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Reproduction in Upheaval: Crisis, Ethnicity, and Fertility in Kazakhstan*

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Abstract

This study contributes to the literature on demographic adjustments to societal crises by examining ethnic-specific probabilities of having first and second marital births and a first post-marriage abortion in Kazakhstan. Discrete-time logit models, employing data from the 1995 and 1999 Kazakhstan Demographic and Health Surveys, are fitted. The results show that the probability of first birth responded to societal cataclysms of the post-Soviet transition, but this response was most manifest and enduring in the ethnic group that had been most demographically advanced and that also found itself most politically vulnerable. While ethnic differences in the probability of second birth were generally more pronounced, the pace of its post-Soviet decline was relatively uniform across all ethnic groups. Induced abortion did not show any reaction to the vagaries of the post-Soviet transition, as probabilities of resorting to abortion were declining continuously in all ethnic groups since before the dissolution of the USSR.

Keywords: fertility; abortion; ethnicity; Former Soviet Union; Kazakhstan; Central Asia; social crisis

INTRODUCTION

Demographers commonly observe that long-term social and structural changes lead to demographic changes over time and across population segments. It is much less clear, however, whether or to what extent dramatic and relatively sudden political and economic upheavals affect demographic choices and outcomes. There is a small but growing literature that examines temporary and even prolonged deviations from the gradual path of demographic change in response to dramatic societal cataclysms such as wars, droughts, famines, political strife, and economic crises (e.g., Agadjanian and Prata 2002; Festy 1984; Lindstrom and Berhanu 1999; National Research Council 1993; Palloni, Hill and Pinto 1996; Winter 1992). Anthropological literature shows that behavioral responses to such emergencies, while rational in essence, are culturally predicated and framed: individuals and groups mobilize and adjust their cultural resources to protect their lives and well-being (Boehm 1996). However, fertility adjustments to such crises are neither universal nor consistent (Hill 2004). Moreover, establishing causal links between upheavals and demographic outcomes remains a challenging task, largely because of the difficulty in separating the effects of these upheavals from secular demographic trends.

The inherent difficulty of disentangling secular trends from responses to societal upheavals is further magnified by ethnic and religious divisions and tensions that increasingly accompany political and economic changes in today's world. Thus within a diverse society different groups may not be uniformly impacted by such upheavals and therefore may not exhibit the same demographic responses. In this study we examine these complexities by analyzing how members of different ethnic groups in Kazakhstan adapted their reproductive behavior to radical and multidimensional societal transformations. Kazakhstan, once part of the USSR, is a vast yet sparsely populated country of some 15 million that became an independent nation in 1991. In the past two decades, Kazakhstan experienced multiple dramatic changes including those

caused by the reforms in late Soviet years, the Soviet Union's subsequent collapse, the country's ascension to independence and its transition from a centrally-planned to a market economy.

Kazakhstan is a multiethnic nation whose contemporary ethnic palette has been formed primarily through population movements. The migration of ethnic Slavs into the territory of today's Kazakhstan is a centuries-old process, but that process reached a particularly large scale during the Soviet era, when residents of the European part of the USSR were encouraged by the Soviet government to move to Kazakhstan to partake in its economic modernization, or, as was the case of Volga German in 1941 and a few other "punished" ethnic groups after the end of World War II, were forcibly transplanted there by Stalin's regime. By the time of the last All-Soviet population census of 1989, Russians and other groups of European origin constituted more than half of Kazakhstan's population (USSR Census 1996).

The Perestroika reforms launched in the mid-1980s and then the late-Soviet and early post-Soviet transition in Kazakhstan, as in most other former Soviet Republics, set off dramatic political and economic liberalization but also triggered an economic downturn and political instability, exacerbating insecurities of the majority of the country's population (Olcott 2002; Pomfret 1999). The new nation's Gross National Income (in purchasing power parity, 2005 international $) dropped from 4,270 in 1991 to 3,290 in 1995, recovering to 3,570 in 1998 (World Bank 2006). In addition to socioeconomic challenges in the years preceding and following its independence, Kazakhstan experienced considerable ethnic tensions, primarily between indigenous Kazakhs and descendants of European-origin settlers and forced migrants, to whom hereafter we will also refer as Europeans. The growing political and sociocultural discomfort of Europeans resulted in them being greatly overrepresented in massive out-migration from Kazakhstan that accompanied and followed the collapse of the Soviet Union and the young nation's early post independence history. Thus net out-migration jumped from the already high 11.4 per thousand of population in 1992 to 25.2 per thousand in 1994. Only toward the end of

the first post-Independence decade out-migration subsided with net out migration dropping to 16.4 per thousand by 1997 (computed from ILO 2006).

The economic challenges and ethnic tensions that surrounded the downfall of the Soviet Union and their implications for migratory patterns and trends have attracted considerable attention in the literature (e.g., Becker et al., 2003; 2005; Demakov 1997; Esenova 1996; Vitkovskaya 1998). Parallel changes in fertility have also been well documented (Academy of Preventive Medicine and Macro International 2000; Agadjanian 1999; National Institute of Nutrition and Macro International 1996). Thus between 1989, the year of the last Soviet Census and 1999, when Kazakhstan's second Demographic and Health Survey was conducted, Kazakhstan's total fertility rate declined from 3.6 to 2.5 children per woman, or by 29 per cent (Academy of Preventive Medicine and Macro International 2000: 47).

We view reproduction as a potentially important demographic mechanism through which individuals may adjust to dramatic changes in their environments. The conventional demographic wisdom suggests that in a "traditional" society, where childbearing and marriage are closely related, the postponement of the onset of childbearing would typically be achieved by delaying marriage. Entry into marriage is an undeniably important adjustment mechanism, and we examine its dynamics in Kazakhstan in another study (Dommaraju and Agadjanian, n.d.). Based on our prior research (Agadjanian 1999), however, we argue that in rapidly changing settings such as Kazakhstan, where norms regarding desired fertility erode more rapidly than the social value of marriage, one should also examine postponement of the onset of childbearing within marriage. Moreover, focusing on reproduction within marriage produces a more direct and therefore less biased measure of fertility adjustment than looking at timing of marriage, which can also be affected by considerations and constraints directly unrelated to reproduction. Finally, restricting the analysis to post-marriage adjustments helps reduce the selection bias due to migration, as single people are generally more likely to migrate, alone or as part of their parental households, than married people.

In a low-fertility setting like Kazakhstan, the fertility adjustment mechanism is typically engaged in transitions to first and second births, as higher-order births are rare even in "normal" times. However, to capture the workings of this adjustment mechanism more reliably one must look at fertility dynamics through a wider temporal lens—starting well before any signs of the crisis were noticeable and ending after the peak of the "crisis" had passed and a socioeconomic and political stabilization began to take hold. Moreover, one has to examine whether population segments with different background characteristics and divergent stakes in the ongoing societal transformations engage this adjustment mechanism differently. Although Kazakhstan's social and demographic experience is unique in several respects, we believe that an examination of this experience will help understand demographic processes in many other developing settings where swift and radical societal transformations are underway.

CONCEPTUAL MODEL

In building our conceptual model, we start with the classical demographic transition theory and its more recent modifications, which assume the universality of fertility decline while also acknowledging differences in how this decline is shaped across time, place, and population segments (Kirk 1996). To further refine and contextualize this general assumption we engage the literature on demographic trends in the Soviet Union and its successor states as well as in other countries that once constituted the Soviet block. Numerous studies have documented dramatic drops in fertility in countries of the former Communist block following the downfall of Communism (e.g., Adler 1997; Barkalov 2005; Becker and Hemley 1998; Eberstadt 1994; Heleniak 1995; Witte and Wagner 1995). Yet it has also been argued that the fertility "crises" in the former Soviet block countries have represented their specific pathways to low and very low fertility patterns and levels and that these pathways are compatible with their earlier, pre-"crisis" demographic development (Conrad, Lechner and Werner 1996; Kharkova and Andreev 2000; Kohler and Kohler 2002; Zakharov 1999).

While the literature points to considerable variation across different countries of the former Soviet block (Perelli-Harris 2005; Sobotka 2003), within-country diversity is also substantial (e.g., Zakharov and Ivanova 1996), and it is this diversity to which we turn our attention. Previous research on Kazakhstan and other Central Asian societies, however limited, has furnished evidence of considerable and enduring ethnocultural differences in such matters as family formation, parity progression, and recourse to induced abortion (Agadjanian 1999; 2002; Agadjanian and Makarova 2003; Agadjanian and Qian 1997). However, in the context of multiethnic post-Soviet Central Asia, within-country differences in fertility levels and reproductive behavior could be linked not only to group-specific demographic history but also to unique political stakes of different population segments. Thus European-origin groups, more advanced on the path of the fertility transition, are also the ones who were made particularly vulnerable by the collapse of the Soviet State, the guarantor of ethnic equity in the multiethnic empire, and the emergence of independent states with explicit and implicit indigenist claims. In contrast, native groups in Central Asia, especially the titular groups in the newly emerged nations, while also facing economic hardships and uncertainties in the wake the Soviet demise, were in more advantageous political positions than Europeans (Agadjanian 1999; Agadjanian and Makarova 2003; Tishkov 1994).

