.001**
For women only:					
Children	0.92	1.33	1	1	<0.001*
Age	36.1	36.7	35	36	0.289
Fertility intention (desire to have at least one more child)	29.70%	31.10%			0.79
The mean age of the 1st child born:					

Both sexes	28.84	26.81	29	26	0.001*
Male	29.63	27.57	29	27.5	0.301
Female	28.31	26.73	28	26	0.02*

* - Mann-Whitney, ** - Chi square

We found no difference between the migrants and the stayers on the mean and the median age (see Figure 1), marital status, source city (share of the respondents from the capital cities: Moscow and Saint Petersburg with the suburbs), fertility intentions, average number of children for the respondents with children, and the age of 1st childbirth (for men). However, the share of childless stayers is lower (see Figure 3), and the subjective income and age of birth of the 1st child (for females) are higher for the migrants.

Fig. 1. Age of the migrants and the stayers

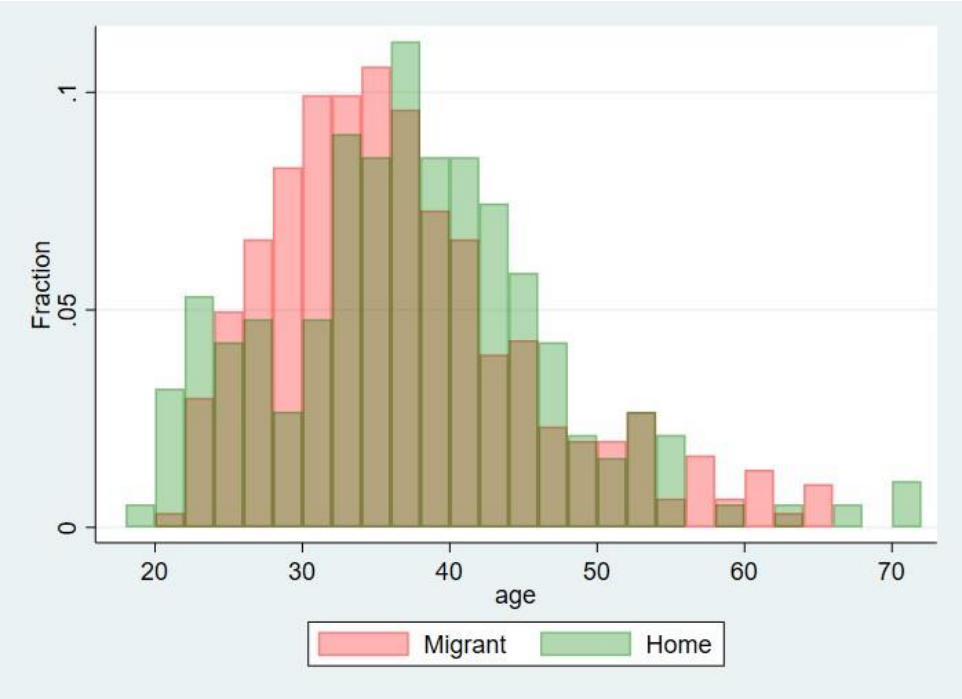
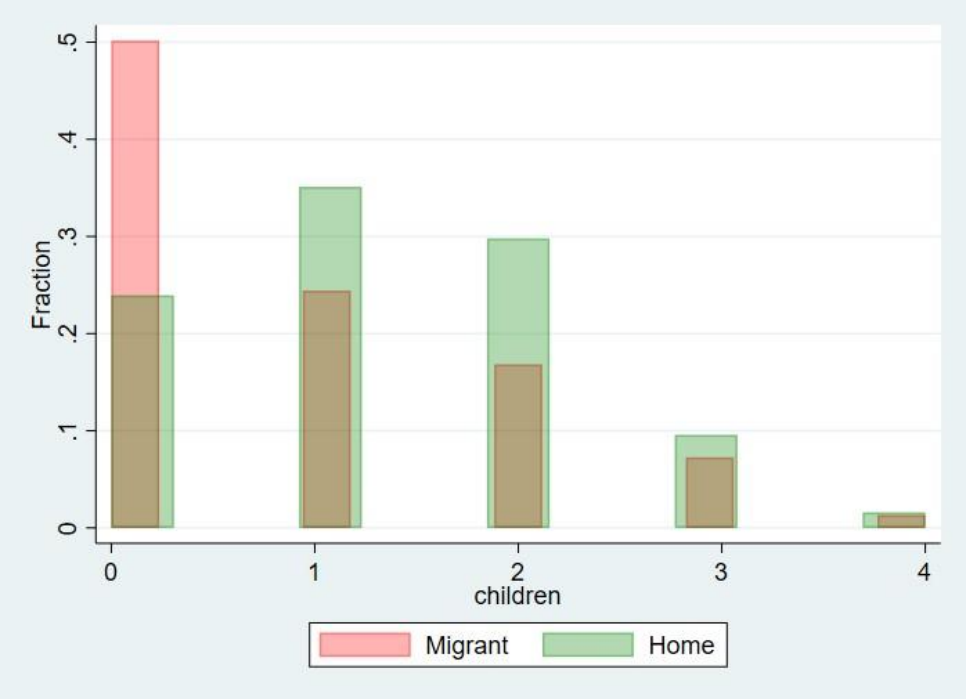


