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Own-Choice Marriage and Fertility in Turkey

Goode's foundational work on the fertility transition identified own-choice marriage as a factor driving fertility decline, part of a widening repertoire of choice pertaining to marriage and childbearing. Yet research supporting this connection in today's transitional societies is scarce and somewhat contradictory, and it is unclear how other marital traditions, such as consanguineous marriage, shape this relationship. This study evaluates Goode's theorized connection using pooled Demographic and Health Survey data from Turkey, comparing children ever born, use of contraception, and parity progression across four types of marriage: own-choice and arranged marriage and marriage to a cousin versus an unrelated spouse. Results are largely consistent with the idea that a move toward own-choice marriage reflects a widening repertoire of choice that also leads to fertility decline. However, they also show that hybrid models like own-choice marriage to a cousin tempers these effects.

Over the last half century, marriage in developing societies has become increasingly arranged by the couple themselves, based in part on mutual desire and an emerging romantic imperative (in Sub-Saharan Africa: Bledsoe, 1990; Poulin, 2007; Smith, 2001; Arab countries: El-Feki, 2013; Mernissi, 1975; Shaaban, 1988; Asia: Ghimire, Axinn, Yabiku, & Thornton, 2006; Riley, 1994). Decades ago, Goode (1963, p. 19) identified the emergence of these "own-choice" marriages as one of the underlying factors driving the fertility transition, linking the two through a widening repertoire of personal choice. That these are interconnected processes at the microlevel is now widely recognized by family scholars and demographers (Cherlin, 2012). Yet empirical work on this relationship in developing countries remains scarce, especially outside the South and East Asian contexts. Moreover, because some of that empirical work suggests that marriages based on a romantic imperative can actually have higher fertility (Fricke & Teachman, 1993; Hong, 2006; Rindfuss & Morgan, 1983), it remains to be seen how generalizable Goode's arguments are, or if they are specific to a particular stage of the fertility transition.

It is also unclear how the transition to own-choice marriage is related to other patterns of partner selection such as marriage to cousins, still common in the Middle East, and to the spread of women's formal education in such societies. On the first point, in a context where arranged marriage and consanguineous marriage—particularly to patrilineal first cousins—have historically been highly valued, the persistence of hybrid models such as arranged marriage to nonkin or own-choice marriage to a cousin may signal a lesser deviation from traditional marital norms and limit the extent to which the widening repertoire

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of personal choice applies to fertility choices (Hortaçsu & Oral, 1994; Kavas & Thornton, 2013). On the second point, the focus on expanding personal choice could overstate the impact of marital dynamics on fertility relative to Westernizing institutions like education (Axinn & Barber, 2001) or miss how different types of marriage may influence fertility among women who are more and less educated. Testing Goode's (1963) theory in a transition context requires attending to both of these issues.

Focusing on Turkey, we have two main goals in this article. The first is to compare fertility across marriages that vary on two axes: whether they are own choice or arranged and whether they are to a relative as opposed to an unrelated, nonconsanguineous spouse. Our second goal is to evaluate how the effects of marriage type on fertility are moderated by women's education.

Three factors make Turkey a good case for a study on the relationship between marriage and fertility. First, total fertility rates in Turkey fell from about 4.4 in 1980 to 3.3 in 1990, 2.5 in 2000, and 2.1 in 2010; by 2015, rates had dropped below replacement level, prompting Prime Minister Ahmet Davudoğlu to enact a number of pronatalist policies. Second, alongside this reduction in fertility, among women married for the first time, arranged marriage fell from 62.2% to 48.0% to 43.3% of all marriages in the 5 years preceding the 1993, 1998, and 2003 waves of the Turkish Demographic and Health Surveys (DHS; own calculations). Thus, though arranged marriage is still common, there are signs it is a weakening norm and that this change may be linked to fertility decline.

Third, as in other countries in the Middle East and North Africa, marriage between cousins is still common in Turkey and is not declining in the same way as arranged marriage. Although it will likely be more difficult to maintain this tradition as family sizes—and thus the number of marriageable cousins—decline (Barakat & Basten, 2014), in our data such marriages account for approximately one fourth of all marriages, and that percentage is stable across recent marriage cohorts. By differentiating types of marriage on two axes—level of choice and consanguinity—we can directly examine the relationship between marriage and fertility while moving beyond a simple dichotomy of modern and traditional forms. Hybrid marriage models that mix elements of modern and traditional forms may be an intermediate stage in terms of fertility and the widening repertoire of choice more broadly.

Background

Arranged marriage is not specific to Turkey or Middle Eastern societies more generally. Marriages continue to be arranged in substantial numbers in South Asia (de Munck, 1998; Ghimire et al., 2006) and in certain religious subgroups in contemporary developed countries (e.g., *haredi* Jews; Rockman, 1994) and until recently were also common in China (Riley, 1994) and Japan (Applebaum, 1995). One of the key factors underlying arranged marriage in extended family systems is its perceived stability. Traditional arranged marriage unites smaller family groupings into larger and more stable extended ones (Fox, 1975). Husbands and wives often live with or right next to extended family members, and children are often raised in the same set of households as their cousins, particularly their patrilineal cousins (Charrad, 2001; Greif, 1994; Ilcan, 1994; Khuri, 1970; McCabe, 1983; Moss, 1981). When a woman marries a patrilineal first cousin, any children or inheritance are retained within her father's larger clan, thus maintaining the unity and resources of that extended family group. In this way, arranged marriages between such cousins help maintain extended family unity.

More recently, this model has been challenged by the rise of "self-initiated," "couple-initiated" or "own-choice" marriage (Hortaçsu & Oral, 1994), in part due to the spread of development ideals such as women's autonomy, family planning, and educational expansion (Kavas & Thornton, 2013). Own-choice marriage as a model has enjoyed increasing appeal throughout the Middle East and North Africa region over the last 40 years (Mernissi, 1975; Shaaban, 1988), especially among university graduates and those identifying themselves as more modern (El-Feki, 2013, p. 32; Hortaçsu & Oral, 1994). As early as the 1920s, Turkey enacted legislative reforms of women's status, including outlawing polygamy and giving women equal rights in divorce proceedings (Culpan & Marzotto, 1982).

Yet in practice, movement away from traditional models of marriage in Turkey has been somewhat slow, especially in rural areas (Ilcan, 1994, p. 273; IIkkaracan, 1998); and even outside of such areas, some level of arrangement,

or at least parental involvement, remains common (Ghimire et al., 2006; Hortaçsu & Oral, 1994; Kavas & Thornton, 2013). Resistance to own-choice marriages arises from the view that they threaten harmony within an extended family by shifting attention from the extended family toward the couple. As a result, many Turks express a preference for hybrid, partly arranged forms of marriage. In the 1998 Turkish Demographic and Health Survey data we used in this study, for example, only 15% of the 2,424 women who were never married reported that families should select marital partners. Yet among the 82% who declared that it is the couple's right to decide, 89% also said that the couple "needs" family consent. This suggests that though a clear majority of respondents articulate individual rights to spousal selection, only the least traditional women will practice—or publicly claim to support—own-choice marriage that does not require family consent. Likewise, only the most traditional claim that they have no role in, or rights associated with, selecting their spouse.

