Role of Migration in Demographic Behaviour of Modern Russian Women

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Abstract

The study is devoted to the investigation of the interrelations between migration and demographic behavior (partnerships, marriages, and childbearing) of modern Russian women. The quantitative research conducted on 2,229 individual biographies of women between 19 and 43 implies the use of descriptive analysis and Event History Analysis (Cox regression) within the Life-Course Approach.

The results of the research are viewed within the framework of the hypotheses explaining the impact of migration on demographic behavior already described in scientific literature. The Russian female population is characterized as mostly immobile (more than two thirds of women never experienced migration, at least before age 43). The paper discusses various economic and demographic factors affecting the risks of occurrence of demographic events in migrant and non-migrant life careers. The disruption hypothesis describing the negative effect of migration on marital and reproductive behavior, is partially disproved: 1st migration exhibits no effect on the risk of 1st childbearing or 1st partnership among adult women; the risk of 1st marriage is negatively affected among women after 21.

The selection and the interrelations-of-events hypotheses may explain the demographic behavior of the two suggested groups of migrant women in Russia: educational migrants and marriage migrants.

Keywords

Migration in Russia, women migration, demographic behavior, family formation, family development, event history analysis

Contents

List of Abbreviations

DB – demographic behavior

DOB – date of birth

EHA – event-history analysis

LCA – life-course approach

PFS – Person, Family, Society

RANEPA – Russian Presidential Academy of National Economy and Public Administration

US – United States

Key terms

Biography – a sequence of life course events in an individual's life (Gey et al. 2008).

Life-course event – a development (moment, achievement, or change) – in an individual's life, such as getting married, having a child (Espy and Mitrofanova 2017).

Demographic behavior – a behavior directed towards family formation and development.

Family formation – partnership, marriage.

Family development – childbearing.

Migration – a permanent or a partially permanent change of residence (for a lengthy defined period that is more than 6 months) from one specific location to another. Migration may or may not be accompanied by change of locality.

Introduction

Life of an individual has always been a compelling object of social studies. Individuals form societies and populations. Changes in biography of a single individual may reflect major demographic trends that are object of interest of demographers and public administrators.

Globalization involves populations, including the Russian one, in world demographic trends. Since migration rates in Russia are likely to grow (Florinskaya and Mkrtchyan 2016), it raises a question of how migration may affect demographic behavior of its population.

Thus, the *object* of our research is the role of migration in demographic behavior of modern Russian women. The *subject* of the study is individual life biographies of 2,229 Russian women between 19 and 43, their demographic behavior and migration patterns.

The *aim* of this research is to study the impact of migration on demographic behavior of modern Russian women to better understand demographic perspectives in Russia and to provide and insight on how the government policy may be adjusted in view of expanding globalization trend – migration. Thus, the *topicality* of the research consists not only in the current historic context with migration being an indisputable demographic trend, but also in the efforts of the Russian government to study the demographic patterns to be able to develop and implement effective social policy. Due to the current depopulation in Russia, the birth rate does not increase. Migration becomes a response not only to the problem of reduction of working age population in Russia, but also a means of birth rate increase. If migrants' fertility is higher than the one of natives, and if migrants will stay in Russia, this may positively affect birth rate.

The interrelations between migration and demographic behavior have been a topic of interest to study of social science researchers. The studies on this topic may be classified in two major directions: the impact of migration on demographic behavior and the impact of demographic behavior on migration and decision to move. The first direction is represented by the major mart of the studies, mainly devoted to the effect of immigration on childbearing in the developed countries. The latter direction collects a minor part of research works the big part of which is connected to the later stages of family development – namely, separation and marriage dissolution, and some studies focus on decision to move in urban-rural direction for childbearing purposes. Since most of the studies were conducted in countries other than Russia, which underlines lack of such research works about Russian population and justifies the necessity to conduct one.

The ***novelty*** of the research implies the analysis of migration patterns and demographic behavior of Russian women together. Currently there is a little number of studies devoted to the interrelations between migration, matrimonial and reproductive behavior in modern Russia. The explanation is that usually such types of studies require the use of complex and detailed datasets containing a large amount of biographical information of individuals. The dataset that we use in this research, the "Person, Family, Society (PFS) Survey", has been completed not long ago, in 2013, and several research works have already been published (Burdyak 2014; Espy and Mitrofanova 2017; Maleva and Burdyak 2016; Mitrofanova 2016; Mitrofanova and Artamonova 2016), the topic of the impact of migration on family formation and development in modern Russian women has not yet been risen.

The main research ***problem*** implies the determination of the role of migration in demographic behavior of modern Russian women, its effect on marital and reproductive patterns. This problem raises the relevant research ***questions***:

1. Does migration show any impact on demographic behavior of Russian women, and

2. If so, what changes can migration bring to demographic behavior patterns compared to the ones of non-migrants?

In order to suggest relevant hypotheses, let us review the examples of the research works describing interrelations between migration and demographic behavior to obtain a deeper understand of how the studies on the topic may contribute to the already existing research field. The literature examples are covered in detail in Chapter 1.

Chapter 1. Theoretical and Empirical Evidence of the Interrelations between Migration and Demographic Behaviour

In this Chapter, literature review on interrelations between migration and demographic behavior is given. Covered are topics of previously published studies on effect of migration on childbearing and on family development, as well as on effect of family changes on migration and decisions to move.

Today, there is a wide scientific discussion about demographic transitions. Demographic transition is 'a specific change in the reproductive behavior of a population that is said to occur during the transformation of a society…' (Coale 1989). Demographers are now talking about three demographic transitions. The first demographic transition refers to the historical declines in mortality and fertility from the 18th century onward in some of European populations, and currently continuing in most developing countries (Lesthaeghe 2007). In Russia, the 1st demographic transition ended by late 1960s (Frejka, Sobotka, and Hoem 2008). Second demographic transition is characterized by fertility decline, changes in marriage patterns and postponement of childbearing (Perelli-Harris and Gerber 2011). The concept of the third demographic transition with migration playing a key role (Coleman 2006) is emerging in literature.

One of an interesting scientific tool to study individual biographies, or life careers, is a life-course approach (LCA). Today, the LCA is a widely used theoretical orientation in the demographic studies of individual life events (Elder, Johnson, and Crosnoe 2003). LCA implies a complex handling of large amount of individual dynamic biographical data. LCA involves both the micro and the macrosocial levels of analysis by driving a contextual and dynamic approach to study the changes in individual lives over historical periods (Bengtson and Allen 2009).

The LCA examines life trajectories (also referred to as 'biographies', 'careers', or 'status passages') to explain individual's movements between statuses. The data on a large number of individuals is then used to explain social change. The LCA provides its widely used database management techniques and specific methods such as event-history analysis (EHA). EHA, or survival analysis, or duration analysis, is a method allowing "to link events in one life domain of an individual to past events of the same individual ('parallel careers'), and to changes in the life of other family members and members of the individual's social network ('linked lives')" (Kulu and Milewski 2007).

Although the impact of migration on fertility has been a valid research question for a long time in demography and population studies (Chattopadhyay, White, and Debpuur 2006; White, Moreno, and Guo 1995), demographic behavior of internal migrants has not yet received much attention of researchers. The number of studies of demographic behavior (including childbearing) is relatively low all over the world. The vast majority of already published research works concentrates on 1) international migration; and 2) fertility patterns of immigrants in industrialized countries. Among the studies describing childbearing fertility behavior of internal migrants, most focus on rural-urban type of migration flow. Other types of migration flow (urban-urban, rural-rural, urban-rural) seem way less preferred to analyze and are in most cases disregarded (Eryurt and Koç 2012).

1.1 The Impact of Demographic Behavior Events on Migration

1.1.1 The Impact of Marriage and Childbearing on Migration

There have been a lot of research works published on the connection between changes in family formation and development, and migration. However, the studies that are based on event-history analysis and use longitudinal data, emerged less than half-a century ago, when the life-course approach in research received its development. One of the role model outstanding research that examined the effect of inter alia such variables as age and family, on the intercounty and inter-state migration of pre-war birth cohorts in the US, the utility of viewing migration in the context of family life cycles, was conducted by Sandefur and Scott in 1981. In their study, the authors conclude that family status does affect migration: married individuals show lower rates of migration rather than the single, and migration rates significantly decrease as the family size grows. The reasons for those two factors affecting migration is economic costs of migration for a family unit that raise with the increase in family members, and, what is more important, the more migrants in the family are – the more ties there is a need to break for them between the old and the new places (Sandefur and Scott 1981). As for the effect of marital status on migration and residential mobility, the study shown that couples and families have a lower probability of migration compared to single individuals.

A more extended research (Courgeau 1989) on the interrelations between spatial mobility and family formation in France has been conducted to make a distinction between the effects of family change in the two types of migration: rural-urban and urban rural. The research shows that the married individuals have a lower probability of migration in comparison with the single ones,

in particular this implies to migration to the city, but the childbearing effect differs across the destinations: the risk of moving to the urban areas significantly decreases with each new born child, while the probability of moving to the rural areas slightly increases with the family size increase. As for the effect of the marital status on the probability of migration, the author, like in his research dated 1985, concludes that families have a lower probability of migration, especially long-distance, compared to single individuals.

Later research on the Norwegian post-war cohorts (Baccaïni and Courgeau 1996) was designed to find if the impact of childbearing is different as time passes since the childbirth, an if so, how exactly this impact varies. One of the research findings is that after the second child, the probability of interregional migration becomes low, while the probability of migration from one region to another within one year after the first childbearing is relatively high, with rapid decrease thereafter. The impact of childbearing across migration destination, however, was not studied.

Further research on the interrelation of fertility and migration in Peru (White, Moreno, and Guo 1995) was directed to study an effect of childbearing on the internal mobility. This study, although the analysis has been conducted in different environment than the previous researches, support the conclusion on the interrelation between childbearing and migration parents described earlier, namely, that the larger the family size – the lower generally is re risk of their migration. The authors' explanation of that pattern corresponds to the previous researchers' conclusion: that the economic costs of migration for a larger family is also greater, particularly for the children of a school age.

More recent study concentrated on the demographic determinants of urban-rural migration in Sweden (Lindgren 2003) show that the migration from urban to rural areas increases with the childbearing, regardless of the original residence city. According to the author, the explanation implies that the long-planned decision to move from the urban to the rural area is induced by the childbearing as the right time to migrate to a more appropriate and pleasant rural environment. A similar pattern in Austria was described in the research (Kulu 2008) concluding that the birth of the second and the third child generally decreases the probability of migration from one settlement to another, however, childbearing significantly increases the probability for a family unit to migrate from urban to rural areas.

Some research analyses have been conducted to study residential mobility. The research on the determinants, including demographic ones, of residential mobility in Tilburg, the Netherlands (Clark, Deurloo, and Dieleman 1984) show that the childbearing motivates both owners and renters both in the public and private sectors, to move within the city, which is, according to the authors, attributable to the adjustments driven by housing consumption. The study on spatial mobility of the pre-war birth cohorts in France (Courgeau 1985) confirms a similar

conclusion: there is a pattern where the fact of childbearing significantly increases the probability to move. The pattern is explained by the necessity for a family unit to adjust the size of their previous housing to the one required by the addition of a child. One of the conclusions from the further study is that in some cases, a family unit moves to another dwelling before childbearing, in anticipation of an increase in their family size. As for the connection between the marital status and residential mobility, Corgueau concludes that for singles the risk of moving to another dwelling is higher in comparison to that risk of the families of two and more members. The study targeting the effects of marital status change on residential mobility (Speare and Goldscheider 1987) demonstrates that mobility rates change with the change of marital status: they are the highest for the newly marries people, almost as high for separated or divorced (in the year of the event), but very low within a year after the spouse dies for widows and widowers.

One of the most recent trends in research on special mobility and demographic behavior is the analysis of the role of childbearing, marital status, and family size in family's moving to different types of housing and the housing ownership. The research on the interrelations between the family changes and housing ownership (Deurloo, Clark, and Dieleman 1994) show that the probability for a family to move into a owner-occupied housing significantly increases with the transition in family composition caused by the event of childbearing in a family of two. The similar conclusions were made from the analysis in the research on the link between the household transitions and housing transitions (Withers 1998): in comparison with single individuals, couples and nuclear households show higher probability of transition to home ownership, and show lower probability of migration within the rental sector. According to the author, the changes leading to the ownership can be attributes to the transformation of the household into more a more stable one, like a couple or a family with children. The conclusions from the research are supported by the ones from a comparative study on the Netherlands and West Germany (Mulder and Wagner 2001): life-course events (including demographically significant, such as marriage, childbirth) are connected to the transition in the type of housing ownership, with the first childbirth playing a significant role when occurs close to the marriage); second childbirth having an impact regardless of time of occurrence. Like in the Courgeau study conducted in 1985, the authors support the idea of German couples making transition to housing ownership prior to childbearing often probably motivated by anticipation of family growth. Similar conclusion is also drawn from the study on the timing of household events and housing events in the Netherlands (Feijten and Mulder 2002) which implies that the probability of Dutch childless couples of moving into a single-family dwelling increase during the pregnancy period of anticipation of an additional family member.

In the research devoted to the reasons for difference in migration patterns between single and married individuals (Mulder and Wagner 1993), the life-course event analysis show that the

reason for the single people to have high rates of migration is actually attributed to their moves connected to change of marital status.

To summarize the conclusions from the previously conducted studies on the role of life-course demographically significant behavior (marriage, childbearing) in migration and residential mobility, certain patterns can be pointed out. First, certain demographic behavior (childbearing, marriage) has certain effects on migration and residential mobility. Second, whereas in general individuals are more likely to migrate while single and childless rather than when they are married and have children, especially to urban areas, childbearing and even anticipation of childbearing can be themselves incentives for couples to migrate to rural area in pursue of a friendlier environment and additional space, and for transitions to housing ownership as the family size growth. Third, the decrease in probability of migration connected with childbearing is attributed to economic, psychological and social cost of breaking the ties, especially for children of school age. Fourth, whereas separated and divorced individuals have a relatively high probability of migration in the year of the event occurrence, widowed individuals have a low probability of migration in the year of their spouse's death. The above made conclusions imply, however, to the analyses conducted outside Russia, namely in the Western European countries, Peru, and the USA.

1.1.2 The Impact of Other Demographic Events on Migration

Because spatial and residential mobility are closely related to an individual's life-course stages and events, the increased disorder in life course, such as separation, can be expected to have an impact on spatial mobility. However, the migration caused by separation may be deviant compared by the migration caused by other life-course events for the following reasons: urgency, restrictions in finance, restrictions in special mobility, especially when the partners have one or more children (Feijten and Van Ham 2008).

These features of special mobility triggered by separation led to three hypotheses describing the occurrence, direction, and distance of the move of the separated individuals.

The first hypothesis implies that separated individuals are more frequent migrants than singles or those in steady partnerships. Whereas some older research works show evidence of this for the first years after the marriage dissolution (McCarthy and Simpson 1991), more recent research suggest that after the first move triggered by the union dissolution for at least one of the partners, another one or more moves are required to adjust the housing quality level to the old one (Feijten and Van Ham 2008): if a separated individual originally moved to a friend or family right after the union disruption, the situation is most likely temporary and will require the individual to take additional moves in order to find satisfactory housing.

The second hypothesis is that unlike single individuals or steady couples, separated persons show a lower probability of long-distance migration. This applied both to the move caused by the separation, and all subsequent ones. Most moves triggered by union dissolution are attributed to the individuals' willingness to exit the joint home, but not always to lease their environment in the area of residence. For separated individuals, in many cases there are strong social networks and utility remaining in their place of residence before the separation; so the separated are willing to keep their social and institutional ties (Fischer and Malmberg 2001). This means that the separated are likely to move within close proximity to their previous home in order to maintain their networks and location-specific ties. Children can also play an important role in the individual's decision regarding special mobility. Since men more rarely receive custody, it increases probability of the spatial mobility restrictions for men rather than for women (Feijten and Van Ham 2008).

The third hypothesis implies that for separated individuals, migration to urban areas, or staying there, occurs more frequently rather than for couples. It happens for several reasons. First reason in that usually in the cities, there are more opportunities to find affordable housing. Research described the evidence that availability of affordable housing in central cities in the USA may be an explanation of a very high number of female-headed households with children there (Spain 1990). Second reason brings a socio-emotional context: separated individual may prefer urban areas due to a more tolerant environment and more anonymity. And finally, urban areas may be attractive destination point due to a wider marriage market with potential new partners being more easily available; a bigger employment and entertainment market.

It is considered conventional to attribute the increase in one-person household in such inner cities as London, to the above mentioned urban amenities (Hall and Ogden 2003). Consequently, suburbs are considered to be more suitable and convenient for families. Marriage (union) disruption may trigger rural-urban migration and create discontinuity in the separated individual's spatial career since, according to the previously mentioned studies, households with children usually move from urban to rural areas as more children-friendly and safe environments with bigger housing space. This creates an expectation that upon separation, the probability of rural-urban migration increases for separated individuals.