Figure 2 demonstrates that, despite similar mean and median age of the migrants and the stayers (see Table 2), the 24-32 and 55-65 age groups are more represented among the migrants. We assume that this may be related to the desire and opportunity to migrate for people with children.

Fig 2. The number of children for the migrants and the stayers



The mean number of children among the stayers is higher due to the much lower childlessness, as the mean number of children among the respondents with at least one child is almost the same. The relatively high proportion of childless migrants may indicate difficulties in migrating with children.

The desire to have children was declared by about 50% of our entire sample. At the same time, about 2% of all respondents were pregnant at the time of the survey, and did not report their further reproductive plans (therefore we excluded them from the sample).

Model description

To test hypotheses, we use logistic regressions with fertility intentions as a dependent variable mentioned above. It is a binary logistic regression, so the dependent variable equals 1 when the respondent answers positively whether he/she desires to have (more) children, and 0 otherwise.

The independent (explanatory) variables for the models are:

- for the hypothesis #1 – migration status, first of all we compare all migrants with stayers, and then divide them into old- and new-wave ones,
- for the hypothesis #2 we use willingness to stay in the host country (subjective question), the received legal status (the documents guaranteed the stay in the country are received (1) contrary to the situation when the legal status is either absent or in process (0)),
- for the hypothesis #3 we take into consideration the situation in the host country.

In all models we use a battery of basic control variables, which are commonly used while explaining fertility intentions. Those are age, gender (dummy variable, where female = 1, and male = 0), living in a partnership or official marriage (dummy variable “couple”), and number of children.

Also, we use an extended battery of control variables: higher education (if the respondent has a bachelor degree and higher) and capital (whether before migration the person lived in a federal city – Moscow or Saint Petersburg with their agglomerations).

An additional control variable, which is also used further in the analysis of the main determinants of fertility intentions, is subjective income. It is observed as a categorical variable in which respondents are asked to rate their income on a five-step scale (ranging from "I can't even buy enough food" to "I can buy anything I want, including expensive vacations and luxury goods"). We observe the subjective income at the moment of the survey, and thus can compare subjective income for the stayers and the migrants.

Results

In the first step, we test hypothesis #1, directly related to disruption theory: *fertility intentions of the new-wave Russian migrants are lower than those of the stayers and the old-wave migrants.*

The results are presented in Table 3. To test the hypothesis hereinafter we use not one but several models with different combinations of control variables.

