Fertility Regulation Behavior: Sequential Decisions in Tunisia

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Abstract:

We revisit fertility analysis in Tunisia by focusing on a sequence of fertility regulation instruments, analogous to Bongaarts' factor approach, and systematically examining family interference with these decisions. In Muslim societies, in which marriage is the exclusive socially tolerated childbearing context, the postponement of a woman's marriage may prompt her to regulate her fertility. Regarding the other examined birth control decisions (post-marriage delay in the first use of contraception, past and current contraceptive use, choice of birth control method), the husband and the wife's families may interfere with this decision. These successive decisions may correspond to consecutive phases in a woman's lifecycle, such as enrolment in higher education, labor market participation, attainment of some fertility objective, and middle- and old-age health problems. In all these phases, the families may play essential roles.

Using data from the 2001 PAP-FAM Tunisian survey, we estimate equations that include covariates capturing the above consecutive decisions and provide a coherent picture of the fertility regulation processes in Tunisia, including rarely observed variables on family interactions. Consistent with this setting, we find that the significant effects of covariates arise and vanish across stage-specific equations as women progress in their lifecycle. Our findings show that in Tunisia, family links and sociocultural environments greatly shape fertility regulation decisions. This calls for more intensive involvement of husbands and extended families in family planning policies. This broader perspective suggests that the resurgence of traditionalist politico-religious movements, sometimes associated with youth radicalization, may affect future fertility regulation.

Keywords: Fertility regulation, Age at marriage, Birth control, Contraception, Tunisia.

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1. Introduction

Research on fertility is now a well-established field, with some emphasis having been paid to investigating the factors explaining the desired or realized number of offspring.[2] On the other hand, somewhat less attention has been devoted to fertility regulation decisions, although there is a long tradition of such studies, initiated by Bongaarts (1978). Moreover, these regulation decisions are generally treated separately. In this paper, we show how some insight can be gained by considering the diverse regulation decisions made by a woman, her husband or their families, through an approximately sequential framework that may involve distinct motivations that also often succeed one another sequentially over her reproductive span. We identify suggestive correlates in the sequence of regulation decisions and devote particular attention to family interference. Indeed, in Tunisia, the likelihood of new births depends on the mother's biological characteristics and her economic activity, as well as on her family context and on the density of social relationships within the extended families. These families influence most dimensions in young couples' lives, whether when choosing a spouse, financing a wedding, or determining the number and education of offspring.

Fertility regulation is often seen (e.g., in Easterlin 1975, 1978) as stemming from a woman's having increased labor participation, and the disadvantages of unwanted children are greater than their typical economic and psychological benefits. Moffit (1984) noted that couples may delay childbearing either because the opportunity cost of children's early education may exceed the value that the couple ascribes to having children or because the marginal utility of the mother's leisure is greater than the utility achieved by having a child. However, some simplifications are involved in this understanding, starting with the hypothesis that the regulation decision is made only by the woman; however, the husband or their families may also be involved. In this paper, we track the encroachment of families in the successive steps of contraception decisions. Bongaarts (1978,1983) and Bongaarts and Potter

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[2] See, for example, Cochrane and Guilkey (1995); Karsten and Kohler (2000); Klasen and Launov (2006); Kohler (1997); Link (2011); and Rindfuss et al. (2007).

(1983) distinguish direct and indirect determinants of fertility. Direct determinants include exposure factors (such as the proportion of married people in the population), deliberate marital fertility control (e.g., contraception), and natural marital fertility factors. The indirect determinants refer to cultural socio-economic and environmental factors. Among these many kinds of determinants, Bongaarts emphasizes four primary proximate factors that generate salient differences in fertility levels across societies. They are marriage, notably the typical age at marriage, contraceptive habits, lactation and induced abortion.

We follow Boongarts' approach by sequentially decomposing his first two factors.[3] However, our main difference from Bongaarts is the systematic attention we devote to family interference in the characterization of these factors.

All regulation decisions may involve expectations, trial and error. Moreover, their analysis may be further complicated by changes in individual preferences over time and by changing tradeoffs between regulation motivations, along with the woman's lifecycle. Specifically, schooling prospects, labor force participation, family establishment, and old age health concerns may, in an almost successive fashion, occupy the minds of women as they age. Faced with this complexity, it is clear that estimating a complete structural fertility model, at least in the Tunisian case, is far beyond what is possible with the available cross-sectional data. In these conditions, our approach is instead to focus on observable birth control decisions and their suggestive relationships with observed covariates, notably with family variables.