The political history and post-independence position and behavior of Europeans in Central Asia can therefore also be seen through the prism of the “minority-group status” hypothesis, which posits that socially disadvantaged ethnic, religious or other minorities tend to adjust their demographic behavior to maximize their security and/or social mobility (Goldscheider and Uhlenberg 1969; Bean and Marcum 1978; Kennedy 1973). Although empirical support for the minority-group status effect is mixed, studies that do directly measure attitudes suggest that group-specific cultural norms, independent of socioeconomic status, influence the manner in which individuals from different backgrounds progress through the life course and especially

family formation and childbearing (Astone and Upchurch 1994; Bean and Swicegood 1985; East 1998; Trent 1994).

Adapted to Soviet and post-Soviet Kazakhstan, the minority-group status perspective guides expectations about that country's cross-group variations in reproductive behavior and outcomes rooted in groups' unique socio-political circumstances and constraints. In addition, the application of the minority-group status lens can address the perennial challenge of research on crisis and fertility—that of disentangling the impact of "crisis" from the longer-term secular fertility trends. Thus ethnic-specific deviations from these "normal" trends in the time of the post-Soviet crisis could help both refine and enhance the argument about demographic adjustments made in response to this crisis.

A fusion of the conventional demographic transition assumptions, the crisis-and-fertility literature, and the minority-group status perspective produces the following general conceptual model. First, we expect that the population under study and its various segments to exhibit long-term fertility trends and ethnic-specific differentials reflecting their stages in the demographic transition. However, against this background of long-term continuity and period-independent differentials, we also expect to detect adjustments to the late-Soviet and post-Soviet crisis. Importantly, that "crisis" was a complex and protracted process of actual and perceived deterioration of standards of living, resulting from a sequence of relatively discrete events and developments (e.g., the proclamation of independence, consumer goods shortages, rapid inflation, political stalemates, etc.). We therefore expect to capture the fertility repercussions of at least some of these events and developments. Finally, guided by the minority-group status perspective we expect that these fertility adjustments will differ across groups with different levels of political comfort and social opportunities.

These fertility adjustments should take place both at the onset of childbearing and at its more advanced stages. Yet because the normative expectation of having a child shortly after marriage is still strong, any postponement of a first birth is more likely to happen in response to

specific, discrete challenges and therefore should be short-lasting and easily reversible. In contrast, at more advanced stages of marital childbearing fertility adjustments to perceived adversity and uncertainty should be more pronounced and longer-lasting. In Kazakhstan's reproductive setting—where the first birth remains a cultural imperative but the second birth often marks the end of childbearing career—the only meaningful comparison is between transition from marriage to first birth and transition from first birth to second birth. Our analyses will therefore focus on these two outcomes.

Different ethnic groups within Kazakhstan's population have different political stakes in the process of transition from Soviet to post-Soviet rule. Therefore, we also expect that the demographic adjustments of the groups that perceive their position as politically vulnerable, such as the European-origin population, will be most noticeable. In contrast, the indigenous Kazakh population may have seen the post-Soviet changes as politically beneficial—or at least may not have seen any group-specific threats, comparable to those sensed by Europeans, originating from those changes. Accordingly, Kazakhs' fertility adjustments to the political and economic challenges of late- and post-Soviet years should be less noticeable. Yet because of large-scale Russification of the indigenous population during the Soviet era, we also expect to find differences within the titular ethnic group. Specifically, Kazakhs who are more culturally Russified, while largely shielded from political anxieties by their titular ethnicity, may exhibit patterns of reproductive reactions that are at least to some extent similar to those of Europeans because of a similarity of demographic backgrounds. In comparison, Kazakhs who are less Russified, will be both least politically sensitive to post-Soviet shocks and least demographically "prepared" to adjust their fertility to them. Finally, given the historical ethnic differences in the pace of fertility decline and in the context-specific cultural meaning of first and second births, we expect these differences between Europeans and Kazakhs and within Kazakhs to be more pronounced in the transition from first to second birth than in the transition from marriage to first birth.

In the last part of our study we focus on ethnic-specific trends in recourse to induced abortion. This focus stems from the centrality of abortion in the Soviet tradition of fertility regulation. While the evidence pointing to the replacement of abortion with contraception in post-Soviet societies, including Kazakhstan, is ample (e.g., Agadjanian 2002; Westoff 2005, abortion rates remain remarkably high in that part of the world. Importantly, in multiethnic settings such as Kazakhstan, recourse to abortion has varied greatly among ethnic groups, with abortion rates being historically higher among the Russian and other European-origin groups than among the autochthonous population (Agadjanian 2002). While we expect to corroborate the evidence of an overall decline in abortion in Kazakhstan in the periods leading to and following independence, we also propose that the mentioned societal shocks might have imprinted this overall trend with noticeable short-term stalling and even reversals. In line with our vision of ethnopolitical dynamics in Kazakhstan, we expect these fluctuations to be more pronounced among Europeans.

DATA AND METHODS

We use pooled data from the 1995 and 1999 Kazakhstan Demographic and Health Surveys (KDHS-1 and KDHS-2) women's files for our analyses. The KDHS interviewed nationally representative samples of Kazakhstani women aged 15 to 49: 3771 in 1995 and 4800 in 1999. The standard DHS women's individual questionnaire used in both surveys allows for direct inter-survey comparisons. Both KDHS collected information on respondents' ethnic and socioeconomic backgrounds, timing (month and year) of first marital union, current marital status, complete pregnancy and birth histories (month and year), as well as a variety of health data. The relatively high educational level of Kazakhstani women instills confidence in the quality of respondents' recall of timing of reproductive events. Despite their unprecedented scope and quality, however, the KDHS data have some important limitations, such as the relative paucity of socioeconomic and ethnocultural measures, which constrains our analyses.

Importantly, however, the time span covered by our data includes the period of pre-"crisis" stability, the period when the Soviet system swiftly and inexorably unraveled, and at least the beginning of the period of post-"crisis" sociopolitical and economic stabilization.

To examine trends in fertility and abortion with the retrospective data at hand we use an event-history approach. This approach allows us to establish general and ethnic-specific trends in outcomes of interest over more than two and a half decades. The quarter-century under consideration includes a period of stability and predictability (up to the mid-1980s), the period of reforms and increasing political and socioeconomic uncertainty that followed Gorbachev's ascension to power in 1985 and culminated in the breakup of the USSR in 1991, Kazakhstan's early independent years, marked by a vertiginous and generalized economic decline, and the first years of gradual political stabilization and socioeconomic recovery. This approach also allows us to examine whether some potentially shocking political and economic developments and events introduced any short-term "bumps" in fertility trends. Among such developments and events that could have been captured within the time horizon of our data are: the 1986 ethnic riots, the 1989 proclamation of Kazakhstan's sovereignty and of Kazakh as the state language, the 1991 declaration of independence, Kazakhstan's secession from the Russian ruble zone and introduction of national currency in 1993, and the political tension that started with the election of Kazakhstan's second parliament in 1994 and culminated in March 1995 with the dissolution of the parliament by a presidential decree, followed a few months later by the adoption of a new Constitution reiterating the preeminence of the Kazakh language and the rejection of dual citizenship. While different in nature, magnitude, and duration, these discrete shocks were all part of a process of escalating uncertainties and insecurities in late-Soviet and early post-Soviet period. Importantly, as was stated earlier, we assume that these shocks were more traumatic for the non-titular population of Kazakhstan, especially the European-origin population, and therefore expect that the related fertility bumps, if noticeable, will be more pronounced among that demographic segment.

Statistical Model

Our analysis focuses on marital fertility and excludes the tiny fraction of births that occurred before first marriage because such births in fin-de-siècle Kazakhstan, unlike in western societies, were rarely planned and therefore cannot be viewed as part of individuals' family strategies comparable to births within marriage. Our analysis also excludes the few births to never married women, which were also relatively rare at the time and, as we assume, were driven by different motivations and constraints than was marital fertility. We also recognize that the focus on births misses some conceptions that were intended to lead to births but were not successfully carried to term. However, we assume that in a setting where both unplanned conceptions and induced abortion are common, birth is a better indicator of conscious reproductive choice than conception. With respect to abortion, our analysis excludes abortions done before first marriage: such abortions, even if they were reported in the survey, were probably motivated by very different constraints and considerations than most marital abortions.

Although the KDHS did not collect detailed marital history and therefore do not allow us to ascertain marital status at any point in time since first marriage for all women, divorce was still relatively uncommon at the time (about 7% of KDHS-2 were divorced or separated at the time of the survey) and childbearing by divorcees was extremely rare. We therefore assume that all ever-married women who reported births after first marriage had those births within marriage. We also exclude the small number of ever-married women who did not report a pregnancy within the first five years of first marriage. These women may either be infecund or outliers to the culturally prescribed family formation patterns (about 3% of all women). Since we cannot distinguish voluntary from involuntary childlessness, we exclude them both.

To estimate the probabilities of first and second births and of first abortion we use a discrete-time logit model. The dependent variable is the odds of having a birth or a first abortion in a given year since marriage (for first birth and abortion) or since first birth (for second birth).