Due to the increase in separations and marriage dissolutions between couples, discontinuity of special careers also experiences growth which leads to a bigger differentiation in migration paths for individuals (Feijten and Van Ham 2008). Thus, union urban-rural migration for family reasons do not prevent the partners from moving back to urban areas upon separation, particularly temporarily. Finding a new partner may affect migration and revert its direction so the newly

formed couples may seek for opportunities offered by different environments. Social networks and ties, on the other hand, may prevent the separated from long-distance migration: for complex families with many members in the household, additional constrains may impede spatial mobility.

1.2 The Impact of Migration on Demographic Behavior

1.2.1 The Impact of Migration on Marital and Reproductive Behaviour

Unlike the previous research works on the impact of marital status and childbearing with the conclusions that look realistic and to certain extent even predicable, the research on the reverse interrelations – the impact of migration on demographic behavior – has more variety and even contradictions in conclusions drawn from different studies. Five major types of views may be differentiated from the previous studies. Those five hypotheses are: the socialization hypothesis, the adaptation hypothesis, the selection hypothesis, the disruption hypothesis and the interrelation of events hypothesis. Each hypothesis and its development through the history of the relevant research will be described below.

1.2.1.1 The Socialization Hypothesis

The *socialization hypothesis* implies the assumption that the demographic behavior of migrants in terms of their fertility reflects the fertility patterns observed by migrants in their childhood environment. As a result, migrants in their new place of residence continue to exhibit the same childbearing patterns as those stayed at the place of origin; the convergence of fertility levels towards those of natives in the new residence place may occur only in the next generation if there is any difference between the two fertility levels. The socialization hypothesis seems to be dominant in 1960-s in the early literature on the impact of migration on fertility in the US (Goldberg, Duncan, Freedman and Slesinger), however, socioeconomic differences and education are taken into account and used for the explanation of the fertility patterns of migrants and non-migrants. As the time passed, the socialization hypothesis apparently lost its popularity since in the literature published later than 1980 there are only few works dealing with it (Kulu 2005).

1.2.1.2 The Adaptation Hypothesis

Within the *adaptation (assimilation) hypothesis*, re-socialization is possible, and it occurs at the level of individual. The hypothesis suggests that sooner or later, the fertility behavior of

migrants at the destination residential environment will converge to resemblance of the natives' dominant fertility behavior. Within the adaptation hypothesis, migration is assumed to be long-term. (Lindstrom and Sausedo 2007). The adaptation hypothesis, unlike the socialization hypothesis, seems to remain popular and widely used in demographic research works. The study of fertility of internal migrants in Puerto Rico (Myers and Morris 1966) showed the conclusion opposite of the one that would have been drawn from the dominant hypothesis in 1960. According to the authors, the levels of fertility for migrants from rural to urban areas and for native population, were, in fact, the same. The results were very similar in the research conducted on the fertility of rural-urban migrants in Thailand (Goldstein 1973): in Bangkok, fertility level of migrants from rural areas were far lower than the ones of stayed in population in those rural areas. However, no clear statements regarding what was a cause and what was an effect in the correlation between rural-urban migration and low levels of fertility, was made. Similar evidence was found in the comparative study of fertility behavior in 6 countries of sub-Saharan Africa in the context of rural-urban migration (Brockerhoff and Yang 1994): the adaptation hypothesis was supported by the conclusion that for migrants in all 6 studies countries, the risk of conception around the time of their move significantly declines and then remains low overtime for most groups of migrants. The latter was attributed to improved socio-economic conditions and increase in the use of modern contraceptives. Another view on the reasons for the continued low fertility is the combination of socio-economic and cultural factors (Andersson 2004). Unlike in the context of the migration from high-fertility to low-fertility environments, the adaptation hypothesis also found application in the context of migration of the reversed type of change in fertility preferences. Higher fertility levels for the immigrant from the former Soviet Union to Israel are explained by the improvements in socio-economic conditions which becomes an incentive to have more children that would have been planned in the migrants' country of origin (Nahmias 2004).

Adaptation of fertility levels to those of the population in the destination point, can be viewed as just one example of many other adaptation behaviors of migrants to adjust their lifestyles to the limitations and opportunities of their new environment. Such behavior is considered to be a part of migrant effort to maximize potential returns on migration in a long-term perspective (Lindstrom and Sausedo 2007).

1.2.1.3 The Selection Hypothesis

For the *selection hypothesis*, change in fertility behavior is not a question. The hypothesis focuses on migrants as a specific selected group of population with fertility preferences and patterns being more distant from those stayed at the place of origin and more similar to the

population in the destination place. The selection can be explained both by an observed factor, such as education, and by certain unobserved factors (Kulu 2005). Although many papers refer to the selection hypothesis within theoretical frameworks, only few studies examine it. One of the examples is a comparative study of the level of fertility of rural-urban migrants and non-migrants in Puerto Rico (Macisco, Bouvier, and Weller 1970) which concludes that 1) the level of fertility in the two groups is far lower than the one of the rural population, and 2) the fertility level of rural-urban migrants is even lower that of native urban population. Education and activity rate were suggested to be explaining this phenomenon only partially. Talking about Europe, a multi-variate analysis of urban-rural and rural-urban migrants in France (Courgeau 1989) showed that migrant women's fertility was significantly reduced by migration to urban areas, and vice versa, was increased by urban-rural migration. Further analysis revealed two different explanation for each type of migration. For urban-rural migration, the author concludes that it attracted the women with fertility levels similar to other urban female population before the move – the changing pattern of fertility level can be thus explained by the adaptation hypothesis; those women migrating to urban areas were found to show same levels of fertility peculiar to the prevailing one of urban female population even before their move – this makes the rural-urban women a selective group with a specific non-dominant fertility preferences.

Another selection criteria could be described as the migrant parent's aspiration to arrange a better life conditions (including educational opportunities) for their children. (Lindstrom and Sausedo 2007). Individuals viewing migration as an investment into their children's future select certain directions and include themselves into specific "migration streams" according to, inter alia, their pre-existing fertility preferences. The willingness of migrant parents to put their investments into quality of their children's life rather than into the quantity of children may explain the migrant parents' choice of low-fertility countries as destinations points. The choice may be based on the parents' assumption that those low-fertility countries have more prospects for education and future labor markets for their children rather than in their homeland may offer.

1.2.1.4 The Disruption Hypothesis

According to the *disruption hypothesis*, the migration process itself imposes additional difficulties, so the migrants have particularly low fertility levels right after their migration due to those disruptive factors. The disruptive factors may be applicable not only to individual migrants, but also to couples whose move may mean a geographical separation for a certain period of time. Another disruption factor decreasing fertility level of migrants may be an anticipation of their move and/or separation with partners. (Milewski 2007). The disruption hypothesis and the

observation on specific characteristics of migrant family status (non-married or separated) was used to explain low fertility level of rural-urban female migrants in several African cities (Brockerhoff 1995). Later, however, several studies on migrant fertility in some European countries showed a certain disagreement with the disruption theory. For example, a study on residential mobility, the interrelations between housing ownership and family formation in Germany and the Netherlands (Mulder and Wagner 2001) has shown increased first childbearing rates for recent migrants who made transition to housing ownership. The study on immigrant demographic trends in Sweden (Andersson 2004) points at the increase of risk of first childbearing within the first two years after the immigration. In contradiction to the disruption hypothesis, migration is called a trigger to childbearing by the author.

1.2.1.5 The Interrelation of Events Hypothesis

An additional hypothesis, *interrelation of events hypothesis*, referred to in the most recent literature on fertility behavior of migrant women (Vatterrott 2011), implies that for some groups of migrant women, the migration and the formation of a partnership (or consummation of marriage) could be closely connected, in which case, childbearing occurs close to the time of the move. Evidence for the interrelation of events hypothesis was presented in the analyses studying both internal and international female migrants (Andersson 2004; Kulu 2005). It is easy to assume that interrelation of change of marital status and childbearing is mostly applicable to a specific migrant group – marriage migrants. The interrelation of events hypothesis was used to explain the evidence of this in certain studies on international migration to the developed and well-industrialized countries like the case of Puerto-Rican female migrants to the USA (Singley and Landale 1998) and the study on the difference in fertility patterns between Canadian-born and recently immigrant women (Ng and Nault 1997).

Most of research works that analyze the interrelations between migration and fertility out of those two, view migration as an independent variable. Within this causal ordering the most commonly used hypothesis to explain the dependence between migration and fertility are the adaptation hypothesis and the disruption hypothesis. However, the selection hypothesis views fertility as a pre-existing independent variable, and migration – as an outcome of the manifestation of the manifestation of unobserved characteristics (Lindstrom and Sausedo 2007).

1.2.2. The Impact of Migration on Other Demographic Events

Within the context of family development, it is reasonable to observe literature concerning separation and marriage dissolution as one of the family development life-course event. Although there is extensive literature pointing at the evidence of migration being a stressful event for a couple and capable to deteriorating the relationships between the partners; only a few number of research works were devoted to the analysis on the impact of migration on marriage dissolution. (Shapira, Gayle, and Graham 2017).

Previous research works show that women, unlike men, do not usually benefit from family migration in terms of their professional career and earnings (Boyle et al. 2006): migrant women have a lower probability of employment and they show a tendency to work shorter hours and have a smaller income than non-migrant women. The same study also compares the effect of single and multiple moves to non-migration, and concludes that frequently migrating couples show a much higher risk of marriage (union) dissolution rather than non-migrating couples or those who has a single migration.

Considering that economic well-being of women may deteriorate after their family migration, it is easy to assume that family migration may also be the reason for deterioration of the quality of the relationship between the married persons and cause the increased probability of marriage dissolution (Muszynska and Kulu 2008).

There are four reasons to explain why family migration may increase a risk of marriage (union) dissolution (Boyle et al. 2006).

First, there is often non-symmetrical economic and professional gain and loss from family migration for men and women that may negatively affect the relationship between the partners. While men's career and professional growth may stimulate family migration, women's economic well-being and career may be deteriorated by the move. After family migration, women's employment often gets negatively affected, making women to work less hours, taking lower positions and less-paid jobs than they had before family migration; women's professional career gets disrupted. An unexpectedly high personal loss for women may cause her consider separation from her partner as soon as she is able to maintain her own household.

Second, migration to a new place causes changes in social networks. Social networks in the old environment might have been a constraining factor for divorce. This particularly implies to the social networks that the both partners had in common, in environments where kin relations play an important role. Migration implies that the social networks that used to maintain a function of social and psychological support, are disrupted. One partner may expect the other to compensate

for those social and psychological supportive functions. This additional burden is expected to have a negative impact on marriage (union) stability.

Third, the stress caused by migration may facilitate divorce, especially in the couples that migrate frequently. Migration requires major changes in an individual's regular routine and roles, which is a major source of stress especially when migration happens repeatedly. The process of migration is stressful particularly to families with children who also need to arrange care and child-centered activities.

Fourth, marriage (union) dissolution may be facilitated by the changed marriage market in the new environment. As new potential candidates for partnership become available, this puts another strain on the existing partnership.

There are reasons to consider that the effect of rural-urban and urban-urban migration on marriage (union) dissolution may vary (Muszynska and Kulu 2008).

When couples move from rural to urban areas, they usually encounter more liberal views on union dissolution with the concept of divorce being less stigmatized. Also, urban areas may broaden a possibility for a woman to find a job and afford a separate household. As the marriage market in cities is larger than the one in the villages and towns, there are more opportunities for individuals to find a better-matching partner. Thus, rural-urban family migration imposes greater risks of marriage (union) dissolution cased but not only migration itself, but also by the context of the destination environment.

Taking about the effect of urban-rural migration on marriage (union) stability, we may find contradictory conclusions in the literature (Muszynska and Kulu 2008). On one hand, the migration process itself is proven to increase the risk of marriage (union) dissolution. On the other hand, urban-rural migrants are usually those couples with stable relationships moving specifically for family reasons (additional space in terms on housing, better environment for current of future children). Such type of migration usually occurs when a couple's priority is family rather than professional growth (Boyle et al. 2006). The improvement in housing itself may compensate for the negative effects of other aspects caused by migration. In those circumstances, the level of marriage (union) dissolution among urban-rural migrants may be expected to lower and resemble those of rural environment couples.

Conclusions from Chapter 1

As shown in the literature review, the interrelations between migration and demographic behavior has been studied mostly outside Russia (US, Peru, Central and Northern Europe, sub-Saharan Africa). To characterize general features of the existing published literature scope, we may make the following conclusions:

- Research on the impact on migration on demographic behavior, especially on childbearing, gained significantly more attention of social scientists than research on impact of demographic behavior on migration;
- The majority of studies focus on fertility patterns of immigrants in industrialized countries;
- Most works analyze rural-urban migration;
- There are more studies on international rather than on internal migration.

Key conclusions on each topic will be summarized below:

I. The impact of demographic behavior on migration:

a) Demographic behavior shows certain effects on migration and residential mobility;

b) Whereas in general single and childless individuals are more likely to migrate, especially to urban areas, childbearing and its anticipation can serve as incentives for couples to migrate to rural areas in pursue of a friendlier environment and additional space;

c) Decrease in risk of migration connected with childbearing is attributed to economic, psychological and social cost of breaking the ties, especially for children of school age;

d) Whereas separated and divorced individuals have a high probability of migration in the year of the event, widowers have a low probability of migration in the year of their spouse's death.

e) Separated individuals are more frequent migrants than singles or those in steady partnerships.

f) Separated persons show a lower probability of long-distance migration.

g) For separated individuals, migration to urban areas, or staying there, occurs more frequently rather than for couples.

II. The impact of migration on demographic behavior:

a) Unlike predictable conclusions concerning impact of DB on migration, conclusions on impact of migration on DB are contradictory, and are represented by five hypotheses:

1) The *socialization hypothesis*: fertility of migrants reflects the patterns observed by migrants in their childhood environment; migrants in their new place of residence continue to exhibit the same childbearing patterns as those stayed at the place of origin.

2) The *adaptation (assimilation) hypothesis*: fertility of migrants at the destination residential environment will converge to resemblance of the natives' dominant fertility behavior. Socio-economic and cultural factors are considered. Such behavior is a part of migrant effort to maximize potential returns on migration in a long-term perspective.

3) The *selection hypothesis*: migrants are a specific selected group of population with fertility patterns being distant from the stayers and similar to the population in the destination place. Selection can be explained both by an observed (education) and unobserved factors. Individuals view migration as an investment into their children's future and join specific "migration streams" according to their pre-existing fertility preferences.

4) The *disruption hypothesis*: migrants have particularly low fertility levels right after their migration due to disruptive factors that may be applicable not only to individuals, but also to couples whose move may mean a geographical separation.

5) The *interrelation of events hypothesis*: for some groups of migrant women, the migration and the formation of a partnership or marriage could be closely connected, childbearing occurs close to the time of the move.

b) Some of these hypotheses are more popular than others, and their applicability differs. For example, the adaptation and the disruption hypotheses are currently most popular in researches devoted to rural-urban and internal migration, whereas the socialization hypothesis was popular in 1960s but lost its popularity in 1980s, the selection hypothesis is described mostly in theoretical frameworks, and the interrelation of events hypothesis is mostly applicable to marriage migration.

c) Family migration, especially of rural-urban direction, may increase a risk of marriage (union) dissolution due to following reasons:

1) Non-symmetrical economic and professional gain and loss for men and women;

2) Changes in social networks. Social networks in the old environment might have been a constraining factor for divorce;

3) Stress caused by migration may facilitate divorce, especially for frequent migrants;

4) Changed marriage market in the new environment.

d) Urban-rural migrant couples may be less subjected to dissolution if moving for family reasons.

e) Russian patterns resemble of European: frequent migrations and urban locality increase the risk of dissolution.

Following the conclusions from the literature review, it is reasonable to choose certain preferences for this study:

1) As vast majority or the research works are devoted to the study of impact of migration on DB (namely, union and marriage formation, childbearing, and separation/divorce), it is logical to choose impact of migration on demographic behavior as the key direction;

2) As interrelations between migration and marriage (union) dissolution as a form of family development in Russia have already been studied, it is reasonable to focus on the least studied part – union formation (partnerships), marriage, and childbearing and their interrelations with migration;

3) Considering the peculiarities of our dataset described in Chapter 2 (namely, the prevalence of internal migration) and assuming that rural-urban migration type is more frequent rather that the urban-rural type in Russia, we find it justified to follow the disruption hypothesis and to base on it the following hypotheses from our study:

H1. Migration has a certain impact on partnership, marriage, and childbearing.

H1.1. 1st migration is associated with decline in risk of 1st partnership;

H1.2. 1st migration is associated with decline in risk of 1st marriage;

H1.3. 1st migration is associated with decline in risk of 1st childbearing;

H.2. The effect of migration on demographic behavior was different amongst different generations of women due to general differences is demographic behavior patterns, economic background and other historically significant factors;

H.2.1 The younger generations will face a stronger impact of 1st migration declining the risk of having 1st partnership, 1st marriage and 1st childbearing than the older generations.

Chapter 2. Dataset and Descriptive Statistics

In this Chapter, the process of research, data, and methods will be explained. Additionally, the description of data and its peculiarities, the variables used in calculations will be given. The descriptive statistics will be shown and discussed.

