(**Draft under progress:** some chapters will be modified, discussion section will be developed)

Fertility decline in Turkey from the 1980s onwards: patterns by Turkish and Kurdish speaking groups

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Abstract

During the last two decades social institutional setting of reproduction has experienced intensive transitions in Turkey. The purpose of the present study is to examine social demographic aspects of fertility dynamics by mother tongue groups in Turkey. By applying event-history analysis to retrospective data, the study firstly illustrates trends of birth intensities (first birth up to fourth) in the context of socioeconomic, cultural and political changes. Secondly, the study examines how the variations between the Turkish and Kurdish speaking women are conditioned by demographic, socioeconomic (structural) and socio-cultural characteristics. The results assisted us to identify different groups in the fertility decline process in Turkey. We demonstrate that to understand contemporary fertility dynamics, it is necessary to consider a combination of individual demographic, socioeconomic and cultural factors.

Keywords Fertility decline; regional differences; ethnicity; mother tongue groups; minority; Turkey.

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1 Introduction

Fertility trends in Turkey have been well documented through analysis of demographic sample surveys, fielded every five years beginning from 1963 (Shorter and Macura, 1986; SIS, 1996). In this demographic literature fertility differentials at the regional level have been a perpetual topic until the end of 1990s (Hancıoğlu, 1997). The latest Turkey Demographic and Health Survey 2003 (TDHS-2003) findings have revealed on the other hand, excluding eastern region that perennial regional variation has eventually declined to negligible level (HUIPS 2004).

The greatest contrast in fertility nowadays is between eastern region and the rest of the country.The distinctiveness of the eastern region is seen to be closely related with distribution of Turkish and Kurdish speaking groups over the regions and their differential childbearing behaviors. Several studies on recent fertility decline in Turkey have described different fertility and family behaviors of the two mother tongue groups[2] (e.g. Dündar 1998, Koç and Hancıoğlu 1999, Sirkeci 2000, Gündüz-Hoşgör and Smits 2002, Yavuz, 2006, Koç et. al. 2008, Yüceşahin and Özgür 2008). These studies have depicted in general that i) the eastern provinces are largely populated by the Kurdish speaking group, and ii) Kurdish speaking women are characterized by notably higher fertility and earlier start of reproduction compare to their Turkish speaking counterparts.

Although variation of fertility related indicators by mother tongue groups has been illustrated in detail in the recent studies, few of them (e.g. Yavuz 2006, Yüceşahin and Özgür 2008) have extensively examined the possible underlying socioeconomic, cultural and political factors distinguishing fertility patterns of the Turkish and Kurdish speaking groups. The present study aims to gain further insights into the specificities of the recent fertility decline by looking through childbearing trends and differentials of these two mother tongue groups over the last two decades. It aims at disentangling the role of different factors that may be related to social change of that kind.

[2] Several studies have used mother tongue information as an adequate proxy of ethnicity in the Turkey's context. This approach treats mother tongue characteristic as a sole marker in establishing an ethnic group's boundaries and leaves less room for fluidity of ethnic identities. However, classification of ethnic groups actually requires a more complex procedure (Saenz R. and Morales 2005, Rallu et. Al. 2006). Information used for this purpose should reflect different aspects of ethnicity concept. For example, apart from the mother tongue characteristics, the language respondents master the best in their lifetime could be employed as another marker of ethnic identity. Existing data source do not enable to construct such kind of elaborate ethnicity categories. For this reason, I prefer to use the term 'mother tobgue groups' or 'mother tongue groups' instead of 'ethnic groups' throughout this study.

The study intends to examine fertility decline process and differentials from a birth order perspective. Each parity transition is based on different motivations which are formed by various societal and individual factors. Social norms in Turkey strongly prescribe marriage and to have at least one child. The first birth has a significant role in the future life of each individual woman; transition into motherhood has broad implications for women's changing roles and statuses. In countries like Turkey, where childbearing out of marital unions is negligible, increasing age at first marriage cause postponement of first births and this would play an important role in the overall fertility decline.

The second birth may have a different meaning than the first one. Arrival of the first child is usually valued because this transition provides couples parental status and commitment to their relationship. Second children are valued primarily as siblings for the first (sibling value) (Thomson, 2004). Several studies have demonstrated that most people outweigh their childrearing costs of the first and second children because they provide social/normative, psychological/emotional and economic/utilitarian benefits. As populations move towards a modern parity-specific fertility limitation; that is spread of "two-child norm" among different segments of the society, the third child represents the pivotal point in the fertility transition (Yavuz, 2006; D'Addato et. al., 2008). Having a higher-order birth does not have unique value in modern societies due to significantly high childrearing costs. Therefore declining propensity of higher-order births to low level is considered as a "critical" indicator, marking the advanced stage of fertility transition.

The goal of the study is to gain insight into following questions: i) how progression to first, subsequently, to the second and up to the fourth birth of the mother tongue groups has changed from the 1980s onwards in Turkey? and, ii) how and to what extent change in parity progressions over time and variations between the Turkish and Kurdish speaking women are conditioned by demographic, socioeconomic (structural) and socio-cultural characteristics of women? The data we use to analyze fertility developments stem from the 'Turkey Demographic and Health Survey 2003 (TDHS-2003)'. Data analysis is based on proportional-hazard (or intensity regression) models that belong to a group of event-history models dealing with rates of transition from one social status to another.

The paper is organized as follows. Section 2 provides short review on the differential fertility of mother tongue groups in Turkey. In Section 3, the research hypotheses are stated. Section 4 includes description of the methodology, data sets and variables used in the analysis. The determinants of the parity progressions are scrutinized through hazard models and comparisons between the results from each parity transition given in Section 5. Finally, Section 6 is devoted to discussion on analysis findings and concluding remarks.

2 Fertility decline in Turkey and fertility differences by mother tongue groups

Several researchers have claimed that Turkey entered the last phase of the fertility transition during the 1980s (SIS 1996; Koray, 1997; Ünalan, 1997). Demographic sample surveys have shown that during the course of modernization fertility decline has gone through with regional inequalities until the beginning of 2000s (see, Table 1). The segments of the population that have been more integrated into modernization and urbanization have changed their fertility behavior more rapidly. In the early 1990s, the Total Fertility Rate (TFR) reduced to replacement level at West region of the country, where patterns of socioeconomic development similar to developed countries. In terms of social segments, among the secondary and higher level educated women TFR was as low as 1.7 children per woman during these years (Ministry of Health et. al., 1994).

The regional differences in fertility level has largely diminished according to the TDHS-2003 findings. The greatest contrast in fertility is now between the least socioeconomically developed part of Turkey, the East region, and the rest of the country. In this region the Total Fertility Rate (TFR) is 3.65 children per woman, whereas current fertility in Turkey is close to replacement level (Table 1).

Table 1. Total Fertility Rate for five regions and whole Turkey from 1960 to 2008

Census-based measures	Major geographical regions					Turkey
	West	South	Central	North	East	
1960	4.35	6.71	6.56	6.56	8.27	6.10
1978	3.53	4.75	4.64	4.98	6.94	5.05
1983	2.97	4.32	3.95	4.39	6.72	4.11
1988	2.34	3.29	3.06	3.39	5.56	3.29
Surveys						
1989 (TDS)	2.6	3.0	3.1	3.5	5.7	3.39
1993 (TDHS)	2.0	2.4	2.4	3.2	4.4	2.7
1998 (TDHS)	2.03	2.55	2.56	2.68	4.19	2.61
2003 (TDHS)	1.88	2.30	1.86	1.94	3.65	2.23

Notes: TDS stands for 'Turkish Demographic Survey' and TDHS stands for 'Turkey Demographic and Survey'
Regional definitions for census-based figures and for survey-based figures differs due to administrative changes over time.

Sources: Census-based figures and 1989, 1993 survey-based figures are from SIS, 1996; 1998 Survey-based figure is from HUIPS 1999 and 2003 Survey-based figure is from HUIPS 2004

The distinctive level of the East region can be attributed to two factors; the distribution of Turkish and Kurdish speaking mother tongue groups over regions and

differential fertility between these two groups. The Turkish and Kurdish speaking groups constitute the great majority of the country's population. Koç et. al. (2008) reported that according to TDHS-1998 and 2003, among the ever-married women 15-49 ages, 83 percent is Turkish and 14 percent is Kurdish by mother tongue. The analysis of Demographic and Health Surveys has provided information on spatial distribution of the mother tongue groups as well. As the largest share of the Turkish speaking population lives in West region, the most populous part of the country, the great majority of the Kurdish speaking population (66 percent) lives in East region.

The age patterns of fertility and TFR estimated from the TDHS-2003 for the two main mother tongue groups are presented in Table 2. Both age patterns in fertility and TFR measures differ between the two mother tongue groups. From 2000 to 2003, TFR for the Kurdish speaking women is 2.1 times higher than the TFR of the Turkish speaking women. For the Kurdish speaking group the reproductive period covers a wider age span, as for the Turkish speaking women fertility is concentrated at ages 20 to 34. Since fertility is highest in the East region of Turkey, where the Kurdish population is most prevalent, the figures are given separately for this region as well. The overall level is higher than the averages for Turkey as a whole but differences between mother tongue groups are quite similar; Kurdish women have much higher fertility than Turkish women in each age group.

Table 2. Age Specific Fertility Rates[1] (ASFR; per thousand) from TDHS-2003 and Total Fertility (TFR) from TDHS-1993, 1998 and 2003 by Main mother tongue groups in Turkey

	Turkey			**East Region**	
Age Group	**Turkish**	**Kurdish**	**Total**	**Turkish**	**Kurdish**
15-19	37.6	63.5	45.7	32.5	56.7
20-24	117.0	223.6	135.8	136.7	223.3
25-29	120.2	210.1	137.0	129.9	255.4
30-34	64.0	155.7	77.4	86.3	199.4
35-39	30.7	82.3	37.2	59.2	102.8
40-44	5.8	73.5	11.9	11.7	100.5
45-49	1.5	4.6	1.7	0.0	6.7
TFR (1993)	**2.25**	**4.57**	**2.74**	**2.84**	**5.27**
TFR (1998)	**2.29**	**4.27**	**2.61**	**2.93**	**4.84**
TFR (2003)	**1.88**	**4.07**	**2.23**	**2.28**	**4.72**

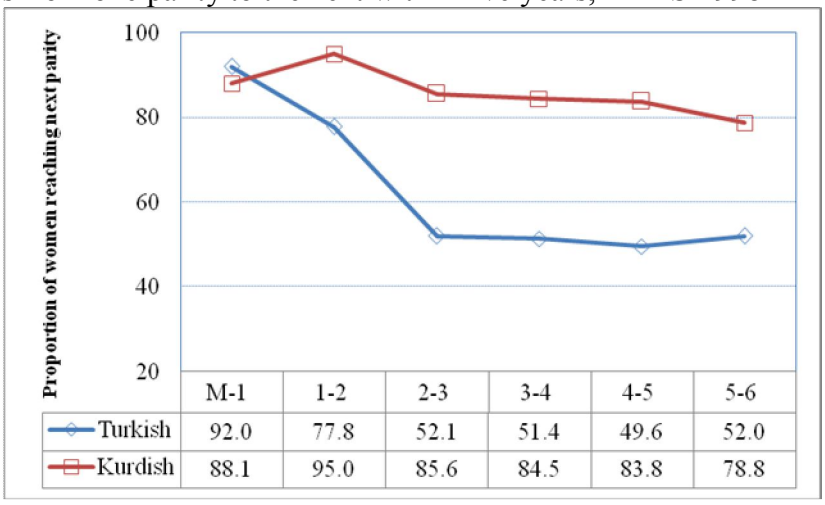
[1] Rates are calculated for the 1-36 months preceding the survey date.
Source: Koç et. al. (2008)

The two summary measures for *quantum* and *tempo* of fertility can provide general information on the childbearing patterns of the two mother tongue groups. The cumulative proportions of the Turkish and Kurdish women at each parity order, who progressed to the next parity within five years after a preceding birth, are given in Figure 1.

The proportions of the women who reached the first parity within the first five years of marriage do not show large differences between the two mother tongue groups. However, after the first parity, different patterns can be observed in the proportion of women reaching the succeeding parities. The proportion of Kurdish speaking women who have a second birth within five years is 95 percent, while among the Turkish women the same proportion is 77 percent. The Turkish speaking group exhibits a pronounced tendency of stopping childbearing after parity two, while Kurdish speaking women do not exhibit any similar pattern. Following the birth of a second child, 52 percent of Turkish and 85 percent of Kurdish mothers have another child within five years. The progression to the third child, which can be regarded as a threshold in fertility transition, marks the most pronounced difference between Turkish and Kurdish speaking women.

