Different Fertility Regimes in One Country: An Event History Analysis from Menarche to Fifth Birth among Roma Population in Turkey

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Abstract

Turkey, as a country at post-transition stage of fertility transition, is not experiencing this transition in a homogeneous way. In addition to regional differences, ethnic differences in particular are very decisive in Turkey. It has previously been shown that Kurdish and Arab ethnic groups and Syrian migrants have different fertility regimes as opposed to Turkey as a whole. With this study, the fertility level and pattern of the Roma population, which constitutes about 2.4 percent of the population of Turkey, are revealed for the first time over the timing of reproductive events from menarche to fifth birth. The data from "2023-TR-Roma-DHS", based on a sample representing the Roma population in Turkey is utilised to achieve this objective. The results of the study indicate that TFR of Roma women (2.79) is 1.1 births more than TFR of women in Turkey (1.70). Roma women experience each of reproductive events, except for menarche, earlier than women in Turkey. On average, a Roma woman enters her reproductive period at age 14.1; gets married at age 17.6, and has the first, second, third, fourth and fifth births at age 19.7, 23.0, 28.6, 33.9 and 36.2 respectively. The reproductive life span of Roma women from menarche to fifth birth is 5 years shorter than that of women in Turkey. These results show that fertility transition of the Roma population is in the late-transition stage, while the general population of Turkey is in the post-transition stage, once again pointing to the different fertility regimes experienced in Turkey.

Key words: *Fertility regime, fertility transtion stage, reproductive events, Roma population, Turkey*

Introduction

There is very little information about the fertility transition of the Roma population, which accounts for about 2.4 percent of the population of Turkey. Compared to few studies revealing the demographic integration and differentiation of this population in Turkey, there are many demographic studies conducted in Southern, Central and Eastern European countries where the Roma population is densely populated. Demographic characteristics of the Roma population are found to be quite different from the general population; where high fertility, high infant and child mortality and early marriages are quite common. Literature on the Roma population —disadvantaged in the fields of education, health, employment, housing and shelter, and social assistance and services in Turkey— are limited to small-scale quantitative studies that are far from holistic, disconnected from each other and has non-representative feature or qualitative studies based on interviews with individuals having similar qualifications. Based on this shortcoming, within a project titled “2023 Turkey Roma Demographic and Health Survey” (2023-TR-Roma-DHS)[1], data was collected through face-to-face interviews in CAPI

[1]The full title of the project is “The Demographic Integration and Differentials of Roma Population and Policy Priorities in Turkey”, the survey is conducted by a team of Hacettepe University Institute of Population Studies (HUIPS), and funded by Scientific and Technological Research Council of Turkey (TUBITAK) (Project No: 122R016).

environment, with abbreviated versions of questionnaires used in the 2018 Turkey Demographic and Health Survey (TDHS-2018), in 1.547 households in 86 different neighbourhoods in 25 provinces selected from a sample frame representing the Roma population living in Turkey. In the households interviewed, 1.265 women in the 15-49 age group were interviewed by using the women's questionnaire and information about 2,919 births was collected. In this study, using unique data sets from 2023-TR-Roma-DHS, taking into account the fertility level and pattern, as well as the timing of reproductive events from menarche to the fifth birth, it is revealed which stage of the fertility transition Roma women are at.