Our main predictors are year and ethnicity. For year we use 1991, the year of the breakup of the USSR, as the reference category. For ethnicity, instead of commonly used ethnic markers, such as Russians or Kazakhs, we opt for a more context-attuned approach. First, we fuse all the European-background groups—Russians (majority), Ukrainians, Byelorussians, Germans, and other smaller groups originating in the European part of the former Soviet Union—into one category of “Europeans”. The similarity of ethnic, cultural, and religious roots and of demographic characteristics of different subgroups among Europeans outweighs their differences. Second, to take into account the lasting imprint of Russian-European sociocultural presence in Kazakhstan, we divide ethnic Kazakhs into two categories according to the degree of Russian-European cultural influence (Russification). While intermarriage between natives (overwhelmingly Muslims) and non-natives (mainly of Russian Orthodox background) in Kazakhstan was not widespread even in the heyday of Soviet internationalism, considerable cultural Russification of Kazakhs, most visibly manifested in language use, did take place during the Soviet years. The Russian language has remained widely used after independence, despite the government’s efforts to reduce its role and promote Kazakh (Arenov and Kalmykov 1997; Fierman 1998).

We use the interview language—Kazakh or Russian—chosen by respondents (all KDHS interviewers were bilingual and respondents could choose to be interviewed either in Kazakh or Russian) as the criterion for our classification: Kazakhs who chose to be interviewed in Russian (about 46% of all Kazakhs) are considered more Russified, whereas Kazakhs selecting Kazakh as the language of interview are considered less Russified or non-Russified. (Because virtually all Europeans were interviewed in Russian and are otherwise culturally homogeneous, no internal division within this group is drawn.) We use this variable as time-fixed, assuming that language-use preferences and corresponding cultural characteristics are established during childhood and adolescence. In the following text, we use the term “ethnicity,” “ethnic,” and

"ethnocultural" in reference to this variable. To sharpen our comparisons, the small number of other and unidentified ethnic groups is excluded from the analysis.

This approach proved relevant to sociodemographic differentials in Kazakhstan in previous research (Agadjanian and Qian 1997; Agadjanian 1999; 2002) and better captures *real* (as opposed to ascribed) ethnocultural differences within Kazakhstan's population, that have important implications for political and economic stakes of each of the three groups. Thus Europeans can be seen as a group that became increasingly disadvantaged on all counts—culturally, economically, and politically—with the decline of the Soviet Union and the advent of independence. Russified Kazakhs are the part of the dominant ethnos that initially benefited most from the reforms. After independence, because of their Russification, they have increasingly been losing their political and economic clout. In contrast, non-Russified Kazakhs, once at the bottom of the Soviet ethnosocial hierarchy, in independent Kazakhstan have been increasingly asserting their cultural, economic, and political claims.

In addition to distinct cultural traits and politico-economic stakes, these groups differ in their demographic backgrounds, especially in matters of fertility and fertility regulation: fertility diminishes and reliance on abortion increases as one moves from the non-Russified Kazakh to the European end of the ethnocultural spectrum. Fertility differences between European-origin and native populations of Central Asia are usually interpreted in modernizationist terms: Europeans' lower fertility is seen as a result of a more advanced stage of the demographic transition. Our three-level classification, while replacing the more traditional dichotomy of Russians vs. natives, fits with this view quite well. The total fertility rates (TFRs), computed from the 1995 KDHS were 1.8 among Europeans, 2.3 among Russified Kazakhs, and 3.6 among non-Russified Kazakhs. Notably, between the between the 1995 and 1999 KDHS all three groups experienced a considerable decline in total fertility, with the TFR plunging to 1.4 among Europeans, falling below replacement to 1.9, among Russified Kazakhs, and reaching 3.1 among non-Russified Kazakhs.

Table 1 presents selected relevant characteristics of the three groups computed from both surveys. The ethnic differences in first and second birth intervals and in recourse to abortion generally displayed a pattern befitting the assumption of a demographic modernization continuum. While the ethnic-specific differences and the trends presented in Table 1 tell a useful story, that story is much less informative for our purposes than the account that the dynamic multivariate models proposed for our study will produce.

Table 1 about here

The statistical model predicting the probability of first birth controls for age at marriage (linear and quadratic) and duration since marriage. Another control is woman's education which, reflecting the Soviet system, is broken down into three categories: general secondary or less; vocational, also known as specialized secondary (*sredneye spetsial'noe*, or *tehnikum*, in Russian); and some or complete higher. We also control for the type of area (rural vs. urban) where respondents spent their childhood (before age twelve) as a proxy for the cultural and socioeconomic environment in which they were growing up (this indicator is preferred to current type of area of residence due to a more certain temporal and causal sequence). In the second-birth model we replace age at marriage with age at first birth (linear and quadratic) and add the sex of first child and whether the first child was alive or dead in the beginning of each year of exposure. The first-abortion model controls for respondent's age at marriage (again, linear and quadratic), duration since marriage, education, number of live births by the beginning of each year of exposure, and place of childhood residence. The distributions of these control variables across the three ethnocultural groups in both KDHS are also shown in Table 1. To account for the influence of possible differences in data quality between the two surveys, all models also include a dummy variable for survey, KDHS-1 or KDHS-2.

Our general statistical model can be expressed as follows:

$$log\ (P_{iy}/1- P_{iy}) = \alpha_i + \beta_{eth}\ X_{i\ eth} + \beta_y X_{iy} + \Sigma\beta_t X_{it} + \Sigma\beta_f X_{if} + \varepsilon_i,$$

where P_{iy} is the probability of having a first birth after marriage (second birth after first birth, first abortion after marriage) for woman i in year y, X_{iy} is calendar year of exposure for woman i, $X_{i\ eth}$ is ethnicity of woman i, X_{it} are other time-varying covariates, X_{if} are other time-fixed covariates, β_{eth}, β_y, β_t and β_f are corresponding parameter estimates, α_i is the intercept, and ε_i is unobserved variance.

Our analysis of temporal trends covers the period between the middle of the 1970s and1998. For years before the mid-1970s the number of observations is small and yearly patterns may be unreliable; in the models we combine all the years up to 1975 into one category. We exclude 1999, the year of KDHS-2, because it had a shorter duration of exposure than the other years. The main focus of our analysis, however, is the late 1980s and 1990s, i.e., the years of the decline and collapse of the Soviet Union and the early post-Soviet period. To make a more convincing argument about the influence of societal factors on the outcomes of interest we juxtapose trends in the outcomes of interest with trends in economic development, approximated by trends in Kazakhstan's Gross National Income in Purchasing Power Parity (GNI PPP) per capita since 1990, which were closely paralleled by trends in net migration (no comparable and trustworthy data for the preceding period are available). Finally, for each outcome we present and discuss estimated survival rates by ethnicity and cohort (marriage cohort for first birth and abortion and first-birth cohorts for second birth).

RESULTS

Transition from marriage to first birth

We start with the analysis of transition to first birth after marriage. Table 2 presents the odds ratios for four models—one for the overall pooled sample and one for each ethnocultural group.

The results show no significant differences between the two groups of Kazakhs. The difference between non-Russified Kazakhs and Europeans is, however, statistically significant: Europeans are, ceteris paribus, are much less likely to have a first birth after getting married. In comparison, education has no effect, nor does the type of area of childhood residence. Age at marriage displays a curvilinear effect: the odds of first birth increase and then decline as age at marriage rises. These results are consistent throughout the ethnic-specific models.

Table 2 about here

We also expected relatively little variation in the probability of first birth in response to the vicissitudes of the changing societal environment; whatever response we would detect was expected to be short-lasting. The year effects presented in Table 2 point to lower probabilities of first birth in the 1970s (significantly different from that in the reference year 1991 only in a few cases) but no impact of the period surrounding Kazakhstan's 1991 independence, ostensibly the most radical political metamorphosis in Kazakhstan's recent history. In fact, in the pooled model, only some time after Kazakhstan's independence, possibly in 1994 ($p<.10$) but more certainly since 1995, the probability of a first birth becomes significantly lower than in the independence year. However, when we fit ethnic-specific models, this pattern is fully present only among Europeans, supporting our expectation with regard to ethnocultural differences in response to post-Soviet economic and political challenges. Notably, however, in 1995, Russified Kazakhs registered a dramatic dip in the odds of having a first birth, putting them almost on par with Europeans in that year. The odds for Russified Kazakhs rebounded in the following year but began to decline again afterwards. Yet this decline was much less pronounced among Europeans. By the end of the observation period the odds ratio for Russied Kazakhs was only marginally significant. Finally, among non-Russified Kazakhs the post-Independence trends in

the odds of having a first birth exhibit a similar trend but none of the odds ratios is statistically significant.