The second summary measure is the median duration of closed birth intervals which indicates the tempo of the fertility childbearing patterns (Figure 2). The median duration of the interval between marriages and first birth is quite short and slightly similar for the two mother tongue groups. At each other parity transitions, the median duration of closed birth intervals is longer for the Turkish speaking women compare to the Kurdish speaking counterparts, as seen in the Figure 2.

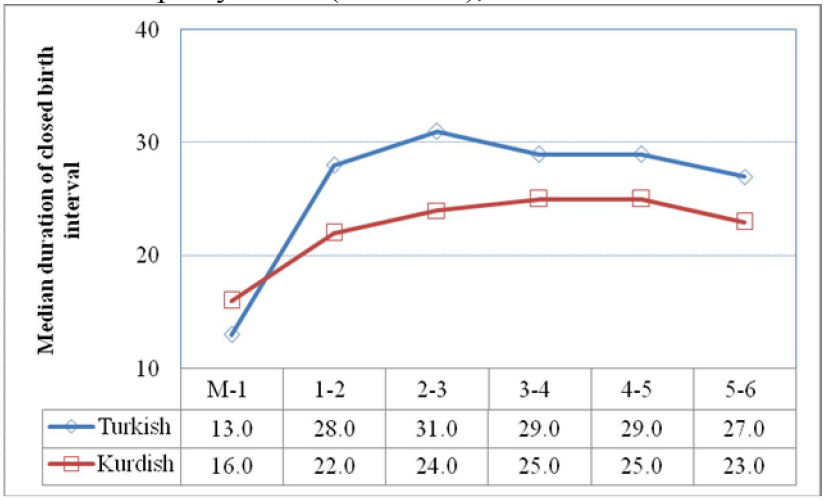
Figure 1. Cumulative proportion of Turkish and Kurdish speaking women who progress from one parity to the next within five years, TDHS-1998



	M-1	1-2	2-3	3-4	4-5	5-6
Turkish	92.0	77.8	52.1	51.4	49.6	52.0
Kurdish	88.1	95.0	85.6	84.5	83.8	78.8

Note: M refers to marriage (parity 0)
Kaplan-Meier Survival curve estimates
Source: Yavuz, 2006

Figure 2. Median duration of closed birth intervals of Turkish and Kurdish speaking women at different parity orders (in months), TDHS-1998



	M-1	1-2	2-3	3-4	4-5	5-6
Turkish	13.0	28.0	31.0	29.0	29.0	27.0
Kurdish	16.0	22.0	24.0	25.0	25.0	23.0

Note: M refers to marriage (parity 0)
Kaplan-Meier Survival curve estimates
Source: Yavuz, 2006

3 Exploring causes of differential fertility between Turkish and Kurdish speaking groups in Turkey

Most socio-demographic studies in Turkey used to refer to country as a whole, or its main geographical regions but not to particular language/ethnic and religious communities within the state territory until the beginning of the 1990s (Sirkeci, 2000). Beginning from the TDHS-1993, nationwide demographic surveys began to collect information of mother tongue and second language of the respondents. The demographic studies also began to pay attention to the differential fertility level and pattern of the mother tongue groups (see, Dündar 1998, Koç and Hancıoğlu 1999, Sirkeci 2000, Yavuz, 2006, Koç et. al. 2008, Yüceşahin and Özgür 2008). Although the Turkish and Kurdish mother tongue groups are often considered *actors in different demographic regimes, at different stages of the demographic and health transition* (Koç and Hancıoğlu 1999, Koç et. al. 2008) differences in fertility developments of these groups have been studied mostly in a descriptive manner.

Observed variation in childbearing behaviors across ethnic (language) groups has led demographic investigations to find out the causes and consequences of these differences (Goldscheider and Uhlenberg 1969, Frisbie and Bean 1978, Bean and Tienda 1990, Poston et al. 2006). In line with theoretical considerations of these studies, the fertility differences between the Turkish and Kurdish speaking women can be scrutinized with 'social characteristics/structural' and 'subculture' hypotheses.

These two approaches are not necessarily mutually exclusive or contradictory; cultural pluralism may tend to go in hand with structural differences among ethnic groups. Both two approaches focus on the degree of structural and/or cultural integration of ethnic groups in larger society and they consider differential fertility of ethnic groups as a temporary phenomenon. They assume that differences in fertility should disappear or minimize when dissimilarities regarding various demographic, social, economic, and cultural characteristics diminish over time or when they are statistically controlled for in analysis.

However, both structural and subcultural approaches are subject to critics and regarded as not satisfactory to clarify distinctive fertility patterns of ethnic group vis-à-vis larger society. Even though ethnic groups reach a similar social and economic level as society at large -or these characteristics are controlled for in statistical analysis- their fertility development may still remain distinctive (Frisbie and Bean, 1978). Goldscheider and Uhlenberg (1969) were the first authors to search for an alternative way to explain the remaining differences in fertility when demographic, economic and social factors were controlled for. In their pioneer study, '*Minority status and fertility*', ethnic groups were considered as 'minorities' or 'minority groups' in larger society. In this study, in addition to socioeconomic and subcultural influences, we intend to investigate the possible effect of minority group status on fertility differences among the main mother tongue groups in Turkey.

3.1 Impact of social characteristics

The '*social characteristics hypothesis*' (or '*structural approach*') attributes fertility differences between majority and minority group members to an important degree their differential socioeconomic and residential characteristics. Fertility differentials are assumed to disappear over time as minority groups obtain access to and integrated into the socioeconomic structures of the society at large. In other words, for the minority group members; the greater the structural integration with the majority, the closer should be their fertility to that of the majority group members.

At first glance the high fertility level of the Kurdish speaking group indeed seems to overlap with the nature of socioeconomic inequalities in Turkey. Although Turkey's economy and social structure substantially changed towards to industrialization and urbanization in the last decades, the country is still characterized with considerable socioeconomic disparities among its geographical regions (Yüceşahain and Özgür 2008). Inequality between regions in general lies in the sectoral structure of economy. Prosperous West and South region provinces are characterized by a high concentration industrial, commerce and finance sectors while the East region has been characterized by husbandry and subsistence level

agricultural activity. The large east-west differences in average socioeconomic development have been accompanied by large and persistent regional inequalities in human development indicators. The Human Development Report for the year 2002 indicates that the average Human Development Index (HDI) of the top 10 high income western provinces, populated by mainly the Turkish speaking population, is close to the HDI for East-Central European countries. On the other hand, the average HDI of the poorest 10 provinces in the southeastern part of the country, where predominantly populated by the Kurdish speaking population, is comparable to the HDI of Morocco or India (Pamuk, 2007).

Demographic sample surveys has provided more direct information on the socioeconomic circumstances of the mother tongue groups in Turkey. Studies based on these sources has also shown prevelant relative deprivation of the Kurdish speaking population. For example, comprehensive comparison of household amenities and facilities has presented that on average, Kurdish households have lower socioeconomic status than their Turkish counterparts (İçduygu et al. 1999, Sirkeci 2000).

Apart from differential economic activity; the poorest parts of the Turkey has been lacking in infrastructure and social services (Pamuk, 2007). These unfavorable conditions seem have been more negatively affected the Kurdish speaking women's educational achievement in Turkey. According to TDHS-93 findings, the mean years of schooling notably differ by mother tongue of women; while the Turkish women have had 4.9 years of schooling on average the same figure is 1.4 years for the Kurdish speaking women. In the high level education, asymmetry between the Turkish and Kurdish speaking population is also visible: while only 6 percent of the Kurdish speaking population had attained secondary complete and higher education level, the corresponding figure for Turkey on average was about 25 percent (Sirkeci, 2000). Poor educational opportunities seem to have negatively influenced educational career of all women in the East region. However, even in this region the Turkish speaking women's average year of schooling is 2.9 years higher than the Kurdish speaking counterparts (Dündar, 1998). In other words, regarding educational attainment; membership of a language group is more influential factor than merely living in the East region.

Health indicators have shown that integration of the Kurdish speaking women to health system of Turkey is at lower level than of the Turkish speaking counterparts. The Kurdish speaking mothers receive much less antenatal care from health professionals during their pregnancies; less likely to deliver children at medical institutions and be assisted at delivery by a health professional. The inadequate access to this prenatal care services mainly related poor welfare status, lack of education and rural life conditions (Cindoğlu and Sirkeci, 2001).

There are also apparent differences in terms of child mortality experience between the Kurdish and Turkish speaking women. Survival chances of the Kurdish

speaking women's children are lower especially for the post-natal period. According to TDHS-2003 findings, the infant mortality rate among Kurdish children is 110 percent higher than Turkish children (Koç and Hancıoğlu, 2008). When the analysis confined only to East region, poor conditions of the region worsen the prenatal health care and childhood mortality indicators for two mother tongue groups. However, the child mortality rate of the Kurdish children is higher than their Turkish counterparts in this region too.

Kurdish population not only lives predominantly in the least developed part of the country, but also their accesses to many facilities including employment, education and health are limited. In the line of social characteristics approach, we argue that the reason why the Kurdish speaking women have higher fertility compared to the Turkish speaking women is related to their low level integration into the social and economic structure of the country. Therefore, we expect that the substantial part of fertility differences should disappear when we controlled for integration level of women into socioeconomic structure of the society.

In the analysis of birth orders some individual level characteristics of women are employed to control for their socioeconomic status and their integration into education, economic and health systems. *Education of women, and husband's education* will stand for the women's own integration into education system and the socioeconomic status of the household women lives in. *Working status before marriage* is included so as to control for women's integration into economic system. *Survival status of the previous child(ren)* is used to control for disparities at health system.

3.2 Impact of subcultural characteristics

The structural approach may not alone satisfyingly explain differential fertility behavior among mother tongue groups. A second alternative (or supplementary) perspective, '*subcultural hypothesis*', points out the effect of distinctive cultural norms and values pertaining to family and reproduction. This approach posits that sub-culture of mother tongue groups may lead to differential behavior even these groups may experience similar level socioeconomic living conditions. In Turkey, this hypothesis could be valid because of the fact that the Turkish and Kurdish speaking women have some distinctive social and cultural attributes influencing women's status in family and society.

An important outcome of the socioeconomic changes in Turkey has been the breakdown of the traditional, land-based, patriarchal system that overall has had a liberating effect on women (Kandiyoti, 1977). However, the different sections of the population have been affected by social and cultural changes in different ways. Along the scale of socioeconomic status, regional and mother tongue diversification,

a contrast between 'modern' and 'traditional' cultural features has been maintained in Turkey. Modernization of agricultural production and socioeconomic integration to national market for the East and southeastern region of Turkey is relatively a recent phenomenon. The predominant characteristic of these regions until the very last decades have been the social and economic life based on tribal lines divisions and domination by local big land owners and religious orders (Ergil 2000, Gündüz-Hoşgör and Smith 2007). The Kurdish speaking population has largely remained the least affected group from the ongoing social changes and thus the traditionalism and religiousity is more widespread among this group (Aytaç 1998, Çarkoğlu and Toprak 2006).

After the 1980s, three main cultural groups can roughly be distinguished where the status of women varies between each other (Tekeli, 1995). The first cultural group is composed by urban, industrialized segments of society in which more or less modern/Western values have been internalized as a new value system. In this group, both the family and individual appear to have more autonomy and hence the women have achieved a more egalitarian status with men. New opportunities of vertical and lateral social mobility and progressively rational based decisions in behaviors are the two important characteristics of this group. The second one is identified as traditional rural culture in which women and children status is generally remained low for the strict control of individuals by the social values based on classic patriarchy. The third cultural group distinguished according to women's status by Tekeli (1995) is the 'new urban' cultural group that remains at the intersection of the two other groups. This group might be seen as a transitional one at first glance. However, in some cases, the dramatic value conflicts and contradictions could even amplify the social and familial pressures on the women (and children) more severely than those experienced in the rural culture.

It seems that to a great extent, these two distinctive women statuses overlap with the main mother tongue group's observed experiences in Turkey (see, Table 3). The influence of traditionalism at marriage formation is much more notable among the Kurdish speaking women, implying that their experience would fit more to Tekeli's (1995) second and third groups. The finding can be attributed to lower socioeconomic life conditions of this group compared to the Turkish speaking one. Nevertheless, Dündar (1998) also compared these two groups of women's statutses by their literacy ability as well. Regardless of being literate or not, the percentage of Kurdish speaking women who have taken brides money is again found higher both in Turkey and East region. This finding implies that the socioeconomic differences may not be sufficient enough to explain prevalent differences of traditionalism at marriage formation.