Literature

Although a large number of studies have been conducted outside Turkey, especially in Europe, regarding the demographic characteristics of the Roma, there is no study conducted on this topic, as there is no data on the demographic status of the Roma in Turkey. The only exception to this is the study entitled "*Marriage among the Gypsies of Turkey*", written by Özkan (2006) based on qualitative interviews and observations rather than primary quantitative data and which deals with the ways of marriage of Roma in Turkey. According to this study, there are three types of marriage forms among Roma in Turkey, namely, exchange marriage, abduction marriage and purchase marriage. The main characteristic of all three forms of marriage is that marriage is performed at an early age. According to this study, Roma women attribute an important social meaning to marriage that begins at the age of 13-17 for Roma women and at the age of 15-19 among Roma men. On the other hand, some studies that are excluded from this study seem to address these issues within the study rather than revealing the demographic structure and change of the Roma. For example, in the Kolukırık (2006) study, it was found that the Roma living in Izmir mostly married among themselves and the family size consisted of 3-4 people; Fırat (2016), the prevalence of early marriages among the Roma living in Malatya, the prevalence of early marriages among the Roma living in Malatya. Kolukirik and Toktas (2007) in their study, in which they discussed the political participation and organization of Roma, in addition to estimates of the population size and distribution of Roma, the average family size consists of 3-4 people; in the Kolukirik (2008) study, the geographical distribution of Domari, Romani and Lomavren speaking Roma groups; Taylan (2016) that half of Roma women married before the age of 18; in a study conducted in Edirne by Cuhadar (2020), Roma children encountered in education while emphasis is placed on discrimination, the structure of the Roma population with many children. A study conducted by Oprisan (2014) in Hatay, Diyarbakır, Izmir, Artvin and Gaziantep draws attention to the fact that 40 percent of Roma have 4 or more children and the prevalence of inbreeding among Roma.

Due to the fact that there are quite a limited number and scope of studies on the demographic characteristics of Roma in Turkey, the literature on the demographic characteristics of Roma living in European countries in general will be discussed under this heading. It is observed that a large number of studies have been conducted on the demographic integration of this population in European countries where the Roma population is concentrated. A study conducted in Romania, the country with the largest Roma population among the European Union member states (Preda, 2010), found that the fertility, infant mortality rate, marriage and family structure of the Roma population are different compared to the country as a whole. According to this study, which shows that the fertility and infant mortality levels of the Roma

population are higher; the age of first marriage is lower, the prevalence of nuclear family among Roma is lower, and the prevalence of extended family is higher.
In another study focusing on the fertility levels of Roma living in Hungary, Slovakia, Romania and Serbia (Szabó et al. 2021), it was shown that the fertility rate also tends to Decelerate among the Roma population, but still the fertility rate is higher than the country as a whole. In this study, it was emphasized that the fertility level of Roma women with a particularly high level of education is at a similar level to other women with the same level of education. Another demographic study conducted on Roma in Italy found that early marriage and high fertility level are common among Roma women in Italy, as in other European countries (Dalla-Zuanna, 2013).

In a study investigating the reasons why the fertility levels of Roma living in Spain are high (Aisa, Andaluz and Larramona, 2017), it was tried to identify the reasons why the fertility decline experienced throughout the country with the increase in income and education levels, urbanization and industrialization spread, is not observed in the Roma population. The findings of the study show that the strong family ties and extended family structure observed among Roma, and especially the fact that the family is still considered a unit of economic activity, increase the demand for the child. A study conducted by Durst (2002) in Hungary, similar to the results of the study in Spain, revealed that the main motivation behind the Roma having many children is the fight against poverty. In this study, it was shown that Roma families benefit more from social benefits as another reason for having many children, and it was emphasized that both reasons can be explained with the “strategic child theory”.

In a study aimed at estimating the future size of the Roma population in Bulgaria (Ilieva and Kazakov, 2019), population projections for the period 2020-2050 were carried out based on the year 2015. The findings of this study indicate that the Roma population, which will reach 384,000 in 2020, is projected to be 557,000 in 2050. The study also emphasizes that the population of Bulgaria will decrease during the same period. A similar finding was made in another study conducted in Slovakia (Vaňo, 2002). In this study, it has been shown that the Roma population size in Slovakia, which was 385,000 in 2002, will increase to 500,000 in 2025; while the population of Slovakia will decrease overall during the same period. The results of both studies show that the increase in the Roma population is mainly associated with the high level of fertility in this group.

A study conducted in Serbia, on the other hand, examined the fertility level of the Roma population and how male child preference changes according to the density of the Roma population (Battaglia, Chabé-Ferret, Lebedinski, 2021). The results of this study show that the fertility level and preference for male children among the Roma population are higher compared to the general population of Serbia. Another result of the study is that it has been shown that the fertility level and preference for boys are lower in regions where the Roma population density is low than in regions where the preference for boys is high. This situation was presented in the study as a proof of the spread of low fertility level and decaying preference for boys among Roma who have started to live with other communities by getting rid of subcultural pressure and living together with other communities, in accordance with the diffusion theory.