Table 3. The results of the regression analysis (odd ratios, OR) for Hypothesis #1

Equations (models)	1	2	3	4	5
children	0.505***	0.491***	0.490***	0.490***	0.499***
	(0.0786)	(0.0781)	(0.0780)	(0.0779)	(0.0799)
couple	1.451	1.352	1.313	1.300	1.347
	(0.377)	(0.362)	(0.354)	(0.349)	(0.365)
age	0.953***	0.949***	0.949***	0.949***	0.945***
	(0.0147)	(0.0152)	(0.0153)	(0.0153)	(0.0157)
female	0.575**	0.549**	0.540**	0.540**	0.513***
	(0.141)	(0.137)	(0.135)	(0.135)	(0.130)
capital		0.785	0.797	0.807	0.789
		(0.186)	(0.190)	(0.191)	(0.187)
education_higher		1.743	1.739	1.746	1.777
		(0.647)	(0.646)	(0.647)	(0.663)
Subjective income (highest)			1		
lowest			0.553		
			(0.778)		
lower			0.378**		
			(0.179)		
middle			0.375***		
			(0.129)		
higher			0.806		
			(0.223)		
migrant	*0.614**	*0.570***	*0.606**	*0.629**	
	(0.154)	*(0.147)*	*(0.161)*	*(0.163)*	
Subjective income		1.476***			
		(0.190)			
Subjective income (middle, lower and lowest)				0.436***	0.456***
				(0.113)	(0.119)
Status (stayer)					*1*
New wave					*0.567***
					(0.153)
Old wave					*1.068*

					(0.462)
Constant	7.288***	1.559	10.22***	8.486***	10.04***
	(4.294)	(1.198)	(7.359)	(5.712)	(6.910)
Observations	467	467	467	467	467

Hereinafter see form in parentheses *** p<0.01, ** p<0.05, * p<0.1
The model (equation) numbers are listed in the first raw part of each table

The table shows that using the basic control variables, migration status is significant at the 10% level, and demonstrates the lower fertility intentions (OR = about 0.6) of the migrants in comparison with the stayers. The extended control variables are strengthening this effect (OR = 0.57 with 5% significance).

Additionally, we can see a positive effect of subjective income: the main difference is observed between groups with the highest and the highest, as well as middle and low income (the number of respondents belonging to the lowest group can be neglected). If we recode the subjective income variable into the dichotomic variable (0 – higher and highest income, and 1 – middle, lower and lowest) we get the results close to the 1st equation.

The last equation (5) is even more interesting, as it gives us evidence that post-conflict migration is the main driver of lower fertility intentions. There is no difference between the migrants who left the country before the armed conflict and those who stayed in Russia (taking the stayers as a reference group the OR for the coefficient for the new wave migrants is 0.57 with 5% significance, while for the previous wave it is close by magnitude and non-significant effect).

So, Hypothesis #1, formulated within the disruption theory, is approved, and the decline in fertility intentions is observed for those respondents who made their decision to migrate spontaneously.

Hypothesis #1 is tested additionally for the migrants only and used as a dependent variable answer to the question if the respondent made a decision not to have children after the migration. This variable is used to explain the factors influencing the strong shock among the migrants. The research strategy will be close to the previous one, apart from the 5th equation observation (the results are in Table 4). Since we work only with migrants, we use a dummy variable that distinguishes between new-wave and old-wave migrants – "post-conflict migration" (see Table 4). In the last equation we use standard errors clustered by the country of destination, as the variation across countries is quite high.

Table 4. The results of the regression analysis (odd ratios) for Hypothesis #1 extended