Within this context, two particular types of hybrid marriage models seem salient. Neither fully adheres to either the traditional idealized model of arranged marriage to a cousin or the ideal type of modern marriage, own-choice marriage to a nonrelative. Instead, they fall into one of two intermediate categories. The first is arranged marriage to nonkin. This is the modal marital category across the three waves of data, at 43% to 55% of all reported marriages, though it is becoming less common as arranged marriage overall declines across our waves of data. The second is where a woman chooses to marry a cousin. This hybrid model is less common (6.4% of our sample), but rates are stable across our three waves, and it may represent a newer, innovative hybridization of traditional and modern forms. Existing qualitative literature suggests this model may have some advantages, including good connections to a spouse's family (because they are already kin) that may lead to higher levels of behavioral autonomy (Weinreb, 2008), while upholding extended family unity and retaining family wealth.

Note that there is a meaningful element of "choice" in this type of marriage because the pool of cousins is relatively large in marriage cohorts born during a period of high-fertility populations. This is the case for marriage cohorts in Turkey during the 1970s to 1990s. Given observed fertility rates in Turkey from the 1940s (>6.5) to the early 1970s (∼5.0) and age-specific mortality rates up to early adulthood (Shorter & Macura, 1982), a 23-year-old Turkish woman marrying in 1991 would have about four opposite-sex first cousins of marriageable age, and thus she could indeed exercise some personal choice in selecting from this pool. She would also have a much larger pool of more distant cousins. Across the three waves of Turkish data we use below, between 4% and 8% of all marriages are reported to be own-choice marriages to a cousin, a significant portion of the 23% to 25% that report marriage to a cousin. Note, too, that rates of cousin marriage in Turkey as a whole are generally stable—this is the case in our data, too (see Table 1)—even if there is some evidence of rising in some subpopulations while falling in others (Alper et al., 2004; Koc, 2008).

Marriage Transitions and Fertility

A long-standing literature in comparative family sociology and demography supports the hypothesis that the transition to own-choice romantic marriage will lead to a decline in overall fertility. The core mechanism linking these two is the widening repertoire of personal choice. The process begins with deeper levels of emotional intimacy and companionship that underlie what Goode (1963, p. 19) referred to as the "ideology of the conjugal family." These substitute a more equal "companionate" relationship between husband and wife for the hierarchical, kin-centered marital models of the past (Reher, 1998). In turn, companionate marriage augments the decision-making power of a married woman relative to her husband and the power of the own-choice couple relative to that of the extended family, while also reducing their access to some of the benefits of an extended family (e.g., child care, a financial cushion).

As this process of widening personal choice continues, these shifts in decision-making authority and cost sharing eventually lead to fertility decline (Caldwell, 1982; Lee, 2003; Lesthaeghe, 2010). The repertoire of choice widens further as these jointly increasing rights of spousal selection and centrality of emotional intimacy feed into decisions about other aspects of married life, including how to marry, where to live after marriage, how many children to have, when to have them, and whether to stay

Table 1. *Descriptive Statistics (Percentages and Means) for Variables Used in Models, by Year of Survey,* N = *19,200 (Standard Errors in Parentheses)*

	1993	1998	2003
Children ever born (0–16)	3.017 (2.295)	2.860 (2.245)	2.787 (2.168)
Current contraceptive use (0/1)	.632 (0.482)	.633 (.482)	.701 (.458)
Completed parities:			
One	.910 (.286)	.906 (.291)	.914 (.281)
Two	.748 (.434)	.732 (.443)	.736 (.441)
Three	.501 (.500)	.456 (.498)	.446 (.497)
Four	.317 (.465)	.284 (.451)	.260 (.439)
Five	.206 (.404)	.175 (.380)	.158 (.365)
Arranged marriage	.746 (.435)	.647 (.478)	.595 (.491)
Marriage to kin	.234 (.424)	.259 (.438)	.240 (.427)
Marriage to first patrilateral cousin	.085 (.278)	.086 (.281)	.102 (.303)
Marriage to first matrilateral cousin	.069 (.254)	.064 (.245)	.084 (.277)
Marriage to other cousin	.081 (.272)	.108 (.311)	.053 (.225)
Turkish ethnicity	.834 (.372)	.789 (.408)	.751 (.432)
Age (15–49)	32.127 (8.360)	32.495 (8.431)	33.461 (8.424)
Age at first marriage (8–45)	18.552 (3.501)	18.884 (3.773)	19.344 (3.792)
Spousal age difference (−15–63)	4.488 (4.326)	4.387 (4.492)	4.403 (4.249)
Women's education in years (0–19)	4.395 (3.565)	4.910 (3.780)	5.402 (4.010)
Household wealth index (0–4)	2.624 (0.989)	2.963 (0.853)	2.891 (0.940)
Husband not coresident (0/1)	.043 (.203)	.069 (.253)	.029 (.168)
N	6,097	5,675	7,428

in an unhappy marriage. The ultimate effects of these changes on fertility are presumed to include higher rates of contraceptive use, fewer children within marriages, and lower probabilities of progressing to additional parities, particularly at second to fourth parities given that the majority of women state two to three as their ideal number of children (see Table A in the Appendix). In short, own-choice marriage is thought to depress fertility by shifting the focus of marriage and sexual union away from extended family responsibility and toward the personal needs of the couple.

This theory relies on two reasonable but often untested premises: first, that couples that are more intimate will necessarily want to limit family size more than their counterparts who are less intimate and, second, that they will do so by the effective use of contraception. According to this paradigm, the widening repertoire of choice in selecting a partner is also associated with a shift in couples' fertility-related "schema," a "largely underdetermined, and often taken-for-granted, way of perceiving and acting through which we make sense of the world and motivate our actions" (Johnson-Hanks, Bachrach, Morgan, & Kohler, 2011, p. 2). Own-choice marriage reflects an "individual-first" schema (Morgan & Kohler, 2011, p. 77); that is, a set of beliefs, ideas, and values that push personal fulfillment as a primary normative goal. The assumption of the widening repertoire of choice theory is that when an individual-first schema is increasingly applied in one area of family life (i.e., partner selection), it will also be increasingly applied in another (i.e., fertility choices).