In their study, Koç and Eryurt (2016) compared the early childhood development levels of Roma children in five Eastern European countries (Serbia, Kosovo, Bosnia and Herzegovina, Montenegro and Macedonia) using data from the Multiple Indicator Cluster Survey (MICS) conducted with the support of UNICEF with the situation in these countries. As a result of this comparison, it was shown that Roma children in all countries are significantly behind in literacy-numerical skills, physical development, social-emotional development and learning, which are the four components of early childhood development, compared to other children.

Theoretical Framework

Fertility differences between minority and majority populations are usually explained within three theoretical frameworks. These three approaches, which do not exclude one another, are “social characterics framework”, “minority-status assumption” and “sub-cultural assumption” respectively (Szabó et al., 2021).

The earlier research on minorities’ fertility focused on differences between groups based on social characteristics. The social characteristics approach views fertility differences between minority and majority populations as a result of social characteristics and suggests that as minority populations modernize and adopt the social characteristics of the majority, their fertility patterns will also converge. However, it's worth noting that modernization approaches to studying fertility may take into account a broader range of factors, including cultural, institutional, and policy-related influences on fertility behavior.

The "minority-status assumption" recognizes that being a member of a minority group can influence fertility decisions, and these decisions are often linked to the perceived opportunities for social mobility and the socio-economic conditions in which minority individuals find themselves. This assumption highlights the complex interplay of social, economic, and cultural factors in understanding fertility patterns within minority populations.

The subcultural explanations focus on the role of cultural norms and values in shaping the family and reproductive patterns of both majority and minority populations. They highlight the importance of the cultural context in understanding fertility behavior and suggest that early exposure to the cultural norms of the majority population can play a significant role in shaping fertility outcomes among minority groups.

The results of the study will be interpreted on the basis of these theoretical frameworks, and the reasons for the differences of the Roma population regarding fertility and the timing of reproductive events will be revealed.

Data, Variables and Statistical Techniques

The main data source of the study is the “2023 The Demographic Integration and Differentials of Roma Population and Policy Priorities in Turkey” (2023-TR-Roma-DHS). The data sets from the survey are the first data sets obtained from a research representing the Roma population in Turkey.The women’s data set taken from that study makes it possible to assess the timing of reproductive events, and as well as the risk factors on timing of reproductive events for Roma women. The fileldwork for the survey was conducted during May-July of 2023. The household data set of the 2023 TR-Roma-DHS covers 1.547 households; women’s data set

of the 2023 TR-Roma-DHS covers 1,265 Roma women aged 15-49, regardless of their marital status. Information on birth, marriage and working status was colllected in the forms of event history. In the birth history data sets there exists 2.919 births. This study also exploits the data from 2018 Turkey Demographic and Health Survey (2018 TDHS) and the secondary data from 2016-2022 Population Registration in order to conduct a comparative analysis.

For the calculation of survival functions, duration and status variables were created in the data set for each of the time-dependent variables in reproductive trajectories. The duration variables were created based on the age of women at the time of the event. The status variables were formed based on information on whether or not women experienced the event prior to the time of survey. The latter group of women were defined as censored cases, and their completed age at the time of survey were inserted into the duration variable. In the descriptive and multivariate analyses of timing of menarche and first marriage, the unit of analysis was women aged 15-49, regardless of their marital status. The sample was confined to; ever-married women for the analysis of the timing of the first birth; women with at least one child for the analysis of the timing of the second birth; women with at least two children for the analysis of the timing of the third birth, and so on.

In the multivariate phase of the study, the dependent variable is the number of years elapsed since the birth date of a woman until the age that she experienced each reproductive event, or until the date of survey. We utilized three time-fixed variables (welfare status, education level, and marriage cohort) and two time-varying covariates (working status and marital status) to assess the factors behind the timing of the reproductive events in our analysis.