First, exposure to unwanted birth may be controlled by delaying marriage. This is consistent with declines in nuptiality often taking place after a decline in mortality, which reduces the need for additional children. However, marriage, even in Muslim countries, entails more than just having a child, and potential husbands have a say.

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[3] Bongaarts' last two factors (abortion and lactational infecundability) are omitted because they are not measured in our data.

Marriage has long been considered a proxy for exposure to the risk of fertility, on the grounds that premarital sexual intercourse is relatively uncommon among women.[4] Marriage timing may affect both the supply of and demand for children.[5] This is all the more relevant in Muslim countries, where marriage is the sole socially tolerated context for childbearing (Axinn and Yabiku 2001). In particular, in Tunisia, the primary reason for getting married is to have children. This is supported by the very rare incidence of out-of-wedlock pregnancies in Tunisia. The hypothesis that a major motivation for marriage is having children is consistent with the fact that access to birth control options, such as the pill, and abortion has been found to reduce marriage incidence (Choo and Siow 2006). Thus, marriage appears to partly be a substitute for contraceptive techniques.

However, there may be other motivations for delaying marriage, including risk aversion as in Schmidt (2008). A woman may have low or zero fertility objectives, for example, to preserve a comfortable and autonomous lifestyle. She may want to pursue personal projects incompatible with raising children, such as enrolment in higher education. She may want to establish her professional career without the hindrance of young children at home after a long workday, particularly if she cannot afford childcare. Finally, she may suffer from health problems that make birth hazardous. Interestingly, these motivations follow a consecutive pattern along the lifecycle, with schooling motives being more relevant for young women and health problems more frequent among middle-aged or older women. It seems safe to say that all these motivations may be mirrored by corresponding motivations of the close family.

A second regulation decision is the timing of the first contraceptive use after marriage. This first use may occur immediately after marriage if children are not immediately desired. Contraceptive use may also take place episodically along the reproductive span—for example, to allow for birth spacing that helps the couple, and perhaps also the close family, to spread economic and time burdens across years. The time gap between the wedding date and first birth control use may involve both anticipated and

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[4] Bongaarts (1983); Coale (1992); and Hirschman and Rindfuss (1980).
[5] See Bongaarts (2006); Bongaarts and Potter (1983); and Rosero-Bixby (1996).

unanticipated decisions, which may reflect not only cost-benefit calculations but also subjective attitudes toward family planning. However, this gap can easily be observed, as opposed to the detailed birth control process, which justifies examining it in this paper.

A third unobserved stage of regulation is the full sequence of contraceptive use by the spouses over the reproductive span. However, what can generally be observed is whether the woman is currently using contraception or if she has used it in the past. Obviously, these 'synthetic' decisions must take place after (or at the time of) the first use of contraceptive techniques. It may be interesting to exploit information about them that differs from that of the first contraception choice and to relate this to the woman's lifecycle.

Fourth, the choice of the birth control method logically and generally follows the decision of whether to use contraception. Although this simplifying sequential perspective of regulation may exclude other cases, it will help us organize the data analysis. The choice of regulation method may be influenced by its perceived efficiency, by private and social approval, and by its impact on health. It may also depend on the availability of regulation services and on cost-benefit calculations. However, given that contraception in Tunisia is free and easily available, we do not include cost or access as explanatory variables.

As mentioned above, regulation decisions can often be arranged sequentially. Marriage occurs first, which triggers the fertility risk; next comes the first use of contraception; then we observe diverse uses of contraceptive techniques over time, where each use is associated with choosing a specific method. Obviously, a sequential setting is only approximate. For example, a woman may change birth control methods over time or even consider them before marriage. Another exception to this rigid sequential picture is out-of-wedlock childbirth, although this is rare in Tunisia. This sequential approach enables us to suggest distinct dominant motivations for each birth control stage. Accordingly, better understanding the covariates at each stage may assist in improving family planning policies, for example, using different targeting criteria at each regulation stage and increasing the involvement of

the husband and close family. The empirical literature on each of the estimated models is discussed when we report their respective estimation results.