Applying this theory to a context like Turkey, however, is complicated by the issues discussed above, specifically the resistance to fully eliminating family involvement in partner selection and the presence of cousin marriages, which may be characterized by different dynamics of choice affecting whether couples apply individual-first versus family-first fertility schemas (İsvan, 1991). On the one hand, some women in cousin marriages in Middle Eastern societies have actually been found to have higher levels of autonomy than their counterparts who are married to unrelated husbands (Abu-Lughod, 1986; Weinreb, 2008), which may make them in some ways better situated to enact lower fertility preferences. Yet, from the widening repertoire-of-choice perspective,

cousin marriage suggests at least a partial adherence to tradition, particularly if the husband is a patrilineal first cousin. Marrying a cousin could therefore temper the fertility depressing effects of own-choice marriage while enhancing the fertility boosting effects of arranged marriage. Women in own-choice marriages to kin would thus have higher fertility than their counterparts in own-choice, nonkin marriages, and the highest fertility overall would be found within arranged marriages to cousins.

A final issue with the widening repertoire of choice narrative is its potential to overstate the influence of cultural shifts within marriage relative to the spread of Westernizing institutions such as education. Contemporary theories of fertility transition argue that expanding women's education—along with other transitions associated with economic growth—leads to lower fertility by introducing women to schemas of womanhood less grounded in childbearing (Axinn & Barber, 2001; Benavot, 1989; Dodoo, 1993; Johnson-Hanks, 2006), and by supporting an emphasis on quality rather than quantity of children (Becker & Lewis, 1973; Li, Zhang, & Zhu, 2008). For these reasons, observed connections between marriage type and fertility may be attributable to the third factor of education. Additionally, the effects of own-choice marriage on fertility may be concentrated among women with less education, who are not as exposed to the influence of education on fertility schemas and are thus more susceptible to the fertility-depressing effects of a shift toward an individual-first schema in partner selection.

Hypotheses

Based on the above discussion, we identity five basic types of marriage that vary in their adherence to traditional partner-selection models and would thus have implications for fertility choices, according to the widening repertoire of choice framework. Those five types are arranged marriage to a patrilineal first cousin, arranged marriage to any other type of cousin, arranged marriage to a nonrelative, own-choice marriage to a cousin, and own-choice marriage to a non relative.

In the case of arranged marriage to a relative (18.0% of cases in these data), people conform to two key marital traditions: The marriage is arranged, and it is to a cousin. In a subset of these, arranged marriages to a patrilineal first cousin (6.8% of cases), people conform to both traditions and even more strongly to the consanguineous marriage tradition. In the case of the two "hybrid models"—arranged marriages to nonkin and own-choice marriages to kin (respectively, 47.8% and 6.4% of cases)—people conform to one tradition while flouting another. (Although there are some who are married to patrilineal first cousins and report the marriage was "own-choice," this is a small percentage of our sample—1%–2% across waves—so in all analyses we group them with the own-choice marriages to any relative.) Finally, in the case of own-choice marriage to an unrelated spouse (27.7% of cases), people flout both of these marital traditions.

Building on the literature reviewed above, we specify three hypotheses. The first, Hypothesis 1, addresses the expected ranking of fertility and contraceptive use across types of marriage. We should find the lowest fertility and highest contraceptive use in the least traditional type of marriage, own-choice marriages to nonkin. Conversely, we should find the highest fertility and lowest contraceptive use in the most idealized traditional type of marriage, arranged marriages to cousins, especially patrilineal first cousins. We can therefore also expect intermediate levels of fertility and contraceptive use in the two types of "hybrid models," each of which conforms to one marital tradition.

Hypothesis 2 addresses parity-specific patterns across types of marriage. Across different types of marriage, we expect variation in the probability of a birth at a given parity to be greater at Parities 2 and 3 than at Parities 1 or 4. This is in addition to the overall ranking that, as implied by Hypothesis 1, would generate an expectation of lowest probabilities of having an additional birth among women in own-choice marriages to nonkin and the highest probabilities among women in arranged marriages to cousins, particularly patrilineal first cousins.

Finally, Hypothesis 3 deals with the moderating effects of women's education on differences across types of marriage. We expect to find greater effects of marriage type—that is, more variation between types of marriage—on children ever born (CEB) and contraceptive use among women with less education. The reason is that irrespective of type of marriage, women who are less educated will, by definition, have been less exposed to the homogenizing

fertility-depressing effects commonly associated with formal schooling.

Method

Data

We use DHS data collected in Turkey in 1993, 1998, and 2003. These are nationally representative samples of women ages 15–49. Response rates exceed 85% in all three cases. To maximize statistical power we pooled data from the three waves. This is particularly important in analyses of fertility timing at higher parities, where sample size drops precipitously.

The Turkey data present a unique opportunity to answer the questions posed here because they are the only data from the Middle East or North Africa region that include a question on whether the marriage was arranged, whether the marriage is consanguineous, and, if so, what type of cousin is her spouse. Together, these allow us to identify distinct marital groups in terms of whether the marriage was arranged or own choice and whether it is between kin. It also allows us to distinguish between the following types of cousins: first-cousin patrilineal, first-cousin matrilineal, and other.

Measures

Table 1 presents the percentages or mean values of all dependent, independent, and control measures used in our analyses, by year of data collection.

Dependent variables. We focus on three outcomes: number of CEB, the probability of contraceptive use, and the probability of having an additional birth at each parity (i.e., another closed birth interval). As stated above, the theorized link between own-choice marriage and fertility change assumes that couples in such marriages are more likely to deliberately limit their fertility according to personal preference and to use effective means of contraception to do so, which makes it important to examine not just CEB but contraceptive use as well. The analysis of the probability of having an additional birth provides further evidence about whether women in certain types of marriages are indeed more likely to limit childbearing at low- to mid-range parities (i.e., one, two, or three births), which reflect the average desired number of children reported for women in the sample (see Table A in the Appendix).

Using ideal number of children as an outcome might also seem to be important for assessing widening repertoires of choice, but we choose not to do so for two reasons. First, there are many missing cases (21.0% of our sample of 19,200 married women in their first marriage). Second, our focus is on differences in actual fertility. Across types of marriage these vary much more than the reported desired number of children. This can also be seen in Table A, which tabulates differences in the ideal number children across different types of marriage (on the limited sample of 15,162 for whom this measure was available) and then looks at ideal number of children among women ages 15–24 in 1993 and CEB among women ages 25–34 in 2003 (i.e., the same age cohort 10 years apart). The tabulations confirm that fertility preferences and CEB covary with marriage type in the same way, but the differences are much greater in terms of actual CEB. There is a 1.3 child difference between the CEB of women in own-choice marriages to nonkin and women in arranged marriages to kin. Among women interviewed 10 years before, the difference in desired number of children was less than 0.4 children.

We measure CEB using the DHS-provided count measure that ranges from 0 to 16. CEB is not identical to surviving children, but it is preferable to other available measures such as number of living children, which does not distinguish whether children died as infants or survived into later life course stages. Further, the infant mortality rate in Turkey fell from 51 per 1,000 births in 1993 to 27 in 2003, the period over which these data were collected, making CEB a highly accurate proxy for overall fertility (World Bank, 2015).