2.1 Dataset

The data used for the study come from the Regular National Representative Survey of the Demographic, Social and Economic Behavior of the Population "Person, Family, Society" conducted by the Russian Presidential Academy of National Economy and Public Administration (RANEPA) in 2013. The PFS Survey has not been yet well-studied due to two factors: 1) its recent completion, 2) a large amount of data representing life-course approach with the focus on events in individual's life as well as on background variables such as education, locality at birth and after migration, if any, economic well-being, etc. Research design implies the use of quantitative methodology in SPSS for retrospective observational analysis.

The PFS Survey describes the lives of 9,557 individuals aged from 18 to 93. However, since we study only women's life careers (5,224 individuals in PFS), and because some of the key questions on reproductive behavior were asked only from women between 18 and 44, we have made five data subsets grouping the female respondents by their DOB into 5 "generations" on a 5-year period basis (1970-1974, 1975-1979, 1980-1984, 1985-1989, 1990-1994), so the sample used in the study contained biographies of 2,229 women aged 19-43 for exploratory data analysis and the EHA. If to turn years of birth into approximate ages, we will receive the following:

- generation 1970-1974 – 39-43 years old
- generation 1975-1979 – 34-38 years old
- generation 1980-1984 – 29-33 years old
- generation 1985-1989 – 24-28 years old
- generation 1990-1994 – 19-23 years old

The number of respondents in each generation and the generational proportions are shown in Figure 1.
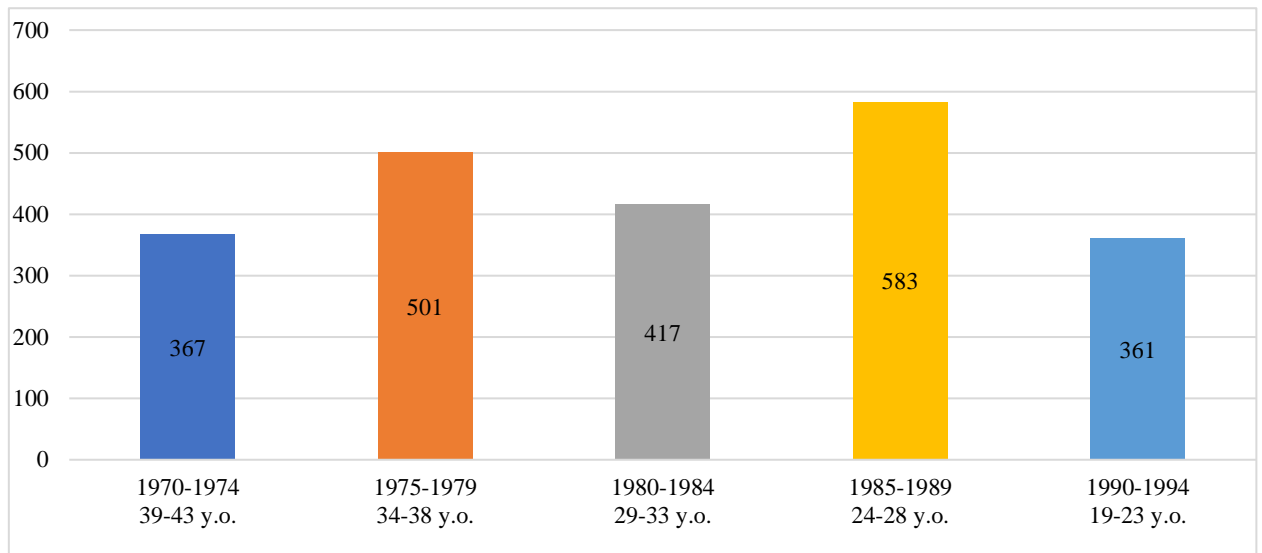
Figure 1. Number of women in each generation, generational proportions

Source: Person, Family, Society (2013), author's calculations

Biography in life-course perspective is viewed as a sequence of events. Thus, we analyze events and the order in which they take place in individual women's lives in order to define the role of migration in their demographic behavior. Among the variables, we use general variables (age, generation, type of location at survey, type of location at birth), age variables (age at migration, age at partnerships, age at marriages, age at childbearing), fact variables (fact of migration, fact of partnership, fact of marriage, fact of childbearing), other variables (migration destination type, intervals in months between events, reason for first migration, duration variables (length of time between age 15 and the event) for EHA). In this study, we used backward variable selection technique. The data was stratified by generations and by the fact of 1st migration. The hypotheses for the Cox regression analysis are the following:

H0: all B's = 0 and all Exp B's = 1

H1: at least one B ≠ 0, at least one Exp B ≠ 1

Variables connected to partnerships, marriages, and childbearing were chosen as the ones reflecting demographic behavior as defined in the Key Terms of this study. For the purpose of convenience, the following terms may be also defined:

Locality – a settlement in which people live; that ranges in size and type. Locality may include village, town, and city in the PFS Survey.

Marriage – the legally recognized union of two people as partners, registered in the Civil Registry Office (ZAGS).

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Partnership – a form of cohabitation of two partners for at least 3 months or a longer time period which has not been registered in the Civil Registry Office (ZAGS).

Childbearing – the process of giving birth to children.

Child (in the PFS Survey and this research) – only a biological child living in or out of the household.

1st migration – 1st event of migration after age 15.

Location comparison – comparison of location type (city, town village) at birth and at the interview date.

The concept of demographic behavior usually includes, inter alia, all events characterizing marital and reproductive behavior and migration. However, for the convenience in separating migration as a key factor determining possible differences in other parts of demographic behavior, we refer to it as a separate phenomenon in our research. By demographic behavior we point out the events affecting family formation and development, namely, partnerships, marriages, and childbearing.

Although there is a small number of studies focusing on impact of other demographic events on migration and revealing some marital factors that lead to decision to move, the major part of studies concentrate on the effect of migration on demographic events, mostly childbearing. In order to be consistent with the demographic research trend, to use a stronger theoretical framework, and also due to peculiarities of the data we process with the study of impact of migration on demographic behavior.

In order to analyze the impact of migration on demographic behavior of modern Russian women we will first provide descriptive statistics to draw a picture of social, economic, and demographic pre-requisites of the study by dividing the whole women population into five 5-year generations and by analyzing the following:

(a)   number of women in each generation;

(b)   type of locality at birth and at the interview date;

(c)   1st migrations – age and fact;

(d)   1st partnerships – age and fact;

(e)   1st marriages – age and fact;

(f)   1st childbearing – age and fact;

(g)   reasons for 1st migration;

(e)   median ages of 1st events.

Then EHA will be performed to test if migration plays a certain role in demographic behavior of women and what factors may be influential within the concept of life-course perspective.

2.2 Descriptive Statistics, Shares and Distributions

The aim of descriptive statistics is to provide a general picture of the 5 women generations with regards to the chosen variables: partnerships, marriages, childbearing, and migration.

Figure 2 shows the shares and distributions of partnerships numbered 1 to 5 in each generation of women.
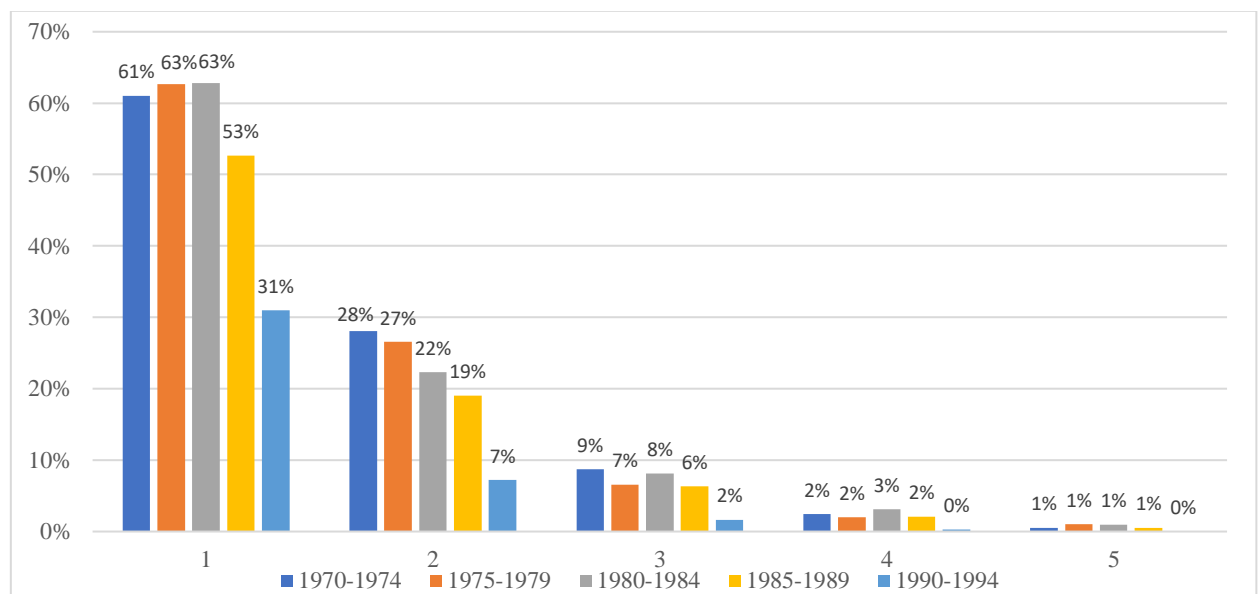
Figure 2. The shares of women in partnerships of different orders (from the 1st to the 5th)

Source: Person, Family, Society (2013), author's calculations

As shown in Figure 2, the number of women represented in shares who had their 2nd partnership (7-28%) significantly drops if compared to their 1st partnerships (31-63%), and drops even further in their 3rd partnerships (2-9%) compared to their 2nd partnerships. This includes all 5 generations. For the 4th and 5th partnerships, the shares are low and do not exceed 3 per cent for the 4th partnership, and 1 per cent for the 5th partnership in any generation of women.

It is peculiar that the shares of women in generations 1975-1979 (63%) and 1980-1984 (63%) who had their 1st partnership is bigger than in generation 1970-1974 (61%).

The fact that the women in generation 1990-1994 had as twice less 1st partnerships (31%) as women in 3 generations before them (61-63%), may be possibly explained by the fact that they had a shorter life career at the date of survey. As for the 2nd partnership, the share of women in the youngest generation 1990-1990 (7%) is 2.5 less than the one of the next old generation 1985-1989 (19%), 3 times less than in generation 1980-1984 (22%), and 4 times less than in the oldest two generations. In 2013, women of 1990-1994 we of age 19-23 years respectively, and could probably have their partnerships later during their life courses.

Figure 3 shows the shares and distributions of marriages numbered 1 to 3 in each generation.
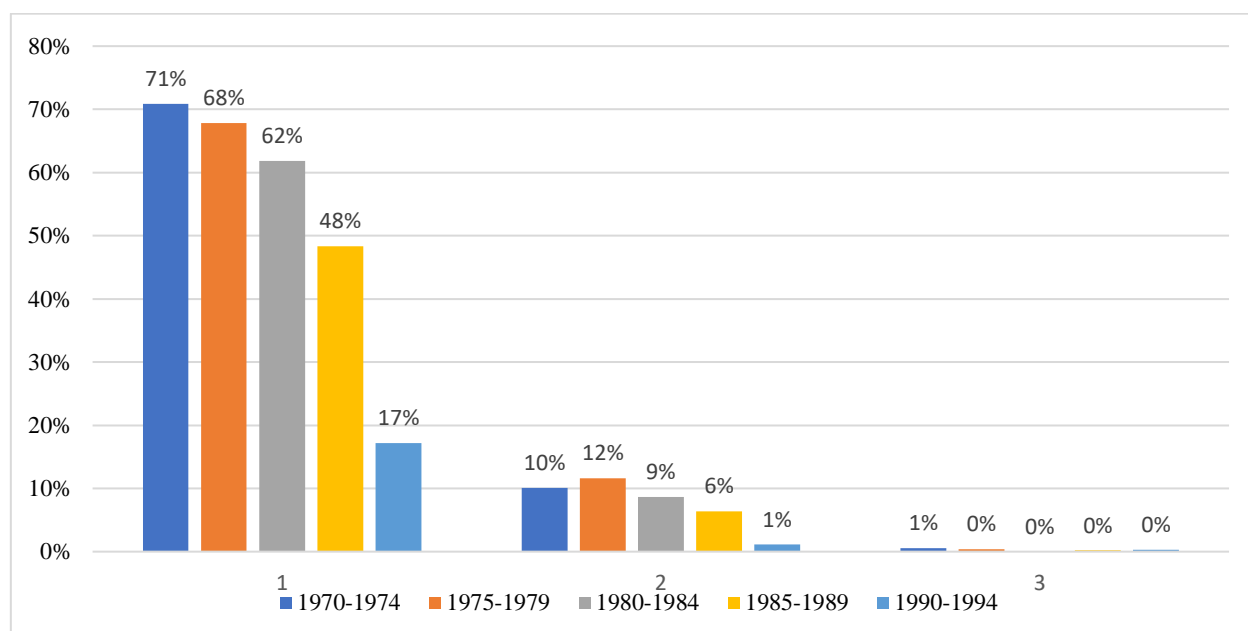
Figure 3. The shares of women in marriages of different orders (from the 1st to the 5th)

Source: Person, Family, Society (2013), author's calculations

As shown in Figure 3, the 2nd and the 3rd marriages were not a common event among all 5 generations of Russian women in 2013. As for the latter, only 1% (2 individuals) had the 3rd marriage in their lives in 2013 in generation 1970-1974; the shares of such women in other generations are even smaller. The percentage of women who had their 2nd marriage varies from 1 (1990-1994) to 12 (1975-1979) and is several times smaller than the percentage of women who had their 1st marriage across generations. The percentage of women of had their 1st marriage decreases with each next generation starting from 71 in generation 1970-1974 to only 17 in generation 1990-1994. Again, the most probable explanation is that the respondents in the

youngest studied generation had less time compared to the respondents from other generations, to have such life-course events.

It is peculiar that in generation 1970-1974, the share of women who had their 1st marriage (71%) is larger than the one of who had their first partnership (61%). For generations 1975-1979 and 1980-1984, the shares of women who had such two events, are approximately the same (63% and 63% for partnerships and 68% and 62% for marriages respectively). In the youngest generation, 1990-1994, the share of women who already had their 1st partnership (31%) is 1.8 times as big as the share of women who registered their 1st marriage (17%).

Continuing the study with the analysis of family development events, let us see Figure 4 that shows the shares and distributions of children numbered 1 to 5 in each generation.
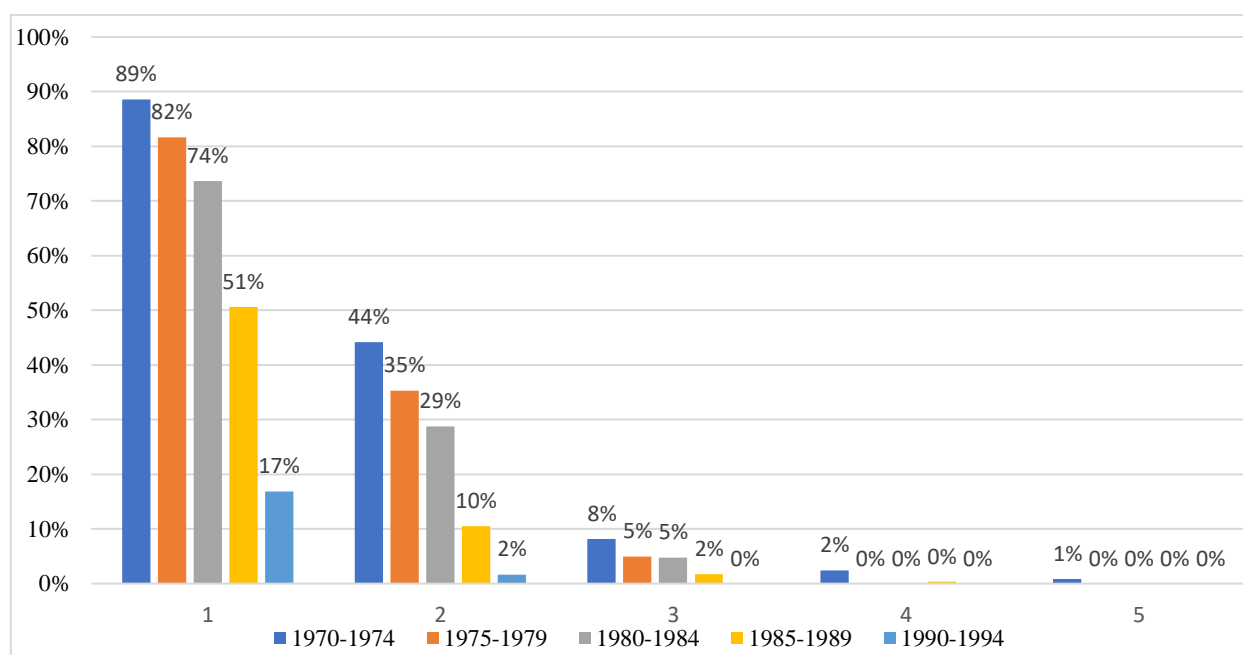
Figure 4. The shares of childbearing of different orders (from the 1st to the 5th) in generations of Russian women

Source: Person, Family, Society (2013), author's calculations

As shown in Figure 4, for the 4th and 5th child, the percentage of women who had those events is low in each generation. However, the shares of those who had their 1st child is larger in the generations first three generations (89%, 82%, and 74% respectively) than the shares of those who had their 1st partnership (61%, 63%, 63%) or 1st marriage (71%, 68%, 62%) across the same generations. The shares of the women in the youngest generation 1990-1994 who had their 1st marriages and their 1st children are the same (17%) whereas the share of those who by 2013 already had their partnership is 1.8 times bigger (31%).