Our focus is in the most advanced family planning system in Muslim countries, where marriage is the exclusive context for sexual intercourse and childbearing and for which few studies on fertility regulation are available.[6] Indeed, Tunisia established a national family planning policy as early as 1961, while such policies only started in 1965 in Turkey and in 1967 in Indonesia, for example. Tunisia was also at the forefront of Muslim countries when it legalized abortion in 1965 (Turkey did so in 1983). Furthermore, intensive public investment in local health centers and support staff, directed toward health care for mothers and children, has been made in Tunisia, including in rural areas (Gastineau 2011, Gastineau and Sandron 2000).

In that sense, learning more about birth control in Tunisia may tell us something useful about where other Muslim countries are going. However, it seems fair to say that traditional Muslim features still characterize Tunisia in terms of mentalities and family habits related to nuptiality and children.

Our empirical application emphasizes correlations in Tunisia between family networks and birth control decisions in phase with lifecycle issues. By using cross-sectional data from a single survey, we cannot pretend to accurately identify causal channels of contraception. However, eliciting correlations suggestive of subjacent causal processes is nevertheless interesting. Our challenge is to exploit the necessarily limited available data while still generating suggestive insights.

The structure of this paper is as follows. In section 2, we present the context and the data. In section 3, we report and discuss our estimation results. Finally, we conclude in section 4.

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[6] For example, see Ahmed (1985); Hanks (2006); and Yursteven (2015).

2.   The Context and Data

2.1.   Fertility Regulation in Tunisia

Fertility has plummeted in Tunisia over the last half century. The fertility rate, which was close to eight children per woman in the early 1960s, was nearly been below the renewal threshold (2.05 children per woman) in 1999. Although a slight rise has been recorded since 2010, the fertility rate remains low at 2.4 children per woman in 2015. This decline comes from a steady reduction in the demand for children demand accompanied by women's use of birth control. Sandron and Gastineau (2002) and Bousnina (2013) provide detailed descriptions of the fertility transition in Tunisia.

These demographic changes have been fostered by laws and institutions that have enhanced the social and legal status of women and developed family planning, starting with the 1956 Code of Personal Status that promoted female emancipation. The Code regulated marriage and divorce, abolished polygamy, set a minimal legal age for marriage, and replaced repudiation with divorce. The minimal legal age for marriage was set to 15 years for women and 18 years for men in 1956 and later further revised in 1964 to 17 and 20 years, respectively. As a consequence, women and men in 2014 were married on average at 28 and 34 years of age, respectively.[7] These changes have had direct consequences on fertility because out-of-wedlock births are negligible—approximately 0.5 % of births over the period 2000–2012.[8]

Through public campaigns, the Tunisian government incentivized families to limit their fertility. Family allowances were cut for households with more than four children and then with more than three children. Advertising and sales of contraceptive devices were legalized in 1961. In 1964, a new institution, the ONFP (National Board for Family and Population), was set up to assist in restricting and monitoring fertility. Abortion was legalized in 1973. Finally, modern contraceptive instruments, allowing couples to better control their progeny, were provided for free.

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[7] All quoted statistics are from the Tunisian Annual Statistics of the National Institution of Statistics (INS) from 1957 to 2014.
[8] Source: Tunisian Ministry of Women and Children: annual report on children 2000, 2012.

These policy measures contributed to the increase in the contraceptive prevalence rate from 31 percent in 1978 to 60 percent in 2007.[9] In the 2001 ONFP survey report, 84 percent of respondents stated that they had been using contraceptives (62 percent were currently using them), with no major differences across regions (75 percent for rural vs. 83 percent for urban women) or across education levels (75.9 percent for illiterate women and 81.6 percent for primary, 84.8 percent for secondary, and 83.4 percent for higher levels of education). Moreover, the average duration before the first use of birth control after marriage declined steadily between 1978 and 2001, from 6.56 years for women aged 45–49 years to 1.37 years for women aged 20–24-years, as shown in Table 1. As a consequence, the number of surviving children at the first birth control use is falling. Younger women, aged 20–24 years, often start regulating their fertility after obtaining a single surviving child, which can be compared to the 2.91 surviving children for women aged 45–49 years. Overall, regulation is practiced once women have approximately two (1.93) surviving children (1.61 children in urban areas vs. 2.63 in rural areas). The most commonly used methods are IUD (intra-uterine device, 44.1 percent), the pill (17.4 percent), tying tubes (16.7 percent), and calendar (11.8 percent).