Earlier we identified 1994 and 1995 as a politically tumultuous period in independent Kazakhstan—the period when the exacerbating collision between Kazakhstan's president and parliament led to a presidential decree dissolving the parliament and to the adoption of a new Constitution. Dramatic as they were, those political developments reflected the accumulation of societal tensions and insecurities that emerged even before the dissolution of the USSR. If those developments indeed had an impact on entry into childbearing, the ethnic pattern of this impact fits the notion of differential political vulnerability. Thus the most politically vulnerable group, Europeans, reacted strongly and protractedly, the least vulnerable group, non-Russified Kazakhs, showed no clear reaction, whereas the group in the middle exhibited a swift yet short-lived response.

For an easier grasp and interpretation of longer-term temporal trends we present the yearly predicted probabilities from the above models graphically in Figure 1 smoothened as three-year moving averages. To highlight a connection between first-birth probabilities and the changing macroeconomic situation, Figure 1 also depicts trends in Kazakhstan's GNI PPP per capita since 1990. We should stress that this graph must be interpreted in conjunction with the significance levels of corresponding regression estimates from the models presented in Table 1.

Figure 1 about here

For the overall sample, Figure 1 shows a slight increase in the probability of first birth in the second half of the 1970s and its stabilization throughout most of the 1980s. The downward trend in all three groups started in the early 1990s and accelerated by the middle of the decade. The probability of first birth stabilized in the remaining period among the two Kazakh groups but continued to drop among Europeans (with a somewhat decelerating pace toward the very end

of the observation span), i.e., the group that we expected to be most sensitive to challenges of the early independent era. Notably, the initial decline and subsequent stabilizations of predicted probabilities of first birth among Kazakhs followed rather closely trends in Kazakhstan's macroeconomic performance (approximated by GNI PPP). In contrast, the socioeconomic stabilization notwithstanding, the probability of first marital birth among Europeans continued to slide.

To offer a picture that is even less sensitive to the vagaries of individual years than three-years moving averages, the four graphs in Figure 2 depict overall and ethnic-specific survival rates from first marriage to first birth estimated for four first-marriage cohorts—1972-80, 1981-85, 1986-90, and 1991-98. In the overall sample, the survival rates remained nearly identical in the three oldest cohorts but increased noticeably in the youngest one. The breakdown by ethnicity shows, however, that this increase was largely concentrated among Europeans. Indeed, one out of eight European women married between 1991 and 1998 was to remain childless at least seven years after her first marriage. In comparison, the cross-cohort variation was much more subdued among Russified Kazakhs and practically absent among non-Russified Kazakhs.

Figure 2 about here

Transition from first to second birth

Table 3 presents the odds ratios from four models of transition to second birth—one for the entire sample and one for each ethnocultural group. The overall, time-independent ethnocultural differences in the probability of second birth are much more noticeable than in the first-birth model. Reflecting the long-term pattern of the fertility transition in Kazakhstan, these differences followed the expected pattern: the higher degree of "Europeanness" was associated with a lower probability of second birth. Other things equal, the odds of having a second birth among Europeans were only 40% of those among non-Russified Kazakhs. Not surprisingly, the

probability of progressing to second birth was also negatively affected by education and urban background. The ethnic-specific models show, however, that while the role of education transcended the ethnocultural boundaries, childhood urban residence mattered for the transition to second birth only among Europeans and Russified Kazakhs.

Table 3 about here

Unlike the case of the first-birth transition, a precipitous decline in the probability of second birth started almost immediately after 1991, the year of the Soviet Union's dissolution and Kazakhstan's independence. As the overall model shows, the probability of second birth was significantly lower in each year following Independence than in 1991. In contrast, most of the previous years show no significant differences from the reference year (the few significant regression estimates before the early 1980s do not form a coherent pattern). The only exception is Europeans, among whom the odds of second birth show an indication of decline between 1990 and 1991, likely reflecting the growing uncertainties of the Soviet Union's final year. Few of the pre-Gorbachev years have significantly lower odds of second births among the two Kazakh groups than 1991, but even the lowest odds ratios observed in that period are higher than those in most of the independent period.

Once again, 1995 saw a marked drop in the magnitude of the probability of a second birth from the previous year among both Kazakh groups; a major slump among Europeans occurred a year earlier. Then after a slight recovery the odds renewed their decline in all three groups. Toward the end of the observation period the odds of second birth slid well below the 1995 level among Europeans and Russified Kazakhs. In fact, the two groups registered their lowest respective probabilities of having a second birth in at least a quarter-century (and most likely in their entire peacetime history). Among non-Russified Kazakhs the odds of second birth

stabilized and even rose slightly by 1998, though remaining significantly below those in the reference year.

The smoothened longer-span temporal trend, graphically depicted in Figure 3, points to a continuing, even if moderate, rise of the probability of second birth through the late 1980s, the heyday of Gorbachev's Perestroika, which, if real, may have been a delayed repercussion of the pronatalist reforms of the first half of that decade. Compared to the trends in the probability of first birth, the post-Independence decline in the probability of second birth was both more precipitous and consistent among all three groups. Remarkably, however, while the probabilities of second birth reached their historical lows by the end of the observation span, the rates of post-independence decline and the resulting differences among the three groups by then were not much larger than corresponding differences some ten years earlier. In the years after independence the three groups aligned themselves in a straightforward pattern, compatible with their longer-term fertility differences. Unlike the signs of stabilization observed earlier in the probability of first birth among both Kazakh groups toward the end of the period under observation, when the economic growth started to pick up, only non-Russified Kazakhs displayed tentative indications of such a stabilization in the probability of second birth.

Figure 3 about here

Figure 4 presents the estimated rates of survival from first to second birth for four first-birth cohorts regardless of ethnicity and for each of the three ethnocultural groups. Similarly to the case of transition to first birth, most dramatic changes happened in the last cohort, i.e., among those who had their first birth since the year of Independence. Again, like in the case of first birth, Europeans displayed the most dramatic change (harbingered by a shift in late survival probabilities in the next-to-the-last cohort): more than half of European women who had a first birth in 1991 or later would not have had a second birth seven years later, compared to only

about ten per cent of Europeans whose first birth took place before Perestroika. Unlike the case of transition to first birth, however, we now see a comparably dramatic difference between the last cohort and the three previous cohorts of Russified Kazakhs, as about one-third of women in that ethnocultural group who bore their first children after 1990 would not have had another live birth within seven years. Finally, among non-Russified Kazakhs very little inter-cohort variation could be observed.

Figure 4 about here

Probability of first abortion after marriage

Table 4 presents the results of the models predicting the probability of a first termination of pregnancy after marriage. The all-group model attests to major period-independent differences in recourse to abortion among the three ethnocultural groups. The differences follow a familiar pattern: as one moves from the Kazakh to the European end of the trichotomy, the likelihood of resorting to abortion rises. Notably, recourse to abortion is not conditioned by educational level among those who historically practiced it most—Europeans. The group in the middle of the ethnocultural range, Russified Kazakhs, is similar to Europeans in that respect, except for a puzzling (yet marginally significant) increase in the odds of resorting to abortion among women with specialized secondary education. In contrast, the positive effect of education on the odds of having had an abortion is strong and statistically significant among non-Russified Kazakhs. In both Kazakh groups urban residence leads to a higher probability of first abortion, whereas among Europeans, historical abortion "leaders," it does not seem to matter. Also interestingly, among Europeans, recourse to abortion shows no connection to the number of living children, while among both Russified and non-Russified Kazakhs the probability of having a first abortion increases with parity. It is important to note here that for most of the Soviet period the

ethnocultural differences in recourse to abortion did not reflect any differences in contraceptive prevalence or failure rates but rather differences in intended fertility.

Table 4 about here

Table 4 also shows that the decline in recourse to abortion was generalized and continuous since the end of the 1980s. No changes in the societal milieu that may have been shaping oscillations in probabilities of births demonstrated any influence on abortion. As a result, Europeans and Russified Kazakhs in 1998 had the lowest ever probabilities of having a first abortion, but even among non-Russified Kazakhs the probability of having a first abortion in most of the post-independence years was much lower than before or even at Independence.

Figure 5 depicts smoothened ethnic-specific probabilities of first abortion. The graph further illustrates the continuous decline in probabilities of abortion among all three groups. Among Europeans the decline started in the late 1970s and early 1980s and became particularly precipitous since the mid-1980s, in the same time when an irreversible decline started among Russified Kazakhs. The decline continued into the following decade at a similar pace in all three ethnocultural groups. Neither the “crises” of the early and mid-1990s nor the subsequent economic and social stabilization found any reflection in the trends of first abortion probabilities. (An apparent stabilization of abortion probabilities among non-Russified Kazakhs since the mid-1990s is in fact counterintuitive and is more likely due to the already low incidence of abortion among that group than to some environmental influences.)

Figure 5 about here

The relentless decline in abortion in Kazakhstan is rightly credited to the vigorous expansion of effective contraception since the second half of the 1980s (Agadjanian 2002; Westoff 2000),

although our field observations suggest that the rising pecuniary (official or not) costs of abortion may have also played a role. The marriage cohort-specific trends presented in Figure 6 show that most changes took place in the two last cohorts, and the pattern of change was similar in all three ethnocultural groups. Interestingly, among Europeans the largest decline in the probability of first abortion occurred between the second-youngest and the youngest cohorts, whereas among both Kazakh groups major shifts began a cohort earlier. Despite the narrowing of the ethnocultural differences in the yearly *probabilities* of first abortion in the last decade of the past century that we observed earlier, the ethnocultural differences in survival to first abortion among women who got married in the 1990s remained substantial. Thus almost sixty per cent of Europeans, forty-five per cent of Russified Kazakhs, and "only" a quarter of non-Russified Kazakhs in that marriage cohort would be expected to have a first abortion within the first seven years of marriage. It is important to keep in mind that our analysis deals only with first abortions; repeat abortions remain common in Kazakhstan to this date and their ethnocultural peculiarities require a separate investigation.