The shares of women across generations who had their 2nd child varies from 2% in the youngest studied generation to 44% in the oldest studied generation but is generally bigger than the shares of those who had their 2nd marriage with the distribution variety from 1% in generation 1990-1994 to 12% in generation 1975-1979 (10% in generation 1970-1974).
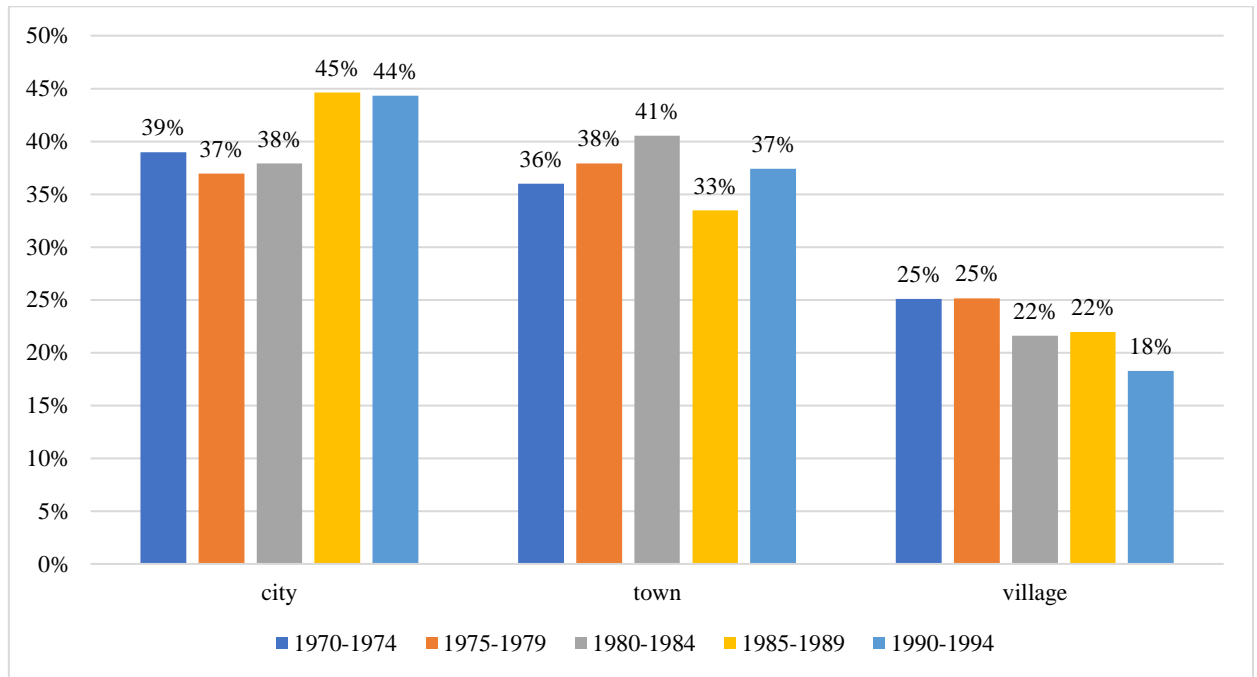
Figure 5. The shares of women in localities of different types (city, town, village)

Source: Person, Family, Society (2013), author's calculations

Before proceeding to the descriptive statistics of migrations across generations, let us analyze the distributions in location types, reflected in Figure 5.

As Figure 5 shows, the respondents are shared between the three location types (village, town, and city) irregularly. While the share of women residing in village is shrinking from generation 1970-1974 (25%) to generation 1990-1994 (18%), the share of women residing in city increases in the youngest two generations (45% and 44% respectively) compared to the shares of women in the three oldest generations (39%, 37%, and 38% respectively). While the share of respondents residing in village is in all 5 generations the smallest, the share of women residing in town varies from 33% to 38% in different generations, and the share of women residing in city varies from 37% to 45% in different generations making them the prevailing group.

Finally, Figure 6 shows the shares and distributions of migrations numbered 1 to 5 in each generation.
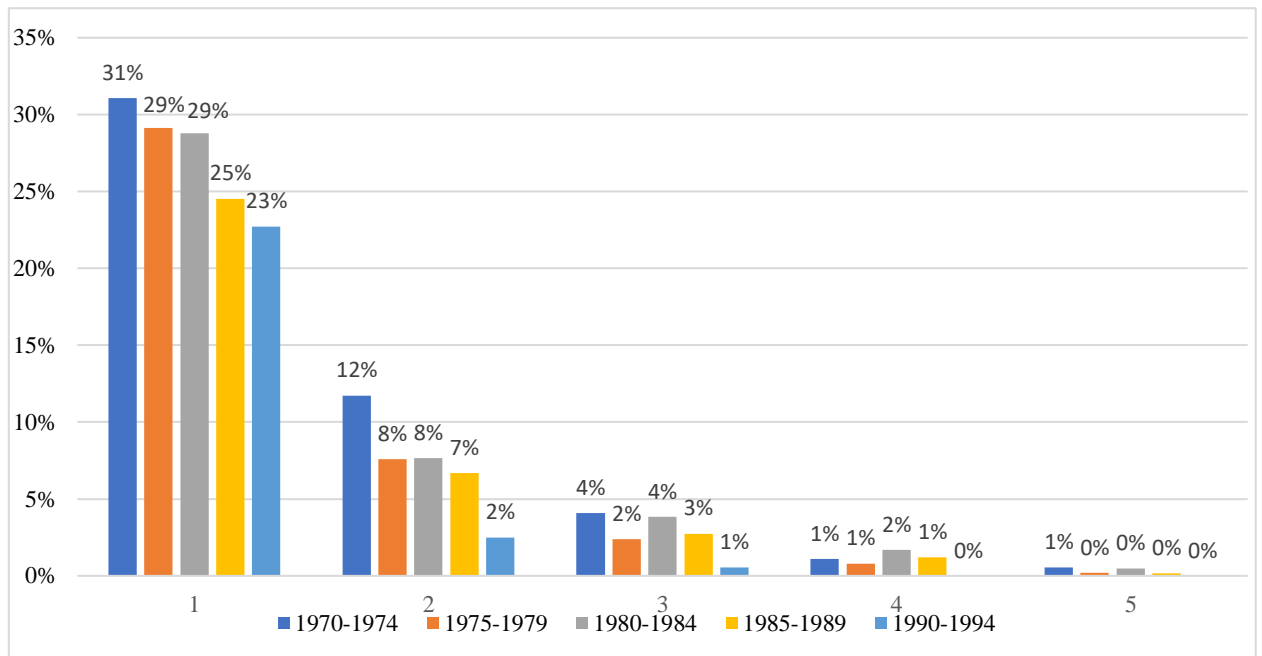
Figure 6. The shares of women in migrations of different orders (from the 1st to the 5th)

Source: Person, Family, Society (2013), author's calculations

Figure 6 shows that more than two thirds of respondents in generations 1970-1974, 1975-1979, and 1980-1984, and about three quarters of respondents in generations 1985-1989 and 1990-1994 never migrated before 2013. The share of respondents who had their 2nd migration is generally smaller than 10% (except for 12% in generation 1970-1974), and is smaller than 5% for the event of the 3rd migration.

If to compare the distribution of the events of migration across generations with the distribution of other studied events representing demographic behavior, namely the events of partnership, marriage, and childbearing, migration is a far rarer event than any of the others. However, there are peculiarities concerning specific generations that will be described below.

For each generation, there is a large gap is percentage between the 1st and the 2nd events in each category of events. Generation 1990-1994 generally has smaller percentage of respondents who had certain events compared to all other generations in each category of events, possibly to their shorter life courses by 2013. *We find it reasonable to further study only the 1st events* because of the insufficient numbers of respondents who had their 2nd events and the unreasonable complexity of methods for such sample otherwise. Thus, we choose only 1st migration, 1st partnership, 1st marriage and 1st childbearing as significant events for further analysis.

The biggest gap in shares of respondents having 1st event between generations 1990-1994 and 1970-1974 concerns 1st childbearing (17% vs 89%); then go 1st marriages (17% vs 71%), 1st

partnerships (31% vs 61%), the smallest gap concerns 1st migration (23% vs 31%). This may mean that the *first event out of the chosen four in young women's life courses is migration*; this suggestion will be tested later in the study and described below.

To analyze the comparison between the location type (locality) at birth and at interview date, let us see Figure 7. From the PFS Survey, several types of locality change could be outlined: village-village, village-town, village-city, town-town, town-village, town-city, city-city, city-village, and city-town. In order to summarize the results into 3 possible groups, we unified village-village, town-town, and city-city into "no locality change" type; village-town, town-city, and village-city into "rural-urban" type; and town-village, city-village, and city-town into "urban-rural" type.
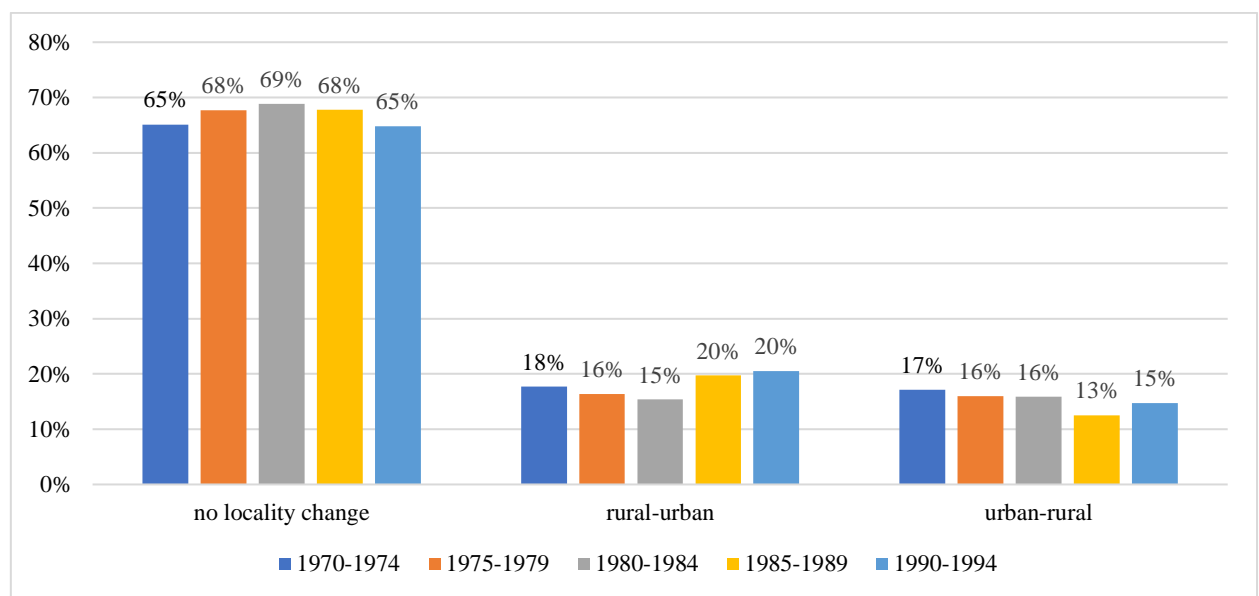
Figure 7. The shares of women by locality change (no locality change, rural-urban, urban-rural)

Source: Person, Family, Society (2013), author's calculations

As shown in Figure 7, around two thirds of the respondents (from 65% to 69% in various generations) have not changed their location type, or at least were residing in the same localities at birth and at interview date. For generations 1970-1974, 1975-1979 and 1980-1984 there was almost no difference in percentage between rural-urban and urban-rural migrants (from 15% to 18%), but in generations 1985-1989 and 1990-1994, the percentage of rural-urban migrants is 7% and 5% higher than the percentage of urban-rural migrants.

In order to analyze the distribution between migrants and non-migrants depending on type locality across generations, let us see Figure 8.
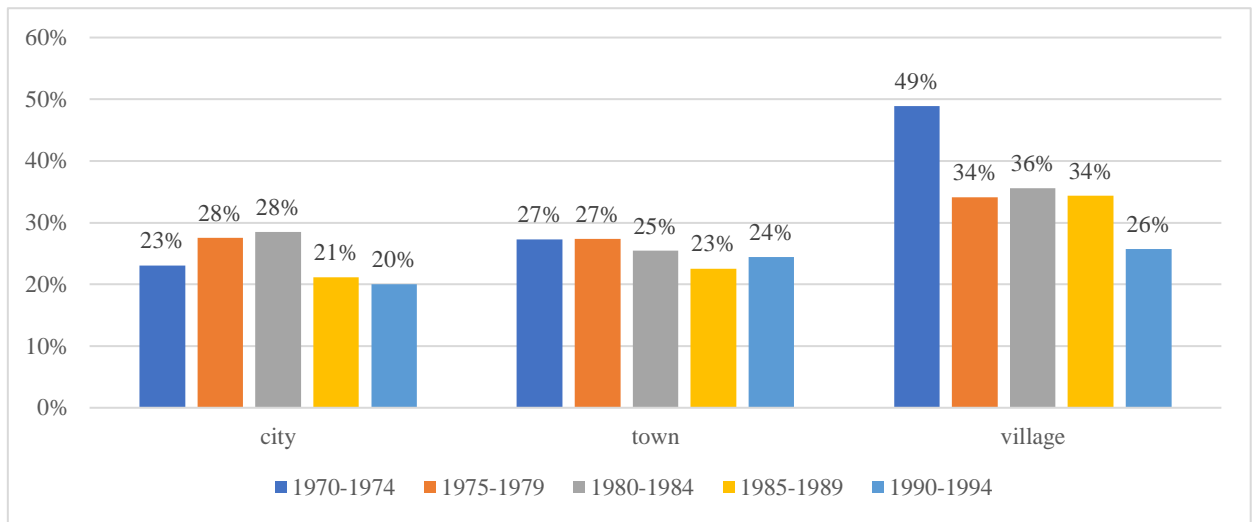
Figure 8. The shares of migrant women within their respective localities of origin (city, town, village)

Source: Person, Family, Society (2013), author's calculations

In addition to the previously discussed conclusion that the studied generations mostly prefer similar types of locality to migrate, we can also see that among migrants, the biggest share come from village; in generation 1970-1974 they make a half (49%) against a quarter (27% and 23%) of individuals originated from town and city respectively. The shares of migrants born in town and in city are very similar compared to the bigger shares of migrants from village.

Figure 9 describes reasons for the 1st migration across generations.
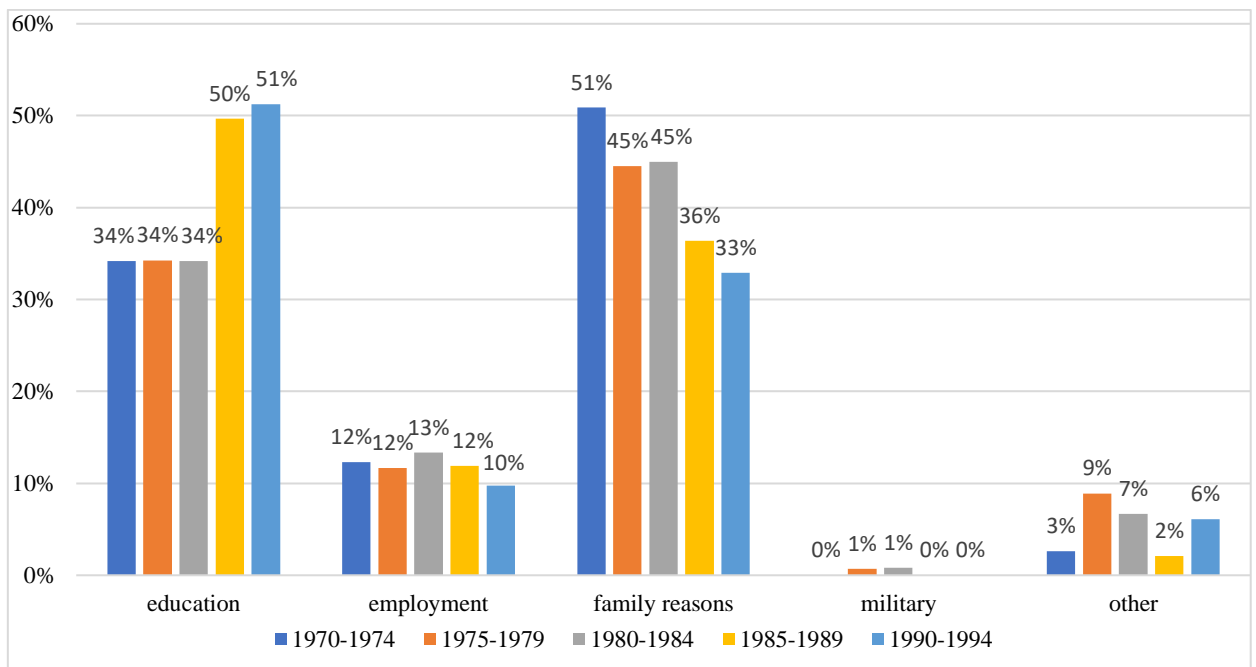
Figure 9. The shares of women by reasons for their 1st migration (education, employment, family reasons, military, other)

Source: Person, Family, Society (2013), author's calculations

Figure 9 shows that the prevailing reasons for migration among all generations of the studied women, are "education" and "family reasons"; the least popular reason is "military". Such reason as "employment" is valid for 10%-13% of women depending on a generation, "other" was marked by 2%-9% depending on a generation.