In Tunisia, as in other Muslim countries, family links are ubiquitous in all domains of couples' lives. Data from the 2001 PAP-FAM survey conducted by the ONFP shows that the family home remains the most likely location and that deemed most appropriate for first meeting a future spouse (in 63.5 percent of cases). Family endogamy, from the father's side as from the mother's side, remains frequent in some Tunisian regions. Within-family marriages still account for 42.3 percent of all marriages. Moreover, the cost of a wedding is often covered by the family network and is entirely covered by the husband's family for 13 percent of the surveyed women.

On the one hand, the vast majority (90 percent) of the 74 percent of households who live in an independent dwelling have regular contacts with the families of the two spouses (60 percent regularly and 30 percent occasionally). On the other hand, the remaining 26 percent of households live within the same lodging as the husband's family (22 percent) or than the wife's family (4 percent). Thanks to

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[9] These statistics have yet not been updated by the ONFP.

this proximity, there is intensive family interference in the married couples' lives, including in fertility matters, as discussed in Frini (2014).

These links with extended and close relatives include family assistance and childcare services. One-fifth of grandparents are involved in their grandchildren's education and babysitting. Moreover, 48 percent of young couples benefit from financial assistance from their parents (30 percent from the husband's family and 18 percent from the wife's family).

The salience of family links is also attested by the increase in financial support for parents, especially on the husband's side (in 71 percent of cases). In the period 1991-2001, after their marriage, 48 percent of these sons provided regular financial assistance to their own parents (38 percent in 1981-1990 and 37 percent in 1971-1980), while 23 percent did so only occasionally.

2.2. The Data

The data we use are taken from the 2001 PAP-FAM survey conducted by the ONFP (the Tunisian family planning office). A major innovation of this survey is its focus on intergenerational relationships, social culture, and fertility behavior. This survey also provides information on various household characteristics, including reproductive and sexual health, for 6702 visited households. We base our study on a sample of 3175 married women aged from 15 to 49 years (from an initial sample of 3496 women that included non-responses), a reasonable approximation of their fertile period. Numerous variables are collected through a retrospective questionnaire filled out during a single interview. Some variables provide information on the age at marriage in years (*woman's age at marriage*) and *marriage duration before first birth control,* also in years. Two dummy variables describe the incidence of birth control. First, the respondents may or may not have used contraception in the past (*contraceptive ever used*); second, they may or may not be using contraception at the time of the interview (*contraceptive currently used*). Finally, we also make use of data on which contraceptive techniques have been used (the pill; IUD; calendar; the grouping of implant, injection,

tying tubes, gel, coitus interruptus, condom, and others as one modality; and the jointly use of the pill, IUD, and calendar). Other traditional methods, such as extending the breast-feeding period and post-partum delay of intercourse, are not included as they are neither efficient nor easy to measure, and little used anyway.[10]

Our selection of independent variables is mostly driven by the literature on the determinants of fertility, given the information available in our data, which we complete with original information on social family interactions. We also attempt to avoid the inclusion of regressors that would obviously be endogenous and maintain relatively similar sets of covariates for the successive decisions to facilitate comparison.

Concrete socioeconomic decisions, perceptions, and motivations are clearly relevant for fertility issues. It would also be useful to be able to distinguish among different sociological groups. All these features are unobserved in the survey; however, hints about who financed weddings and family interference may partly reflect these elements.

Table 2 reports descriptive statistics for the covariates used in the estimated models. One important independent variable is the number of desired children, which is common in the fertility literature.[11] In our data, this is recorded through a retrospective question that the women were asked ('if you think back in time before having your children, how many children would you have liked to have had?'). Obviously, a woman's age is a crucial covariate not only because of its correlation with fertility capacity but also because it is associated with numerous lifecycle factors. In this respect, the husband's age may also matter. We include a dummy variable for urban areas, as fertility behavior usually differs substantially between urban and rural areas. In addition, prices are known to vary with urbanization, which affects the cost of raising children. The other covariates can be categorized into measures of educational and career attainment and characteristics of family and social interactions.

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[10] As discussed in Bhalotra and Van Soest (2008), Bongaarts (2006), and Bongaarts and Potter (1983).
[11] Michael and Willis (1975), Rosenzweig and Seiver (1982), Rosenzweig and Schultz (1987, 1989).