Figure 6 about here

DISCUSSION AND CONCLUSION

Demographers have repeatedly pointed to the influence of socio-political and economic upheavals on long-term fertility trends and patterns. In this study we built upon the previous literature to address the possibility that such upheavals do not impact different segments of a population and different aspects of fertility behavior in the same way and measure. In an attempt to establish group-specific responses to dramatic societal changes in Kazakhstan triggered by the decline and collapse of the Soviet Union we applied three conceptual perspectives and considered three reproductive outcomes. Our first outcome, progression to first birth after marriage, was expected to have little time-independent ethnic variation, relative

long-term stability, and ethnically-uniform short-term sensitivity to post-independence societal shocks.

It turns out that we underestimated the demographic "maturity" of Europeans who proved the least likely to have a first birth after marriage, controlling for other characteristics. We also detected a relative stability of the probability of first birth in the pre-Independence period and a decline in that probability after independence. The results suggest that rather than the time surrounding the collapse of the former Soviet Union, the middle of the last decade of the century, marked by heightened political uncertainty resulting from a confrontation between the executive and legislative branches in the new nation's government, became a turning point in the probability of having a first birth after marriage.

This turning point was mirrored in a marked decrease of first-birth probabilities among Europeans, who were both more politically sensitive to such developments and more demographically prepared to translate this political sensitivity into postponement of first marital birth than the other two groups. Interestingly, while non-Russified Kazakhs did not seem to "notice" the mid-decade troubles, the initial reaction to the crisis of the mid-1990s was quite pronounced among Russified Kazakhs, an ethnocultural segment that stood closer to Europeans demographically and politically than the rest of the titular ethnic group. Yet the results also show that Russified Kazakhs returned to a more or less normal pattern after the mid-1990s dip, conforming to our expectation of a short duration in adjustments of first birth's timing. In contrast, Europeans, whose political discomfort was greater and apparently not abated by the solution of the governance crisis and whose demographic experience psychologically prepared them for any means of limiting fertility, saw a continuous decline in the probability of first birth in the remaining years under observation, even as the economic growth began to pick up and emigration (predominantly of Europeans) began to subside. A growing disjunction between marriage and onset of childbearing among the European-origin population of post-Soviet Kazakhstan has been pointed out in the literature (Agadjanian 1999). Similar

ethnocultural differences in transition from marriage to first birth between the titular group and the Europeans were found in urban Uzbekistan, Kazakhstan's neighbour (Agadjanian and Makarova 2003). Notably, our analysis shows that among Europeans the probability of first birth after marriage reached the historically lowest levels in the second half of the 1990s. In comparison, among the two Kazakh groups the probability of entry into marital childbearing by the end of the observation period was similar to that in its beginning (even though generally lower than in the most of the 1980s). Both the differences between Europeans and Kazakhs and the similarities between the two Kazakh groups are therefore quite instructive.

In a low-fertility setting like Kazakhstan, transition from first to second birth is increasingly about completing childbearing. Not surprisingly, period-independent ethnocultural differences in the probability of second birth were much more noticeable than in the probability of the first birth and followed an expected pattern—a greater degree of "Europeanness" (and therefore a more advanced stage in the fertility transition) was associated with a lower probability of second birth. As we expected based on the studies of fertility in post-Socialist settings, transition to second birth also proved more sensitive to the tumult accompanying the Soviet meltdown. The probability of second birth went tumbling down after the turn of the last decade of the century. Although Europeans ended the period under observation with the lowest probability of second birth than did the Kazakhs, the *pace* of decline was, contrary to our expectations grounded in the minority–status group perspective, comparable in all three ethnocultural groups bringing all three of them down to levels never observed before. The beginning of economic and social stabilization did not seem to do much to resuscitate the probability of second birth, except possibly among non-Russified Kazakhs, who arguably were both least affected psychologically by the transition and perhaps least culturally predisposed for low fertility. In sum, while parallels across ethnic-specific patterns in probabilities of first and second births are noticeable, so also are important differences. Thus in the case of first birth the societal cataclysms of the post-Soviet transition acted more as ethnic-specific triggers of adjustment, while in the case of

second birth the cumulative uncertainties of that transition operated more as a pan-ethnic catalyst of longer-term trends.

Finally, we viewed induced abortion, a birth control technology responsible for much, if not most, of the fertility decline in the Soviet era, as a possible means of coping with short-term societal shocks. However, no anticipated connection between first recourse to abortion and the changing societal environment could be found: while the socioeconomic and political challenges spurred by *Perestroika* and Kazakhstan's independence greatly dampened reproductive aspirations, the rapidly increasing access to contraception and possibly rising pecuniary costs of abortion made the latter a less attractive option for fertility regulation even in the most challenging moments of the societal upheaval. Not surprisingly the most dramatic decline of abortion probabilities occurred among Europeans, who historically had had by far the highest levels of abortion in Kazakhstan. The decline in abortion, however, also occurred among the two Kazakh groups thus preserving the already familiar pattern of ethnocultural differences. The reduction in abortion, fully compensated for by the rise in contraceptive use (Westoff 2000), did not seem to have any effect on fertility decline, especially at higher parities, although establishing a more precise connection between fertility and abortion trends would require a special investigation. It is important to note, however, that even after a decade-long sustained decline, at the turn of the 21st century induced abortion remained a major method of birth control in Kazakhstan and a marker of ethnocultural differences in reproductive choices.

The limitations of the retrospective data at hand do not allow for a more detailed and definitive examination of ethnocultural differences in reproductive responses to dramatic societal changes in Kazakhstan. First, the KDHS data do not offer a way to measure changes in surveyed women's socioeconomic characteristics during the observation period, and especially during the critical years around and after the collapse of the Soviet Union. Interestingly, however, as Kohler and Kohler (2002) found in Russia, socioeconomic hardships may not be associated with probability of birth. And second, the period covered by the KDHS leaves out the

years of macroeconomic stabilization that began in earnest in Kazakhstan since the turn of the century. Kazakhstan's recent statistics point to a modest recovery of fertility rates in the early 2000s (Becker and Seitenova 2006), which, as in Russia and other parts of the former Soviet Union, may be due not so much to changes in desired family size as to delayed births (e.g., Vishnevsky 2006: 244-7). We are unable to examine the nature of a possible upturn in Kazakhstan's fertility, including any ethnocultural differences in that process.

Another limitation of our study stems from the already mentioned large net out-migration, primarily of Europeans, from Kazakhstan in the late 1980s and especially in the 1990s. We have no sound way to assess and account for a possible resulting bias. Ethnic, age, marital status, and parity-specific data on out-migration from Kazakhstan in the 1990s are not available, and the KDHS, fielded after the peak of out-migration, do not have any pre-migration analogues to allow for an estimation of the selectivity of migration. We mentioned earlier that limiting our analysis to fertility behavior of ever-married women reduces the migration selection bias because much of the selection effect is concentrated in the transition from singlehood to marriage. Nonetheless, one may suspect, for example, that the marked difference in survival to first marital birth between the youngest and the other cohorts of Europeans (Figure 2.4) had something to do with selective out-migration of Europeans because no such trend was apparent among the two Kazakh groups. However, if this were the case, Europeans would have displayed an equally distinct pattern in the transition from first to second birth. In reality, on this indicator, the youngest cohort of Europeans, a high migration-propensity group, and the youngest cohort of Russified Kazakhs, a low migration-propensity group, were similarly distinct from their respective older cohorts (Figure 4.3 and 4.4). In any case, however, to seek a rigid distinction between European migrants and stayers in the context of post-Soviet Kazakhstan is not only empirically daunting but also conceptually implausible. Most Europeans who chose or had to stay in Kazakhstan after its independence were deeply psychologically affected by the

exodus of their ethnic brethren and many surely contemplated the possibility of joining that exodus if forced by the circumstances or offered an opportunity.

These limitations notwithstanding our study produced informative and interesting results. Our approach and findings illustrate the importance of embedding reproductive dynamics within country-specific political, economic, and ethnocultural landscapes. Indeed, our results suggest significant group differences in the impact of societal upheavals across different types of fertility behavior. However, our results also demonstrate the need to contextualize short-term variations in fertility behavior within longer-term, secular fertility trends. Finally, they call for an examination of different aspects of reproductive behavior as these different aspects may be adjusted in different ways and to different degrees in the face of societal challenges.