We measure current contraceptive use using the DHS-provided question on current contraception method, and women are coded as "1" if they report using any method. Although we considered using a measure that distinguished between modern versus traditional contraception methods, review of the coded responses revealed only one truly traditional method, withdrawal, alongside medical methods such as the pill and male sterilization and nonmedical methods such as condom use. Because the actual effectiveness of many of these methods—medical and nonmedical—depends upon how they are used, we decided the best strategy was to measure

contraceptive use dichotomously instead of extrapolating levels of effectiveness of contraception from method used. That said, we did replicate our analysis predicting what are commonly grouped as modern methods—the pill, intrauterine device (IUD), condoms, diaphragm, and male or female sterilization—with very similar results to those reported below. Finally, we measure probability of an additional birth by creating dichotomous indicator of a closed birth interval at each parity from the DHS birth column number variables.

Arranged, own-choice, and cousin marriage. The indicator of own-choice marriage is based on the following question: "How was your marriage arranged? Did you decide together or was it arranged by your families?" The responses of "by families" or "escaped/abducted"—as opposed to "by ourselves"—were coded as arranged. Marriages involving abduction or "bride theft" represent between 4.3%–6.0% of marriages in the 1993, 1998, and 2003 data and are concentrated in southeastern areas of Turkey. Although Bates (1974) suggested there is an element of choice in bride theft, we classify them as "arranged" because we see them as part of a traditional marriage system. Cousin marriages are coded dichotomously using the question, "Are you related to your husband?" We then draw on a follow-up question—"What is your relation to your husband?"—to distinguish between patrilineal first cousins, matrilineal first cousins, and other types of cousins or kin.

As noted earlier, the dichotomy between "arranged" and "own-choice" marriage masks a continuum of choice and extended family involvement in partner selection. In arranged marriages, for example, relatives' roles can range from influencing or vetting candidates to vetoing women's—and men's—choices. It is also possible that respondents' retrospective reports of partner selection as arranged or own choice may be influenced by the current nature of their marital relationship (e.g., if it is disappointing, perhaps they are prone to emphasize the arranged aspects of the process). We cannot test how either of these issues—the dichotomization of a construct that we know would be better measured ordinally and mismeasurement due to a type of response error—influence the quality of our indicators. We therefore proceed on the assumption that the available dichotomous measure effectively captures raw differences and that the mean effect of response errors across each of the marriage types is zero.

In Table B in the Appendix we present ancillary analyses predicting arranged and consanguineous marriage using selected sociodemographic characteristics. The results are consistent with the literature on widening repertoires of choice, linking own-choice marriage and marriage to nonrelatives with higher levels of education, urban residence, younger ages, and older age at first marriage, with one exception: Net of these controls, older women in these data are less likely to be married to a cousin. Finally, though ethnic Turks are more likely than others—primarily Kurds—to be in an arranged marriage, they are less likely to be married to a cousin, suggesting that there is a strong ethnic dynamic at work in Turkish marriage patterns.

Controls. We control for a standard set of sociodemographic and economic characteristics, each a continuous measure set to its median value: age, age at first marriage, years of schooling, and a four-item summary count of household durables (TV, refrigerator, car, telephone), the latter following established practice for assessing wealth in the absence of expenditure data (Filmer & Pritchett, 2001). To account for other marital factors affecting women's level of decision-making autonomy, we also control for the difference in age between spouses (partner's age minus woman's age, standardized to the median value) and whether the husband is not coresident in the household (4.6% of cases in the pooled data). Such situations do not reflect marital separations—which would be coded differently in this data—but rather intact marriages in which spouses live apart for various reasons. Lastly, because couples' ethnic background can affect marriage and fertility choices, we use a dichotomous indicator of being an ethnic Turk (78.9% of the pooled data) versus other (mainly Kurds). In the absence of a direct ethnicity measure in the 1998 and 2003 data sets, we identify it using "What is your mother tongue?" as a proxy. Finally, our models of contraceptive use and progression to each additional parity also control for the number of children born.

To check for effects of son preference—common in states close to Turkey (Duthé, Meslé, Vallin, Badurashvili, & Kuyumjyan, 2000)—we ran a parallel series of models predicting contraceptive use that also controlled for number of

surviving sons. This variable was positively correlated with contraceptive use, suggesting there is some evidence for son preference overall, but it did not alter the main effects of marriage type, suggesting that differences in son preference between marriage types is not a likely explanation for the main effects. Because item nonresponse on this measure was 8%, we chose to leave it out of the final models to avoid limiting our analytic sample.

Analytic Plan

We restrict our sample to women who are currently married still in their first marriage to address possible differences in exposure to sex after marital dissolution. An additional 0.6% of the sample was dropped because of missing values on core explanatory variables (primarily wealth and spousal age difference). Analytic sample sizes after applying these restrictions vary by type of dependent variable. There are high levels of statistical power in analyses of CEB and contraceptive use; the overall sample size is 19,200. Predictably, analyses of parity progression are more affected by lower sample size, especially at higher parities, so we only include results up to parity 5.

Initial analyses of CEB use Poisson regression, which is better suited to the long right-tail distribution of this outcome than ordinary least squares (OLS). Our analysis of contraceptive use is conducted using logistic regression. The parity-specific models estimating the probability of an additional birth are specified using probit models, with results presented as marginal effects. In all models, standard errors are adjusted to control for sample clustering.

As a robustness check, a parallel series of five Poisson models predicting CEB were specified in ancillary analyses. We used age at first marriage, childhood residence (coded rural vs. urban), and spousal age difference as instruments. These are "strong" instruments (French & Popovici, 2011)—their combined chi-square statistic in a supplementary model predicting arranged marriage is 1112.32—and also make sense conceptually because in these settings marriages precede fertility, arranged marriages are more likely to be made for people raised in rural areas, and spousal age difference is 0.5 years longer in arranged than own-choice marriage. That being said, each of these variables is also correlated with fertility, which reduces their validity as true instruments, though these models remain informative for understanding the stability of estimated effects. Results from these models are not shown, but they reveal stable estimated effects (available upon request).

A final note about data quality: As is the case with all DHS data, our key explanatory and dependent variables are reported rather than observed. Given known reliability problems with reported dates and durations (Tourangeau, Rips, & Rasinski, 2000, pp. 100–135), this may affect the accuracy of estimated birth intervals or level of fertility. It does not affect our main goal, however, which is to compare reported fertility across types of marriage, because there is no reason to think that these types of response effects covary with type of marriage.

Results

Children Ever Born

Table 2 presents results of four Poisson models focused on number of CEB. Results are reported as incidence risk ratios, which can be interpreted as the relative change in the risk ratio associated with a one-unit change in the independent variable. In this case, it reflects a change in the expected number of CEB.