Fertility theory has always included education and job variables related to the roles of human capital and the opportunity cost of women's time (Becker 1960, 1965, 1974). However, a few words of caution are in order. We do not operationalize education with attainment level variables in this work since they do not exhibit statistically significant effects, for women or men. Thus, we only account for schooling through two dummy variables (*woman never educated*) and (*husband educated*).

Additionally, given the lack of detailed information on women's professional status, we can only employ a binary variable indicating whether the woman has been employed in the past. In addition, we use a dummy variable on a woman's employment situation before marriage (*woman employed before marriage*) to attenuate a potential endogeneity issue in fertility decisions. Female labor force participation before marriage should generally appear before the fertility decision is made, as having children is tolerated only among married couples in Tunisia. Therefore, this variable can be viewed as less correlated with fertility decisions than contemporary or recent labor participation.

We consider the woman's view of her ability to succeed in two simultaneous roles as worker and mother by including a dummy variable for women who believe that they are able to accomplish both tasks (*job and housekeeping compatibility)*. The husband's socio-professional position is described by two dummy variables for '*husband unskilled worker'* or '*husband skilled worker'* that were constructed by aggregating job-specific information.

Household incomes, along with the costs and financial benefits of children, are not observed. We attempt to capture some information on household income through two dummy variables indicating the source of wedding funding. Because weddings in Tunisia are traditionally financed by the husband, if one observes that the couple has financed it jointly (*couple finances marriage*), this suggests that the husband has experienced financial difficulties. Alternatively, the woman may finance her marriage (*woman finances marriage*). This is often perceived as a specific indicator of a wealthy wife or a relatively destitute husband.

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Turning now to social and familial characteristics, the few authors who incorporate such factors influencing fertility regulation confine their attention to paternal characteristics (education, profession, area), as in Wong (2005), among others. We innovate by including covariates directly related to the family network, such as a dummy variable for husbands and wives who first met in the family home (*family meeting place partner)* and a dummy variable for the husband being a close relative of their wife (*family intermarriage*). These variables depict couples with a traditional orientation that belong to closely knit families. In Tunisia, marriage within the family is widespread (42.3 percent), while 63.5 percent of respondent women first met their future husband in the extended family's home. Family endogamy (in paternal or maternal lineages) remains common despite exogamy becoming increasingly frequent in all regions. Obviously, this kind of strong family ties makes family interference in the couple's fertility regulation decisions more likely and reinforces interactions among family members in general.

Similarly, we investigate the relationship between the availability of family childcare and fertility regulation decisions. However, including a variable for parental childcare poses a simultaneity issue, as childcare may be spurred by a new birth, which could itself follow some relaxation of birth control. Thus, in an equation in which the dependent variable is the birth control decision, the childcare variable may be correlated with unobservables that may partly cause both former and current birth control status. Therefore, we instead use a proxy binary variable that reports whether either a woman's family or her family-in-law intervenes in nuclear family decisions (*family interference)*. That is, we assume that when the family interferes in a couple's life, this may involve childcare support, and such the interference was probably already present before any new birth. Mahfoudh-Draoui (2000, p. 139) reports substantial roles of families in childcare: only 8 percent of households in rural areas and 4.5 percent in urban areas have child carers from outside the family for children under 6 years of age. Similarly, we consider parents' financial support by using a binary variable (*descending financial transfers*) that indicates whether the couple benefits from financial assistance from parents and parents-in-law: 30 percent (18 percent) of the married couples consistently receive financial assistance

from the husband's relatives (the wife's relatives). Furthermore, 71 percent of husbands (48 percent permanently and 23 percent occasionally) continue to support elderly members after establishing their own family (the corresponding figure for wives is 5 percent).

In addition, we construct a variable (*discussion*) indicating whether the woman regularly speaks with her husband about his job, financial difficulties, housekeeping problems, or social issues. This variable indicates the degree of understanding and agreement between spouses. We also attempt to capture female autonomy by including a dummy variable for whether the woman must have a relative accompany her when she visits a health center (*companion to health center*).[12] We interpret this variable as a proxy for the woman's submission to traditions.