It is peculiar that for the reasons "education" across generations 1970-1974, 1975-1979, and 1980-1984 the share of respondents is stable and makes one third (34%), however, among younger generations almost a half (50% and 51%) marked "education" as a reason for their 1st migration. As for "family reasons", the percentage of women who picked up this reason for their 1st migration decreases from the oldest (51%) to the youngest (33%) generation. Excluding "military", "employment" is the reason with the most even distribution across generations.

In order to compare percentages of women who had their 1st events or partnership, marriage, childbearing, and migration across generations, let us see Figure 10. As shown in Figure 10, the event of 1st childbearing is leading in percentage across generations 1970-1974, 1975-1979, and 1980-1984. 1st migration is the least frequent event in all generations but 1990-1994 by 2013. Being the second frequent event after 1st partnership in the youngest generation, it contributes to the suggestion that 1st migration comes earlier than the other studied 1st events, and provides an additional reason for analyzing the impact of migration on demographic behavior.
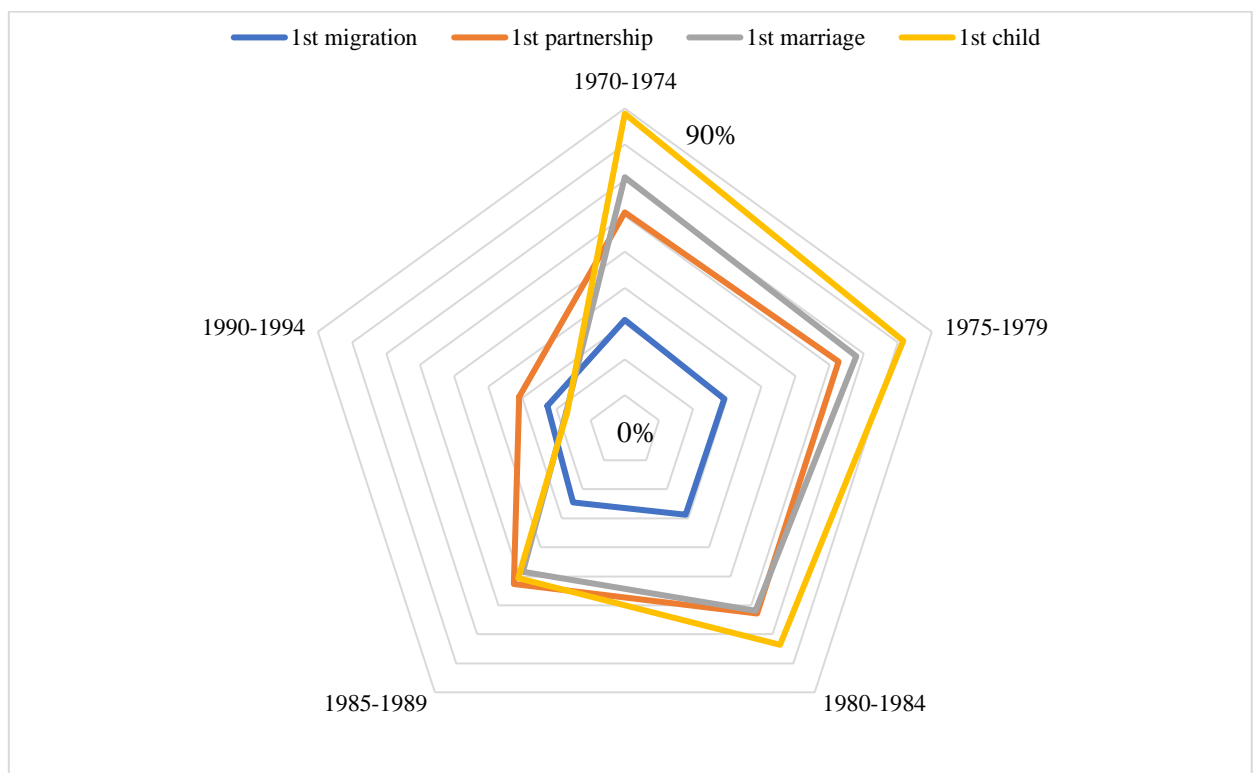
Figure 10. The shares of women in their 1st events, percentage

Source: Person, Family, Society (2013), author's calculations

Figure 11 gives a glimpse of median ages when women of each generation had their 1st migration, marriage, partnership, and child. As shown in Figure 11, although the youngest generation 1990-1994 has a slightly different order of events, other 2 generations had their 1st events in the following order: 1st migration, 1st partnership, 1st marriage, 1st child. In generation 1990-1994, after 1st partnership comes 1st child, and only then their 1st marriage. Generally, all the 1st events occur between median ages of 16 and 23. The intervals between the 1st events median ages in each generation take 1 year or longer. The graph supports our suggestion that in individual life biographies, 1st migration is usually occurring earlier than 1st partnership, 1st marriage, and 1st child in each generation, and we should stratify all generations by the fact of 1st migration in EHA to study an effect of 1st migration on other life events. The results were tested with NP-tests (Independent Samples Median Test, Independent Samples Kruskal-Wallis Test, Independent samples Jonckheere-Terpstra Test for Ordered Alternatives) and showed the difference between generations to be statistically significant at 0.05 level.
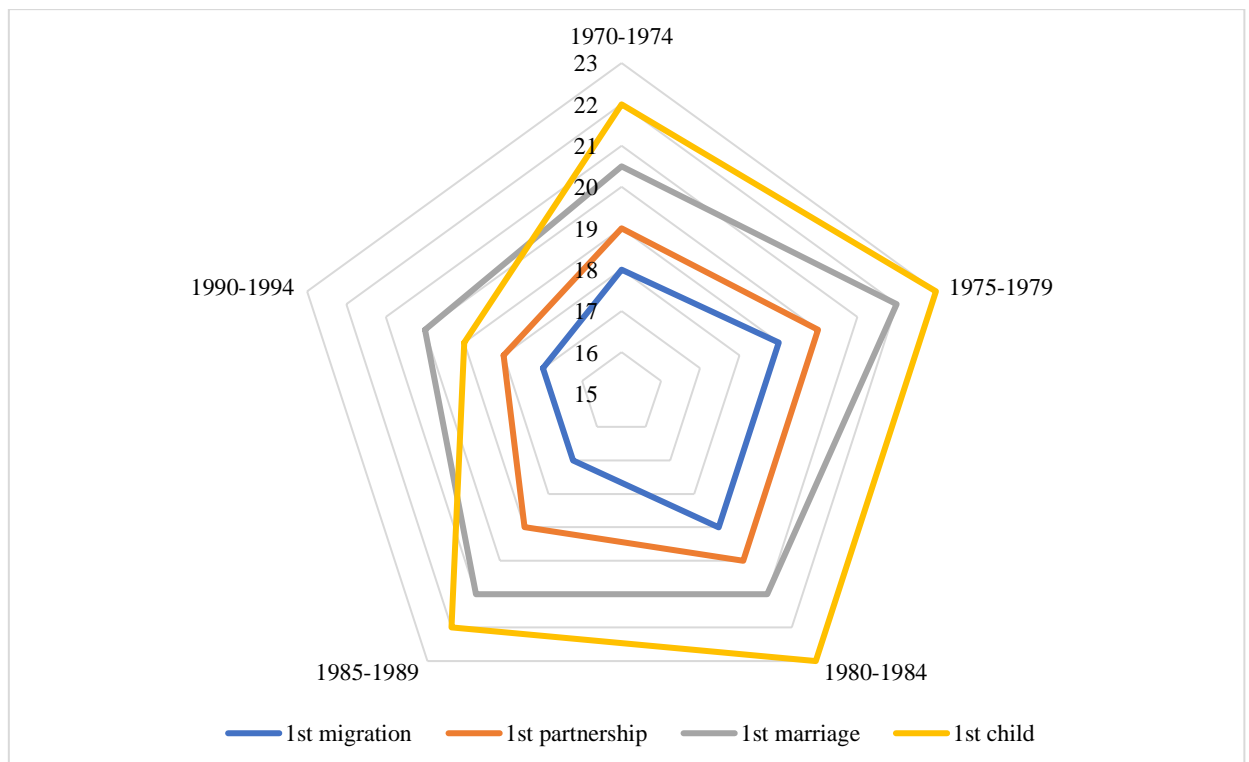
Figure 11. Median ages of 1st events across generations of women in Russia

Source: Person, Family, Society (2013), author's calculations

Conclusions from Chapter 2

Descriptive statistics of PSF Survey individual life biographies of 5 women generations in Russia gives a portrait of migration and demographic behavior of a sample of Russian women. Considering the variety of all possible characteristics of the sample respondents, we can apply the description to the Russian women reproductive age population in general. Migration and demographic behavior patterns are the following:

1) Number of events: the difference between the 1st and the 2nd event in percentage of involved population is big in each generation: starting with around or more than 2 times for childbearing, and then enhancing for partnerships, marriages and migrations. It means that most of the women who had 1st event in one of the studied categories, are more probable not to have their 2nd event of the same category. Therefore, we find it reasonable to further study only 1st events and to perform EHA on them exclusively.

2) The popularity of events of different categories also varies in different generations. For instance, the most popular 1st event for the oldest generations (1970-1974, 1975-1979, 1980-1984) is childbearing (74-89%), then go marriage (62-71%), partnership (61-63%), the least common is migration (29-31%). In generation 1985-1989 around half of the individuals had 1st events of partnership, marriage, and childbearing, but only around a quarter – or migration. For the youngest generation, 1990-1994, as their 1st event around one third had partnership, a quarter – migration, and 17% marriage and childbearing. This may be explained by different median ages of 1st events that will be described below.

3) Russian female population is mostly immobile. More than 2/3 of women never migrated before age 43. Among migrants, around from a quarter to one third of women depending on generation had their 1st migration in their lives, around only 2-12% moved for the 2nd time, the figures are even smaller for further migrations.

4) Russian women have their 1st events between ages 16 and 23 in all 5 generations. First migration comes before other first events in all generations, median ages of 1st migration are from 17 to 19. It justifies a) the choice of 1st migration as the factor supposedly affecting other 1st (demographic) events in EHA, and b) the choice of all 5 generations to perform EHA on: even for the youngest generation with ages between 19 and 23, we suggest there will be a valid number of respondents who had 1st events to analyze, others will be censored.

5) Among all female respondents, around two thirds in each generation have not changed their type of locality between birth and interview date. Urban-rural and rural-urban types of migration

are distributed equally among the rest of the respondents, with rural-urban migration gaining more weight in percentage for the two youngest generations.

6) Regarding type of original locality of those who had 1ˢᵗ migration in their life careers, village dominates over town and city in each generation. The difference is the biggest in the oldest generation, 1970-1974, where around a half of all migrants were from village, and around a quarter – from city or town.

7) Top two reasons for 1ˢᵗ migration in all generations are family reasons and education, the least popular is military. Family reasons percentage is gradually dropping from 51 to 33 with each younger generation; education, however, gains significantly more weight in the two youngest generations (around a half of the respondents in each generation) compared to the three oldest generations (around one third of the respondents in each generation).

The general conclusion is that although the Russian female population is mostly immobile, there are obvious differences between generations of migrant population: younger generations move for education and follow rural-urban type of migration more often than older generations, the major part of migrants come from village. Most 1ˢᵗ migrations and demographic events happen at young age (before 23). Russian women first move, and then have partnerships, marriages, and children. 1ˢᵗ migration is times less popular 1ˢᵗ event than marriage, childbearing, or partnership.

Chapter 3. Event-History Analysis of the Interrelations between Migration and Demographic Behavior of Russian Women

3.1 Methods of Analysis of the Interrelations between Migration and Demographic Behavior Events

The goal of the research is to analyze the data from the nationwide social, demographic, and economic survey "Person, Family, Society" (PFS, 2013) to define the role of migration in demographic behavior of modern Russian women, to understand the impact of migration on their marital and reproductive behavior using the following methods: descriptive statistics, shares and distributions, Cox regression, EHA.

EHA is a convenient method to study biographies. It provides for analysis of how the risk of occurrence or non-occurrence of event is dependent from the duration of stay under risk for an object, as well as from any other characteristic of an object and external factors affecting that risk (Burdyak 2007). Compared to standard regressions, EHA is more suitable for the datasets where a part of respondents had not had a studied event before the interview date. EHA allows to build models with inclusion of those respondents who had the event and those who did not. Moreover, EHA provides for using the time variable, i.e. to observe the timing of development of the event and to take it into account while building models.

However convenient to study biographies, EHA is also quite a demanding method that requires the use of a very detailed data on individuals' biographies that include indication of precise dates, ages, facts of events, as well as supporting social and economic background data such as economic conditions of the household, type of locality and even type of housing of the respondents, their education level, personal values and beliefs. The PFS Survey has been designed specifically to conduct detailed analyses of individuals' biographies and thus is suitable for EHA.

3.2 Cox Regression Model Building

EHA is targeted at examining two functions: the survival function, $\mathbf{S(t)} = P(T > t) = 1 - F(t) = 1 - \int_0^t f(u)\, d(u)$, and the hazard function, $\mathbf{h(t)} = \lim_{\Delta t \to 0} ((P\ (t \leq T < t + \Delta t | T \geq t))\ /\ \Delta t) = f(t) / S(t)$. The survival function allows to see the probability of non-occurrence of a given event until time t (stated in months). The hazard function allows to see the immediate risk of experiencing an event at T = t (stated in months), given that the studied event did not occur before t.

Dependent variable in EHA is the factor of transfer from one status to another. This factor allows to correlate possible future status changes with past biographic observations. It makes the basis for modelling of time coordinate of the observed individual's life career. In this research, we used Cox regression within SPSS statistical package.

We have built 6 base models with different start events (1st migration and age 15) to analyze the impact of 1st migration on 1st childbearing, 1st marriage and 1st partnership (here: demographic events) across generations as well as to see the difference in demographic behavior between migrants (who had at least one migration in their life) and non-migrants. Background characteristics used in the models are the following:

Event – event which risk of occurrence of which is studied;

Objects – individuals under risk of event occurrence;

Time – the interval between the moment of occurrence of the individual in the risk group and the event occurrence in the individual's life;

Covariates (predictors) – the factors that may have an impact on the studied risk.

Background characteristics of each model are described in Table 1.

Table 1. Background characteristics of proportional risk models – base models

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
The risk between	1st migration and 1st childbearing	1st migration and 1st marriage	1st migration and 1st partnership	Age 15 and 1st childbearing	Age 15 and 1st marriage	Age 15 and 1st partnership
Event	1st childbearing	1st marriage	1st partnership	1st childbearing	1st marriage	1st partnership
Object	Female respondents of generations between 1970 and 1994 after their 1st migration			Female respondents of generations between 1970 and 1994 after their age 15		
Time	Number of months between 1st migration and 1st childbearing	Number of months between 1st migration and 1st marriage	Number of months between 1st migration and 1st partnership	Number of months between age 15 and 1st childbearing	Number of months between age 15 and 1st marriage	Number of months between age 15 and 1st partnership
Covariates	Education type; Age at 1st migration	Education type; Age at 1st migration	Location comparison; Age at 1st migration; Age at 1st childbearing	Age at 1st marriage; Location	Age of leaving the parental home; Location; Fact of 1st partnership	Location comparison; Age at 1st marriage
Stratification	Generations	Generations	Generations	Fact of 1st migration	Fact of 1st migration	Fact of 1st migration

Before building the models, we have tested assumed covariates on independence with Pearson's correlation testing. The covariates in each model should not have correlated much with each other, but they must correlate with the dependent variable. The tested covariates were: location comparison (comparison between type of locality at birth and at the interview date), type of education (higher, vocational, general), location (city, town, village), generation, age at 1st employment, age at leaving the parental home, age at 1st migration, age at 1st partnership, age at 1st marriage, age at 1st childbearing, fact of 1st employment , fact of leaving the parental home, fact of 1st partnership, fact of 1st marriage, fact of 1st migration, fact of 1st childbearing. Out of the above covariates, in each model we had to exclude the following groups: factor of stratification, fact of event – if indicated in "event" category; and deliberately leave in the model age at initial event within "time" element if the event is not an indication of age itself.

Pearson's correlation testing has shown significant correlations between most of the tested covariates, so the majority had to be excluded from the models. Education type showed correlation with almost all dependent variables, as well as with almost all other covariates, so we had to leave this covariate only in the cases where there was at least one covariate independent from education type that could be used in the model.

We then split models 4, 5, 6 into two sub-models each for non-migrants (4.1, 5.1, 6.1) and migrants (4.2, 5.2, 6.2) with stratification by generation to deepen into the suggested differences in demographic behavior between migrants and non-migrants across generations. Background characteristics of those 6 additional sub-models are shown in Table 2.