Equations (models)	1	2	3	4	5
children	1.018	1.059	0.990	1.033	1.033
	(0.266)	(0.285)	(0.277)	(0.276)	(0.276)
couple	2.004	2.249	2.364	2.210	2.210
	(1.102)	(1.302)	(1.402)	(1.259)	(1.259)
age	0.939*	0.927**	0.925**	0.932**	0.932**
	(0.0323)	(0.0332)	(0.0347)	(0.0331)	(0.0331)
female	0.660	0.628	0.641	0.662	0.662
	(0.270)	(0.265)	(0.275)	(0.276)	(0.276)
capital		1.895	1.953	1.739	1.739
		(0.907)	(0.947)	(0.822)	(0.822)
education_higher		1.411	1.686	1.274	1.274
		(1.189)	(1.530)	(1.053)	(1.053)
Subjective income (highest)			1		
lowest			96.72***		
			(161.2)		

lower			3.808		
			(3.362)		
middle			5.049**		
			(3.494)		
higher			3.258*		
			(2.201)		
Post-conflict migration	*2.840*	*2.349*	*2.439*	*2.710*	*2.710*
	(3.004)	*(2.514)*	*(2.630)*	*(2.886)*	*(2.886)*
Subjective income		*0.581***			
		(0.124)			
Subjective income (lower and lowest)				*2.226***	*2.226***
				(0.903)	(0.903)
Constant	0.269	1.503	0.0564	0.127	0.127
	(0.437)	(2.865)	(0.102)	(0.219)	(0.219)
Observations	286	286	286	286	286

As a result, we see that the new-wave migrants have higher chances to cancel (or postpone) their childbearing, but this result is not significant (perhaps the problem is the limited number of observations). However, we also find, that subjective income at the middle and lower levels could be a strong predictor of cancellation (recorded into the binary variable, where 1 is a subjective income at the level middle, lower, and lowest, and 0 – at the level higher and highest) demonstrating the significant OR=2.2. Subjective income will also be taken into account in further data analysis, as this characteristic may be an indicator of subjective well-being (Stranges,Vignoli, & Venturini, 2021), and respondents with higher subjective well-being may be more optimistic about their intentions to have a child. Clustered standard errors (last model) do not change its significance.

Hypothesis #1 is only partially confirmed if we make the assumption of a strong decision to forego childbearing due to conflict. We do not find that the observed difference between new and old wave migrants is somewhat significant. In addition, this decision is strongly influenced by lower income.

Now we move on to the mechanisms explaining possible differences in desired fertility among the migrants. Hypothesis #2 examines the disruption theory in more detail. We check the assumption that the possible cause of the lower fertility intentions is unpredictable. We use willingness to stay in the current country and legal status already obtained as a proxy for future predictability (the results are in Table 5). We look at the extended battery of the control variables for all models, but in the 1st equation we use subjective income as a continuous variable without comparing the categories, and after the 2nd one, as a dummy variable, the 6th model observes the clustered by countries standard errors.

Table 5. The results of the regression analysis (odd ratios) for Hypothesis #2

Equations (models)	1	2	3	4	5	6
children	0.572***	0.571***	0.571***	0.589***	0.590***	0.590***
	(0.113)	(0.112)	(0.0802)	(0.116)	(0.115)	(0.0881)
couple	1.159	1.091	1.091	1.028	0.966	0.966
	(0.404)	(0.382)	(0.279)	(0.362)	(0.342)	(0.248)
age	0.953**	0.953**	0.953***	0.960**	0.959**	0.959***
	(0.0196)	(0.0195)	(0.0146)	(0.0192)	(0.0192)	(0.0154)
female	0.579*	0.565**	0.565*	0.642	0.625*	0.625
	(0.166)	(0.163)	(0.186)	(0.181)	(0.177)	(0.208)
capital	0.685	0.712	0.712	0.737	0.764	0.764

	(0.210)	(0.217)	(0.222)	(0.224)	(0.231)	(0.222)
education_higher	1.953	2.021	2.021	1.815	1.887	1.887
	(1.100)	(1.133)	(1.182)	(1.034)	(1.077)	(1.140)
Subjective income	1.593***			1.620***		
	(0.252)			(0.254)		
Willingness to stay	*1.840**	*1.824**	*1.824***			
	(0.604)	*(0.596)*	*(0.492)*			
Subjective income (lower and lowest)		*0.380****	*0.380****		*0.366****	*0.366****
		(0.121)	*(0.105)*		*(0.115)*	*(0.0977)*
Legal status received				*1.580*	*1.613*	*1.613*
				(0.561)	*(0.571)*	*(0.492)*
Constant	0.483	4.032	4.032**	0.307	2.734	2.734
	(0.486)	(3.433)	(2.625)	(0.317)	(2.438)	(2.008)
Observations	277	277	277	277	277	277