Table 3. Percentages of socio-cultural attributes of marriage formation of ever married women (15-49) by main mother tongue groups in Turkey and East region in 1993

	Cultural attributes		
	Payment of brides money	**Consanguinity**	**Arranged marriage**
Turkey	28.6	22.6	67.8
Turkish	22.5	19.9	65.6
Kurdish	67.2	39.1	82.5
East	59.4	34.3	74.3
Turkish	44.7	23.6	74.6
Kurdish	69.5	41.3	83.9

Source: Dündar, 1998

We intend to scrutinize effect of integration into sociocultural changes in the country, particularly those in relation to status of women, on the mother tongue groups' fertility behavior with some basic marriage characteristics of women. The more traditionalistic marriage formations, in which women's status is relatively lower than in 'egalitarian' settings can be delaminated with certain characteristics in Turkey; such as, *arranged marriage*, *bride's money payment*, *consanguinity with husband*, *patrilocal residence* at the beginning of marital life. We will use this set of covariates in the last model of our analysis. We presume that high prevalence of the more conservative and customary cultural attributes among the Kurdish speaking women could partially account for their higher fertility.

3.3 Impact of minority group status

Minority group status hypothesis asserts that because socioeconomic deprivation of the minority group members can be compounded by the other disadvantages they encounter in the society, membership of a particular minority population may have an independent effect on fertility behavior of individuals (Frisbie and Bean 1978). Especially when they try upward social mobility minority group members may have to deal with higher difficulties than the majority group members with similar socioeconomic status. Sociopolitical situation of the Kurdish speaking population indicates that such kind of barrier might have been prevelant in the context of Turkey too.

Having the the Republic founded in early 1920s, Turkey aimed to build and strengthen a Turkish national ideology and modernize country. The official ideology thereby brought about a practice of homogenization of language and promotion of a

particular model of Westernization and secularization (Aydıngün and Aydıngün, 2004). The existence of minority groups in Turkey was recognized only on religious grounds but and not on ethnic or linguistic basis (Grigoriadis, 2007). As Turkish language came to the fore as one of the potent ingredients in describing the boundaries of the public sphere all other public manifestations of separate ethnic identities; schools, associations, publications, religious fraternities and teaching foundations were banned (Çolak, 2004). The primary bases of the new monistic national Turkish identity, 'Turkification', were 'acquiring ethnicity through-language' for the ethnic minorities (Saatci, 2002, Yeğen, 2004).

Beginning from 1946, Turkey adopted multi-party system that brought a certain degree of liberalization and relaxation from the homogenization policies. However, in Turkey democratic system interrupted by military coupes, on 27 May 1960, 12 Mach 1971 and 12 September 1980, that tended to revive assimilation policies of the pre-1950 period. Meanwhile, since the beginning of 1970s, parallel to the upswing in ethnic nationalism worldwide, there had been solidification of a Kurdish ethno-nationalism in Turkey (İçduygu et. al, 1999; Sirkeci, 2000).

Considering its effects on society and politics, the 1980's coup was the severest one. In 19 October 1983, a law was passed to forbid the use of any language other than Turkish and this turned out to be a ban on Kurdish language usage in public. In 1984 an illegal party, the Kurdish Workers' Party (Partiya Karkaren Kurdistan – PKK) began to launch violent guerrilla warfare and terrorist attacks in southeastern Turkey. The armed conflict between the PKK and Turkish military/security forces continued ever increasingly until the early 1999. Another important social consequence of the conflict was the displacement of the Kurdish population for the security reasons, resulting in mass migration movements over the last two decades (Hacettepe Üniversitesi, 2006).

Administrative elites of Turkey too began to accept presence of a 'Kurdish Question' in the country to a greater extent in the 1990s. Two presidents of Turkey, Özal and Demirel, have recognized in their speeches reality of the Kurdish ethnicity in this era (Sirkeci, 2000). The ban introduced by military regime on the usage of Kurdish language was abolished on 12 April 1991 (Wiessner, 2002). An alternative civil political discourse was formed by the efforts of both the Turkish and Kurdish intellectuals (Bruinessen, 1992). In fact, the military conflict has never been turned out an ethnic clash between the Turks and Kurds and it has largely confined to the East region.

The capture and arrest of the PKK leader in Nariobi in 1999 and admission of Turkey by the European Union to candidacy for full membership were triggered a change in the official view on the Kurdish question (Şimşek, 2004). Beginning with the constitutional amendments of October 2001, subsequent reforms have removed the restrictions on the use of language; broadcasting by public and private media in

Kurdish was permitted in August 2002[3] (Aydın and Keyman, 2004). These may not have totally resolved the 'Kurdish question' issue but Turkey began to accommodate itself to the existence of multiple ethnic identities as still maintaining its unitary structure. In this way, the Kurdish language has much less politicized than before (Çolak, 2004).

According to İçduygu et. al, (1999) the Kurdish speaking population in Turkey has experienced for decades of an intense *environment of insecurity*. As suggested by the authors, the environment of insecurity is a heuristic and illuminative model, rather than being a fully explanatory concept. It is composed by two interrelated situations; namely, '*material insecurity'* and '*non-material insecurity*'. Material insecurity dimension can be measured by the relative amount and secure access to; income, possessions, education, health, state services and life itself. The non-material security is related to feelings of security about language, culture (identity) and belonging (the opposite of alienation). The sociopolitical developments in the last decades; particularly the ban on the Kurdish language, armed conflict and displacement of population, have negatively affected life circumstances of the Kurdish speaking population in Turkey. These developments should have been notably augmented environment of insecurity experienced by the Kurdish speaking population.

In this study, in addition to social characteristics and subculture hypotheses, we intend to investigate the possible effect of minority group status[4] on fertility differences. We argue more specifically that even after controlling for individual level demographic, socioeconomic and cultural characteristics, the Kurdish speaking women's birth intensities would remain higher than their Turkish speaking counterparts. In other words, *the environment of insecurity* of the Kurdish speaking population could have formed an additional characteristic and this might have had a retarding effect on their fertility transition. We can also test this assumption in more detailed manner with comparing fertility developments between the Turkish and Kurdish speaking women with the same level of educational attainment and/or traditional marriage formation.

The previous studies have shown that particular form of minority status does not affect all of the group members identically (Bean and Tienda 1990). The nature and extent of influence is not only related to economic standing but also it would differ depending on the interaction of several other factors: desire for social and

[3] The first Kurdish-language film with Turkish subtitles broadcasted by a local television channel in Diyarbakır in May 2004. In June 2004, the Turkish Radio Television (TRT) launched its own programs in minority languages: in Bosnian, Arabic, Kırmanci Kurdish, Circassian, and Zaza Kurdish (Grigoriadis, 2007).

[4] Because we don't have any relevant variable measuring the material and non-material insecurity feelings it is not easy to examine hypothesis in the line of minority status approach. In our case especially, had we able to use migration histories of the women, we could have had a better approximation to test our arguments. A comparison of birth rates before and after displacement would be highly illuminating in this sense.

economic mobility; acculturation of dominant culture and norms; social and psychological insecurity feelings associated with ways of status attainment; pronatalist or antinatalist ideological concessions of the group etc.

For minority group members with higher socioeconomic standing, or for those who have greater aspirations for upward social mobility, the minority group status is hypothesized to work in a reverse direction. The feelings of marginality and insecurity would make them more sensitive to the obstacles placed in their paths to reach a full socioeconomic achievement. The more educated and prosperous minority group members then may lower their fertility even further than their majority group member equivalents so as to secure their socioeconomic positions. Within the context of Turkey, educational attainment apart from being an indicator of socioeconomic status also refers to a particular cultural exposure and probable acculturation. Education is significant to the Kurdish speaking women at first place to learn Turkish and then adaptation of it in daily conversations, which is a typical urban phenomenon (Weissner, 2002). In fact, due to the long lasting official discrimination against Kurdish language and imitation of middle class behavior, progressively more effective in the last decades, the share of the Kurdish speaking population adopting Turkish language as first or second language has been increasing. İçduygu et. al., (1999) expect for those who adopt Turkish language and identity, either ethnic or civil one, to pursue strategies promising to improve their life circumstance and mitigate their material insecurities.

Similarly, in our study, we can expect to find significant fertility differences among the Kurdish speaking women with respect to their ability to speak Turkish language, even after controlling for all other characteristics. This can be partly explained with the fact that with learning Turkish, socioeconomic and cultural characteristics of the Kurdish speaking women began to change. According to Smits and Hoşgör, (2003) being able to speak Turkish can be considered as *"linguistic capital*[5]*"* for the Kurdish speaking pooulation. Learning Turkish as a second language can also partly be attributed to acculturation of an urban, middle class identity and expectations about further socioeconomic achievement. This kind of adaptation provides better access to diffusion channels; mass media and other communication channels; or it may facilitate the multiplication of informal networks. These can bring about embracement of two child fertility norm. Therefore, we assume that the fertility behavior difference between the two groups of the Kurdish speaking women could be more explicitly observed transitions at the higher order parities; namely at transition to third and fourth births.

[5] Smits and Hosgör, (2003), used Bourdieu's concept of 'linguistic capital' that refers to the ability to speak a countries dominant language properly constituting a potent social resource. The linguistic capital so a basic source can be transferred into other forms of capital like economic or social capital on the path to social success.

4 Model specification, data and variables

Conventional summary measures of fertility are not sensitive enough indicators to depict changing childbearing behavior. TFR can be distorted by changes in the timing of childbearing: it might be depressed during years in which women delay childbearing or inflated in years when childbearing is accelerated (Bongaarts and Feeney, 1998). In addition, fertility differences at different times in one population or among different populations are based on differential reproductive pattern at low or high order births. A comparison of TFR measures may not facilitate understanding different patterns of reproduction and related fertility differentials (Eltigani, 2001).

An alternative approach to overcome shortcomings of the aggregate fertility measures is to examine fertility trends and differentials from a birth order perspective. This kind of analysis aims to depict actual childbearing patterns, showing which couples choose or not to choose bear additional children as each child is born.

One appropriate way of analyzing birth history data is to apply proportional-hazard models. The Proportional-hazard models, combining aspects of the life table and regression techniques, deal with rates of transition from one social status to another. The transition rate[6] is thereby considered a function of some covariates (Blossfeld et. al., 2007). Model results can be interpreted in relation to a reference category of a given covariate. A hazard ratio, or *relative risk*, of 1 for a certain level of a covariate indicates that the estimated $(k+1)^{th}$ birth risk is the same as that of the reference group of the same covariate, given that their other characteristics are the same. A relative risk estimated to be greater (smaller) than 1 indicates a higher (lower) birth risk than for the reference category, given their other characteristics are the same.

In this study we apply *piecewise constant proportional hazard regression model* to our data, which is very useful to study several social processes (Blossfeld et. al., 2007). When studying progression to $(k+1)^{th}$ order birth, the basic time variable of the hazard regression is the number of months elapsed since the k^{th} birth (or time since marriage when we study transition to the first birth). A woman's $(k+1)^{th}$ birth risk is defined as the probability that she will experience a $(k+1)^{th}$ birth the next month, given her individual level characteristics and given that she has not had such a birth by the beginning of the month.

The data used in this study originates from the 'Turkey Demographic and Health Survey 2003' (TDHS-2003), the third survey in a series of three national demographic and health surveys conducted in the last fifteen years. The TDHS-2003 was implemented by Hacettepe University Institute of Population Studies (HUIPS)

[6] The transition rate is also labeled as *hazard rate*, *intensity, failure rate, risk function*.

and fielded the first week of December 2003 and at the middle of May 2004. The major objective of the TDHS-2003 sample design was to ensure that the survey would provide estimates with acceptable precision for various domains. Therefore, the survey sample is selected through a weighted, multistage, stratified cluster sampling approach (HUIPS 2004).

For the empirical part of this study, we formed data sets using women data set from the TDHS-2003 database. Even though TDHS-2003 included a wide range of retrospective questions on birth histories and contraceptive usage of women, most background characteristics were not collected with individual life histories. That is, many useful attributes of women, such as education, migration, employment, family cycle, etc. were obtained only for their situation at the time of the survey. Thus, it was mostly impossible to examine these variables in conjunction with preceding births and to regard them as explanatory time varying variables connected to childbearing.

The basic information about the data set up used for the empirical analysis is given in Table 4. Since, the vast majority of women in Turkey complete their reproductive career in their first marriage; we include women in a first marital union at the time of the interview in analysis. The observation starts age at first marriage for the first birth analysis[7]. For the other birth order, observation begins at the previous birth. The exposure time ended when the child under study was born or for right censored cases with the survey date. Multiple births at the beginning of the observation are excluded from the analysis.