Table 2. Background characteristics of proportional risk models – sub-models

	Model 4.1	Model 4.2	Model 5.1	Model 5.2	Model 6.1	Model 6.2
The risk between	Age 15 and 1st childbearing, Non-migrants	Age 15 and 1st childbearing, Migrants	Age 15 and 1st marriage, Non-migrants	Age 15 and 1st marriage, Migrants	Age 15 and 1st partnership, Non-migrants	Age 15 and 1st partnership, Migrants
Event	1st childbearing		1st marriage		1st partnership	
Object	Female respondents of generations between 1970 and 1994 after age 15 who had 1 or 0 facts of migration (depending on the model)					
Time	Number of months between age 15 and 1st childbearing		Number of months between age 15 and 1st marriage		Number of months between age 15 and 1st partnership	
Covari-ates	Age at 1st marriage; Location		Age of leaving the parental home; Location; Fact of 1st partnership		Location comparison; Age at 1st marriage	
Stratifi-cation	Generations					

If generalized, event is a 1st demographic event (1st childbearing, 1st marriage, 1st partnership), objects – female respondents between 1970 and 1994, time – number of months from either 1st migration (for models 1,2,3) or age 15 (for models 4, 5, 6, 4.1, 5.1, 6.1, 4.2, 5.2, 6.2) to a 1st demographic event, covariates varied from one model to another, but could include education type, age at 1st migration, location comparison, age at 1st childbearing, age at 1st marriage, location, age of leaving the parental home and fact of 1st partnership in different models.

We used the same covariates for models 4, 4.1 and 4,2; 5, 5.1 and 5.2, 6, 6.1, 6.2. However, during performing of Cox regression, some of the covariates that worked well for models 4, 5, or 6, were excluded from models 4.1, 5.2, 6.2 by SPSS. For 4.2 it was location, for 5.2 – fact of 1st partnership, and for 6.2 – location comparison. Thus, the models based on time interval between age 15 and 1st demographic event illustrated difference between migrants and non-migrants. The details are shown in Tables 3 and 4.

Relatively low number of events in models 1, 2, 3, 4.2, 5.2, 6.2 are dictated by censoring of many cases of respondents who never had a single migration in their lives (yet); as Russian female population is not very mobile, groups of migrant respondents are minor compared to non-migrants. Based on the descriptive statistics on median ages of 1st migration and 1st demographic events in each generation, we expect insignificant "right-end" censoring where an event has not happened before the date of interview but is likely to happen in future because all the studied events occur at young median ages (before 23) in all 5 generations.

3.3 Main Results of Cox Regression Models

In Tables 3.1 and 3.2, column "B" expresses the beta coefficient fitting into the Survival and Hazard functions. Column "Exp B" expresses the effect of a specific covariate, relative to 1, on the dependent variable. If Exp(B)>1, the effect of a covariate on the dependent variable is positive, if Exp(B)<1, the effect is negative. Base predictor is used to measure how the risk changes with change of values of a covariate. All six base models resulted being statistically significant and are therefore valid for interpretation. Let us now take a closer look at Models 1, 2, 3.

Table 3.1. Proportional risk models "1st migration – 1st demographic event" stratified by generation

Predictors	Model 1 Coefficients			Model 2 Coefficients			Model 3 Coefficients		
	B	Sig.	Exp B	B	Sig.	Exp B	B	Sig.	Exp B
Education type: *- higher (ref.)*	-	0.000	-	-	0.006	-	**-**	**-**	**-**
- vocational	0.303	0.024	1.354	0.165	0.263	1.180	**-**	**-**	**-**
- general	0.923	0.000	2.516	0.577	0.001	1.781	**-**	**-**	**-**
Age at 1st migration	0.165	0.000	1.179	0.232	0.000	1.261	0.144	0.000	1.155
Age at 1st child	**-**	**-**	**-**	**-**	**-**	**-**	-0.111	0.000	0.895
Stratification variable	Generations								
Model specs	-2 LL	Chi-sq.	Sig.	-2 LL	Chi-sq.	Sig.	-2 LL	Chi-sq.	Sig.
	2052.8	137.16	0.000	1510.12	89.474	0.000	939.38	33.724	0.000
Sample size		Event	325		Event	257		Event	176
		Censored	0		Censored	0		Censored	0
		Total	325		Total	257		Total	176

-2LL - Log Likelihood
Chi-sq. – Chi-square
Sig. – Significance
ref. – reference category

In Model 1, we observe quite a strongly-marked effect of education type covariate on 1st childbearing after 1st migration: respondents with vocational education have 1.4 times bigger risk (likelihood) of 1st childbearing, and respondents with general education – 2.5 times bigger risk. Covariate "Age at 1st migration" was measured in years: risk of 1st childbearing grows 1.2 times with each year of age at migration.

For Model 2, risk of 1st marriage after 1st migration is 1.2 times bigger for those with vocational education, and 1.8 times bigger for those with general education compared to respondents with higher education after their 1st migration. Each additional year of age at 1st migration increases risk of 1st marriage 1.3 times.

For Model 3, the two covariates that showed an impact on the risk of 1st partnership after 1st migration were age at 1st migration (increases risk 1.2 times with each additional year of age) and age at 1st childbearing (decreases risk 0.9 times with each additional year of age).

Figure 3.1: Survival and hazard functions of Cox regression test (Source: Person, Family, Society (2013))

Model 1. 1st childbearing after 1st migration	**Model 2. 1st marriage after 1st migration**	**Model 3. 1st partnership after 1st migration**
1a. Survival Function at Mean of Covariates	2a. Survival Function at Mean of Covariates	3a. Survival Function at Mean of Covariates

1b. Hazard Function at Mean of Covariates	2b. Hazard Function at Mean of Covariates	3b. Hazard Function at Mean of Covariates
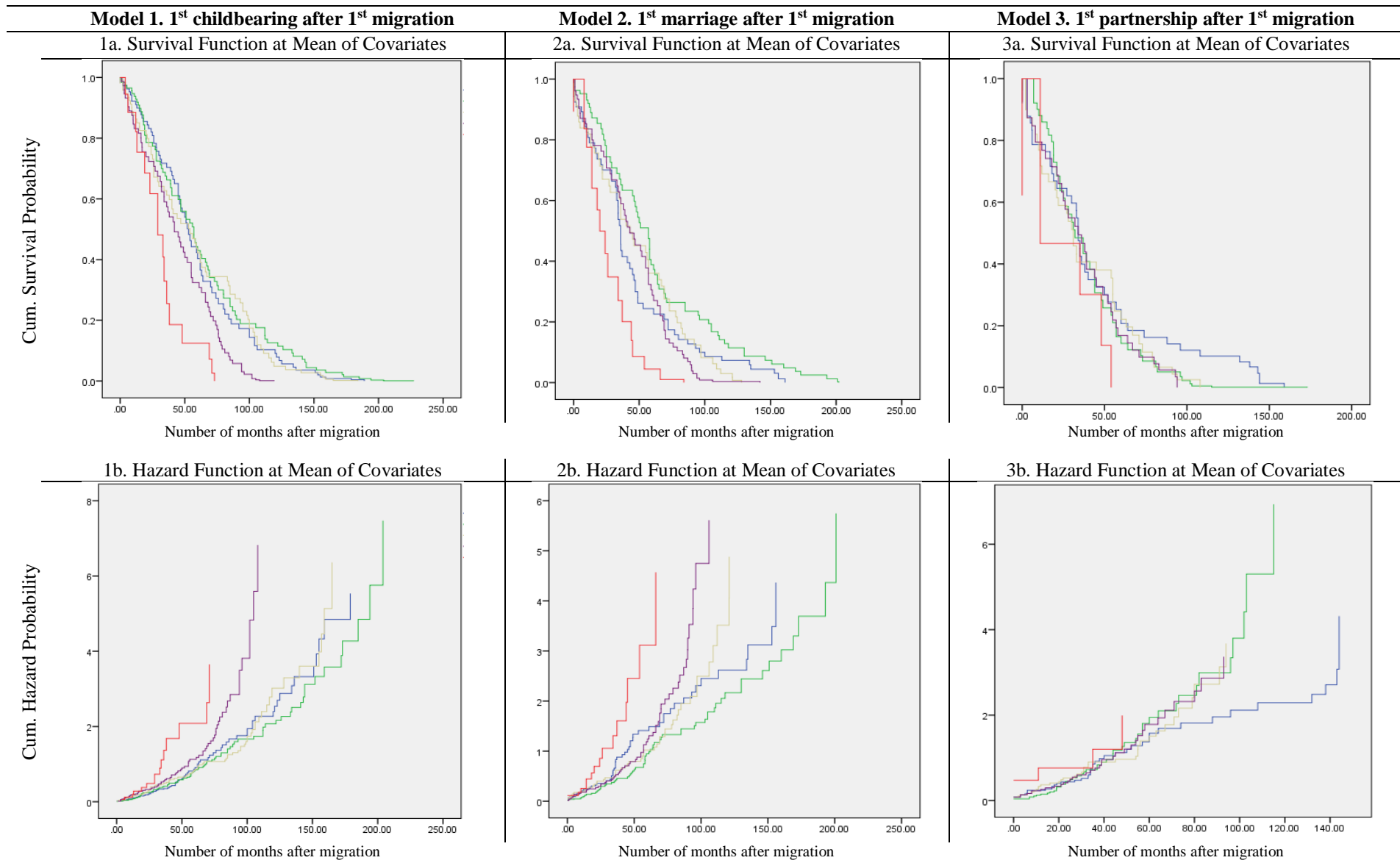
1970-1974 (blue), 1975-1979 (green), 1980-1984 (olive), 1985-1989 (purple), 1990-1994 (red)

Figure 3.1 shows Survival and hazard functions of Cox regression test for Models 1, 2, 3. All graphs show how the risk (likelihood) of occurrence of a 1st demographic event (childbearing, marriage, or migration) increases as the time, expressed in number of months, passes after 1st migration. We can observe that stratification by generation shows difference between generations, which is especially noticeable for Models 1 and 2. Some of the color lines are used to reflect generation are shorter than the others due to censoring – this is particularly clear for red line that represents the youngest generation 1990-1994.

It is peculiar that in Models 1 (1st childbearing) and 2 (1st marriage) the likelihood of occurrence of the studied event changes from one generation to another, but not in the chronological order. The lowest risk throughout the whole life career after 1st migration is observed for second oldest generation, 1975-1979; the highest – for the youngest generation, 1990-1994. For Model 1, the risk of 1st childbearing remains approximately the same for the first approximately 2 years (24 months) after 1st migration for all generations; then it keeps ascendance for the youngest generation while stalling for the rest of the generations. Another divergence of risk trajectories occurs at the point of approximately 5 years after 1st migration where the risk of 1st childbearing slightly but irrevocably increases for generation 1985-1989. The likelihood of 1st childbearing for the rest 3 generations stalls at approximately the same rate and remains similar for approximately 13 years of the observation after 1st migration – then generation 1975-1979 stalls again.

In Model 2 (1st migration – 1st marriage), the trajectories of likelihood of the demographic event occurrence start diverge at the very beginning of the observation – in approximately 1 year after 1st migration the youngest generation's likelihood of 1st marriage ascends while stalling for remaining generations. In general, throughout the observed life career after 1st migration, the fastest growth of the likelihood of 1st marriage is taken bey the youngest generation, then go 1985-1989, 1980-1984, 1970-1974, and the slowest growth is shown by 1975-1979. It is interesting that in the first two models, generation 1975-1979 shows the slowest rate of the likelihood of demographic event occurrence growth out of all generation, although not being the oldest.

In Model 3 (1st migration – 1st partnership), we can see that the likelihood of the 1st partnership after 1st migration growth at approximately the same rate for all 5 generation within the first approximately 5 years. Then in irrevocable stalls for the oldest generation, 1970-1974, while continuing to ascend at the same pace for the three middle generations. The line representing the youngest generation breaks at the point of approximately 4 years after 1st migration due to censoring.

Table 3.2. Proportional risk models "age 15 – 1ˢᵗ demographic event" stratified by fact of 1ˢᵗ migration

Predictors	Model 4 Coefficients			Model 5 Coefficients			Model 6 Coefficients		
	B	Sig.	Exp B	B	Sig.	Exp B	B	Sig.	Exp B
Age at 1ˢᵗ marriage	-0.230	0.000	0.794	-	-	-	-0.231	0.000	0.794
Location: - *city (ref.)*	-	0.035	-	-	-	-	-	-	-
- *town*	-0.031	0.659	1.032	-	-	-	-	-	-
- *village*	0.200	0.014	1.221	-	-	-	-	-	-
Age of leaving the parental home	-	-	-	-0.119	0.000	0.888	-	-	-
1ˢᵗ partnership (fact)	-	-	-	-0.358	0.000	0.699	-	-	-
Location comparison: - *city-city (ref.)*	-	-	-	-	-	-	-	0.000	-
- *city-town*	-	-	-	-	-	-	-0.648	0.000	0.523
- *city-village*	-	-	-	-	-	-	-0.744	0.006	0.475
- *town-city*	-	-	-	-	-	-	-0.042	0.748	0.959
- *town-town*	-	-	-	-	-	-	-0.180	0.062	0.835
- *town-village*	-	-	-	-	-	-	-0.397	0.008	0.672
- *village-city*	-	-	-	-	-	-	-0.928	0.001	0.395
- *village-town*	-	-	-	-	-	-	-0.226	0.345	0.798
- *village-village*	-	-	-	-	-	-	-0.255	0.038	0.775
Stratification variable	1ˢᵗ migration (fact)								
Model specs	-2 LL	Chi-sq.	Sig.	-2 LL	Chi-sq.	Sig.	-2 LL	Chi-sq.	Sig.
	11115	507.98	0.000	12797	199.80	0.000	7940	360.55	0.000
Sample size	Event	1085		Event	1189		Event	820	
	Censored	0		Censored	0		Censored	0	
	Total	1085		Total	1189		Total	820	

-2LL - Log Likelihood
Chi-sq. – Chi-square
Sig. – Significance
ref. – reference category

In Model 4, age at 1ˢᵗ marriage reduces risk of 1ˢᵗ childbearing after age 15 with each additional year of age by factor 0.8. Compared to city residence, town residence slightly (1.03 times) and village residents more significantly (1.2 times) increases risk of 1ˢᵗ childbearing. However, we should consider that significance is not close to zero for town residence.

In Model 5, we can observe a negative effect of the fact of 1ˢᵗ partnership on the risk (likelihood) of getting married for the 1ˢᵗ time after age 15 – it decreases the risk 0.7 times. Each additional year of age at leaving the parental home also produces negative effect on such risk, and reduces it 0.9 times.

In Model 6, each additional year of age at 1ˢᵗ migration 0.8 times reduces risk of 1ˢᵗ partnership after age 15. Another interesting predictor is location comparison. For some variants, the negative

effect on the risk of 1st partnership is more significant (city-town – 0.5 times, city-village – 0.5 times, village-city – 0.4 times) than for the others, compared to the respondents whose location type at birth and at the date of interview was city. The least significant negative effect is shown for those respondents who changed location types from town to city – this change reduces risk of 1st partnership after age 15 only 0.96 times, compared to city-city respondents.

Figure 3.2 shows Survival and hazard functions of Cox regression test for Models 4, 5, 6. All graphs show how the risk (likelihood) of occurrence of a 1st demographic event (childbearing, marriage, or migration) increases as the time, expressed in number of months, passes after age 15. Stratification is performed by the fact of 1st migration (blue line represents those who had this fact, "migrants", and green like – who had not, "non-migrants"). The age of 1st migration was not determined for this analysis.

Model 4 (age 15 – 1st childbearing) shows gradual ascendance of likelihood of 1st childbearing after age 15 at the time, expressed in number of months, passes. The rates are very similar for both migrants and non-migrants for the first approximately 18 years (220 months) – until age 33 of the respondents. Then there is a slight stalling of the rate of the likelihood growth for migrants, that stops at the point of approximately 20 years (240 months, age 35 of the respondents) when the likelihood of 1st childbearing shows rapid growth for both groups of respondents. In general, the survival and hazard functions graphs show no significant difference between migrants-and non-migrants concerning 1st childbearing.

Model 5 (age 15 – 1st marriage) looks more of our interest. Although there is a constant (and predicable) growth of the likelihood of 1st marriage occurrence as the time passes for both migrants and non-migrants, non-migrants generally show a higher risk of 1st marriage occurrence throughout life career starting with age 15. The rate of the likelihood ascendance is the same for the two groups for the first approximately 6 years (75 months – 21 years of age of the respondents), then the divergence starts progressing. The maximum divergence of the likelihood of 1st marriage occurrence between migrants and non-migrants is reflected on the graph between the time points of approximately 15 and 18 years when the respondents' age is between 30 and 33.

Model 6 (age 15 – 1st partnership) shows that the risk of 1st partnership occurrence after age 15 for both migrant and non-migrants ascends at the same pace within the first approximately 12.5 years (150 months – 27.7 years of respondents' age). Then the likelihood lines split, and the divergence between migrants and non-migrants grows from approximately 12.5 to 15 years with non-migrants being more likely to have their 1st partnership then migrants.