The analysis of the paper relies on two different but highly interrelated statistical techniques, namely survival analysis and Cox regression. Survival data have some features that are difficult to handle with traditional statistical methods, mainly due to censoring and time-dependent covariates. The survival analysis that we used in the descriptive phase is a statistical technique for studying the occurrence and timing of events, particularly in social and health sciences. This type of analysis is generally used as the first step of an event history framework to compute the median time of occurrence of each event. The principle of the survival analysis is to take into consideration the total duration of an event, or the time between the start of an event and the end of observation. The survival curves and median transition time from the beginning to the end of events are the best analytical tools to explore the data in a descriptive way (Ata and Sözer, 2007; Kalbfleisch and Prentice, 2011; Eryurt and Koç, 2012).

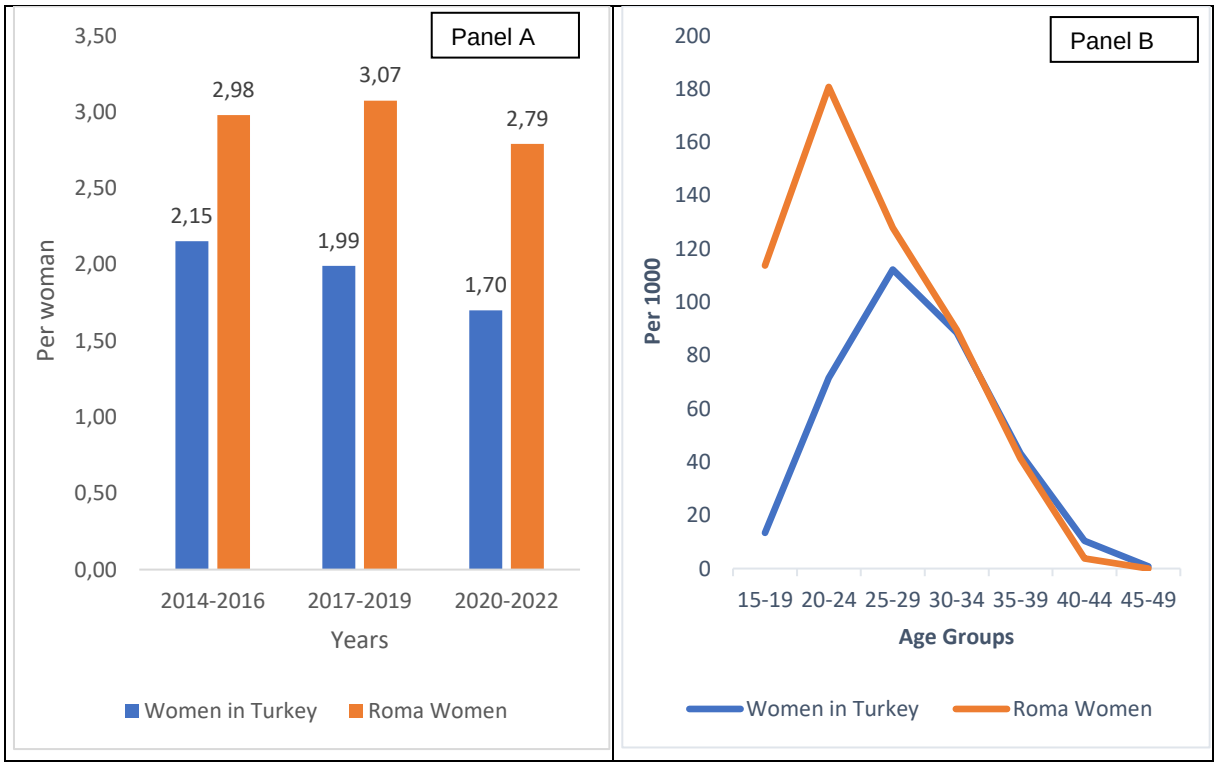
The second and more technical step when analysing retrospective data is to use the Cox proportional hazards model, also known as the semi-parametric proportional hazards model. Regression models for survival data have traditionally been based on the Cox regression model that we used to understand the impact of welfare status of Roman households on the transition probabilties of reproductive events under the control of other covariates in the multivariate phase of this study. This model assumes that the underlying hazard function for any two levels of a number of covariates are proportional over the period of follow-up time. Considering the effect of censored observations, it is the most commonly used approach to model covariate effects on survival. The time-dependent event is the dependent variable, and the model measures the effect of other covariates on the occurrence of this event. If hazard