Table 4. Basic information about the data set up

Start event	Censoring	Terminal event	Number of cases
1. Date of the first marriage	No first birth First marriage termination	Survey Date or First birth	7978
2. Birth of the first child	No second birth First marriage termination	Survey Date or Second birth	6689
3. Birth of the second child	No third birth First marriage termination	Survey Date or Third birth	5527
3. Birth of the third child	No fourth birth First marriage termination	Survey Date or Fourth birth	3406

Table 5 presents some basic information on the reporting quality of ever-married respondents: Turkish speaking women provided more complete information

[7] Cases with premarital birth excluded from the analysis. This only eliminates very small proportion of the sample. Considering the context of Turkey, presence of these cases can be explained low data quality factor, rather than being real birth before marriage.

on their reproductive histories[8] than their Kurdish counterparts implying that there are some differences in data quality by mother tongue group of women.

Table 5. Percentage of reproductive events for which ever-married respondents reported complete month and year, by mother tongue of women

	Respondent's Date of		Birth Date of Her Children			
	Birth	**Marriage**	**First**	**Second**	**Third**	**Fourth**
All women	79.2	91.2	95.9	94.8	92.2	89.6
Turkish	85.7	94.5	97.8	96.9	95.0	93.3
Kurdish_Knows T.	49.7	79.9	90.9	89.3	88.6	87.2
Kurdish_Don't Know T.	18.8	50.7	71.9	71.6	70.3	73.9

The variables used in analysis originate from the household and ever-married data set by taking into consideration the research questions of the study. We have used different number of variables for different birth orders. Descriptions of the all variables used in multivariate models are given throughout the rest of this section. In each variable the level selected as reference category is given in italic form.

Baseline variables in the models (time-varying):

Duration (since previous birth or marriage): This variable the baseline duration for the models progression from marriage to first birth, and other transitions up to fourth birth. Observation starts at previous event (marriage or birth) and finishes at censoring. The duration is measured in months and broken into 10 segments; '0-9', '10-12', '13-15', '16-18', '*19- 23'*, '24-29', '30-36', '37-42', '43-60', '61-'.

Main interest variables:

Calendar Period (time-varying): With this variable we intend to capture the influence of changes in the overall socio-economic and political environment on first birth intensities. There are 8 levels; '<1981', '1981-1983', '1984-1986', '*1987-1989'*, '1990-1992', '1993-1995', '1996-1998', '1999-2003/2004' (for first birth model by age of women) and '1999-2001', '2002-2003/2004'.

[8] For each important reproductive event there is a flag indicating whether or not the case was imputed and the type of information on which the imputation is based.

Mother Tongue: Mother tongue variable is time-constant and categorical variable with 4 levels; '*Turkish'*, 'Kurdish, know Turkish', 'Kurdish, don't know Turkish' and 'Other'. The estimates pertaining to the last level are not reported.

Demographic control variables:

The estimates pertaining to demographic control variables are not reported in this study. Three variables included in the analysis are *Age at Marriage/ Previous birth, Sex of previous children*[9]

Early childhood era variables:

The estimates pertaining to demographic control variables are not reported in this study. Three variables included in the analysis are *Childhood place of residence, Respondent's mother literacy and Number of siblings*

Socioeconomic control variables:

Education: The educational attainment of women was not collected for the whole life course. The inclusion of the highest level of education ever reached in analysis is justified by the assumption that individuals have already concluded their educational path at the time of their first marriage or at the beginning of subsequent birth orders. There are three levels of this variable; 'no education/Primary incomplete', 'Primary complete', '*Secondary complete and higher*'.

Working status before marriage: The working experience of women refers to the situation before her first marriage. The variable has three levels; 'not worked', 'worked without social security', '*worked with social security'*, and 'missing'. The estimates pertaining to the last level are not reported.

Husband's education: The educational attainment of husband was not collected for the whole life course. The inclusion of the highest level of education ever reached in analysis is justified by the assumption that individuals have already concluded their educational path at the time of their first marriage or at the beginning of subsequent birth orders. There are there levels of this variable; 'no education/Primary incomplete', 'Primary complete', '*Secondary complete and higher*'.

Survival status of the previous children: We take into account the survival status of the previous child at the beginning of the episode as a covariate but we do not consider the survival status of the children in that particular episode. The levels of this covariate are as in the following: '*alive at previous birth*', 'death at previous birth' and 'death after previous birth'. The estimates pertaining death after the beginning of the episodes are not reported because in such cases we have to consider two different events within the same episode. In such circumstance, it might be

[9] This variable is used in analysis of progression to second, third and fourth births. The number of categories used change according to previous parity order.

unclear whether the baseline stands for mortality or fertility event (and also these two events might be endogenous). Also, this variable includes survival status of both first, second and third children together for progression to fourth birth.

Sociocultural control variables:

Several cultural and religious norms have an influence on family-formation patterns. Some attributes of the family-formation process can be used to categorize the unions, in broad terms, as "traditional" or "modern". The modern characteristics are selected as reference category in each variable. The estimates pertaining to the last levels in first three variables are not reported.

Marriage Arrangement: This variable has four different levels; '*by the couple'*, 'by the families', 'escaped/abducted' and 'missing'.

Bride's money: This variable has four different levels; '*no*', 'yes (in kind/cash)', 'berdel arrangement[10]' and 'missing'.

Consanguinity: This variable has four different levels; '*not related*', 'first degree relative', 'other relative' and 'missing'.

Postnuptial residence: This variable has two different levels; '*neo-local*' and 'patri-local'.

The composition of our study population is presented in Appendix Table A1 to Table A4. The tables contain occurrences and exposure times, by each of the variables we apply in our modeling.

[10] *Berdel* is a form of marriage arrangement, which in Kurdish means "in place of the one." Instead of paying the required bride-price to another family, so that his son may have a bride, a father arranges to offer a bride from his own family in compensation.

5 Analysis of birth orders

This section of the study presents results of the multivariate analysis on fertility developments of the main mother tongue groups in Turkey. Analysis show 1) tempo differences of fertility developments 2) the change in the first birth and, subsequently, to the second and up to the fourth birth intensities over the two decades, 3) to what extent the birth risks of the main mother tongue groups differ and how these are conditioned by individual level characteristics of women.

5.1 Tempo differences of fertility developments by mother tongue of women

In our piecewise constant proportional hazard regression models, the duration of exposure since the first marriage/previous birth is divided into 10 segments. It is assumed that the risk of having a birth is constant within each of these segments but varies between them. This duration variable constitutes the baseline variable for our models. In order to examine the differential tempo of parity transitions interaction variables have constructed between the baseline duration and mother tongue of women. Preliminary analysis has not shown any significant difference at progression from marriage to first birth by the mother tongue of women. Entering to a marital union, women in Turkey try to have their first child as soon as possible.

As seen in the Table 6, the propensity of giving a second birth of the Turkish speaking group gradually increase after the first birth until the 24-29 month and then remain almost stable until the 37-42 months. They seem to postpone their second births: The risk level in 61 months and over is almost equal to reference category (19-23 months). The Kurdish speaking women, who know Turkish, follow a similar transition pattern to that of the Turkish speaking women, though risk of giving of a second birth is higher at each duration level. Differently than the Turkish speaking group, they have second births great extent within the first 5 year of the first birth. After 61 months of the first birth the intensity sharply drops, showing that few women from this group remains to give a second birth. The second birth intensity of the Kurdish speaking women, who don't know Turkish reaches the highest level when their first child is between 2 and 2.5 years old. Form this duration level onwards, the risk level sharply and continually decline to low level.

The finding of an interaction variable reveals the differential tempo of third birth transition by the mother tongue groups. The Turkish speaking women's propensity of giving a third birth gradually increases and reaches its highest level in 24^{th} and 29^{th} after the second birth. Thereafter, the propensity slowly declines; the third birth risk at '61-' months duration level is nearly half of the reference category (19-23 month after the second birth). The third birth intensity of the two Kurdish speaking groups rapidly increases after the second birth. The tempo of the Kurdish

speaking women, who know Turkish, slows down at 24-29 months duration level and 2.5-3 years after the second birth their third birth intensity begins to decline contentiously. On other hand, third birth intensity of the Kurdish speaking women, who don't know Turkish, continue to fast increase until the 37-42 months after the second birth. The risk level at this duration level is almost 2.5 times higher than that of the reference category. The intensity of this group begins to decline steadily and the most rapidly 5 years after the second birth.

The tempo of fourth birth transition differs by the mother tongue of women too (see, Table 6). The Turkish speaking and Kurdish speaking women, who knows Turkish, have most often a fourth birth 2.5-3 years after their third births and progression is less likely after this duration level. The propensity of giving a fourth birth of the Kurdish speaking group, who don't know Turkish, remains at highest level between 2 and 5 years after the third birth then it suddenly drops to very low level.

Table 6. Relative risk of progression from first to second birth, subsequently, to the third and to the fourth by time since previous birth and mother tongue, standardized for calendar period, demographic, early childhood era, socioeconomic and sociocultural control variables in separate models. Risk relative to duration '19-23' and 'Turkish' speaking categories in all models.

	Duration (in months)							
	0-12	**13-18**	**19-23**	**24-29**	**30-36**	**37-42**	**43-60**	**61-**
1st to 2nd								
Turkish	0.14***	0.92	***1***	1.22**	1.20*	1.10	1.27***	0.93
Kurdish_Know T.	0.23***	1.33*	1.76***	1.96***	1.61***	1.75***	1.77***	0.63*
Kurdish_Dont know T.	0.28***	1.09	1.36*	2.52***	2.01***	1.57*	1.33	0.38*
Log pseudolikelihood = -6424.0325 Wald chi2(56) = 2702.16								
2nd to 3rd								
Turkish	0.13***	0.85*	***1***	1.21*	1.08	0.90	0.90	0.47***
Kurdish_Know T.	0.25***	1.01	1.52**	1.90***	1.87***	1.40*	1.14	0.71
Kurdish_Dont know T.	0.29***	1.19	1.60*	1.89***	2.07***	2.48***	2.34***	1.09
Log pseudolikelihood = -6424.0325 Wald chi2(56) = 2702.16								
3rd to 4th								
Turkish	0.20***	0.88	***1***	1.24	0.79*	1.01	0.81	0.28
Kurdish_Know T.	0.22***	1.19	1.49*	2.14***	2.01***	1.12	1.28	0.62*
Kurdish_Dont know T.	0.31***	1.57*	2.09***	2.95***	2.92***	2.67***	3.00***	0.42***
Log pseudolikelihood = -3191.4604 Wald chi2(62) = 4547.92								

Significance test of factors: * $0.05 \leq p \leq 0.1$ ** $0.01 \leq p \leq 0.05$ *** $p \leq 0.01$

5.2 Changes in the birth intensities over the two decades by mother tongue of women

I have tried several interactions to investigate whether the calendar period and mother tongue groups affect the progression to first birth and, subsequently, to the second and up to the fourth birth interactively. The risk levels estimated in the interaction variables are sometimes have not been statistically significant. In order to obtain more robust estimates 9 levels of the calendar period variable are collapsed into 5 levels for the first birth and into 7 levels for the remaining parities.

Table 7 shows findings of the interaction variable between calendar period and mother tongue of women for progression to the first birth. The trend of the Turkish speaking women appears to be stable until the second half of the 1990s. Since then the risk show a moderate decline. Further examinations of the first birth developments with education and working status variables have shown that this moderate decline is observed due to the trend of the highest educated and working (with social security) segments of this group.

The first birth risks of the Kurdish speaking women, who know Turkish, have increased from the beginning of 1980s to the mid 1990s. Thereafter were a sharp decrease in 1996-2001 and a recovery in the last period level. The propensity of getting into motherhood of the Kurdish speaking women, who don't know Turkish, seems to be begun to decline in the first half of 1990s. However, this trend sharply reversed in the second half of the 1990s. These fluctuations that we observe seem to be of moderate character too. Thus, we do not see particular behavioral change for these two groups of the Kurdish speaking women actually.

Table 7. Relative risk of progression from marriage to first birth by calendar period and mother tongue, standardized for duration, demographic, early childhood era, socioeconomic and sociocultural control variables. Risk relative to duration '1984-89' and 'Turkish' speaking categories

	Calendar Period				
	<=1983	**1984-89**	**1990-95**	**1996-01**	**2002-2003/04**
M to 1st					
Turkish	0.95	***1***	0.98	0.91*	0.91
Kurdish_Know T.	0.92	0.97	1.11	0.87*	1.02
Kurdish_Dont know T.	0.90	1.03	0.91	1.11	0.75

Log pseudolikelihood = -9903.6059 Wald chi2(18) = 2723.06

Significance test of factors: * $0.05 \leq p \leq 0.1$ ** $0.01 \leq p \leq 0.05$ *** $p \leq 0.01$

In order to examine the second, third and fourth birth developments of the mother tongue groups over time, three seperate interaction variables are constructed

and results are presented in Table 8. The first interaction variable shows that the Turkish speaking and the Kurdish speaking, know Turkish, mother's propensity of giving a second birth have notably declined since the 1980s. In other words, they constantly have postponed having a second child after the first one over our study period. On the other hand, the Kurdish speaking, who don't know Turkish, women's second birth risk presents an increase until the beginning of 1990s firstly, yet starting from the mid 1990s there has been a pronounced decline.