From Table 4 we see that willingness (or opportunity) to stay in the host country plays a positive and significant role in the intention to have one more child, and after clustering the standard errors by the countries the significance becomes stronger, as p comes from 10% to 5% (OR is around 1.8). The legal status also has a positive, but insignificant effect (OR about 1.6). Therefore, we partly confirm the Hypotheses #2, the willingness to stay in the country has a positive and significant effect on the desired fertility, while the legal status has a positive, but not significant effect.

Next, we test **Hypothesis #3**: *welfare regime and the level of the country's socio-economic development have a positive impact on the fertility intentions of Russian migrants* (see Table 6). We now include destination country variables directly in the models.. First of all, we take the EU as the reference category and for the rest we use clustering into other developed, other developing, non-EU European countries, and non-EU post-Soviet countries.

Table 6. The results of the regression analysis (odd ratios) for Hypothesis #3

Equation (models)	1	2	3	4	5	6	7	8	9
children	0.573***	0.565***	0.565***	0.560***	0.556***	0.556***	0.569***	0.563***	0.563***
	(0.114)	(0.112)	(0.0845)	(0.111)	(0.110)	(0.0830)	(0.112)	(0.111)	(0.0807)
couple	1.163	1.093	1.093	1.128	1.058	1.058	1.164	1.094	1.094
	(0.414)	(0.391)	(0.287)	(0.398)	(0.375)	(0.278)	(0.415)	(0.391)	(0.295)
age	0.951**	0.950**	0.950***	0.955**	0.955**	0.955***	0.951**	0.950**	0.950***
	(0.0196)	(0.0195)	(0.0158)	(0.0194)	(0.0193)	(0.0154)	(0.0196)	(0.0195)	(0.0161)
female	0.596*	0.578*	0.578	0.588*	0.569**	0.569*	0.606*	0.586*	0.586*
	(0.175)	(0.170)	(0.194)	(0.169)	(0.164)	(0.187)	(0.174)	(0.169)	(0.188)
capital	0.585	0.595	0.595	0.566*	0.576*	0.576*	0.561*	0.573*	0.573
	(0.193)	(0.196)	(0.208)	(0.184)	(0.187)	(0.190)	(0.180)	(0.183)	(0.200)
education_higher	1.761	1.821	1.821	1.939	2.026	2.026	1.787	1.844	1.844
	(1.020)	(1.054)	(1.139)	(1.109)	(1.157)	(1.200)	(1.026)	(1.056)	(1.175)
Subjective income	1.588***			1.612***			1.603***		
	(0.254)			(0.255)			(0.255)		
EU	*1*	*1*	*1*						
Post-Soviet non_EU	*0.401***	*0.383****	*0.383****						

	(0.143)	*(0.136)*	*(0.132)*						
Other developed	*0.734*	*0.756*	*0.756*						
	(0.378)	*(0.389)*	*(0.355)*						
Other developing	*0.814*	*0.754*	*0.754*						
	(0.583)	*(0.542)*	*(0.558)*						
Europe non-EU	*0.314***	*0.304***	*0.304**						
	(0.183)	*(0.178)*	*(0.210)*						
Subjective income (lower and lowest)		0.366***	0.366***		0.360***	0.360***		0.359***	0.359***
		(0.119)	(0.101)		(0.115)	(0.0968)		(0.116)	(0.0985)
Post-Soviet non_EU				*0.515***	*0.493***	*0.493***			
				(0.161)	*(0.154)*	*(0.118)*			
Post-Soviet and European non_EU							*0.417***	*0.399***	*0.399***
							(0.127)	*(0.123)*	*(0.110)*
Constant	1.348	11.94***	11.94***	0.812	7.530***	7.530***	1.211	11.16***	11.16***
	(1.508)	(11.42)	(11.29)	(0.870)	(6.879)	(5.867)	(1.326)	(10.54)	(9.911)
Observations	277	277	277	277	277	277	277	277	277