Model 1 is the baseline bivariate model regressing CEB on whether the marriage is arranged. It shows that women in arranged marriages have 1.48 times more children than their counterparts in own-choice marriages. Model 2 then adds a number of socioeconomic and demographic control variables. Variable names marked with a superscript letter—age, age at marriage, spousal age difference, household wealth, and women's schooling—are set to their median value. Together, these controls attenuate the size of the relationship between type of marriage and CEB considerably. Although still significant, the difference in relative risk is now 1.06.

Model 3 introduces a dummy for "husband is related" and an interaction term between related and arranged marriage. It shows that the two main effects—being in an arranged marriage and being married to kin—are positively associated with CEB (risk ratios are, respectively, 1.06 and 1.07, both significant at the .01 level). But the interaction term contributes nothing to the model, showing that there is no additive effect of being in an arranged marriage to a cousin.

Table 2. *Incidence Risk Ratios From Poisson Regression Models Predicting Children Ever Born, Married Women Still in First Union (Demographic and Health Surveys Pooled Data)*

	(1)	(2)	(3)	(4)
Arranged (ref: own choice)	1.481***	1.063***	1.070***	1.061***
	(0.019)	(0.010)	(0.011)	(0.010)
Husband is related			1.061***	
			(0.020)	
Arranged × Related			0.969	
			(0.020)	
Type of cousin (ref: unrelated)				
Patrilateral first cousin				1.044***
				(0.014)
Matrilateral first cousin				1.023
				(0.015)
Other cousin				1.034*
				(0.014)
Turkish ethnicity		0.751***	0.754***	0.755***
		(0.010)	(0.010)	(0.008)
Age[a]		1.048***	1.048***	1.048***
		(0.001)	(0.001)	(0.001)
Age at marriage[a]		0.942***	0.943***	0.943***
		(0.001)	(0.001)	(0.001)
Spousal age difference[a]		0.995***	0.996***	0.996***
		(0.001)	(0.001)	(0.001)
Household wealth[a]		0.946***	0.946***	0.946***
		(0.006)	(0.006)	(0.005)
Women schooling[a]		0.960***	0.960***	0.960***
		(0.001)	(0.001)	(0.001)
Husband not coresident		0.888***	0.887***	0.887***
		(0.019)	(0.019)	(0.018)
Year of survey (ref: 1993)				
1998		0.916***	0.915***	0.915***
		(0.012)	(0.012)	(0.009)
2003		0.884***	0.884***	0.883***
		(0.012)	(0.012)	(0.008)
Constant	2.190***	2.770***	2.723***	2.737***
	(0.029)	(0.041)	(0.043)	(0.037)
Observations	19,200	19,200	19,200	19,200
Pseudo-R^2	.021	.206	.206	.206

Note. Standard errors (adjusted for sample clustering) in parentheses. ref = reference.

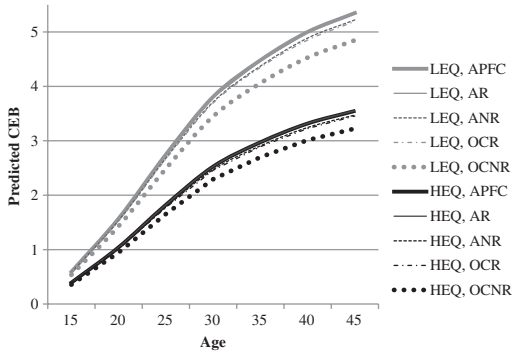
[a]Variables are set to median values.

*$p < .05$. ***$p < .001$.

Finally, Model 4 substitutes cousin-specific categories for the undifferentiated "related" term. It shows that much of this positive effect of "related" on CEB seen in Model 3 is associated with patrilineal first cousins, the most traditional type of cousin marriage.

Unsurprisingly, women's education has a strong effect on CEB; each additional year of schooling reduces the incidence risk ratio of an additional child by 4%. To understand the effect of marriage type on CEB—and to directly test Hypothesis 3—we therefore need to compare risk ratios of CEB within and across educational groups. To do this, we created a new grouped education-level variable that split cases into three groups based on distribution: upper quartile, lower quartile, and middle. We also transformed the age variable into a

FIGURE 1. PREDICTED CHILDREN EVER BORN ACROSS AGE GROUPS BY TYPE OF MARRIAGE AND LOWEST VS. HIGHEST EDUCATIONAL QUARTILE, MARRIED WOMEN STILL IN FIRST UNION (DEMOGRAPHIC AND HEALTH SURVEYS POOLED DATA).



Note. CEB = children ever born; LEQ = lowest educational quartile; HEQ = highest educational quartile; AFPC = arranged, first patrilineal cousin marriage; AR = arranged, related marriage; ANR = arranged, not related marriage; OCR = own-choice, related marriage; OCNR = own-choice, not related marriage.

seven-category, 5-year age group variable to evaluate these relationships at different ages. We replicated Model 3 with these categorical age and education variables and estimated predicted CEB in the highest versus lowest educational quartiles across all age groups and four types of marriage: arranged and related, arranged and not related, own choice and related, and own choice and not related. The values for patrilineal first cousins are from a separate model using a dichotomous variable of being in such a marriage. Results are presented in Figure 1.

As expected, the lowest CEB among women in each educational group is found among those in own-choice marriages to nonkin. However, consistent with Hypothesis 3, this difference is smaller among women in the highest educational quartile. Among women older than age 40 who are in the lowest educational quartile, the difference between women in arranged marriages to kin and women in own-choice marriages to nonkin amounts to 0.5 live births. Differences in CEB between the highest and lowest educational quartile among women who were the same age in the same type of marriage average about two live births.

In summary, this analysis confirms that marriage types—particularly whether the marriage was arranged and whether the woman's spouse is a patrilineal first cousin—have significant net effects on fertility (supporting Hypothesis 1). Yet it also shows that this effect is partly moderated by education (supporting Hypothesis 3).

Contraceptive Use

Our analysis of contraceptive use mirrors that of CEB, substituting logistic regression for the Poisson models. Table 3 begins with the baseline association of arranged marriage with contraceptive use, followed by a model with sociodemographic controls, a model that includes an interaction between arranged marriage and spousal relation, and a final model that distinguishes the effects of kin marriage by types of cousins.

In this analysis women in arranged marriages are 19.9% less likely to use contraception, a substantial and statistically significant effect. As Model 2 shows, however, this effect is attenuated by sociodemographic factors. Model 3 demonstrates that unlike CEB, contraceptive use demonstrates no direct relationship to arranged or related marriage net of controls. However, in Model 4, we do see a strong and significant net effect for patrilineal first cousin marriage. Those in such marriages are 18.0% less likely to use contraceptives than those who are not related to their spouses.

Once again, to test Hypothesis 3, we modeled contraceptive use separately for women across age groups in the lowest and highest educational quartiles. Predicted probabilities across the highest versus lowest educational quartiles, all age groups, and five types of marriage are presented in Figure 2. As in the analysis of CEB, results for arranged patrilineal first cousin marriage are from a separate model.