Table 8. Relative risk of progression from first to second birth, subsequently, to the third and to the fourth by calendar period and mother tongue, standardized for duration, demographic, early childhood era, socioeconomic and sociocultural control variables in separate models. Risk relative to duration '1987-89' and 'Turkish' speaking categories in all models.

	Calendar Period						
	<=1986	**1987-89**	**1990-92**	**1993-95**	**1996-98**	**1999-01**	**2002-2003/04**
1st to 2nd							
Turkish	1.25***	*1*	0.98	0.83*	0.84*	0.76***	0.61***
Kurdish_Know T.	1.61***	1.18	1.46**	1.27*	1.18	1.04	0.95
Kurdish_Dont know T.	1.39*	1.42*	1.77***	1.56*	1.18	1.00	0.78
Log pseudolikelihood = = -6033.6336 Wald chi2(56) = 1663.01							
2nd to 3rd							
Turkish	1.30***	*1*	0.87	0.80*	0.78*	0.76***	0.60***
Kurdish_Know T.	1.71***	1.43	1.46**	1.30*	1.32	1.18	0.85
Kurdish_Dont know T.	1.51*	1.59*	1.67***	2.26*	2.22	1.65	1.95
Log pseudolikelihood = -5163.5853 Wald chi2(52) = 7764.76							
3rd to 4th							
Turkish	1.08	*1*	0.70*	0.57***	0.57***	0.46***	0.37***
Kurdish_Know T.	1.32	1.52*	1.39*	1.27	1.27	1.15	1.06
Kurdish_Dont know T.	1.60**	2.06***	1.48*	1.98***	2.01***	1.98***	1.36
Log pseudolikelihood = - 3557.1354 Wald chi2(50) = 2200.83							

Significance test of factors: * $0.05 \leq p \leq 0.1$ ** $0.01 \leq p \leq 0.05$ *** $p \leq 0.01$

The change in the relative risks of higher order births over calendar period presents differential trends of the Turkish and Kurdish speaking women. The propensity of giving a third birth of the two child Turkish mother shows a continual and sharp decline until the beginning of 1990s. The trend become smoother during 1990s but it is still continual. Presumably, most of the decline in having a third birth behavior occurs before the 1990s and the intensity already declines to low level. Overall, compare to reference category (1987-1989), the third birth risk level is 40

percent lesser in 2002-2003/04 period level. The third birth development of the Kurdish speaking group, who know Turkish, presents a significant decline similar to that of Turkish speaking women since the beginning of 1990s. On the other hand, the trend of the Kurdish speaking, who don't know Turkish, women shows no decline throughout 1980s. During the 1993-1998 period; when the intensive displacement and armed conflict took place in East region, the third birth risk of these women presents a rapid and constant increase. At the end of 1990s, this trend reverse and the third birth intensity of them declines to almost similar level that of at the beginning of 1990s.

The propensity of giving a fourth birth of the Turkish mother shows a sharp decline until the mid 1990. Thereafter the decline is still continual, but it is relatively smother than before. Overall, compare to reference category (1987-1989), the fourth birth risk is 63 percent lesser in 2002-2003/04 period level. The fourth birth development of the Kurdish speaking, who know Turkish, group over calendar time shows a continual decline since the beginning of 1990s. In the last period level, their fourth birth risk declines to similar level that of Turkish speaking mother's in 1987-1989 period level. On the other hand, the trend of the Kurdish speaking, who don't know Turkish and have had three children already, mothers remains stable until the end of 1990s -apart from the short term decline in 1990-1992 period level.

5.3 The effects of women's characteristics on parity progressions

In this section of the study the analysis begins with a series of models, showing to what extent the parity progressions of the mother tongue groups differ and how they are conditioned by socioeconomic and sociocultural characteristics of women (see, Table 8).

The influence of socioeconomic dimension on the progression risks have investigated with socioeconomic variables; *educational attainment of women*[11]*, working status before the marriage and husband's education*. We found a weak reversed U- type of relationship between the educational attainment and first birth risks. On the other hand, there is a strong negative relationship between a woman's education and transition risks in all other parity orders; The higher the women's

[11] Hoem and Kreyenfeld (2006) suggest that educational attainment should be used as a time-varying covariate in event-history models, particularly in the first-birth process. The reason is that the educational participation may not be completed before the respondent enters the risk period of first birth. In the context of Turkey, marriage and having children are two intimately related events and the majority of women (and men) do not continue education after their marriage. Therefore, in this study educational attainment of women is used as a time-constant factor. For the younger generations who have had at least university level education this assumption may not be completely true since some of them continue their educational careers after having married. However, the proportion of this group is rather small in our data. All university and higher educated women (and husbands) are represented in the 'secondary complete and higher' educational category.

education, the lower their likelihood of giving another birth. Women's education especially seem to play a key role in impacting the propensity of giving a high order birth. For example, the women women with no education/Primary incomplete degree have 82 percent higher third-child intensity in comparison to the women with secondary and higher level educational degree. Husband's educational attainment, in contrast to wife's education, shows a positive effect on first birth risks, no influence on second birth risks and negative influence on third and fourth birth risks.

The analysis shows that the women, who progress to higher birth orders, are usually the ones less likely to be employed (especially with social security) before their marriage. Even though women who 'had not worked before marriage' and who 'had worked without social security' have some common socio-cultural traits[12], the former characteristic is more conductive to having a subsequent birth. The majority of women who have worked before marriage with social security have a high level of educational attainment and it is very likely that they remain in employment after their marriage as well.The premarital working experience loose its importance on birth intensity of women after the transition to parity three

[12] For example, some of those who had been employed without being covered by social security predominantly worked as unpaid family labor on the familial agricultural land or as some other kind of agricultural worker.

Table 9. Nested event-history models for the progressions to first birth and, subsequently, to the second and up to the fourth birth, standardized for duration, calendar time, demographic and early childhood era control variables, socioeconomic and sociocultural characteristics of the women

Covariates	Model 1 M to 1st	Model 2 1st to 2nd	Model 3 2nd to 3rd	Model 4 3rd to 4th
Socioeconomic Contr. Var.:				
Education				
No education/ Primary incomplete	1.02	1.42***	1.82***	2.24*
Primary complete	1.12*	1.27***	1.41**	1.57
Secondary complete and higher	***1***	***1***	***1***	***1***
Husband's Education				
No education/ Primary incomplete	0.81***	0.95	1.34***	1.29*
Primary complete	0.95	0.97	1.16*	1.28**
Secondary complete and higher	***1***	***1***	***1***	***1***
Working Status Before Marriage				
Not worked	1.17**	1.22***	1.38**	1.04
Worked without social security	1.09	1.18*	1.31*	0.97
Worked with social security	***1***	***1***	***1***	***1***
Survival status of the previous child				
Alive at previous birth			***1***	***1***
Death at previous birth			1.98***	1.48***
Sociocultural Contrl. Var.:				
Marriage Arrangement				
By the couple	***1***	***1***	***1***	***1***
By the families	1.05	1.06	1.08*	1.02
Escaped/Abducted	1.03	1.15*	1.07	1.29*
Brides Money				
No	***1***	***1***	***1***	***1***
Yes (in kind/cash)	0.97	1.16**	1.31***	1.18*
Berdel arrangement	0.89	1.09	1.29*	1.42**
Consanguinity				
Not related	***1***	***1***	***1***	***1***
First degree relative	0.93*	1.06	1.12*	1.07
Other relative	1.03	0.94	0.88	1.00
Postnuptial Residence				
Neo-local	***1***	***1***	***1***	***1***
Patri-local	1.04	1.19***	1.21***	1.05
Mother Tongue:				
Turkish	***1***	***1***	***1***	***1***
Kurdish_Know T.	0.99	1.40***	1.48***	1.62***
Kurdish_Don't K.T.	0.97	1.37***	1.73***	2.29***
Log pseudolikelihood	-8294.197	-6036.505	-5155.422	-3095.646
Wald chi2(df)	6797.8 (45)	1873.9 (46)	4053.7(49)	3308.4(49)

Notes: ^Absolute risk for reference duration level, per 1000 mother months
Results are given in relative risks. Significance test of factors: * $0.05 \leq p \leq 0.1$ ** $0.01 \leq p \leq 0.05$ *** $p \leq 0.01$

We have examined the impact of sociocultural dimensions on the parity progression risks. In this regard, the linkages between various social aspects of marital unions; *marriage arrangement, existence of bride's money, consanguinity, and type of postnuptial residence* and subsequent fertility behavior are taken into account. The analysis has shown that marriage characteristics related to the degree of traditionalism or modernity in family lifestyles has an influence on fertility.

The first birth risks almost do not differ by the social aspects of marital unions. Only those women who married with '*berdel arrangement*' have nearly a 10 percent less risk of first birth than the women who married without any form of bride's money payment. However, the traditional characteristics of unions are fostering the progression to second and high-order births. For each of these covariates, the level related to more 'modernized' behavior is chosen as the reference category and has the lowest birth risk. Among the four covariates, the bride's money and postnuptial residence characteristics are seen to be more influential ones. The effects were most visible on the progression to a third birth. The three children mothers, who are under risk of experiencing a fourth birth, form a selected group by also virtue of high traditionalism in their marriages. Therefore among these women the effect of the cultural set of covariates in general is not very strong any more on transition to fourth birth.

The hazard regression models do not show any variation at transition from marriage to first birth among mother tongue women. In Turkey, most of the women intend to have two children and in general they reach this parity at the end of their reproductive life. Therefore, variation in second birth risks can be interpreted as differential *spacing* behavior; that is (lower) higher second birth risks corresponds to (longer) shorter second birth intervals. In contrast with the first births, the Turkish and Kurdish speaking women's childbearing patterns begin to diverse at progression to second birth. The two Kurdish speaking groups' waiting time for the second birth after the first one is much shorter than that of the Turkish speaking women. The low propensity of giving birth to a high-order child (third and fourth) can be seen an indicator of modern fertility behavior. Thus, variation in births risks in transition to high-order parities can be interpreted as differential limiting of childbearing. In transition to third and fourth order births; the highest risk is observed for the Kurdish speaking women, who don't know Turkish and the lowest risk is observed for the Turkish speaking women. The results show that even after controlling for all demographic, early childhood era, socioeconomic and cultural chracteristics of women a broad residual unexplained variance remains among the mother tongue groups. In other words, variation in the control variables, socioeconomic and cultural attributes especially, only partially explains mother tongue groups differential progressions.

In order to deepen our understanding we also aim to examine trends of the high order birth by the mother tongue group's socioeconomic standing as well. For this reason, two interaction variables have been constructed including calendar period, mother tongue and education (see, Table 9). The categories of the covariates are reorganized so as to obtain more robust estimates: 1) mother tongue variable collapsed in two groups; Turkish and Kurdish speaking women, 2) because high educational attainment is rare among the Kurdish speaking women, 'primary complete' (middle) and 'secondary complete and higher' (high) education levels are collapsed into one single category for them. The all Kurdish speaking women, who don't know Turkish, are represented in no education/ Primary incomplete (low) category, together with more than half of (62 percent) the Kurdish speaking women, who know Turkish, and 3) 9 levels of the calendar period variable are collapsed into 2 major levels.

The fastest declines in progression to third and fourth births are observed for the high educated Turkish speaking group. The trend of the low and middle educated Turkish speaking mothers presents a significant decline too. The third and fourth birth risks of the Kurdish speaking women, with middle and high education, presents faster decline compare to low educated Kurdish speaking women. However, their risk level is even higher than the low educated Turkish speaking women in the last period level.

Table 10. Relative risk of third and fourth births, by time calendar period (before and after 1990), mother tongue and educational attainment standardized for duration, demographic, early childhood era, socioeconomic and sociocultural control variables in separate models. Risk relative to calendar period '1990 and after' and 'Turkish_High' categories

	T_Low	**T_Medium**	**T_High**	**K_Low**	**K_M+H**
2nd to 3rd					
Before 1990	3.17***	2.53**	2.02***	3.55***	2.95***
1990 and after	1.95***	1.56***	***1***	3.37***	2.66***
Log pseudolikelihood = = -5170.7269 Wald chi2(48) = 7785.42					
3rd to 4th					
Before 1990	2.37***	1.74***	1.22**	3.38***	2.62***
1990 and after	1.50***	1.15*	***1***	3.44***	1.81***
Log pseudolikelihood = -3109.4663 Wald chi2(47) = 4578.99					

Significance test of factors: * $0.05 \leq p \leq 0.1$ ** $0.01 \leq p \leq 0.05$ *** $p \leq 0.01$

Note: T_Low: Turkish speaking and No education/Primary incomplete, T_Medium: Turkish speaking and Primary complete, T_High: Turkish speaking and Secondary complete and higher, K_Low: Kurdish speaking and No education/Primary incomplete, K_M+H: Kurdish speaking and Primary complete and Secondary complete and higher.