Figure 3.2: Survival and hazard functions of Cox regression test (Source: Person, Family, Society (2013))

Model 4. 1st childbearing after age 15	Model 5. 1st marriage after age 15	Model 6. 1st partnership after age 15
4a. Survival Function at Mean of Covariates	5a. Survival Function at Mean of Covariates	6a. Survival Function at Mean of Covariates
4b. Hazard Function at Mean of Covariates	5b. Hazard Function at Mean of Covariates	6b. Hazard Function at Mean of Covariates

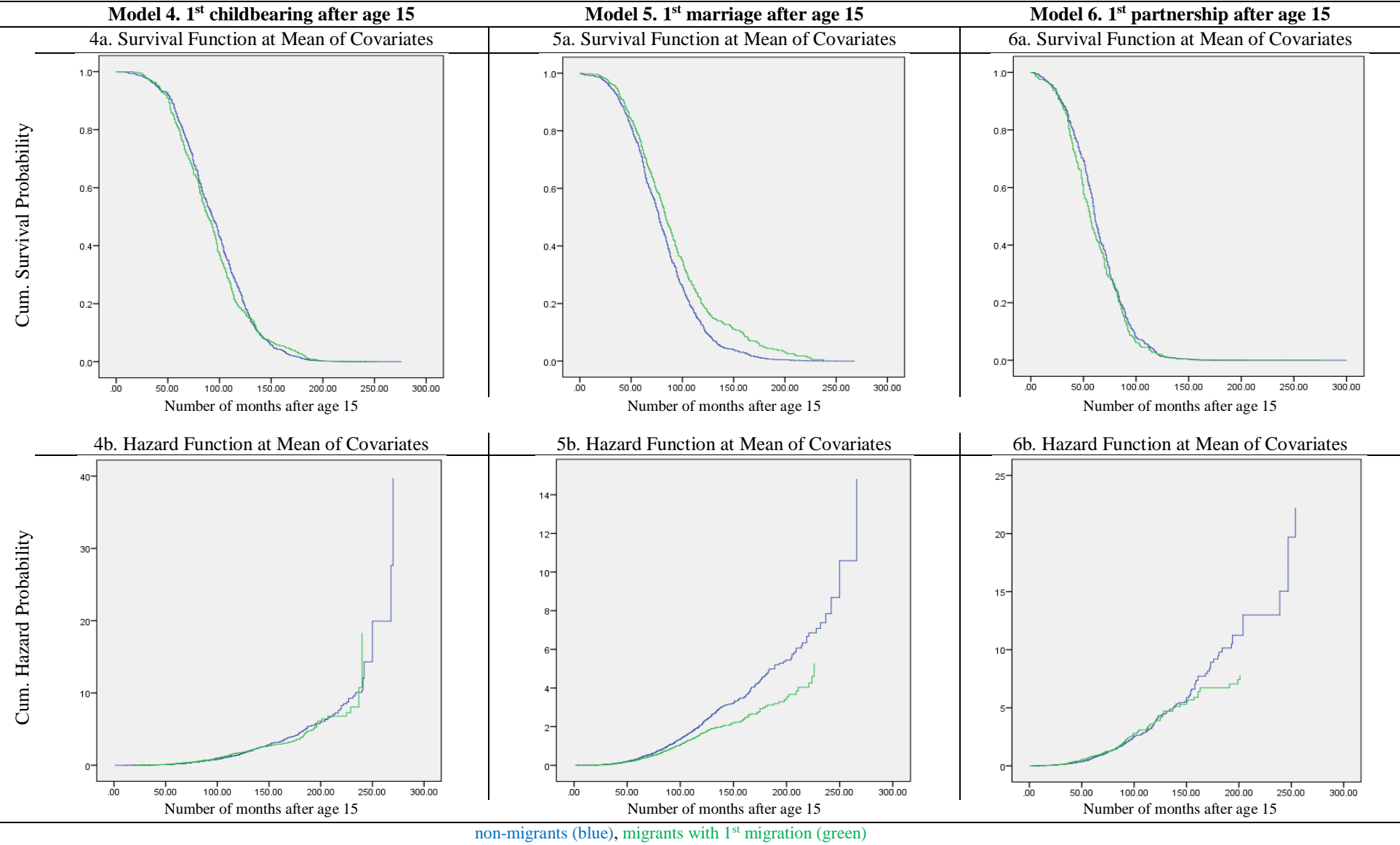non-migrants (blue), migrants with 1st migration (green)

Table 4. Proportional risk models "age 15 – 1st demographic event" stratified by generations (for migrants and non-migrants)

Predictors	Model 4.1 Coefficients			Model 4.2 Coefficients			Model 5.1 Coefficients			Model 5.2 Coefficients			Model 6.1 Coefficients			Model 6.2 Coefficients		
	B	Sig.	Exp B	B	Sig.	Exp B	B	Sig.	Exp B	B	Sig.	Exp B	B	Sig.	Exp B	B	Sig.	Exp B
Age at 1st marriage	-0.249	0.000	0.779	-0.221	0.000	0.802	-	-	-	-	-	-	-0.269	0.000	0.764	-0.222	0.000	0.801
Location: - city (ref.)	-	-	-	-	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-
- town	-	-	-	0.348	0.020	1.416	-	-	-	-	-	-	-	-	-	-	-	-
- village	-	-	-	0.526	0.001	1.691	-	-	-	-	-	-	-	-	-	-	-	-
Leaving parental home (age)	-	-	-	-	-	-	-0.138	0.000	0.871	-0.055	0.001	0.946	-	-	-	-	-	-
1st partnership (fact)	-	-	-	-	-	-	-0.347	0.000	0.706	-	-	-	-	-	-	-	-	-
Location comparison: - city-city(ref.)	-	-	-	-	-	-	-	-	-	-	-	-	-	0.000	-	-	-	-
- city-town	-	-	-	-	-	-	-	-	-	-	-	-	-0.641	0.004	0.527	-	-	-
- city-village	-	-	-	-	-	-	-	-	-	-	-	-	0.068	0.883	1.071	-	-	-
- town-city	-	-	-	-	-	-	-	-	-	-	-	-	-0.082	0.620	0.921	-	-	-
- town-town	-	-	-	-	-	-	-	-	-	-	-	-	-0.178	0.103	0.837	-	-	-
- town-village	-	-	-	-	-	-	-	-	-	-	-	-	-1.099	0.000	0.333	-	-	-
- village-city	-	-	-	-	-	-	-	-	-	-	-	-	-4.567	0.000	0.010	-	-	-
- village-town	-	-	-	-	-	-	-	-	-	-	-	-	0.776	0.196	2.172	-	-	-
- village-village	-	-	-	-	-	-	-	-	-	-	-	-	-0.308	0.037	0.735	-	-	-
Stratification variable	generations																	
Model specs	-2 LL	Chi-sq.	Sig.	-2 LL	Chi-sq.	Sig.	-2 LL	Chi-sq.	Sig.	-2 LL	Chi-sq.	Sig.	-2 LL	Chi-sq.	Sig.	-2 LL	Chi-sq.	Sig.
	5539	335.8	0.000	1935	112.5	0.000	6388	173.4	0.000	2315	11.77	0.001	3856	276.2	0.000	1449	66.08	0.000
Sample size	Event		717	Event		312	Event		786	Event		345	Event		546	Event		249
	Censored		0	Censored		0	Censored		0	Censored		0	Censored		0	Censored		0
	Total		717	Total		312	Total		786	Total		345	Total		546	Total		249

-2LL - Log Likelihood
Chi-sq. – Chi-square
Sig. – Significance
ref. – reference category

Table 4 explains the characteristics of proportional risk models "age 15 – 1st demographic event" stratified by generation separately for migrants and non-migrants. We tested the same predictors (covariates) in the related models, having changed only the stratification factor from fact of 1st migration back to generations. The same covariates were used in the following groups of Models: 4, 4.1, 4.2; 5, 5.1, 5.1; 6, 6.1, 6.2. All six sub-models are statistically significant and are therefore valid for interpretation. However, some of the covariates that were used in the original set of Models (4, 5, 6) were excluded from some of the additional sub-models. Details are described below.

In Models 4.1 and 4.2 (age 15 – 1st childbearing), the covariates that were tested were Age at 1st marriage and location type. The Cox regression, however, excluded location type from the model for non-migrants. Model 4.1 shows that each additional year of the age at 1st marriage reduces the risk of 1st childbearing in non-migrants by factor 0.8. Similar is true in Model 4.2 for migrants. This is compatible to the results of Cox regression shown in the base Model 4. Additionally, location type seems to apply a role in the likelihood of 1st childbearing occurrence after age 15 for migrant women: Model 4.2 shows that such likelihood is 1.4 bigger in town residents and 1.7 bigger in village residents compared to city residents. The difference is bigger than in the Base Model 4 with factors 1.03 and 1.2 correspondingly.

In Models 5.1 and 5.2 (age 15 – 1st marriage), the tested covariates were: age at leaving the parental home and fact of 1st partnership. The Cox regression excluded fact of 1st partnership from the model with migrant women (5.2). In this model, we can observe that each additional year of age at leaving the parental home slightly (by factor 0.95) reduces the likelihood of migrant women to have 1st marriage in their lives after age 15. In Model 5.1, the same covariate reduces such likelihood more significantly – by factor 0.8 for non-migrant women after their age 15. In Model 5.1, we can observe the same as in the base Model 5 negative effect of the 1st partnership (fact) on the likelihood of 1st marriage after age 15 – it decreases the risk by factor 0.7.

In Models 6.1 and 6.2 (age 15 – 1st partnership), it was a surprise that the Cox regression excluded location comparison predictor not from a model with non-migrants, but vice versa, from the model with migrants. However, significance is not close to zero in all observations. The predictor "Age at 1st marriage" gives 0.8 times reduction of risk of 1st partnership for both migrants and non-migrants, which is compatible with the results of the base Model 6. For some variants of location comparison covariate, the negative effect on the risk of 1st partnership is more significant (city-town – 0.01 times, town-village – 0.3 times, city-town – 0.5 times) than for the others, compared to the respondents whose location type at birth and at the date of interview was city.

Figure 3.3: Survival and hazard functions of Cox regression test (Source: Person, Family, Society (2013

Model 4.1. 1st childbearing after age 15, non-migrants	Model 4.2. 1st childbearing after age 15, migrants with 1st migration
4.1a. Survival Function at Mean of Covariates	4.2a. Survival Function at Mean of Covariates
4.1b. Hazard Function at Mean of Covariates	4.2b. Hazard Function at Mean of Covariates

1970-1974 (blue), 1975-1979 (green), 1980-1984 (olive), 1985-1989 (purple), 1990-1994 (red)
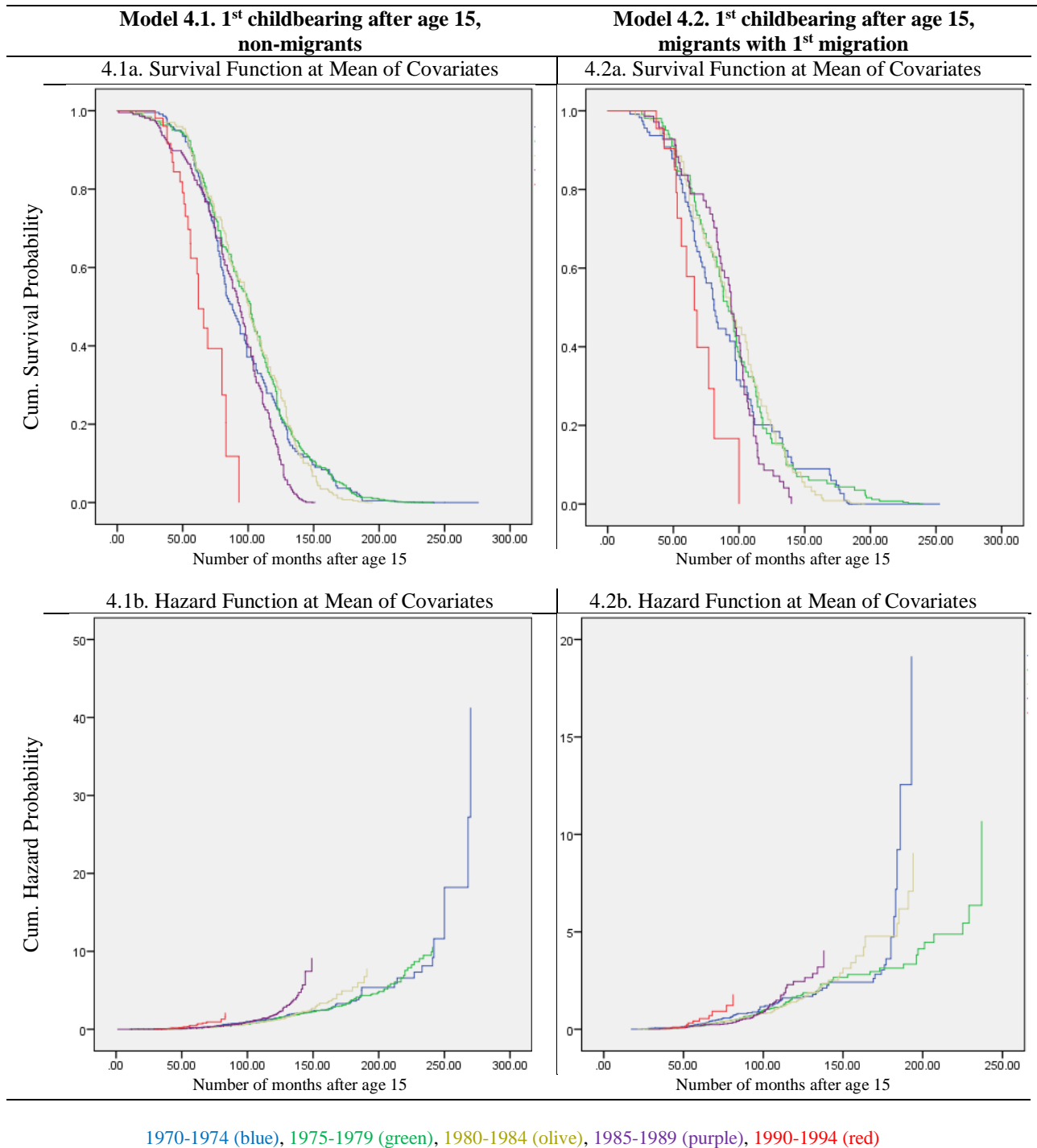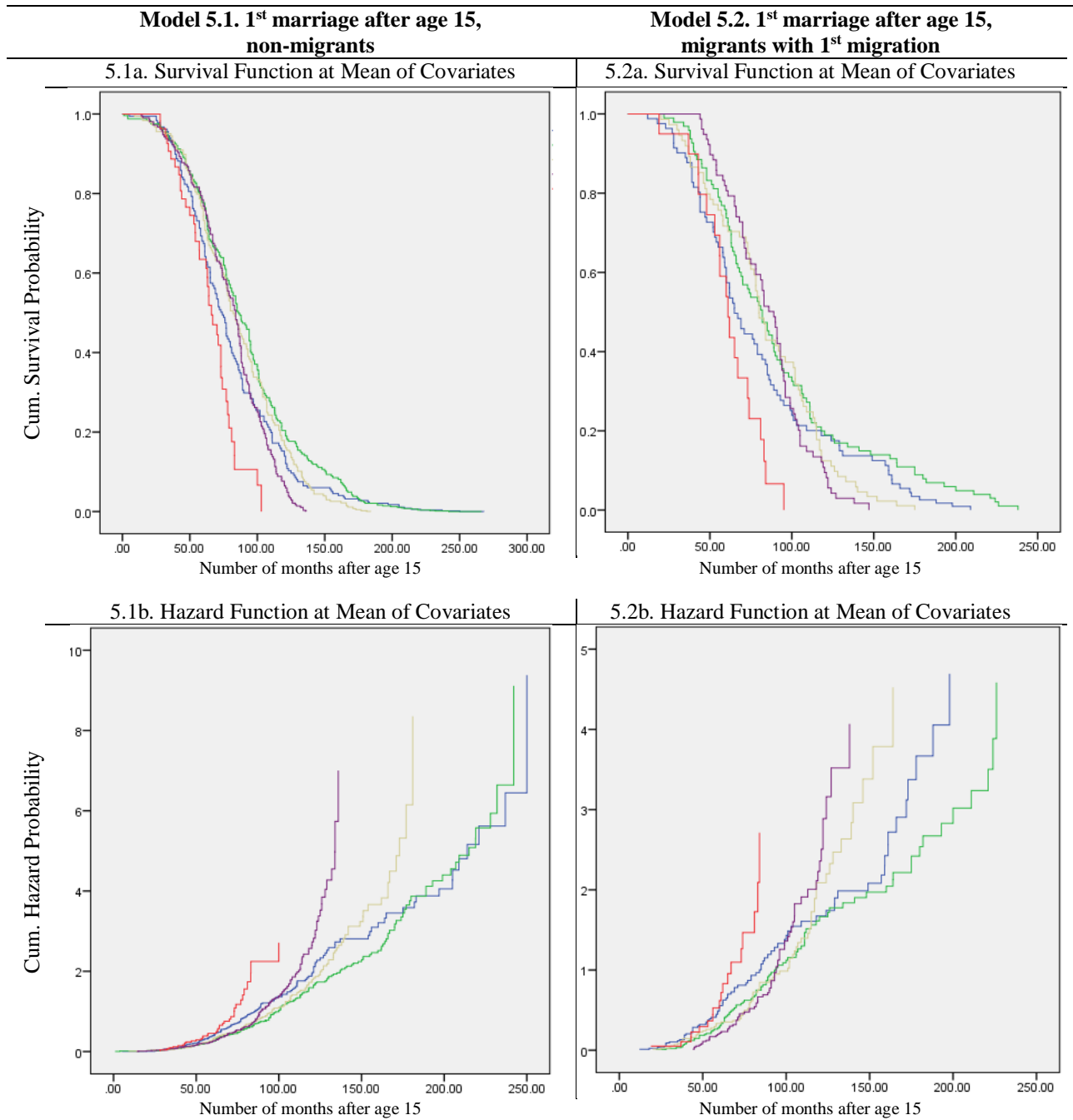
Figure 3.3 shows Survival and hazard functions of Cox regression test for Models 4.1 and 4.2. Although the graphs look similar at first sight, the axes "Cumulative Hazard Probability" reflect different scales. Censoring cuts the lines representing the youngest generations. The risk of 1st childbearing after age 15 growth gradually for all generations with a splash for generation 1990-1994 at the point of approximately 22 years of age, a splash for non-migrant women by 27 years of age expressed more clearly than for migrant women. The risk lines for the oldest 3 generations look the same expect for the time interval of observation being longer for non-migrants.