ratios vary over time, then the assumption of proportional hazards may not be justified and we need to use methods without this assumption to investigate the effects of covariates on survival time. In the Cox regression model, a time-dependent variable is defined as a covariate whose value for a given subject may differ over time. If there are time-dependent covariates in the Cox regression model, such as timing of marriage and labour force participation as found in this study, the model no longer satisfies the proportional hazards assumption. Therefore, an extended Cox regression model needs to be used, since it deals with time-dependent covariates and products of these covariates with a function of time (Ata and Sözer, 2007).

Fertility Level and Pattern

As shown in Panel A of Figure 1, the total fertility rate in Turkey has decreased from 2.15, a level slightly above the substitution level, to 1.70, a level well below the substitution level, over the past 10 years. This process indicates that the fertility level in Turkey has passed from the late-transition stage to the post-transition stage according to the classification of Bongaarts (2003). During the same period, the fertility level of the Roma population, on the other hand, with a negligible decline, shows a stagnation at the level of 3 births per woman. This situation shows that the fertility level of the Roma population is just at the beginning of the late-transition stage.

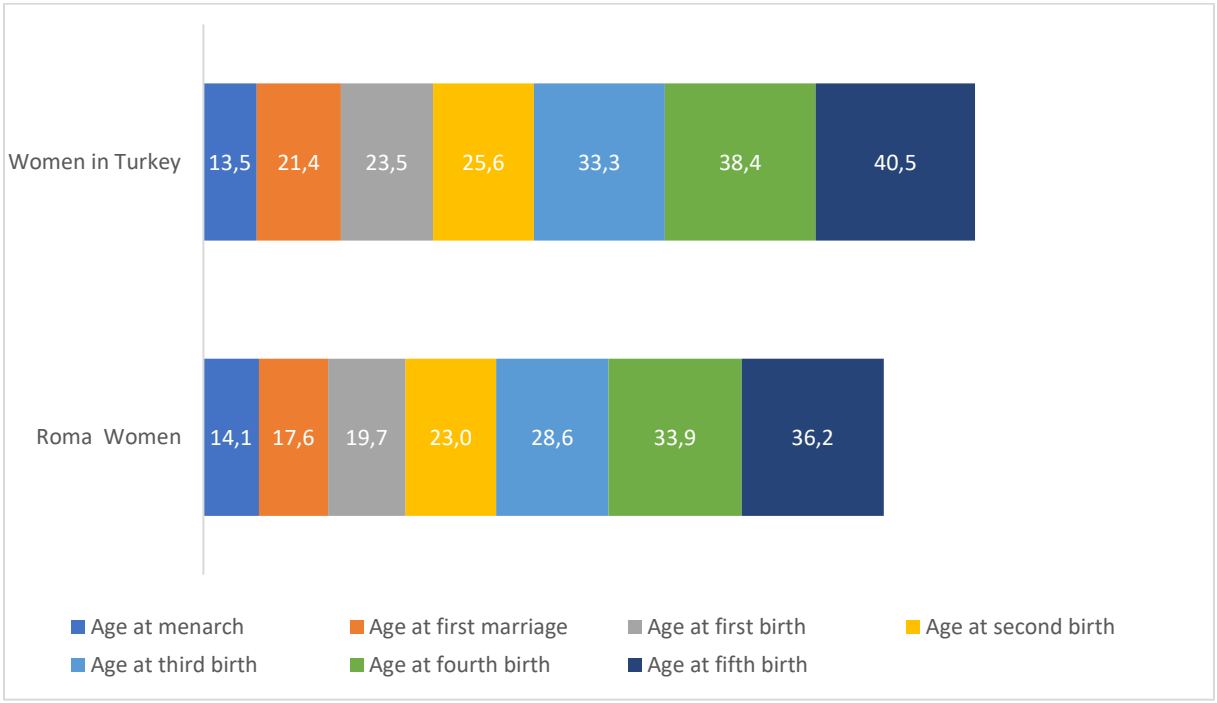
Figure 1. Total Fertility Rate and Age-Specific Fertility Rates among women in Turkey and Roma women



When age-specific fertility rates are considered (Panel B), it is seen that both the majority and the minority populations have an age structure that reflects the fertility stage in which they are located. As a feature of the post-transition stage, it is noticeable that fertility in Turkey has been postponed to advanced ages; the adolescent fertility rate has declined to 12-13 per thousand. On the other hand, the fertility rate among Roma population peaks in the 20-24 age group. The

adolescent fertility rate in this population is at a very high level, such as 114 per thousand. The fertility rate, which is also quite high in the 25-29 age group, decreases to the level throughout Turkey at a later age.