Lastly, we constructed a set of interaction variables between mother tongue and cultural attributes of women[13] at progression to third parity. For each of these interaction covariates, the level related to more 'traditional' behavior fosters the birth risk for the Turkish speaking women. When the bride's money variable is considered, this relationship hold true for the Kurdish speaking women too. However, consanguinity and postnuptial residence does not have such kind of effect on the Kurdish speaking women's third birth risks. In fact, when the Kurdish speaking, who don't know Turkish, category considered; those who married in these traditional manners have lower transition risks than those who married in modern forms. When we also compared the traditionally married Kurdish speaking women, who know Turkish, and their 'don't know' Turkish counterparts, we have observed lower third birth intensities for the former group.

Table 11. Relative risks of third-birth intensities, by interactions between mother tongue and bride's money, consanguinity, postnuptial residence, standardized for duration, demographic, early childhood era, socioeconomic and sociocultural control variables

	Turkish	**Kurdish_ Know T.**	**Kurdish_Don't K.T.**
Brides Money			
Not Paid	***1***	1.44***	1.62***
Paid	1.29***	1.81***	1.99***
Consanguinity			
Not related	***1***	1.50***	1.78***
Related with Husband	1.11	1.51***	1.58***
Postnuptial Residence			
Neo-local	***1***	1.74***	3.22***
Patri-local	1.27***	1.79***	1.95***

Note: The interaction is controlled for all the other factors presented the Table 8.
Brides Money: Paid category includes 'Yes (in kind/cash)' and 'Berdel arrangement'. Consanguinity: Related with Husband category includes 'First degree relative' and 'Other relative'.

Significance test of factors: * $0.05 \leq p \leq 0.1$ ** $0.01 \leq p \leq 0.05$ *** $p \leq 0.01$

[13] Marriage arrangement covariate has much less influence on progression to third birth compare to other cultural variables as seen in the Table 8. Therefore, I did not include this variable in interaction models.

6 Disscussion and Conclusions

In this study the fertility decline process and differentials of the mother tongue groups in Turkey has been examined from a birth order perspective which presented various dimensions of the childbearing patterns. The analysis has focused upon three major issues. First, the tempo differences of fertility developments are presented. Second, the study has displayed changes over calendar time in the intensities of entry into motherhood and progression to second and higher order births. Third, the nature of interrelationships between demographic, socioeconomic and cultural characteristics of women and their childbearing behavior are examined.

The analysis of the fertility developments of the mother tongue groups have shown in general that the Turkish speaking women, especially the high educated segment and who married with modern manners, can be seen the pioneers of the very low fertility behavior in Turkey. The results can thus be seen as supportive of the general idea that the segments of the population that have been more integrated into modernization trends are also characterized by a stronger preference towards smaller family size. The Kurdish speaking women, when they have at least primary complete level education and/or speak Turkish as a second language do follow a similar path to that of Turkish speaking women, though with a slower pace. By contrast, the Kurdish speaking, who don't know Turkish, or without schooling (or less than primary complete) women can be seen the slowest-movers in the fertility transition referring to period developments.

The analysis have also presented that although the socioeconomic and cultural dimensions are necessary to explain the differential fertility behavior of the Turkish and Kurdish speaking women they are not sufficient. In the progression models, except for in entry into motherhood, notable fractions in differential transition rates of the mother tongue groups remain unexplained. Therefore, both the decline over time and the differential fertility patterns appear to be driven by factors beyond those controlled for in the models.

The findings of this study partially support the minority status hypothesis that membership in a linguistic minority group in Turkey has an independent effect on the fertility behavior of individuals. However, membership status does not affect all group members identically; rather the effect is dependent upon the degree of integration into the larger society. The study shows that besides the socioeconomic and cultural differences, the way the distribution channels of social interaction and communication are constructed may explain a large fraction of the observed differences in fertility levels in Turkey.

We argue, in the line with the diffusion approach in demographic theory that the fertility transition in Turkey can be attributed to both structural changes in society and a diffusion process of modern parity-specific fertility limitation, via the Turkish language. In Turkey, there have been clear discrepancies between the Turkish and

Kurdish speaking population in regards to their integration into the general socioeconomic and cultural modernization process. The roots of uneven integration (or even isolation) of the Kurdish speaking population can be seen in the historical nation building process, and the socioeconomic and political developments of the country. Fertility in Turkey and in the poorest East and Southeast began to decline first among the Turkish speaking population. The mother tongue advantage provided them with faster integration into the general socioeconomic modernization. Moreover, the spread of information and values about fertility regulation (new aspirations about childbearing, knowledge of modern fertility contraception, adaptation of Western cultural attributes etc.) which can be seen as a 'lubricant' of the fertility transition process, occurred more rapidly among the Turkish speaking population. Similarly, examination of the fertility developments shows that among the Kurdish speaking population those who are able to speak Turkish have been the first to change their fertility behavior. Socioeconomic and cultural characteristics of the Kurdish speaking women are much more likely to change when Turkish is learned. Also, relative to their counterparts who 'don't know Turkish', integration into the transition processes is quicker, perhaps due to better access to social interaction channels.

The study has shown a notable lower progression risk of a transition to higher order parities for Kurdish speaking women who know Turkish, in comparison to their 'don't know Turkish' counterparts. This might be related to fact that the ability to speak Turkish, facilitating integration into the economic and social system, may raise expectations about further socioeconomic achievements. Thus, linguistic and social adaptation seems to nurture the two child norm. The study shows that even the primary or higher-educated Kurdish speaking women's fertility is higher than Turkish speaking women with a lower level or no education. In this respect this finding does not support the arguments of the minority status hypothesis, which argues that at higher socioeconomic strata the minority group should have lower fertility than the majority members.

The time lag of the Kurdish speaking group's onset of fertility transition in Turkey can partially explain this difference. Moreover, as the empirical findings of other studies have shown, the nature of the relationship between education and fertility depends on the institutional structure of society. The Kurdish speaking women's social setting, in general, is characterized by slower socioeconomic development, less employment opportunities for women, and stronger traditionalism (gender inequality) compared to their Turkish speaking counterparts. This might be further factors explaining the weaker negative impact of Kurdish women's education on parity progressions as compared to the Turkish speaking group.

The trends in fertility rates, by the mother tongue and socioeconomic groups, in Turkey single out 3 main groups in the contemporary fertility decline. The first group is composed of the 'secondary complete or higher' level educated Turkish

speaking women who have been leading the changing fertility behavior since the onset of decline. Apart from their high educational attainment, participation in the labor force is a potent driving force of their changing fertility behavior. Today, the high educated Turkish speaking women's social institutional context of reproduction shows certain similarities with the developed countries of southern Mediterranean Europe where fertility is at very low level (total fertility 1.5 and below). Behind these similarities lies rapid modernization within context of 'familistic' social structure and family-oriented value systems. Certain common features can be mentioned as: late home leaving; rare premarital cohabitation and out-of-wedlock fertility; late but nearly universal marriage; slower change towards gender equity in familial institutions compared to advancements in education and market employment; high intensity of material and non-material exchange with the parental generation and other relatives; the lack of support to combine paid employment and childrearing; family centered welfare state policies, giving preeminence to male-bread winner model etc.

The emerging fertility pattern of the high educated Turkish speaking women nowadays is characterized by low level of childlessness, yet postponement of motherhood and small family size. Stopping childbearing after the first child is seen to be an emerging behavior. Accordingly, in parallel to increasing employment opportunities, we can expect these women to be pioneers in very low fertility behavior in Turkey.

The second group is composed of 'primary complete and less' level educated Turkish and Kurdish speaking women. In spite of the generalized spread of nuclear families, the institutional setting that reproduction takes place for this group of women is still dominated by the male breadwinner-female housekeeper model with gender inequalities. Low level of education is major obstacle for these women to participate in the labor force or being gainfully employed in the market in an urban environment. These attributes can be seen as obstacles for their further more fertility decline. However, we should consider the societal impact of changing socioeconomic circumstances for this group. The transformation towards a consumption society in the last two decades has declined the demand for (additional) children substantially. Also, the macro level societal changes seem to change power relations within marriage towards more egalitarian setting.

The typical fertility pattern of this group from the 1980s onwards has been the steep decline in third and fourth birth propensities. We can see their current fertility decline process as continuous spread of the two-child family norm. The national fertility level has already dropped below replacement level in Turkey at the beginning of 2000s. Therefore, the future course of economic and social developments may ensue for this group further leveling off towards low fertility (total fertility 1.6-2.1).

The ‘primary complete’ level educated Turkish speaking women constitute the ‘trendsetters’ within this group. The Kurdish speaking women’s, who know Turkish, fertility level is still high but they are following the footsteps of the Turkish speaking women. With a relatively higher level of socioeconomic development and more egalitarian gender relationships, the fertility of the educated Kurdish speaking group may decline more rapidly in future.

The third group largely consists of the Kurdish speaking women, who don’t know Turkish. This group constitutes laggards in fertility transition regarding their differential fertility developments over time. The institutional setting within which reproduction takes place for this group of women began to change the latest. This setting nowadays is characterized by the lowest socioeconomic development in Turkey. The armed conflict in the Eastern region of the country and rapid migration trend towards the West and South regions and urban areas during this period was the major societal change for this group. Our empirical analyses have not shown a definitive evidence that their progression rates to third and fourth birth orders has declined during this period. We found tentative evidence that their transition from large to small families initiated at end of 1990s. Therefore, we may expect to find for this group in the near future further evidence of adaptation of parity specific fertility control.

As an increasing proportion of couples acknowledge replacement fertility as an optimal level for their own reproductive lives, the final stage of the fertility transition is soon likely to materialize. For Turkey, we can see that modernization, industrialization, urbanization, and the diffusion of urban-type norms make crowded and complex household types less feasible to maintain. Increasing educational standards and postponement of marriage allow for an increasing proportion of women to be involved in market-centered economic activity. All these trends lead to a higher propensity to establish smaller families. The present study shows that even the most resistant group to fertility decline showed the beginnings of a decrease in higher-order birth risks in the late 1990s. This implies that we can expect further declines in aggregate Turkish fertility also in the near future to come.

The emerging fertility patterns in Turkey seem quite similar to a typical low-fertility pattern of a developed country setting. For future research, it would be interesting to aim at disentangling the role of possible contextual factors; namely, geographical, cultural, political, and economic ones, for fertility change in Turkey. Fertility differentials and decline process have usually been elaborated with perspectives giving preeminence to the socioeconomic development and cultural change dimensions. Our research implies that incorporation of social interaction component and diffusion models in explanatory frameworks will further improve the understanding of fertility and family behavior.

7 References

Ahmad, F. (2003). *Turkey: the quest for identity*. Oneworld Publications, Oxford.

Aydıngün, A. and Aydıngün, İ. (2004). "The role language identity in the formation of Turkish national identity and Turkishness." *Nationalism and Ethnic Politics*, 10 (3), 415-432.

Aytaç, I.A. (1998). "Intergenerational living arrangements in Turkey." *Journal of Cross Cultural Gerontology*, 13, pp. 241-264

Baschieri, A. and Hinde, A. (2007). "The proximate determinants of fertility and birth intervals in Egypt: An application of calendar data." *Demographic Research*, 16(3), 59-96.

Bean, F.D. and Tienda, M. (1990). *The Hispanic Population of The United States*. Russell Sage Foundation, New York.

Behar, C. (1995) The fertility transition in Turkey: Reforms, policies, and family structure. In: Carla Makhlouf Obermeyer (Ed). *Family, Gender and Population in the Middle East* (pp. 36-56). The American University in Cairo Press, Cairo.

Blossfeld, H.P., Golsch, K. and Rohwer, G. (2007). *Event History Analysis with STATA*. Lawrence Erlbaum Associates, New Jersey, United States of America.

Bongaarts, J. and Feeney, G. (1998). "On the Quantum and Tempo of Fertility." *Population and Development Review*, 24 (2), 271-291.

Bühler, C. (2006). "On the structural value of children and its implication on intended fertility in Bulgaria" *MPIDR Working Papers WP* , 2005-003.