The results in Table 6 show that there is no significant difference in fertility intentions for the respondent between the EU and other developed and developing countries (as the majority of the developing countries are not the least-developed), but even being not significant, the OR are lower for the above mentioned countries in comparison with the EU. However, expressed fertility intentions are lower for those who moved to post-Soviet non-EU countries as well as to European non-EU countries (mainly the Balkans). Thus, we see that Hypothesis #3 is confirmed.

Now, after testing and validating Hypotheses #2 and #3, we consider possible differences in the stability effect across countries with different levels of wealth. In other words, we consider the effect of respondent characteristics on desired fertility in different wealthy countries. To test this, we need to consider the interaction effect of subjective income and the desire to stay in the host countries (chips related to post-Soviet and non-EU Europe) on fertility intentions. We hypothesize that the effect of security assets (such as subjective income and legal status) may be stronger for countries without social security. In all cases, standard errors are clustered by country. The results are summarized in Table 7.

Table 7. The results of the regression analysis (odd ratios). Interaction effects

	1	2	3	4
children	0.579***	0.575***	0.559***	0.555***
	(0.0792)	(0.0790)	(0.0858)	(0.0807)
couple	1.124	1.150	1.249	1.151
	(0.308)	(0.315)	(0.327)	(0.304)
age	0.952***	0.950***	0.950***	0.948***
	(0.0158)	(0.0161)	(0.0166)	(0.0165)
female	0.565	0.545*	0.584*	0.563*
	(0.197)	(0.189)	(0.179)	(0.179)
capital	0.605	0.614	0.639	0.574

	(0.232)	(0.233)	(0.244)	(0.208)
education_higher	1.853	1.919	1.697	1.797
	(1.121)	(1.154)	(1.097)	(1.140)
Willingness to stay		1.329	1.119	0.934
		(0.333)	(0.286)	(0.261)
Subjective income (lower and lowest)	0.732	0.782		0.362***
	(0.290)	(0.307)		(0.105)
Post-Soviet and European non_EU	*0.585**	*0.666*	*0.368****	*0.348****
	(0.174)	*(0.189)*	*(0.0952)*	*(0.0930)*
Subjective income (lower and lowest)##	*0.256**	*0.241***		
Post-Soviet and Europe non_EU	*(0.183)*	*(0.171)*		
Willingness to stay ##			*2.609**	*2.826***
Post-Soviet and Europe non_EU			*(1.504)*	*(1.491)*
Constant	8.078**	7.200**	7.401***	12.74***
	(6.864)	(5.946)	(5.726)	(11.21)
Observations	277	277	277	277

As a result, we see that for respondents who intend to stay in post-Soviet non-EU countries, the effect of lower income reduces the willingness to have a child, and at the same time the willingness to stay increases the chances of the positive intention, especially after controlling for the income. To summarize, it is not only living in countries with lower wealth that reduces desired fertility, but also lower income for respondents living there. This sounds logical, as subjective income is the only possible source of support for children in the absence of social benefits. On the other hand, respondents who wish to stay in these countries show chances of higher desired fertility. It could be the result of self-selection, as the people able to stay in the countries without strong welfare are prepared for the possible difficulties, or have stable positions, so they are more confident and can plan the childbearing.

We validated our disruption effect approach, as the migrants who escaped Russia after the beginning of the conflict demonstrated lower fertility intentions in comparison with both those who stayed and those who migrated earlier. The income as an "insurance" factor and the willingness to stay (as a positive signal of the integration) also increase the desired fertility. The respondents in the welfare state more likely desire to have children, while in countries with lower levels of social policy, higher income or willingness to accept such conditions has a positive effect on desired fertility.