The figure shows that there is a negative effect of being in an arranged marriage to a patrilineal first cousin on contraceptive use, as anticipated by Hypothesis 1. In highest and lowest educational groups and across all age groups, they have the lowest contraceptive use. In contrast, women in own-choice marriages to nonkin tend have the highest contraceptive use, though it is only marginally higher than arranged marriages to nonkin. Further, supporting Hypothesis 3, the differences by marriage type are also larger among the women who were less educated, at least in the age 20–40 range.

Table 3. *Odds Ratios From Logistic Regression Models Predicting Current Contraceptive Use, Married Women Still in First Union (Demographic and Health Surveys Pooled Data)*

	(1)	(2)	(3)	(4)
Arranged (ref: own-choice)	0.801***	1.026	1.042	1.027
	(0.027)	(0.037)	(0.042)	(0.036)
Husband is related			0.959	
			(0.064)	
Arranged × Related			0.949	
			(0.073)	
Type of cousin (ref: unrelated)				
Patrilateral first cousin				0.805***
				(0.045)
Matrilateral first cousin				0.924
				(0.056)
Other cousin				1.082
				(0.064)
Children ever born	1.044***	1.206***	1.207***	1.207***
	(0.011)	(0.018)	(0.018)	(0.018)
Turkish ethnicity		2.417***	2.396***	2.373***
		(0.120)	(0.120)	(0.118)
Age[a]		0.979***	0.979***	0.979***
		(0.003)	(0.003)	(0.003)
Age at marriage[a]		1.005	1.004	1.004
		(0.006)	(0.006)	(0.006)
Spousal age difference[a]		0.990**	0.989**	0.989**
		(0.004)	(0.004)	(0.004)
Household wealth[a]		1.229***	1.230***	1.229***
		(0.026)	(0.026)	(0.026)
Women schooling[a]		1.089***	1.088***	1.087***
		(0.007)	(0.007)	(0.007)
Husband not coresident		0.356***	0.357***	0.357***
		(0.029)	(0.029)	(0.029)
Year of survey (ref: 1993)				
1998		1.002	1.004	0.999
		(0.049)	(0.049)	(0.049)
2003		1.397***	1.398***	1.407***
		(0.058)	(0.068)	(0.069)
Constant	1.980***	0.620***	0.779***	0.641***
	(0.067)	(0.045)	(0.050)	(0.048)
Observations	19,200	19,200	19,200	19,200
Pseudo-R^2	.003	.069	069	.070

Note. Standard errors (adjusted for sample clustering) in parentheses. ref = reference.

[a]Variables are set to median values.

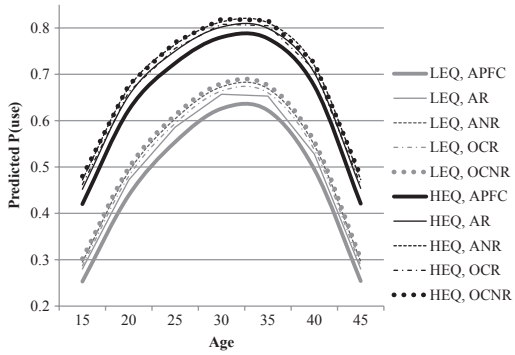
**$p < .01$. ***$p < .001$.

In summary, for contraceptive use, we see a strong baseline effect of arranged marriage on fertility that is attenuated by sociodemographic factors, a persistent and significant negative effect of being married to a patrilineal first cousin, and stronger effects of marriage type among less educated women.

Probability of Reaching Higher Parity

A final perspective on these fertility trends is achieved by comparing the relative probability of women reaching a given parity $p + 1$ across types of marriage, conditional on having reached parity p. To reiterate, looking at these differences

Figure 2. Predicted Probability of Current Contraceptive Use Across Age Groups, by Marriage Type and Lowest vs. Highest Educational Quartile, Married Women Still in First Union (Demographic and Health Surveys Pooled Data).



Note. LEQ = lowest educational quartile; HEQ = highest educational quartile; AFPC = arranged, first patrilineal cousin marriage; AR = arranged, related marriage; ANR = arranged, not related marriage; OCR = own-choice, related marriage; OCNR = own-choice, not related marriage.

by parity takes us a step further than just looking at total fertility or contraceptive use, because it provides evidence of the particular point in the parity progression where decisions to limit childbearing are made. We are particularly interested in the midrange parities that most closely match what most women in Turkey state is their desired number of children because, as noted in relation to Table A in the Appendix, raw differences in this desired number across types of marriage are much smaller than differences in the actual number of children to which a women gives birth.

Results from probit regression models at *p* 1–4 are shown in Table 4, where Model p(2) is the probability of reaching parity 2 conditional upon reaching parity 1 and so on.

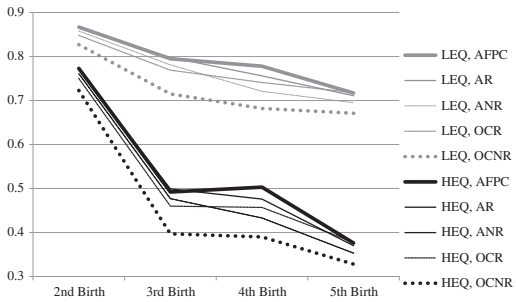
Across all four parities, we see strong positive effects of age, moderated by equally powerful negative effects of age at marriage and women's schooling, and increasingly powerful negative effects at each parity of being Turkish (relative to Kurdish). Beyond parity 2, there is also an increasingly strong negative effect of wealth. At each parity, we also see expected negative effects of year of DHS data collection, reflecting the ongoing fertility decline.

Turning to our central question, the models show that reaching parities 2–4 is positively associated with being in an either arranged marriage or cousin marriage, whereas reaching parity 5 is not. At parities 2 and 3, the fertility effects of being in an arranged marriage appear to be marginally stronger than those of cousin marriage. At parities 4 and 5, this switches in terms of the direction of the effect, though neither coefficient on "arranged" or "related" is statistically significant. Finally, the interaction term for Arranged × Related is negative but not significant at any parity, which means that the effect of being in an arranged marriage is not significantly different for related versus unrelated spouses anywhere in the reproductive sequence.

To visualize these results and examine how they vary between women of different educational quartiles, Figure 3 graphs the predicted probabilities at parities 1–4 for the five marriage types of interest.

In each educational class, we see the lowest probabilities across parities for women in own-choice marriages to nonkin. We see the highest probabilities for those in arranged marriages to patrilineal first cousins, though those differences are minimal when transitioning from one to two births. And we see intermediate probabilities for those in hybrid models, particularly in transitioning from parities 2 and 3. These findings all support Hypothesis 1. Further, the differences between marriage types are much larger at midrange parities, thus supporting Hypothesis 2.