Bruinessen, M.V. (1992). *Agha, Shaikh and State The Social Structures of Kurdistan*. Zen Books Ltd, London and New Jersey.

Cindoğlu, D. and Sirkeci, İ. (2001). "Variables that explain variation in prenatal care in Turkey: Social class, education and ethnicity re-visited." *Journal of Biosocial Science*, 33 (2), 261-270.

Çagaptay, S. (2004). "Race, assimilation and Kemalism: Turkish nationalism and the minorities in the 1930s." *Middle Eastern Studies*, 40 (3), 86-101.

Çelik, A.B. (2005). "I miss my village!" forced Kurdish migrants in İstanbul and their representation in associations." *New Perspectives on Turkey*, 32, 137-163.

Çarkoğlu, A. and Toprak, B. (2007) *Religion, Society and Politics in a Changing Turkey*. Turkish Economic and Social Studies Foundation (TESEV), İstanbul.

D'Addato, V.A., Vignoli D. and Yavuz, S. (2008). "Towards Smaller Family Size in Egypt, Morocco and Turkey: Overall Change over Time or Socio-economic Compositional Effect?" *Population Review,* 47(1), 25-44

Dündar, S. E. T. (1998) *Social and Demographic Characteristics and Fertility*

Behavior of Main Mother tongue groups in Turkey. M.A. Thesis (Unpublished) Hacettepe University Institute of Population Studies. Ankara.

Eltigani, E.E. (2001). "Childbearing in five Arab countries." *Studies in Family Planning*, 32(1), 17-24.

Ergil, D. (2000). "The Kurdish question in Turkey." *Journal of Democracy*, 11 (3), 122-135.

Feeney, G. and Feng, W. (1993). "Parity progression and birth intervals in China." *Population and Development Review*, 9(1), 61-95.

Fişek, N.H. and Shorther, F.C. (1968). "Fertility control in Turkey." *Demography*, 5, 578-589.

Frisbie, W.P. and Bean, F.D. (1978). Some Issues in the Demographic Study of Racial and Ethnic Populations. F. D. Bean and W. P. Frisbie (Ed.). In: *The Demography of Racial and Ethnic Groups*. (PP. 1-57) Academic Press, United States of America.

Grigoriadis, I.N. (2007). "*Türk* or *Türkiyeli?* The reform of Turkey"s minority legislation and the rediscovery of Ottomanism." *Middle Eastern Studies* , 43(3), 423-438.

Goldscheider, C. and Uhlenberg, P. R. (1969). "Minority group status and fertility". *American Journal of Sociology,* 74(4), 361-372

Gündüz-Hoşgör, A. G., and Smits, J. (2002). Intermarriage between Turks and Kurds in contemporary Turkey. *European Sociological Review*, 18(4), 417–432.

Gündüz-Hoşgör, A. G., and Smits , J. (2007). The Status of Rural Women in Turkey What Is The Role of Regional Differences? Valentine Moghadam (Ed.) In: *Empowering women: Participation, rights and women's movements in the Middle East, North Africa, and South Asia*. (pp. 180- 202) Syracuse: Syracuse

Hancıoğlu, A. (1997). Fertility Trends in Turkey: 1978-1993. In *Fertility Trends, Women's Status, and Reproductive Expectations in Turkey: Results of Further Analysis of the 1993 Turkish Demographic and Health Survey* (pp.1-79). Calverton, Maryland: HIPS and MI.

Hacettepe Üniversitesi. (2006). *Türkiye Göç ve Yerinden Olmuş Nüfus Araştırması*. Ankara, Hacettepe Üniversitesi Nüfus Etütleri Enstitüsü.

Halli, S.S. and Rao, K.V. (1992). *Advanced Techniques of Population Analysis*. Plenum Press, New York and London.

HUIPS (1999). *Turkey Demographic and Health Survey 1998*. Ankara: Hacettepe University Institute of Population Studies, Ministry of Health General Directorate of Mother and Child Health and Family Planning, State Planning Organization and European Union.

HUIPS (2004). *Turkey Demographic and Health Survey 2003*. Ankara: Hacettepe University Institute of Population Studies, Ministry of Health General Directorate of Mother and Child Health and Family Planning, State Planning Organization and European Union.

Işık, O., and Pinarcıoğlu, M.M. (2006). Geographies of a silent transition: a geographically weighted regression approach to regional fertility differences in Turkey. *European Journal of Population*, 22, 399-421.

İçduygu, A., Romano, D., and Sirkeci, İ. (1999). The ethnic question in an environment of insecurity: The Kurds in Turkey. *Ethnic and Racial Studies*, 22, 991–1010

Kandiyoti, D. (1977) "Sex roles and social change: A comparative appraisal of Turkey"s women." *Signs*, 3, pp. 57-73.

Keyder, Ç. (1997). 'Whither the Project of Modernity? Turkey in the 1990s,' S. Bozdoğan and R. Kasaba (Ed.) In: *Rethinking Modernity and National Identity in Turkey*. (pp. 37-51), Seattle and London: University of Washington Press

Koç, İ. and Hancıoğlu, A (1999). *Demographic differentials and demographic integration of Turkish and Kurdish populations in Turkey*. In European population conference: Unity in diversity (pp. 197–198). The Hague, 30 August–3 September.

Koç, İ., Hancıoğlu, A. and Bozbeyoğlu, A. Ç. (2008). Demographic differentials and demographic integration of Turkish and Kurdish populations in Turkey. *Population Research and Policy Review*, 27 (4), 447-457.

Koray, S. (1997). 'Dynamics of demography and development in Turkey: implications to the potential for migration to Europe'. *The Turkish Journal of Population Studies* 19: 37-56.

Ministry of Health (Turkey), Hacettepe University Institute of Population Studies, and Macro International Inc. (1994) *Turkey Demographic and Health Survey 1993*. Ankara, Turkey.

Özbay, F. (1984). Kırsal Kesimde Toplumsal ve Ekonomik Yapı Değişimlerinin Aile İşlevlerine Yansıması. T. Erder (Ed.) In: *Türkiye'de Aile'nin Değişimi: Toplumbilimsel İncelemeler.* (pp. 35-54) Türk Sosyal Bilimler Derneği Yayını, Ankara.

Pamuk, Ş. (2007). "Economic change in twentieth century Turkey: Is the glass more than half full?" *The Working Paper Series at The American University of Paris*, 41.

Poston, D.L., Chang, C. F. and Dan, H. (2006). "Fertility differences between the majority and minority nationality groups in China." *Population Research and Policy Review*, 25(1), 67-101.

Rallu, J.L., Piche, V. and Simon, P. (2006). Demography and Ethnicity An Ambiguous Relationship. G. Caselli, J. Vallin and G. Wunsch (Ed.) In: *Demography: Analysis and Synthesis* (pp. 531-550), Elsevier Inc., United States of America.

Rodriguez, G. and Hobcraft J. N. (1980). *Illustrative Analysis: Life Table Analysis of Birth Intervals in Colombia*. The Haugue Netherlands, World Fertility

Survey Scientific Reports.
Saatci, M. (2002). "Nation-states and ethnic boundaries: modern Turkish identity and Turkish-Kurdish conflict." *Nations and Nationalism*, 8(4), 549-564.
Saenz R. and Morales, M.C. (2005). Demography of Race and Ethnicity. D. L. Poston and M. Micklin (Ed) In: *Handbook of Population* (pp. 169-208), Springer, United States of America.
Shorter, F.C. and Macura, M. (1982). *Trends in Fertility and Mortality in Turkey, 1935-1975* (pp.20-55). National Academy Press, Wastington, D.C.
Sirkeci, I. (2000). Exploring the Kurdish population in the Turkish context. *GENUS, An International Journal of Demography*, 56 (1–2), 149–175.
State Institute of Statistics [SIS] (1995). *Women in Statistics 1927 -1992*. State Institute of Statistics, Ankara.
State Institute of Statistics [SIS] (1996). *The population of Turkey, 1923-1994: Demographic structure and development.* State Institute of Statistics, Publication No, 1839, Ankara.
State Institute of Statistics [SIS] (2000). *2000 Genel Nüfus Sayımı Nüfusun Sosyal ve Ekonomik Nitelikleri (2000 Census of Population Social and Economic Characteristics of Population)*. State Institute of Statistics, Ankara.
Smits, J. and Gündüz-Hoşgör, G. A. (2003). "Linguistic capital: language as a socio-economic resource among Kurdish and Arabic women in Turkey." *Ethnic and Racial Studies*, 26 (5), 829-853.
Şimşek, S. (2004). "New social movements in Turkey since 1980." *Turkish Studies*, 5(2), 111-139.
Tekeli, Ş. (1995). Women in Turkey in the 1980s. Ş. Tekeli (Ed). In: *Women in Modern Turkish Society, A Reader*. (pp. 1-22) Zed Books Ltd., London.
Thomson, E. (2004.) "Step-families and childbearing desires in Europe." *Demographic Research*, Special Collection, 3(5), 118-132.

Ünalan, T. (1997). 'Turkey's population at the beginning of the 21st century'. *The Turkish Journal of Population Studies* 19: 57-72.
Yeğen, M. (2004). "Citizenship and ethnicity in Turkey." *Middle Eastearn Studies*, 40(6), 51-66.
Yavuz, S. (2006). Completing the fertility transition: Third birth developments by mother tongue groups in Turkey. *Demographic Research*, 15 (15), 435-460
Yüceşahin, M.M. and Özgür, E.M. (2008). Regional fertility differences in Turkey: Persistent high fertility in the Southeast. *Population, Space and Place* 14 (2), 135-158
Weissner, G. (2002). Ethnicity and Political Identities among the Kurds. P. A. Andrews (Ed.) In: *Ethnic Groups in the Republic of Turkey Supplement and Index*, Dr. Ludwig Reichert Verlag, Weisbaden.

Table A1. Sample composition for the analysis of first birth risk (since first marriage): Person-months (exposures) and first births (occurrences)

	Exposure time (in months)		Occurrences (first births)	
Covariates-Levels	**N**	**%**	**N**	**%**
1. ***Duration (in months) (Time-varying)***				
0-9	69398	37.0	1062	14.8
10-12	17741	9.4	1948	27.1
13-15	12784	6.8	992	13.8
16-18	10152	5.4	563	7.8
19-23	13333	7.1	822	11.4
24-29	11019	5.9	648	9.0
30-36	8779	4.7	415	5.8
37-42	5539	2.9	186	2.6
43-60	11008	5.9	312	4.3
61-	28045	14.9	240	3.3
2. ***Calendar Period (Time-varying)***				
<1981	33132	17.6	1282	17.8
1981-83	15579	8.3	684	9.5
1984-86	15851	8.4	635	8.8
1987-89	18184	9.7	752	10.5
1990-92	19847	10.6	811	11.3
1993-95	21347	11.4	806	11.2
1996-98	23080	12.3	821	11.4
1999-01	24442	13.0	848	11.8
2002-03/04	16336	8.7	549	7.6
3. ***Mother Tongue***				
Turkish	154782	82.4	5976	83.1
Kurdish_Know T.	20179	10.7	748	10.4
Kurdish_Don't K.T.	6998	3.7	240	3.3
Other	5839	3.1	223	3.1
4. ***Age at Marriage***				
≤17	71416	38.0	2529	35.2
18-20	58127	31.0	2445	34.0
21-23	34313	18.3	1391	19.4
24≥	23941	12.7	823	11.4
5. ***Childhood Place of Residence***				
Urban	80731	43.0	3116	43.4
Rural	103584	55.2	3946	54.9
Abroad	3483	1.9	125	1.7
6. ***Respondent's Mother's Literacy***				
Yes	117432	62.5	4460	62.1
No	69238	36.9	2692	37.5
Missing	1128	0.6	35	0.5
7. ***Number of Siblings***				
1-4	50423	26.8	1834	25.5
5-6	44805	23.9	1703	23.7
7+	92559	49.3	3650	50.8
Missing	10	0.0	1	0.0

(**Table A1 continued**)