Figure 3.4: Survival and hazard functions of Cox regression test (Source: Person, Family, Society (2013

Model 5.1. 1st marriage after age 15, non-migrants	Model 5.2. 1st marriage after age 15, migrants with 1st migration
5.1a. Survival Function at Mean of Covariates	5.2a. Survival Function at Mean of Covariates

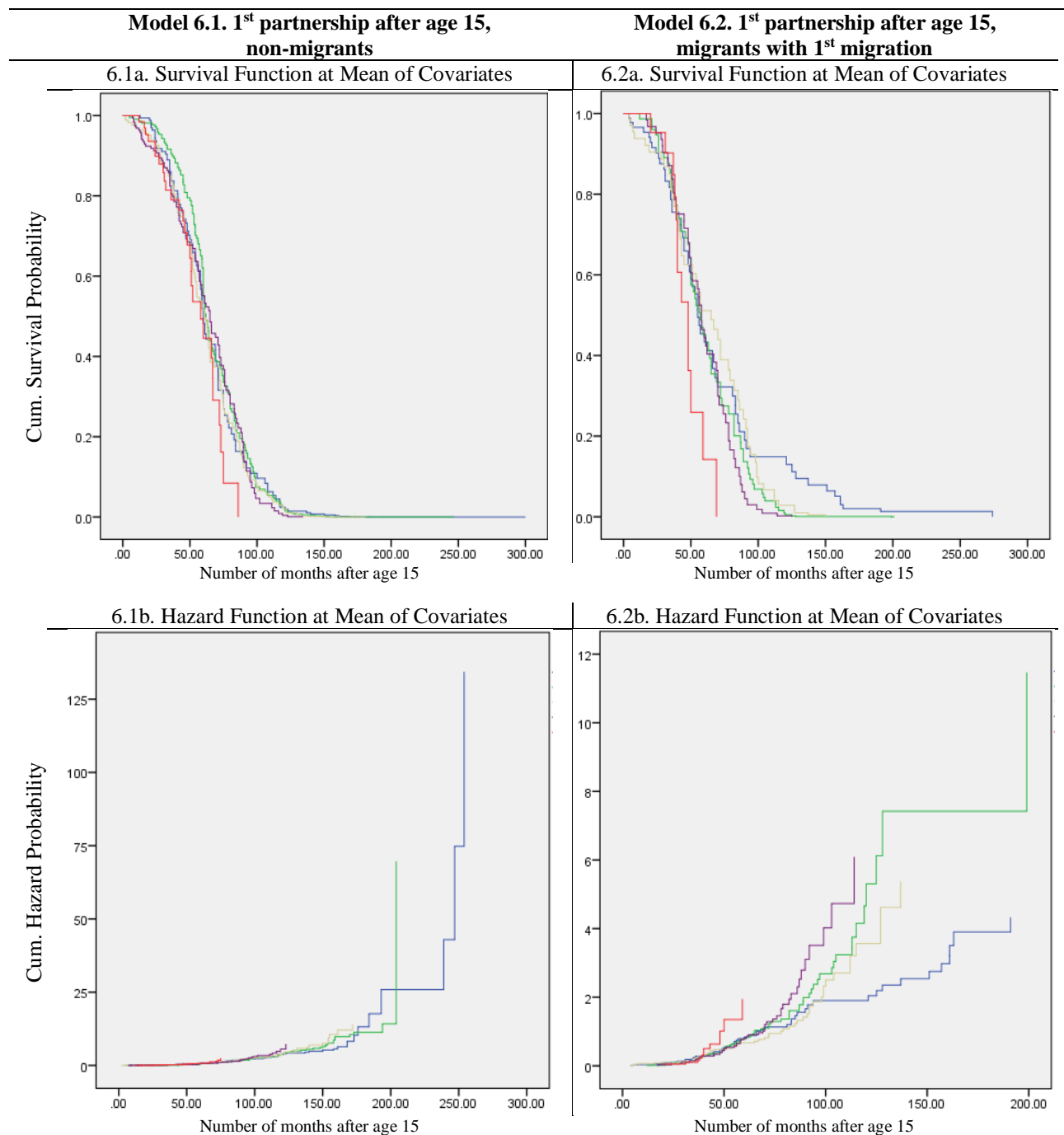| 5.1b. Hazard Function at Mean of Covariates	5.2b. Hazard Function at Mean of Covariates

1970-1974 (blue), 1975-1979 (green), 1980-1984 (olive), 1985-1989 (purple), 1990-1994 (red)

Figure 3.4 shows Survival and hazard functions of Cox regression test for Models 5.1 and 5.2 (age 15 – 1st marriage) separately for migrants and non-migrants, stratified by generation. The axes reflecting Cumulative Hazard Probability well expose the difference in dynamics of the likelihood of 1st marriage after age 15 between migrants and non-migrants (the likelihood is higher of non-migrants within the almost the whole time internal of the observation. The rate of the growth if risk for migrants and non-migrants reflect the same overall trend as in the base Model 5 except that in migrants, for the first 8 years of observation, the rate is highest for generation 1990-

1994, then go 1970-1974, 1975-1979, and then the rest two, while after age 23 of respondents, the leadership is taken by generation 1985-1989, then go 1980-1984. Rates of risk growth for generations 1970-1974 and 1975-1979 are the same between approximately 25 and 28 years of age of the respondents, then they split with generation 1975-1979 risk growth stalling compared to generation 1970-1974. For non-migrants, the likelihood growth rate for the two oldest generations remains the same after approximately 15 years (180 months, 30 years of age of respondents) of observation.

Figure 3.5: Survival and hazard functions of Cox regression test (Source: Person, Family, Society (2013

Model 6.1. 1st partnership after age 15, non-migrants	Model 6.2. 1st partnership after age 15, migrants with 1st migration
6.1a. Survival Function at Mean of Covariates	6.2a. Survival Function at Mean of Covariates
6.1b. Hazard Function at Mean of Covariates	6.2b. Hazard Function at Mean of Covariates

1970-1974 (blue), 1975-1979 (green), 1980-1984 (olive), 1985-1989 (purple), 1990-1994 (red)

Figure 3.5 shows Survival and hazard functions of Cox regression test for Models 6.1 and 6.2 (age 15 – 1st partnership) separately for migrants and non-migrants, stratified by generation. We can observe how similar the likelihood growth rated look for different generations of non-migrants (Model 6.1), compared to the divergence in those likelihood growth rates for different generations of migrants as the time passes, in Model 6.2. In migrants, the fastest risk growth rate is shown after approximately 3 years of observation (age 18 of the respondents) in the youngest generation, 1990-1994. After the time point of 6-8 years after the beginning of the observation (21-23 hears of respondents' age). The rate of risk ascendance of generation 1985-1989 starts to increase while the rate of risk ascendance of generation 1970-1974 begins to decrease compares to the risk ascendance rates of generations 1975-1979 and 1980-1984.

Conclusions from Chapter 3

From this Chapter, the following conclusions could be made:

1) Cox regression test results show that, regardless of the fact of 1st migration, there are factors that affect the risk of occurrence of 1st demographic events of Russian women.

- For 1st childbearing after age 15 they are: Age at 1st marriage (which reduces the risk with each additional year of age) and location type (residence in village is attributable to a higher risk of 1st childbearing compared to residence in town or in city).

- For 1st marriage after age 15 they are: Age of leaving the parental home (which reduces the risk with each additional year of age) and fact of 1st partnership (is also attributable to a lower risk of 1st marriage).

- For 1st partnership after age 15 they are: age at 1st marriage (reduces the risk with each additional year of age) and location comparison (city-town, city-village, village-city changes of locations negatively affect the risk compared to those who did not change their city location.

2) Some of those factors considered for respondents regardless of the fact of migration are not significant for either migrants or for non-migrants, if taken separately. For 1st childbearing, the factor that was significant for migrants but insignificant for non-migrants, was location; for 1st marriage – the factor significant for non-migrants and insignificant for migrants – fact of 1st partnership; for 1st partnership – the factor significant for non-migrants and insignificant for migrants – location comparison.

3) Cox regression test results for the risk occurrence of 1st demographic events after 1st migration in Russian women show the factors that affect such risks are:

- For 1st childbearing and 1st marriage after 1st migration: education type (vocational education is attributed to a higher risk, and general education – to even much higher risk of 1st event

relative to higher education), age at 1st migration (each additional year of age at 1st migration increases risk of 1st childbearing and 1st marriage).

- For 1st partnership after 1st migration: Age at 1st migration (each additional year of age at 1st migration increases risk of 1st partnership) and age at 1st childbearing (each additional year of age decreases risk of 1st partnership).

4) The growth rates of risk of occurrence of 1st demographic events are similar in terms of 1st childbearing and 1st partnership for migrants and non-migrants but are different for those two groups in terms of 1st marriage: for migrants, the risk of 1st marriage is consistently lower through their life course after age 21 than for non-migrants.

5) Regardless of the fact of 1st migration, the growth rates of risks of occurrence of 1st demographic events are different across generations. As a general rule, the fastest risk growth is shown in the youngest generation, 1990-1994, then go 1985-1989 and 1980-1989. The oldest two generations, however, are situated not chronologically in this rating: the lowest risk growth is shown in the second oldest generation, 1975-1979, regarding 1st childbearing and 1st childbearing. Thus, young generations show more vertical trends and less signs of stalling rather than older generations.

6) The Cumulative Hazard Functions for generations of migrants and non-migrants look similar regarding 1st childbearing and 1st marriage after age 15, but different regarding 1st partnership where the divergence between generations is higher within life course after 21 years of age of respondents.

Conclusion

The research gave a description of interrelations between migration and demographic events targeted at family formation and development of modern Russian women. The role of migration in the development of marital and fertility careers of Russian women was examined through the lens of the major theoretical hypotheses explaining the impact of migration of demographic behavior. The analysis was performed by the means of descriptive statistics, shares, distributions, as well as event-history analysis within life-course approach. 2,229 individual life biographies of modern Russian women born between 1970 and 1994, their demographic and migration shares, patterns, and likelihoods, were studied. The following conclusions can be made from our research.

Descriptive statistics show that Russian women born after 1970 are mostly immobile: more than two thirds of women never migrated in their lives. Among those who had migration in their lives, such event is unlikely to repeat: after 1st migration, less than 12% move for the second time. Regarding 1st migration direction, rural-urban type is becoming more dominant over urban-rural type in the youngest generations; for the oldest generations, the two directions are approximately similarly popular. Russian women move mostly out of village rather than from town or city. Women move mostly either for family reasons or for education. Russian women have all four of the 1st events (migration, partnership, marriage, childbearing) early in their lives, between ages 16 and 23. Out of those four events, migration comes first and may have impact on family formation and development. 1st migration is far less popular event in Russian women's lives than 1st partnership, 1st marriage or 1st childbearing.

Cox regression revealed that after age 15, the risks of 1st childbearing and 1st partnership are the same for non-migrant and migrant women, and they grow at the same rate; to the contrary, the risk of migrant women to get married for the 1st time is lower and is growing at a slower rate than the one of non-migrant women after age 21 within their further life careers. This **partially proves** our **H1** (Migration has a certain impact on partnership, marriage, and childbearing).

Only **H1.2** (1st migration is associated with decline in risk of 1st marriage) **has been confirmed**; the rest two, **H1.1** (1st migration is associated with decline in risk of 1st partnership) and **H1.3** (1st migration is associated with decline in risk of 1st childbearing) **have been proven wrong**.

As for the factors that may affect demographic behavior of migrant women after their 1st move, the following could be distinguished:

- education type:
  - vocational education is attributed to a higher risk of the 1st childbearing and 1st marriage
  - general education is attributed to even much higher risk of event occurrence relative to higher education
- age at 1st migration:
  - each additional year of age at 1st migration increases risk of 1st childbearing and 1st marriage
  - for 1st partnership – age at 1st migration increases the likelihood, and age at 1st childbearing – decreases.

For migrants, after age 15 the factors affecting occurrence of 1st childbearing are the following:

- age at 1st marriage:
  - each additional year of age at 1st marriage reduces the risk of 1st childbearing and 1st partnership
- location:
  - residence in village increases the risk of the 1st childbearing compared to residence in town or in city
- age of leaving the parental home:
  - each additional year of age at leaving the parental home reduces the risk of the 1st marriage
- 1st partnership:
  - fact of 1st partnership reduces the risk of 1st childbearing

For non-migrants, some of the additional factors are:

- 1st partnership:
  - fact of 1st partnership reduces the risk of 1st marriage
- location comparison:
  - produces various effects on 1st partnership

Cox regression has also shown that, regardless of the fact of migration, the growth rates of risks of occurrence of 1st demographic events vary across generations: the trends are more vertical (fastest growth) for the youngest generation 1990-1994, while the older two generations, 1970-1970 and 1975-1979 show more stalling (slower growth). Thus, **H.2** (The effect of migration on demographic behavior is different amongst different generations of women due to general variety in demographic behavior patterns, economic background and other historically significant factors) **has been also partially proved**: the effect of migration is indeed different on different generations, but **H.2.1** (The younger generations will face a stronger impact of 1st migration declining the risk of having 1st partnership, 1st marriage and 1st childbearing than the older generations) **has been rejected** – the younger generations were showing the fastest growing risk of demographic event occurrence regardless in case of both migrant and non-migrant women.

Discussion

Our suggestion that the patterns demonstrated by Russian migrant women would fit into *the disruption hypothesis* gets challenged: this hypothesis implies the negative effect of migration mostly on reproductive patterns. Notwithstanding that within reproductive behavior we studied only the 1st childbearing and our models did not consider any further possible events of childbearing, the likelihood trends for migrants and non-migrants were actually the same. Neither 1st migration affected 1st partnerships. Although the disruption hypothesis may explain the reduced likelihood of 1st marriage for migrants relative to non-migrants, the number of the factors that show impact on the risk of occurrence of 1st demographic events lead us to the conclusion that the disruption hypothesis may be not the most suitable theory to apply to Russian female migrants.

From the descriptive statistics and the Cox regression altogether, we may further suggest the division of Russian migrant women into at least two groups:

1) Young rural-urban migrants who move for education purposes – as higher education is associated with a lower likelihood of getting married or having a child compared to vocational and general education, urban residence produces the same effect compared to town or village residence – we may suggest that this group would easily fit into *the selection hypothesis* that provides for existence of certain pre-requisites such as specific life goals that determine marital and reproductive behavior; those goals push young Russian women for educational migration. It is interesting that the likelihood of 1st partnership is not affected by migration – this may be explained by the loss of connection between matrimonial, sexual and reproductive behaviours observed in modern Russia's population (Mitrofanova 2013).

2) Female migrants moving for family reasons – not necessarily from rural to urban areas: as descriptive statistics show, the proportion of urban-rural change of locality is very similar to the one of rural-urban change of locality, especially in the three oldest generations; moreover, some of the migrants do not change their type of locality (e.g. town-town). For such migrant women, since each additional year of age at 1st migration increases the likelihoods of 1st marriage and 1st childbearing, we may suggest that this group of migrant women is older than educational migrants, and for this group, the events of 1st migration, 1st marriage and 1st childbearing are closely connected to each other which allows us to tag them as "marriage migrants" whose marital and reproductive behavior is explained by *the interrelation of events* hypothesis.

Of course, this assumption needs further development since this research does not provide for the detailed study of the two groups in terms of the interrelations between the life goals, reasons for migration, and facts of demographic behavior in each separate group – the PFS Survey, however, allows future researchers to perform the basics for such detailed study.

Compared to the results of the previously conducted studies on the topic, we may make a conclusion that the role of migration in demographic behavior of modern Russian women has certain characteristics that are different from the ones in the Western European countries or North America, and remains a rich and fascinating subject of research.

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