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Table 1. Key Descriptive Statistics, KDHS-1 and KDHS-2 (ever married women)

	KDHS 1995				KDHS 1999			
	Non-Russif. Kazakhs	Russif. Kazakhs	Euro-peans	Total	Non-Russif. Kazakhs	Russif. Kazakhs	Euro-peans	Total
Residence before age 12 (%)								
Urban	16.7	28.8	56.4	37.7	15.3	36.5	62.8	42.6
Rural	83.4	71.2	43.6	62.3	84.7	63.5	37.2	57.4
Education (%)								
Secondary or less	42.6	18.5	26.7	32.4	47.8	24.9	26.8	32.8
Secondary-special	41.2	48.3	53.2	47.0	37.7	44.5	52.9	46.0
Higher	16.2	33.2	20.1	20.6	14.5	30.6	20.4	21.2
Age at first marriage (mean, years)	20.8	21.6	20.1	20.6	20.9	21.7	20.3	20.8
Completed first birth interval (mean, months)	15.3	14.8	17.4	16.5	13.8	15.2	16.6	15.6
Completed second birth interval (mean, months)	25.9	36.4	49.9	37.7	26.5	35.3	51.5	38.4
Has ever had an abortion (%)	25.2	48.9	71.1	50.8	30.4	48.3	67.7	52.5
Lifetime number of abortions (mean)	0.4	1.3	2.4	1.5	0.6	1.1	2.0	1.4
Total number in sample	889	497	1231	2859	937	836	1483	3557
Per cent in sample	31.1	17.4	43.1	100	26.3	23.5	41.7	100

Table 2. Transition from First Marriage to First Birth (Odds Ratios)

Variable	All groups	Non-Russif. Kazakhs	Russified Kazakhs	Europeans
Ethnocultural group				
Europeans	0.904 *			
Russified Kazakhs	0.983			
(non-Russified Kazakhs)				
Year				
1975 and earlier	0.787 *	0.646 **	0.844	0.864
1976	0.757 *	0.587 *	0.829	0.839
1977	0.875	0.713	0.561 +	1.078
1978	1.041	0.755	0.946	1.309
1979	1.123	1.218	0.611	1.301
1980	0.878	1.018	0.639	0.979
1981	0.924	0.697	1.075	0.997
1982	0.945	0.828	1.104	0.972
1983	1.101	0.899	1.052	1.315
1984	0.927	1.057	0.948	0.846
1985	0.914	0.822	1.166	0.914
1986	1.010	1.163	0.854	1.013
1987	1.067	1.004	1.113	1.111
1988	0.836	0.838	0.732	0.920
1989	0.929	0.793	0.932	1.111
1990	1.014	0.970	1.099	1.036
(1991)	1	1	1	1
1992	0.815	0.909	0.818	0.729
1993	0.852	0.845	0.760	0.923
1994	0.774 *	0.784	0.939	0.690 +
1995	0.536 **	0.791	0.469 **	0.444 **
1996	0.625 **	0.652	0.927	0.474 **
1997	0.517 **	0.783	0.623	0.342 **
1998	0.468 **	0.730	0.587 +	0.308 **
Duration at risk (years)	1.457 **	1.920 **	1.191 **	1.485 **
Age at marriage	1.224 **	1.276 **	1.231 *	1.151 +
Age at marriage squared	0.995 **	0.994 **	0.995 *	0.997 *
Residence before age 12				
Urban	0.991	1.088	1.025	0.972
(Rural)	1	1	1	1
Education				
(Secondary or less)	1	1	1	1
Secondary-special	0.985	0.958	0.876	1.007
Higher	0.946	1.053	0.876	0.931
Survey year 95 vs. 99	0.942	0.958	0.911	0.943
Number of cases (person-years)	12077	3688	2731	5658

Notes: ( ) reference category; significance level: +p≤.10; *p≤.05, **p≤.01

Table 3. Transition from First to Second Birth (Odds Ratios)

Variable	All groups	Non-Russif Kazakhs	Russified Kazakhs	Europeans
Ethnocultural group				
Europeans	0.403 **			
Russified Kazakhs	0.669 **			
(non-Russified Kazakhs)				
Year				
1975	0.923	0.960	0.768	0.938
1976	1.150	1.112	0.908	1.283
1977	0.886	0.842	0.914	0.927
1978	0.999	0.808	1.105	1.116
1979	0.851	0.892	0.719	0.888
1980	0.966	1.050	1.052	0.915
1981	0.991	1.490 +	0.562 +	0.914
1982	0.945	0.911	1.191	0.872
1983	0.884	0.644 +	1.453	0.819
1984	1.018	0.888	1.057	1.116
1985	1.169	1.151	1.069	1.275
1986	1.090	0.912	0.859	1.448 +
1987	1.090	0.974	0.867	1.412
1988	1.180	0.896	1.554 +	1.298
1989	1.135	1.025	1.223	1.236
1990	1.099	0.906	0.908	1.508 +
(1991)	1	1	1	1
1992	0.775 *	0.790	0.874	0.661 +
1993	0.697 **	0.682 +	0.871	0.573 *
1994	0.534 **	0.747	0.586 *	0.292 **
1995	0.242 **	0.238 **	0.375 **	0.161 **
1996	0.340 **	0.553 *	0.277 **	0.238 **
1997	0.239 **	0.267 **	0.309 **	0.161 **
1998	0.144 **	0.356 **	0.114 **	0.061 **
Duration at risk (years)	1.753 **	1.891 **	1.678 **	1.791 **
Age at first birth	1.109 +	1.354 **	1.184	0.883
Age at first birth squared	0.998 +	0.994 **	0.996	1.002
Residence before age 12				
Urban	0.746 **	0.973	0.689 **	0.701 **
(Rural)	1	1	1	1
Education				
(Secondary or less)	1	1	1	1
Secondary-special	0.809 **	0.838 *	0.754 **	0.780 **
Higher	0.690 **	0.737 **	0.671 **	0.666 **
First child alive				
Yes	0.302 **	0.404 **	0.240 **	0.204 **
(No)	1	1	1	1
Sex of first child				
Male	0.908 *	0.983	0.855 +	0.864 *
(Female)	1	1	1	1
Survey year 95 vs. 99	0.848 **	0.859 *	0.725 **	0.910
Number of cases (person-years)	17217	5156	3992	8069

Notes: ( ) reference category; significance level: +p≤.10; *p≤.05, **p≤.01

Table 4. Transition to First Abortion After Marriage (Odds Ratios)

Variable	All groups		Non-Russif. Kazakhs		Russified Kazakhs		Europeans	
Ethnocultural group								
Europeans	2.555	**						
Russified Kazakhs	1.754	**						
(non-Russified Kazakhs)								
Year								
1975	1.649	**	1.801	+	1.476		1.594	**
1976	1.982	**	1.024		2.960	**	1.880	**
1977	1.571	**	1.778		1.411		1.536	*
1978	2.107	**	2.534	**	0.633		2.347	**
1979	2.522	**	2.803	**	1.303		2.746	**
1980	2.166	**	2.869	**	1.808	+	2.089	**
1981	1.853	**	1.726		1.575		1.937	**
1982	1.900	**	1.947	+	1.210		2.090	**
1983	2.232	**	2.182	*	1.786	+	2.376	**
1984	1.906	**	1.499		1.733	+	2.028	**
1985	1.969	**	1.973	*	2.057	**	1.869	**
1986	1.337	*	1.870	*	1.313		1.151	
1987	1.518	**	1.494		1.357		1.548	*
1988	1.401	*	1.448		1.619	+	1.263	
1989	1.159		1.348		0.951		1.159	
1990	1.149		1.758	*	1.121		0.942	
(1991)	1		1		1		1	
1992	0.847		1.344		0.938		0.621	*
1993	0.747	*	0.678		0.724		0.764	
1994	0.633	**	0.682		0.614	+	0.602	**
1995	0.490	**	0.457	*	0.513	*	0.475	**
1996	0.443	**	0.348	*	0.465	*	0.462	**
1997	0.400	**	0.411	*	0.462	*	0.354	**
1998	0.329	**	0.461	*	0.332	**	0.264	**
Duration at risk (years)	1.182	**	1.214	**	1.199	**	1.175	**
Age at marriage	1.123	+	1.012		0.868		1.223	**
Age at marriage squared	0.997	*	0.999		1.003		0.995	**
Prior live births	1.150	**	1.321	**	1.378	**	0.930	*
Residence before age 12								
Urban	1.144	**	1.482	**	1.355	**	1.008	
(Rural)	1		1		1		1	
Education								
(Secondary or less)	1		1		1		1	
Secondary-special	1.168	**	1.415	**	1.246	+	1.056	
Higher	1.147	*	1.790	**	1.170		0.947	
Survey year 95 vs. 99	0.912	*	0.806	*	1.031		0.927	
Number of cases (person-years)	24462		7735		6024		10703	

Notes: ( ) reference category; significance level: +p≤.10; *p≤.05, **p≤.01

Figure 1. Predicted Probabilities of First Birth after Marriage by Ethnocultural Group and Year (Three-Year Moving Average) and Trends in GNI PPP per Head