Figure 3. Predicted Probability of Reaching Additional Births, Separated Between Highest and Lowest Educational Quartiles and by Type of Marriage.



Note. LEQ = lowest educational quartile; HEQ = highest educational quartile; APFC = arranged, patrilineal first cousin marriage; AR = arranged, related marriage; ANR = arranged, not related marriage; OCR = own-choice, related marriage; OCNR = own-choice, not related marriage.

Table 4. *Coefficients From Probit Regression Models Predicting Probability of Reaching* p *Parity Conditional Upon Reaching p − 1, Married Women Still in First Union (Demographic and Health Surveys Pooled Data)*

	p(2)	p(3)	p(4)	p(5)
Arranged (ref: own choice)	0.167***	0.223***	0.110**	0.074
	(0.033)	(0.032)	(0.042)	(0.055)
Husband is related	0.112*	0.173***	0.178*	0.136
	(0.055)	(0.053)	(0.071)	(0.094)
Arranged × Related	−0.069	−0.096	−0.047	−0.082
	(0.068)	(0.062)	(0.079)	(0.105)
Turkish ethnicity	−0.200***	−0.419***	−0.577***	−0.632***
	(0.038)	(0.036)	(0.042)	(0.049)
Age[a]	0.137***	0.079***	0.068***	0.064***
	(0.004)	(0.002)	(0.003)	(0.003)
Age at marriage[a]	−0.160***	−0.122***	−0.096***	−0.082***
	(0.006)	(0.004)	(0.005)	(0.007)
Spousal age difference[a]	−0.017***	−0.015***	−0.007*	0.002
	(0.004)	(0.003)	(0.003)	(0.004)
Household wealth[a]	0.000	−0.112***	−0.148***	−0.173***
	(0.015)	(0.015)	(0.019)	(0.023)
Women schooling[a]	−0.055***	−0.101***	−0.102***	−0.100***
	(0.005)	(0.005)	(0.006)	(0.008)
Husband not coresident	−0.130*	−0.089	−0.227**	−0.235*
	(0.056)	(0.064)	(0.080)	(0.111)
Year of survey (ref: 1993)				
1998	−0.195***	−0.187***	−0.107*	−0.174**
	(0.037)	(0.036)	(0.042)	(0.060)
2003	−0.250***	−0.262***	−0.238***	−0.238***
	(0.037)	(0.039)	(0.041)	(0.053)
Constant	1.115***	0.226	−0.032	−0.160*
	(0.050)	(0.040)	(0.053)	(0.068)
Observations	17,475	14,180	8,949	5,471
Pseudo-R^2	.369	.265	.204	.169

Note. Standard errors (adjusted for sample clustering) in parentheses. ref = reference.

[a]Variables are set to median values.

*$p < .05$. **$p < .01$. ***$p < .001$.

However, in contrast to CEB and contraceptive use, the differences between marriage types do not appear to be greater among women in the lowest educational quartile. To the contrary, in terms of the probability of reaching parities 3 and 4, there is greater heterogeneity across marriage types for the women who were most educated than for their counterparts who were least educated.

Discussion

Overall, our analytic results are largely consistent with theories linking a widening repertoire of personal choice in partner selection to fertility control and, subsequently, fertility reduction. They are also consistent with the argument that hybrid marriage models—in this case, arranged marriages to nonkin and own-choice marriages to cousins—temper the fertility reducing effects of the modern ideal of own-choice marriage to nonkin. As anticipated by Hypothesis 1, lowest CEB and highest probability of contraceptive use are found in own-choice marriages to nonkin, the least traditional type of marriage. Also, highest CEB and lowest probability of contraceptive use are found in arranged marriages to patrilineal first cousins, the most traditional type of marriage, and intermediate levels of CEB and probability of contraceptive use are found in both types of hybrid marriage models. Likewise, as anticipated by Hypothesis

2, women in own-choice marriages to nonkin have lower probabilities of progressing to an additional birth, and those in arranged marriages to cousins—particularly patrilineal first cousins—have higher relative probabilities of progressing to an additional birth, especially a fourth birth. We see intermediate probabilities of progressing to an additional birth at all parities, though it is less than that of patrilineal first cousins, especially at parity 4.

Although Hypothesis 3—that differences will be greater among women with less education—is supported for CEB and contraceptive use, it does not appear to fit the analyses of progression to higher parities, where variation across marital groups in reaching parities 3 and 4 is higher for the most educated than for the least and similar in reaching parities 2 and 5. Again, this suggests that in terms of patterns of family formation, choices are filtered through marriage type, even if the magnitude of these effects is much less than those of education. Among the women who were most educated, for example, the tendency to limit fertility is widespread enough that women in more traditional types of marriage demonstrate patterns of CEB and contraceptive use very similar to their counterparts in own-choice marriages, supporting the conclusion that education has a homogenizing, fertility depressing effect regardless of the partner selection model followed.

We also see some slight differences in how each of the fertility outcomes respond to variations in marriage type. Being in an arranged versus own-choice marriage affects CEB and progression to higher parities but not contraceptive use. Being married to a patrilineal first cousin affects CEB and contraceptive use. In turn, this highlights the differential fertility outcomes between being married to a patrilateral first cousin as opposed to a matrilateral first cousin. In terms of CEB and contraceptive use, parameter values associated with the latter—7.3% of the sample—point in the same direction as those of patrilateral counterparts, but the effect size is smaller, and they are statistically indistinguishable from nonkin. This suggests that in terms of patterns of family formation, there is something inherently different between matrilateral and patrilateral marriages.

Our findings must also be tempered with the recognition that relative to sociodemographic factors, the contribution of marriage type to fertility outcomes is fairly small. In the case of CEB, the strong baseline effect of being in an arranged marriage is substantially attenuated by the inclusion of controls, though it remains significant, and in the case of contraceptive use, only being married to a patrilineal first cousin continues to exert a strong effect net of controls. Overall, this suggests that shifts toward individual-first schemas in partner selection are best thought of as moderating mechanisms in fertility transitions, as compared to the well-established drivers of these transitions, such as wealth, education, and age at marriage (Axinn & Barber, 2001; Bongaarts & Potter, 1983; Cain, 1982; Johnson-Hanks, 2008; Mason, 1997).

Even with these reservations, questions arising from this study can inform further research into changing patterns of partner selection and their implications for family formation processes. In particular, hybrid modern and traditional models of marriage in rapidly changing non-Western societies that retain some traditional aspects of partner selection while discarding others are not well understood. In analyses of fertility, in particular, they too often disappear into some liminal, conceptual space between modern and traditional. In this respect, we see particular promise in theoretical approaches that explore how individual-first versus family-first schemas are applied in key moments of decision making, including marriage and fertility. These approaches set the stage for more directly measuring the effects of individual- or family-first orientations on marriage and fertility behavior. We look forward to future work that more directly elucidates this mechanism by combining good data on marriage and fertility, such as are available in the DHS, with a full range of attitudinal indicators, like those from the World Values Survey.