Figure 2. Timing of Reproductive Events from Menarche to Fifth Birth among Women in Turkey and Roma Women



Timing of Reproduvtive Events

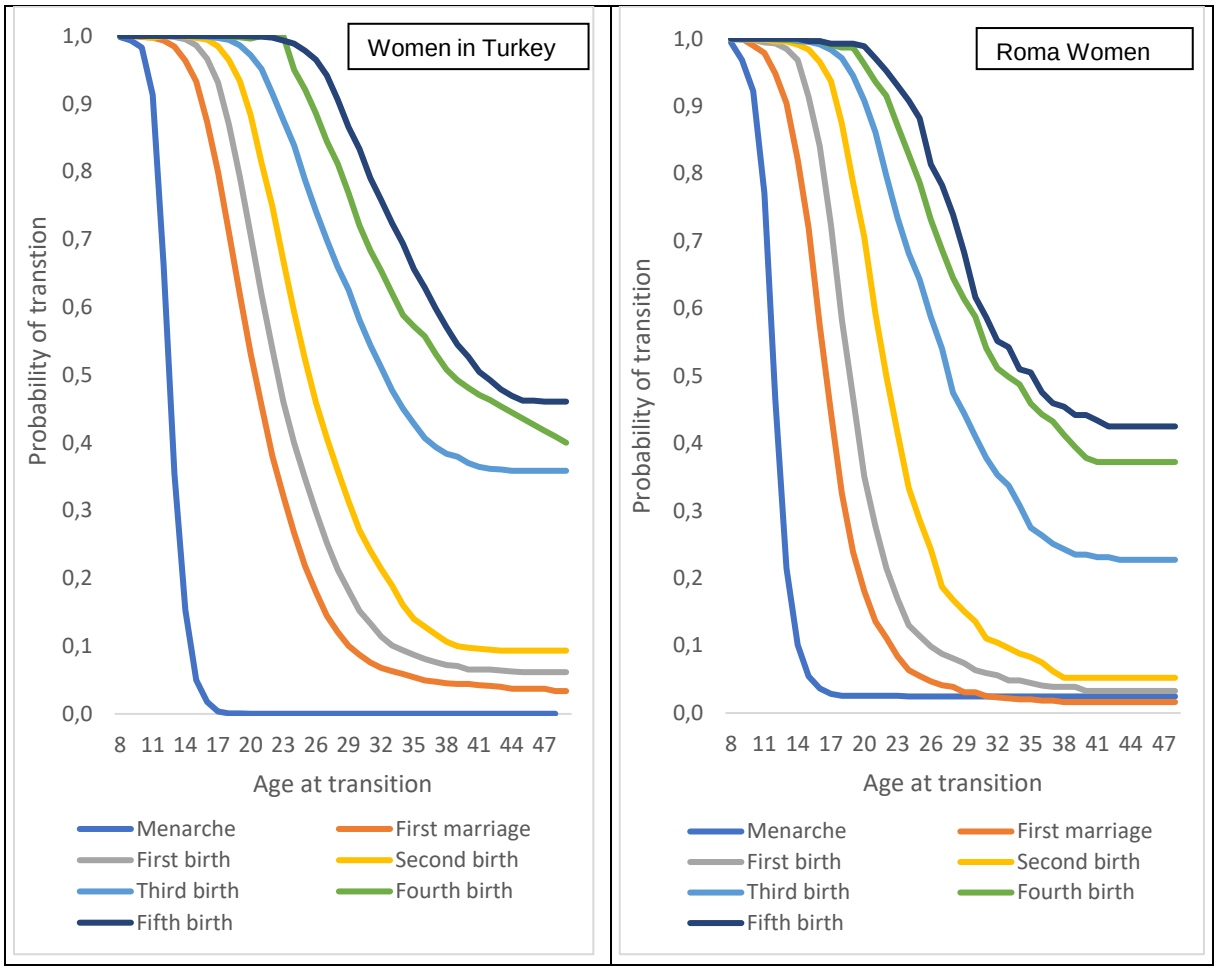
There are significant differences between women in Turkey and Roma women in terms of the timing of reproductive events (Figure 2). Roma women experience, except the menarche, each of the reproductive events earlier than women in Turkey. On average, a Roma woman enters her reproductive period at age 14.1; gets married at age 17.6, and has the first, second, third, fourth and fifth births at age 19.7, 23.0, 28.6, 33.9 and 36.2 respectively. The reproductive life span of Roma women from menarche to fifth birth (22.1 years) is 5 years shorter than that of women in Turkey (27 years). Among Roma women, the higher age of first menstruationas opposed to women in Turkey is often observed among women who belongs to minority groups and are poorer and less educated women (Adalı and Koç, 2013; Eveleth, 2017). The fact that the median age of first marriage among Roma women is below age 18, indicating child marriages and births are quite high among Roma women.