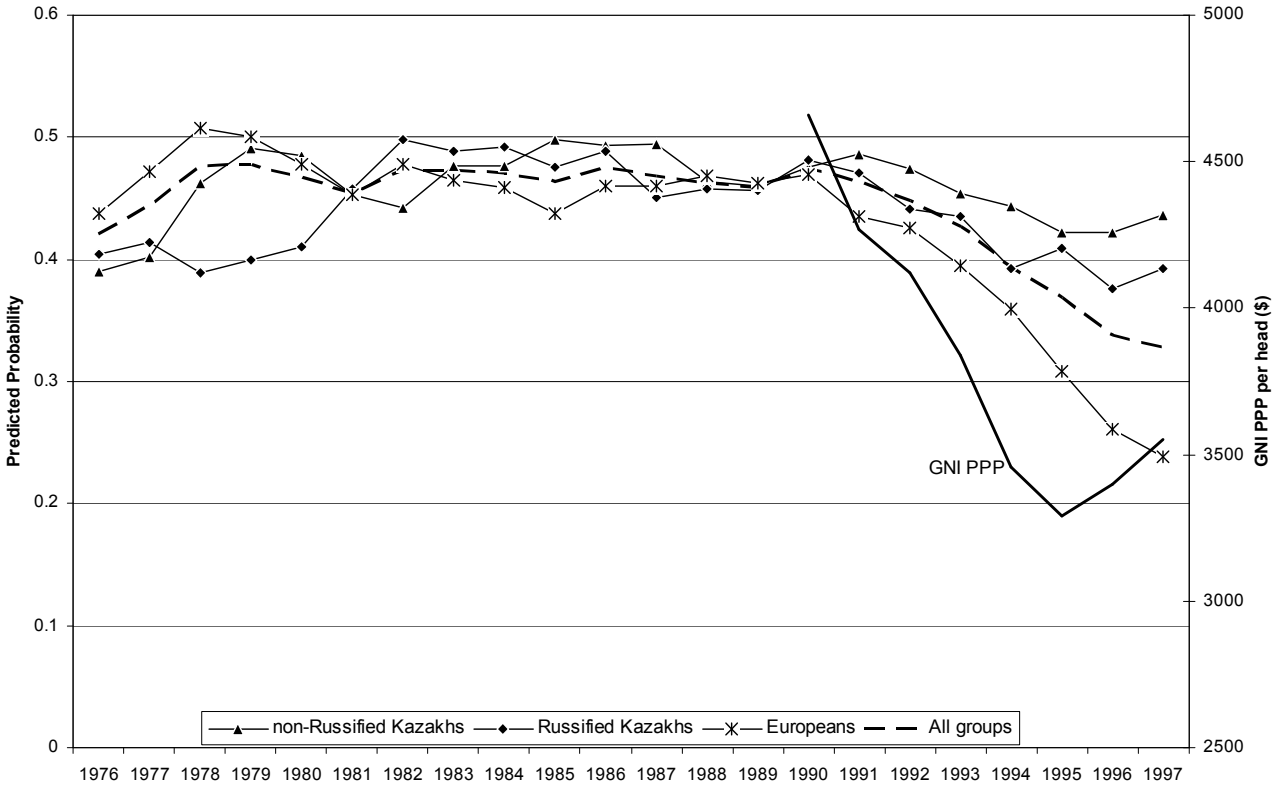

Figure 2. Survival From First Marriage to First Birth by Ethnocultural Group and Marriage Cohort

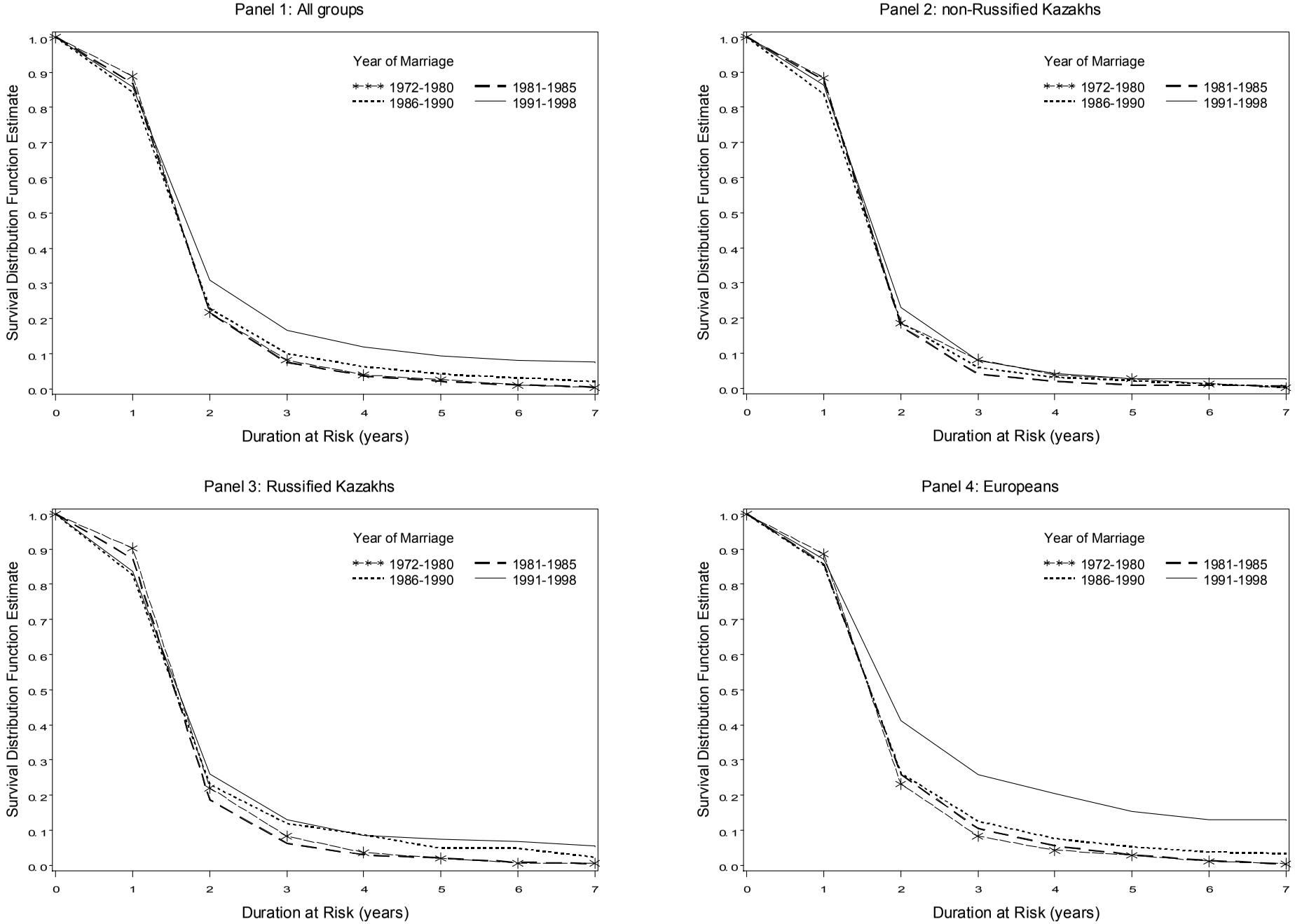

Figure 3. Predicted Probabilities of Second Birth by Ethnocultural Group and Year (Three-Year Moving Average) and Trends in GNI PPP per Head