Discussion and conclusion

In this article we aimed to determine the impact of shock conditions on fertility intentions of new-wave Russian migrants and compare them with those who left the country before February 24, 2022 or remain in Russia at present. That is the first step of a more ambitious idea – to look at the adaptation of women with children in different host societies.

We show that the disruption hypothesis works within the period of about one year after migration. Nevertheless, we expect that after subsequent adaptation and self-selection of migrants in the countries into which they integrate, the results may be different. At present, fertility intentions are higher among those migrants who are more secure – those who live in welfare states, have higher incomes, have some degree of legal status and assume that their current place of residence is where they would like to stay.

When discussing our results, several issues should be taken into consideration. First, only preliminary data was obtained due to the small sample and short period of residence in host countries for the migrated groups, which means that at the moment samples' structure most

likely doesn't fully reflect the structure of the general sample. Moreover, the upcoming panel results are supposed to show casualties which aroused questions at the current stage of the research.

Second, it should also be mentioned that the obtained results might change (and unexpectedly quickly). Fertility intentions expressed during the survey show the current decision of the respondent and reflect their pessimism or optimism at the time of the survey. In other words, we are dealing with an emotional component that is labile and can change radically at any moment. As mentioned above (see Theoretic framework) fertility intentions are affected by several factors and conditions at different levels. Taking into consideration the traumatic effects of migration under the shock conditions, the role of these factors may become even more significant or vice versa.

Third, one shouldn't forget that migrants' expectations and stereotypes regarding the host community can either not be justified (in rare cases – exceed expectations) which, in turn, can provide results radically opposite to those obtained. Thus, when moving to a new country, at micro- and meso levels migrants can experience unexpected inconveniences in housing conditions, dissatisfying local healthcare system, reduction or loss of income, divorce, the inability to realize a personal and professional life, which, in turn, can affect emotional and physical health.

At the macro level changes can happen both on the global political and state levels, for example, in the case when a migrant expects to obtain a legal status, and the migration legislation of the host country is suddenly reshaped. A curious case is obtaining citizenship of another country by birth/family reunification, e.g., South America). According to preliminary data from qualitative interviews, the chance to get citizenship is a fertility incentive. The cultural characteristics of the host community and the ability/willingness to adapt to them should also be considered an important factor. The latter is often quite a painful and stressful process and depends on a whole range of factors, including cultural sensitivity and adaptability of migrants themselves.

Last but not the least. Often the choice of a new country is made not only under the influence of the media, social networks, etc., but also based on the possibility to migrate immediately without visa restrictions or mandatory residence permit. In this case, migrants, especially forced ones, do not quite clearly understand the realities of the chosen country. The collision with facts also affects the vector of intentions regarding fertility as. We also used indicators of social policy and social capital, but these variables did not work properly, so the mechanisms of destruction and adaptation have not yet been properly understood. The same is true for social security regimes, where migrants may not spend enough time, so the results may change with the coming waves.

All this points to the fact that, under various changes, postponed fertility intentions could turn into canceled fertility intentions and vice versa. Further research is therefore needed, including data from qualitative interviews, control surveys of focus groups at certain intervals, and the inclusion of additional variables for phenomenon analysis.

Acknowledgements: We would like to express our deepest gratitude to Alexandra Vacroux, Alexander Abashkin and Daniel Epstein (The Davis Center for Russian and Eurasian Studies at Harvard University) for the organizational support of our research. We are also grateful to Elasabeth Kraus, Nadja Milewski (both from Federal Institute for Population Research, Germany (BiB)) and Eleonora Mussino (Stockholm University Demography Unit (SUDA)) and the participants of the 3rd International Conference "Fertility and and Family Dynamics in Migrant and Minority Groups: Current Research and New Approaches in Times of Crisis" for their comments and suggestions. We thank the Leibniz Institute for East and Southeast European Studies (IOS) for publishing our preprint. The paper is published with the support of the Russia Program at GW. All mistakes and errors remain ours.

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