Transition Probabilities of Reproductive Events

Almost all women in Turkey and Roma women have experienced menarche by the age of 13.5-14.1 as seen in Figure 3. Transition to first marriage by the age 25 appears to be as a rule for Roma Women. Approximately 96 percent of Roma women gets their first marriage by age 15. This proportion is around 74 percent among women in Turkey. Moreover, it is seen that early marriage is somewhat common among Roma women, with approximately 28 percent being married by age 15. The transition probability rises to 67 percent age 18. For women in Turkey, the transition probabilities at ages 15 and 18 are estimated to be only 7% and 19%,

respectively (Figure 3). In line with these findings, the median age at first marriage is found to be 3.8 years lower for Roma women (17.6 years) than the women in Turkey (21.4 years) (Figure 2).

Figure 3. Transition Probabilities from Menarche to Fifth Birth among Women in Turkey and Roma Women



The postponement of first birth may signal a rise in age at marriage and contribute largely to a decline in the fertility level. The survival analysis shows that 42 percent of Roma women have their first birth by the age of 18, this increases to 89 percent by age 25 as opposed to 13 percent and 65 percent of women in Turkey, respectively. The percentage of childlessnessi is estimated to be less than 2 percent among Roma women and 6 percent among women in Turkey (Figure 3). The median first birth interval is found to be 2.1 years for both groups. These findings imply that the majority of women in both groups get pregnant soon after their first marriage, pointing a rigid demographic behaviour. Furthermore, median age at first birth for Roma women (19.7 years) is found to be 3.8 years lower than that of the women in Turkey (23.5 years) (Figure 2).

Survival estimates reveal that 13 percent of Roma mothers have their second child by age 18. By age 25, the percentage of Roma women that have a second child increases to 71 percent. The transition rate to second child is significantly slower among women in Turkey than among Roma women. Only 4 percent of the former group have their second child by age 18, whereas

that percentage increases to 48 percent by age 25 (Figure 3). Median transition time to second birth of Roma women (23.0 years) is approximately 3 years earlier than that of other women in Turkey (25.6 years) (Figure 2).

The transition from second to third birth is a critical step in women's fertility transition, since the reduction for the third and higher-order births in particular leads to further fertility decline (Van de Kaa, 1987; Morgan and Taylor, 2006). As the two-child family norm is becoming more widespread, three-child mothers increasingly form a group associated with ethnic, religious or other special motivations. In this respect, investigating the groups of women who are moving on to the third child is crucial in order to understand the leader and follower groups in the fertility transition process (Hoem, Prskawetz and Neyer, 2001; Yavuz, 2006; Eryurt and Koç, 2012). Survival analysis shows that 36 percent of two-child Roma women have their third child by the age of 25, whereas this proportion is just 21 percent among women in Turkey (Figure 3). In line with these results, as shown in Figure 2, Roma women have their third birth 5 years earlier (28.6 years) than women in Turkey (33.3 years).