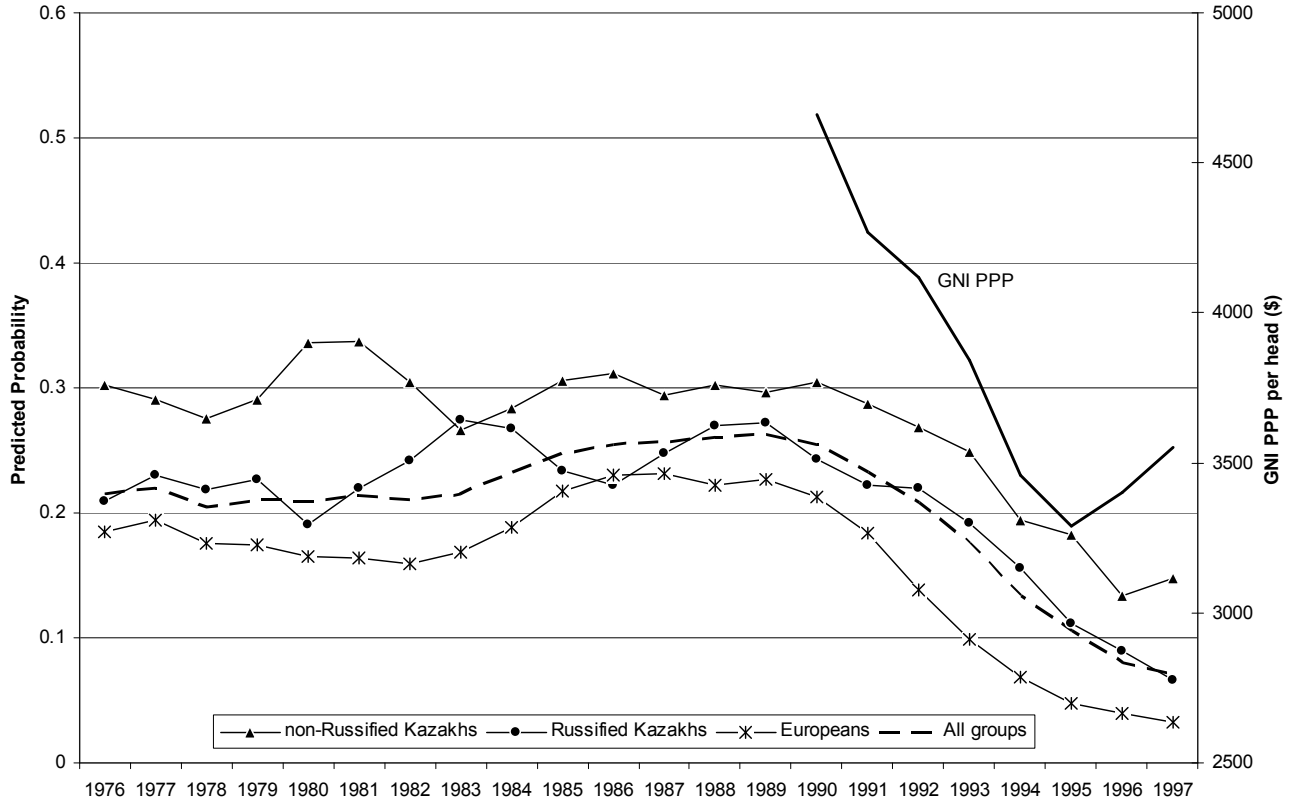

Figure 4. Survival From First Birth to Second Birth by Ethnocultural Group and First Birth Cohort

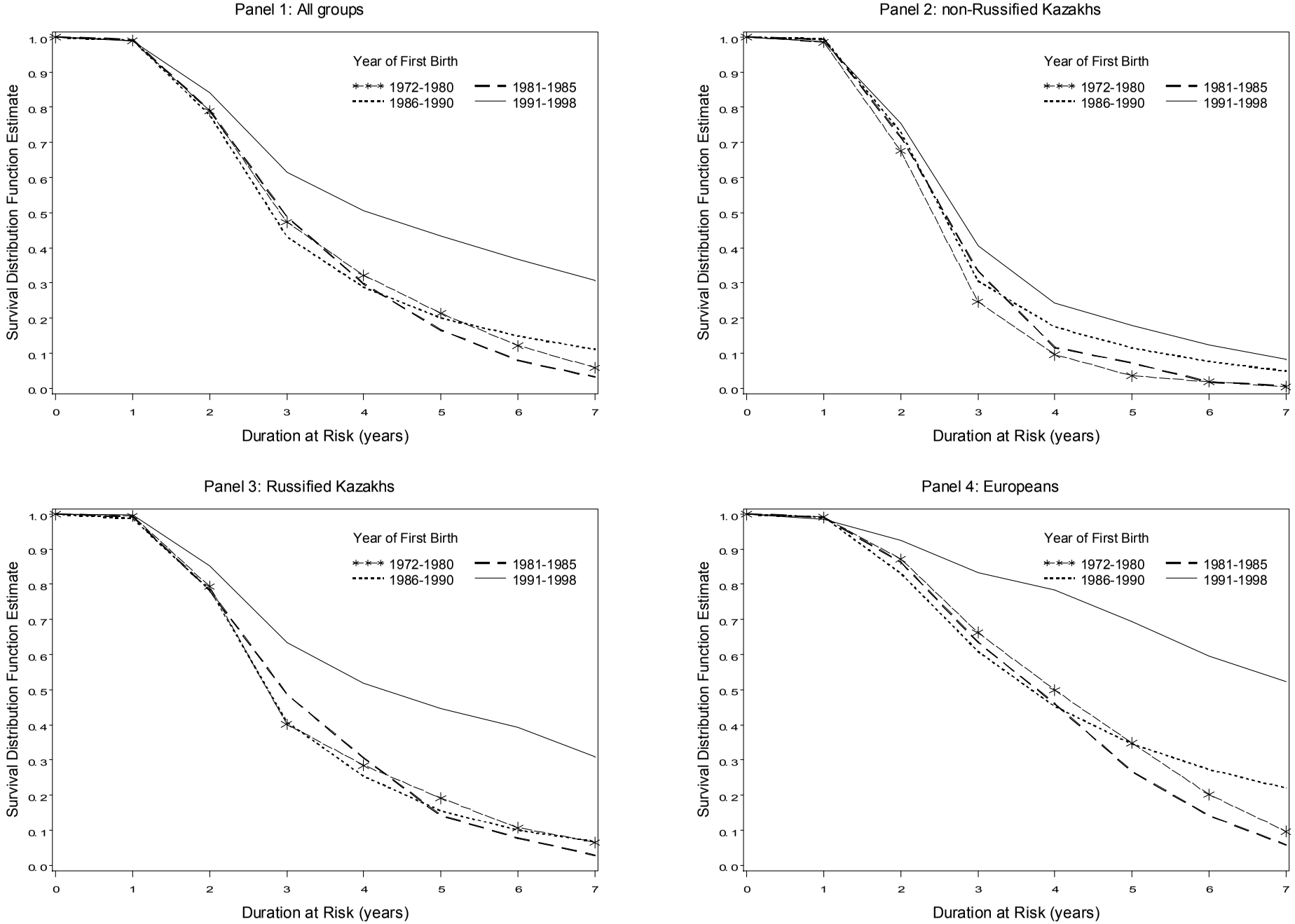

Figure 5. Predicted Probabilities of First Abortion by Ethnocultural Group and Year (Three-Year Moving Average) and Trends in GNI PPP per Head

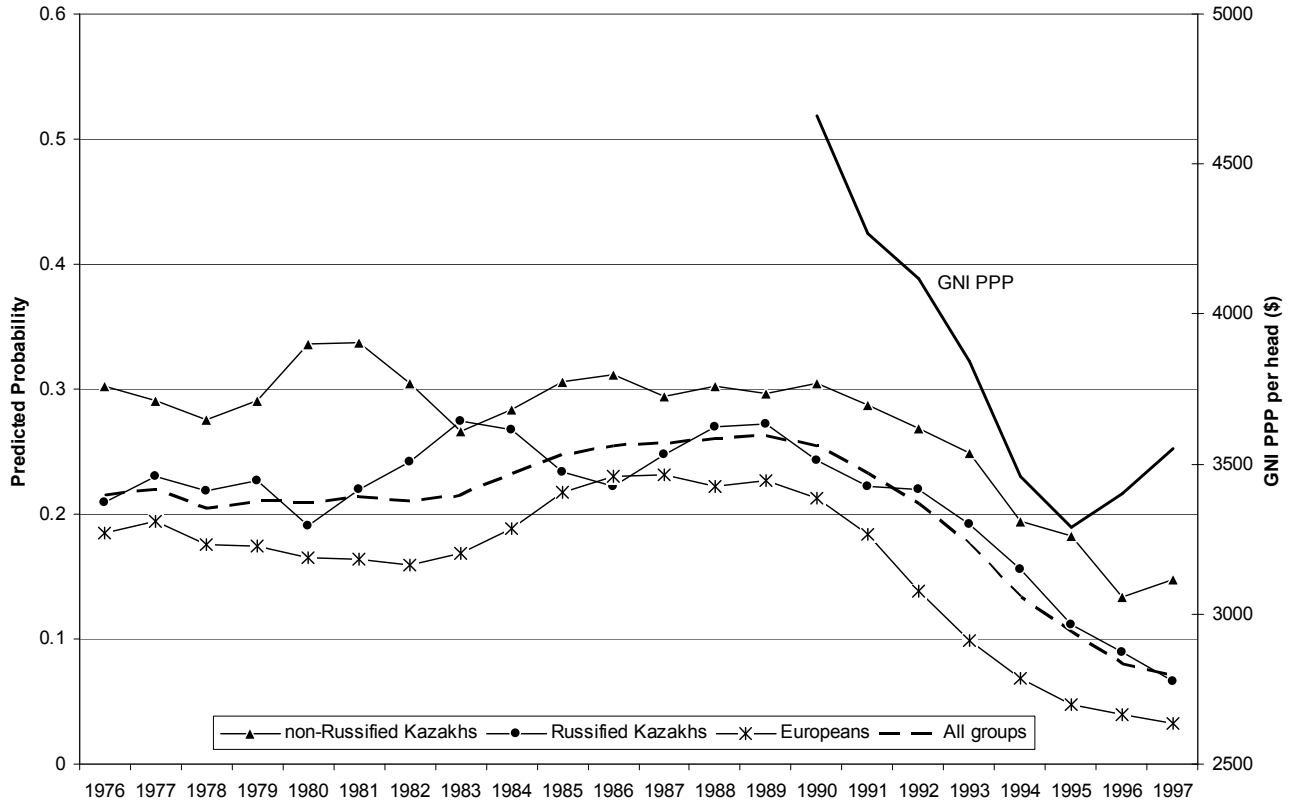

Figure 6. Survival from First Marriage to First Abortion by Ethnocultural Group and Marriage Cohort