Other questions also remain unanswered. One is the extent to which the widening-repertoire-of-choice mechanism is allowed to work in less developed contexts where, in comparison to Turkey, low fertility is more controversial and life-course events are more scripted. In such a setting, the choice to limit fertility in addition to opting for an own-choice marriage would be considered doubly deviant from local family norms, which could encourage women (and men) to strategically follow one norm to compensate for having deviated from another. For example, higher fertility could

potentially dampen the displeasure that arises from own-choice marriage among key family members. Likewise, marrying a cousin could mollify those same family members, where they were perturbed by a young couple's low fertility. Either way, we can imagine a reasonable middle path through which women and men of marriageable age could satisfy the family-first schema of extended family members through either marriage or fertility.

A final point is related to contemporary population policy in Turkey. In January 2015, Prime Minister Ahmet Davudoğlu announced the new Program for the Protection of the Family and Dynamic Population Structure. It includes several pronatalist incentives and policy proposals, building on messages circulated by the government since the Justice and Development Party (AK Party) first came to power in 2002. We would expect these types of pronatalist arguments to appeal more to people with family- or community-first fertility schemas. In relation to our findings here, we would therefore expect to see more of a pronatalist effect on fertility in arranged marriages or cousin marriages in general. Research using more recent data than are used here, especially data on fertility over the next 5 years, will be able to address this question.

Conclusion

Our principal goal in this article has been to evaluate the effect that the widening repertoire of marital choice plays in fertility reduction in Turkey while also taking into account consanguinity, another common feature of Turkish marriage patterns. We have looked at the overall level of fertility, use of contraception, and progression to a higher parity. Overall, results suggest that the widening repertoire of choice has a notable role in fertility reduction, operating especially within marriages to nonkin and more distantly related cousins. These already deviate from traditional marital ideals on at least one important dimension, which is consistent with explanations that link selection of marital partner with a faster pace of fertility decline.

At the same time, the persistence of marriage to a first- or more distant cousin even among those who choose their partners suggests that hybrid marital models that incorporate varying aspects of tradition hold continued appeal. Even with a widening repertoire of choice regarding their spouses, many young people still choose to marry relatives. Whether this is a way to ensure greater security in the families they marry into or to solidify those families' support of their chosen partner, the result is the same: In Turkey there is a variant of modern marriage that deviates from tradition in some ways but not others, with implications for the extent to which individual-first schemas are applied to fertility decisions. Such hybrid models are perhaps appealing in the short-term because they balance the countervailing pull of tradition and modernity, but they do limit the degree to which widening repertoires of choice extend to fertility. These findings are consistent with Goode's (1963) foundational argument that where companionate marriage spreads, even between distantly related cousins, lower fertility follows. One choice does not have to roll into another. But it often does.

Note

This article uses Demographic Health Survey data from Turkey collected in 1993, 1998, and 2003, which are publically available at www.measuredhs.org. Some of the analyses were conducted while the first author was supported by a National Institute of Child and Human Development training grant #HD007081-32, through the Population Research Center at the University of Texas at Austin. An earlier version of the article was presented at the 2013 Annual Meeting of the Population Association of America. We thank audience members for their comments.

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Appendix

Appendix A. Analyses of Differences in Desired Number of Children Across Marriage Types

	OCNR	ANR	OCR	AR	All
Mean desired # of children (*SD*)	2.282[bcd]	2.522[ad]	2.585[ad]	2.743	2.501
	(0.142)	(0.013)	(0.036)	(0.025)	(1.121)
Percent desiring:					
0 births	0.46	0.51	0.76	0.40	0.49
1 birth	8.50	5.21	6.54	4.24	6.00
2 births	65.67	57.90	51.25	49.65	58.11
3 births	16.38	21.41	23.45	23.77	20.60
4 births	7.50	12.23	14.18	16.78	11.89
5 or more	1.47	2.73	3.82	5.16	2.92
N	4,096	7,414	917	2,735	15,163
Mean desired # of children for women ages 15–24 in 1993:	2.083[bcd]	2.249[ad]	2.310[a]	2.417[ab]	2.242
	(0.033)	(0.040)	(0.105)	(0.051)	(0.884)
Mean CEB for women ages 25–34 in 2003:	1.797[bcd]	2.644[ad]	2.789[a]	3.172[ab]	2.405
	(0.055)	(0.069)	(0.163)	(0.149)	(1.650)

Note. Results are from *t* tests of differences in means, at $p < .05$. OCNR = own-choice, not related; ANR = arranged, not related; OCR = own-choice, related; AR = arranged, related; CEB = children ever born.

[a] = differences from OCNR. [b] = differences from ANR. [c] = differences from OCR. [d] = differences from AR.

Appendix B. Odds Ratios from Logistic Regression Models Predicting Arranged Marriage, Marriage to Kin, and Cousin Marriage by Type of Cousin

	(1) Arranged	(2) Related	(3) First Patrilineal Cousin	(4) First Matrilineal Cousin	(5) Other Cousin
Turkish ethnicity	1.187***	0.571***	0.458***	0.829***	0.889
	(0.054)	(0.051)	(0.063)	(0.069)	(0.072)
Age[a]	1.154***	0.954***	0.966**	0.933***	0.984
	(0.011)	(0.011)	(0.016)	(0.017)	(0.016)
Age at first marriage[a]	0.944***	0.913***	0.924***	0.930***	0.935***
	(0.005)	(0.007)	(0.010)	(0.010)	(0.010)
Spousal age differences[a]	1.015***	0.940***	0.950***	0.933***	0.971***
	(0.005)	(0.007)	(0.011)	(0.010)	(0.007)
Women schooling[a]	0.847***	0.925***	0.909***	0.928***	0.976*
	(0.006)	(0.007)	(0.010)	(0.010)	(0.010)
Rural childhood residence	1.199***	1.290***	1.164**	1.204***	1.347***
	(0.040)	(0.043)	(0.063)	(0.066)	(0.064)
Year of survey (ref: 1993)					
1998	0.624***	1.100*	0.955	0.897	1.356***
	(0.053)	(0.052)	(0.077)	(0.078)	(0.068)
2003	0.526***	1.055	1.214***	1.319***	0.654***
	(0.049)	(0.053)	(0.070)	(0.070)	(0.074)
Constant	1.417***	0.549***	0.179***	0.109***	0.094***
	(0.070)	(0.074)	(0.106)	(0.107)	(0.102)
Pseudo-R^2	0.116	0.066	0.071	0.035	0.029
Observations	19,198	19,198	19,198	19,198	19,198

Note. Standard errors (adjusted for clustering) in parentheses. ref = reference.

[a] Variables are set to median values.

*$p < .05$. **$p < .01$. ***$p < .001$.