Survival analysis regarding fourth birth indicates that 21 percent of three-child Roma women have their fourth child by age 25, while it is just 13% for the women in Turkey. Approximately 71% of Roma women make the progression to a fourth birth by age 30; the progression ratio to fourth birth remains at 31 percent for women in Turkey The median age at fourth birth is consequently estimated at 33.9 years for Roma women and 38.4 years for women in Turkey (Figure 2). Survival estimates show that approximately 40 percent of Roma women with a fourth child have a fifth child by age 30, compared to only 17 percent among women in Turkey (Figure 3). In line with these findings, Roma women (36.2 years) have their fifth birth 4 years earlier than do women in Turkey (40.5 years) (Figure2).

The extended Cox regression technique was used to understand the impact of welfare status of Roman women on the timing of sequential reproductive events, from first marriage to third birth. Overall, the results of the analysis indicate that under the control of welfare status Roman women experienced all key reproductive events at a younger age compared to women in Turkey. This result was found to be persistent even after controlling for education level, marriage cohort and working status[2].

Conclusion

This study explores the timing of sequential reproductive events among Roma women in a comparative manner with women in Turkey. In addition, it examines how welfare status of Roma households affected the timing of reproductive events by comparing women in Turkey.

Timing of the events in reproductive trajectory of Roma women has some distinct features: Roman women entered their reproductive period later in time, but experienced all sequential reproductive events earlier compared to women in Turkey. An average Roma woman was found to have menarche at the age of 14.1 and have the fifth birth at the age of 36.2. The years elapsed between menarche and fifth birth for an average Roma woman is approximately 22

[2] Limited information is provided at this stage because multivariate analyses of the study are ongoing.

years. On the other hand, for an average woman in Turkey who had menarche at the age of 13.5 and had a fifth birth at the age of 40.5, the time in between is approximately 27 years. The reproductive life span from menarche to fifth birth for Roma women is 5 years shorter than that for other women in Turkey. The other distinctive reproductive feature of Roma women is their entering menarche later in life (14.1 years) than women in Turkey (13.5 years). This finding is in line with some studies arguing that women coming from lower socioeconomic settings experience menarche later than other women (McGinn, 2000; Adalı and Koç, 2013; Rebato, 2015).

Early marriage is commonly seen among Roma women. Approximately 30 percent of Roma women got married by the age of 15. Furthermore, more than two-thirds of Roma women (67 percent) enter married life by the age of 18. For women in Turkey, these transition probabilities are estimated at just 7 percent and 19 percent respectively. Entering married life earlier appears to be one of the factors that shorten the timing of subsequent reproductive events for Roma women. Considering the high frequency of child marriage among Roma women in Turkey, we can conclude that early marriage is a rigid demographic behaviour among Roma women.

Preliminary results of Cox Regression confirm that Roma women experienced all key reproductive events, under the control of welfare status, at a younger age compared to women in Turkey. This result was found to be persistent even after controlling for education level, marriage cohort and working status.

Fertility differences between minority and majority populations are usually explained within three theoretical frameworks. These three approaches, which do not exclude one another, are “social characterics framework”, “minority-status assumption” and “sub-cultural assumption” respectively (Szabó et al., 2021). The results of our analysis provide evidence for all three arguments. Overall, earlier transitions of Roma women to reproductive events from first marriage to fifth birth are accepted as evidence for the minority-status and sub-cultural hypotheses. On the other hand, the gradual decrease in the fertility rates of Roma women and the partial decline in child marriages and births indicate the demographic convergence that is being experienced, albeit slowly. This situation shows that the demographic behavior of Roma women will gradually adapt to the demographic structure of Turkey as education, income and contraceptive use levels of Roman women increases.

The results of the study call for further qualitative studies that focus on the mechanisms of socio-cultural characteristics impacts on the timing of events in the reproductive trajectory of Roma women. Moreover, further qualitative studies are needed to show how the dominant social values and norms related to timing of reproductive events in Turkey contribute to shaping the fertility-related behaviours of Roma women over time.

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