Covariates-Levels	Exposure time (in months) N	Exposure time (in months) %	Occurrences (first births) N	Occurrences (first births) %
8. *Education*				
No education/ Primary incomplete	45507	24.2	1585	22.0
Primary complete	110681	58.9	4455	62.0
Secondary complete and higher	31610	16.8	1148	16.0
9. *Working Status Before Marriage*				
Not worked	82064	43.7	3316	46.1
Worked without social security	78427	41.8	2944	41.0
Worked with social security	27130	14.4	923	12.8
Missing	177	0.1	4	0.1
10. *Husband's Education*				
No education/ Primary incomplete	16900	9.0	513	7.1
Primary complete	118115	62.9	4590	63.9
Secondary complete and higher	52783	28.1	2085	29.0
11. *Marriage Arrangement*				
By the couple	75883	40.4	2808	39.1
By the families	103228	55.0	4041	56.2
Escaped/Abducted	8644	4.6	338	4.7
Missing	43	0.0	1	0.0
12. *Brides Money*				
No	151054	80.4	5832	81.1
Yes (in kind/cash)	34163	18.2	1277	17.8
Berdel arrangement	2512	1.3	75	1.0
Missing	69	0.0	3	0.0
13. *Consanguinity*				
Not related	145464	77.5	5589	77.8
First degree relative	32912	17.5	1210	16.8
Other relative	9118	4.9	378	5.3
Missing	303	0.2	10	0.1
14. *Postnuptial Residence*				
Neo-local	67791	36.1	2540	35.3
Patri-local	120007	63.9	4647	64.7
Total	187798	100.0	7187	100.0

Table A2. Sample composition for the analysis of second birth risk: Person-months (exposures), second births (occurrences)

	Exposure time (in months)		Occurrences (second births)	
Covariates-Levels	**N**	**%**	**N**	**%**
1. *Duration (in months) (Time-varying)*				
0-9	59105	22.4	49	0.9
10-12	18910	7.2	309	5.8
13-15	17506	6.6	455	8.6
16-18	16028	6.1	451	8.5
19-23	23455	8.9	691	13.0
24-29	22980	8.7	795	15.0
30-36	20962	7.9	642	12.1
37-42	14363	5.4	379	7.2
43-60	28788	10.9	817	15.4
61-	42285	16.0	714	13.5
2. *Calendar Period (Time-varying)*				
<1981	25629	9.7	706	13.3
1981-83	17931	6.8	498	9.4
1984-86	20642	7.8	533	10.0
1987-89	24186	9.1	530	10.0
1990-92	28477	10.8	622	11.7
1993-95	34353	13.0	632	11.9
1996-98	37763	14.3	685	12.9
1999-01	42642	16.1	665	12.5
2002-03/04	32760	12.4	431	8.1
3. *Mother Tongue*				
Turkish	232754	88.0	4322	81.5
Kurdish_Know T.	19131	7.2	591	11.2
Kurdish_Don't K.T.	5951	2.3	215	4.1
Other	6546	2.5	173	3.3
4. *Age at First Birth*				
≤18	42476	16.1	1145	21.6
19-21	84234	31.9	1975	37.3
22-24	74216	28.1	1367	25.8
25≥	63456	24.0	815	15.4
5. Sex of Previous Child				
Male	138301	52.3	2660	50.2
Female	126081	47.7	2642	49.8
5. *Childhood Place of Residence*				
Urban	126698	47.9	2084	39.3
Rural	132219	50.0	3137	59.2
Abroad	5465	2.1	81	1.5

(**Table A2 continued**)

Covariates-Levels	Exposure time (in months) N	%	Occurrences (second births) N	%
6. ***Respondent's Mother's Literacy***				
Yes	147162	55.7	3545	66.9
No	116224	44.0	1730	32.6
Missing	996	0.4	27	0.5
7. ***Number of Siblings***				
1-4	84066	31.8	1130	21.3
5-6	64068	24.2	1241	23.4
7+	116247	44.0	2930	55.3
8. ***Education***				
No education/ Primary incomplete	43849	16.6	1343	25.3
Primary complete	163834	62.0	3355	63.3
Secondary complete and higher	56698	21.4	603	11.4
9. ***Working Status Before Marriage***				
Not worked	118846	45.0	2537	47.9
Worked without social security	101428	38.4	2271	42.8
Worked with social security	44041	16.7	490	9.2
Missing	66	0.0	3	0.1
10. ***Husband's Education***				
No education/ Primary incomplete	14956	5.7	408	7.7
Primary complete	161232	61.0	3561	67.2
Secondary complete and higher	88194	33.4	1333	25.1
11. ***Marriage Arrangement***				
By the couple	116129	43.9	1844	34.8
By the families	137628	52.1	3208	60.5
Escaped/Abducted	10605	4.0	249	4.7
Missing	19	0.0	1	0.0
12. ***Brides Money***				
No	116129	43.9	1844	34.8
Yes (in kind/cash)	137628	52.1	3208	60.5
Berdel arrangement	10605	4.0	249	4.7
Missing	19	0.0	1	0.0
13. ***Consanguinity***				
Not related	214539	81.1	4024	75.9
First degree relative	36310	13.7	992	18.7
Other relative	12965	4.9	280	5.3
Missing	568	0.2	6	0.1
14. ***Postnuptial Residence***				
Neo-local	110470	41.8	1611	30.4
Patri-local	153911	58.2	3690	69.6
Total	264381	100.0	5301	100.0

Table A3. Sample composition for the analysis of third birth risk: Person-months (exposures) and third births (occurrences)

	Exposure time (in months)		Occurrences (third births)	
Covariates-Levels	**N**	**%**	**N**	**%**
1. ***Duration (in months) (Time-varying)***				
0-9	48384	13.3	32	1.0
10-12	15574	4.3	180	5.6
13-15	14776	4.1	247	7.7
16-18	13912	3.8	217	6.8
19-23	21374	5.9	409	12.8
24-29	22363	6.1	466	14.6
30-36	22449	6.2	366	11.4
37-42	16874	4.6	215	6.7
43-60	41575	11.4	437	13.7
61-	146735	40.3	628	19.6
2. ***Calendar Period (Time-varying)***				
<1981	16979	4.7	370	11.6
1981-83	17679	4.9	343	10.7
1984-86	24378	6.7	359	11.2
1987-89	31764	8.7	351	11.0
1990-92	41053	11.3	366	11.4
1993-95	49795	13.7	390	12.2
1996-98	59346	16.3	393	12.3
1999-01	69119	19.0	394	12.3
2002-03/04	53903	14.8	235	7.3
3. ***Mother Tongue***				
Turkish	328012	90.1	2427	75.9
Kurdish_Know T.	20744	5.7	451	14.1
Kurdish_Don't K.T.	5487	1.5	210	6.6
Other	9773	2.7	111	3.5
4. ***Age at Second Birth***				
≤22	108974	29.9	1705	53.3
23-25	37641	10.3	362	11.3
26-29	108729	29.9	739	23.1
30≥	108672	29.9	393	12.3
5. Sex of Previous Children				
Male-Male	100558	27.6	842	26.3
Female-Female	69966	19.2	895	28.0
Mix	193492	53.2	1462	45.7
6. Survival status of the first child				
Alive at second birth	347464	95.5	2738	85.6
Death at second birth	14246	3.9	407	12.7
Death after S.B.	2307	0.6	53	1.7

(**Table A3 continued**)

Covariates-Levels	Exposure time (in months) N	%	Occurrences (third births) N	%
6. ***Childhood Place of Residence***				
Urban	160970	44.2	1030	32.2
Rural	195922	53.8	2151	67.2
Abroad	7125	2.0	18	0.6
7. ***Respondent's Mother's Literacy***				
Yes	219503	60.3	2487	77.8
No	142420	39.1	692	21.6
Missing	2094	0.6	19	0.6
8. ***Number of Siblings***				
1-4	97147	26.7	440	13.7
5-6	95818	26.3	642	20.1
7+	171051	47.0	2117	66.2
9. ***Education***				
No education/ Primary incomplete	62651	17.2	1177	36.8
Primary complete	246335	67.7	1894	59.2
Secondary complete and higher	55030	15.1	127	4.0
10. ***Working Status Before Marriage***				
Not worked	173825	47.8	1596	49.9
Worked without social security	143939	39.5	1471	46.0
Worked with social security	46160	12.7	130	4.1
Missing	93	0.0	1	0.0
11. ***Husband's Education***				
No education/ Primary incomplete	17816	4.9	361	11.3
Primary complete	234617	64.5	2306	72.1
Secondary complete and higher	111584	30.7	532	16.6
12. ***Marriage Arrangement***				
By the couple	135098	37.1	840	26.3
By the families	213293	58.6	2195	68.6
Escaped/Abducted	15613	4.3	163	5.1
Missing	12	0.0	1	0.0
13. ***Brides Money***				
No	313607	86.2	2200	68.8
Yes (in kind/cash)	48258	13.3	933	29.2
Berdel arrangement	2020	0.6	65	2.0
Missing	132	0.0	1	0.0
14. ***Consanguinity***				
Not related	291495	80.1	2269	70.9
First degree relative	54796	15.1	743	23.2
Other relative	17348	4.8	182	5.7
Missing	378	0.1	5	0.1
15. ***Postnuptial Residence***				
Neo-local	130014	35.7	670	20.9
Patri-local	234002	64.3	2529	79.1
Total	364016	100.0	3199	100.0

Table A4. Sample composition for the analysis of fourth birth risk: Person-months (exposures) and fourth births (occurrences)

	Exposure time (in months)		Occurrences (fourth births)	
Covariates-Levels	**N**	**%**	**N**	**%**
1. *Duration (in months) (Time-varying)*				
0-9	28487	12.7	29	1.6
10-12	9162	4.1	108	6.1
13-15	8685	3.9	131	7.3
16-18	8217	3.7	141	7.9
19-23	12588	5.6	228	12.8
24-29	13239	5.9	282	15.7
30-36	13414	6.0	190	10.6
37-42	10189	4.5	138	7.7
43-60	24822	11.1	253	14.1
61-	95711	42.6	289	16.1
2. *Calendar Period (Time-varying)*				
<1981	6793	3.0	125	7.0
1981-83	11187	5.0	197	11.0
1984-86	16855	7.5	243	13.6
1987-89	20011	8.9	244	13.6
1990-92	24975	11.1	199	11.1
1993-95	30770	13.7	216	12.1
1996-98	37125	16.5	230	12.9
1999-01	43557	19.4	209	11.7
2002-03/04	33241	14.8	126	7.0
3. *Mother Tongue*				
Turkish	194170	86.5	1185	66.2
Kurdish_Know T.	17958	8.0	338	18.9
Kurdish_Don't K.T.	5814	2.6	192	10.7
Other	6572	2.9	75	4.2
4. *Age at Third Birth*				
≤25	99947	44.5	1228	68.6
26-28	55599	24.8	336	18.8
29-30	28776	12.8	127	7.1
32≥	40191	17.9	98	5.5
5. Sex of Previous Children				
3 Males	31864	14.2	235	13.1
3 Females	24788	11.0	328	18.4
1 Male – 2 Female	77188	34.4	655	36.6
2 Male – 1 Female	90675	40.4	570	31.9
6. Survival status of the previous children				
Alive at third birth	179833	80.1	1201	67.1
Death at third birth	39919	17.8	534	29.8
Death after third birth	4761	2.1	54	3.0

(**Table A4 continued**)

Covariates-Levels	Exposure time (in months) N	%	Occurrences (fourth births) N	%
6. *Childhood Place of Residence*				
Urban	77123	34.4	485	27.1
Rural	144223	64.2	1302	72.8
Abroad	3168	1.4	2	0.1
7. *Respondent's Mother's Literacy*				
Yes	167553	74.6	1519	84.9
No	55659	24.8	260	14.5
Missing	1302	0.6	11	0.6
8. *Number of Siblings*				
1-4	38573	17.2	160	9.0
5-6	53764	23.9	311	17.4
7+	132176	58.9	1318	73.7
9. *Education*				
No education/ Primary incomplete	61948	27.6	907	50.7
Primary complete	150110	66.9	857	47.9
Secondary complete and higher	12456	5.5	26	1.4
10. *Working Status Before Marriage*				
Not worked	108460	48.3	892	49.9
Worked without social security	103559	46.1	851	47.6
Worked with social security	12494	5.6	46	2.5
11. *Husband's Education*				
No education/ Primary incomplete	18691	8.3	287	16.0
Primary complete	160239	71.4	1308	73.1
Secondary complete and higher	45584	20.3	195	10.9
12. *Marriage Arrangement*				
By the couple	60449	26.9	60449	26.9
By the families	154280	68.7	154280	68.7
Escaped/Abducted	9772	4.4	9772	4.4
Missing	12	0.0	12	0.0
13. *Brides Money*				
No	167794	74.7	1042	58.3
Yes (in kind/cash)	54322	24.2	690	38.6
Berdel arrangement	2353	1.0	56	3.1
Missing	44	0.0	1	0.0
14. *Consanguinity*				
Not related	165401	73.7	1207	67.5
First degree relative	46281	20.6	469	26.2
Other relative	12618	5.6	109	6.1
Missing	213	0.1	3	0.2
15. *Postnuptial Residence*				
Neo-local	54315	24.2	291	16.3
Patri-local	170199	75.8	1498	83.7
Total	224514	100.0	1789	100.0