Traditional values are potential determinants of attitudes towards fertility in Tunisia. Accordingly, we define a dummy variable that identifies women who state that children come from God (*God gives baby*), thereby deterring contraception. Finally, we include a dummy variable for lost pregnancies five years before the survey (*lost pregnancies*) as a proxy for the woman having poor reproductive health status, potentially a medical reason not to use, or to limit, birth control. We are now prepared to turn to the estimation results.

3.   Results

We now discuss the estimation results following the sequence of decisions as previously detailed. Due to missing values for the dependent and independent variables, the sample size in these estimations varies from 3132 to 2426 observations. The regressions for age at marriage and for marriage duration before first birth control use are specified as Weibull duration models, incorporating the abovementioned covariates when possible.[13] In the case of the age at marriage model, a few variables

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[12] To empirically examine the gradual changes in norms for social behavior that may influence marriage, we also considered other possible measures in the estimations, such as legal age at marriage or the year of the law of the minimal age at marriage, but no significant result emerged.

[13] In addition to the Weibull distribution, exponential normal and gamma distributions are also routinely employed, which differ from the most general and most flexible functional forms corresponding to the Weibull. In particular, the latter

that pertain to post-marriage information are omitted. Note that there is no censorship in this case because the sample consists exclusively of married women. In contrast, the second duration model is censored for the observations pertaining to the 18 percent of women who were not observed to have made any birth control attempt. This explains the difference between the number of observations in the descriptive results and in some estimation results. The maximum likelihood estimates of the two duration models are shown in Table 3. The regressions for currently using or ever having used contraception are specified as probit models, and their estimates are shown in Table 4. Finally, the choice of the birth control methods, among the women who have chosen to use contraception, is specified as a multinomial logit model, and the estimates are reported in Table 5. In all cases, we omitted, to the greatest extent possible, any obviously endogenous independent variable. However, since the estimates are based on a unique cross-section and it is impossible to find instruments for all possible regressors suspected to suffer from endogeneity, the results should be interpreted as suggestive correlations rather than robust, undeniable causal effects.

3.1. Age at Marriage

The conjecture that age at marriage, in years, is used as a birth control device is supported by the estimates that indicate that it is substantially influenced by typical determinants of fertility demand. Examining distinct age classes may have been interesting, but our sample is too small to do so. An issue here is that ideas about marriage may have changed over time, which may imply that the link between age at marriage and contraception is less simple than sometimes claimed. Moreover, not everyone marries. However, using a duration model helps us to make use of a simple interpretation grid in which control variables, such as age and education, attenuate these concerns. Note also that in this sample, there are only a few young persons, which limits the impact of recent changes in preferences about marriage.

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allows for monotonically increasing or decreasing hazard functions [Fourgeaud, Gouriéroux and Pradal (1990), Tsay and Chu (2005) and Walters (2009)].

A woman's age is a biological factor that affects her odds of having a child. We also find that it strongly affects age at marriage in the estimates. Clearly, there exists a complex interaction of biological and decision dynamics that evolves with age.[14] On the one hand, age affects biological processes and therefore lifecycle fertility. The older a woman is, the shorter her reproductive span, and the more limited her possibilities of having more children. Moreover, this being known by society, and to men in particular, the more limited an older woman's prospects in the marriage market will be. On the other hand, age influences the psychological state and behavior of women. Owing to social competition and pressures in the marriage market, as a single woman ages, her desire to marry becomes more urgent to ensure that she can marry before it is too late to obtain a good match. As a consequence, a higher age should make marriage more likely. Consistent with this perspective, the estimates show that the hazard rate of the marriage event[15] decreases regularly with respondent age in all our models. As the odds of a woman having children decline over time, the probability of marriage decreases. In addition, the desire to have children declines with age, as Cochrane and Guilkey (1995) argued for Tunisia in the 1990s. Interestingly, the number of children desired is found to have a significant positive impact on the hazard of marriage, accelerating it on average. As suggested, childbearing is a central component of the marriage decision.

We find that women who believe that they are able to fulfil both job and housekeeping tasks marry later, by almost eight months, which is significant at the 10 percent level. Diverse interpretations are possible. Overworked women may be less inclined to marry early and thereby to accumulate burdens with the prospect of childbirth. The results also show that, as in Wong (2005), (prior to marriage) employed women postpone marriage more than the unemployed women. This is consistent with raising children being a hindrance to career development and even securing a job. In addition, because of the simultaneous increases in women's female labor force participation and standards for a husband, the perceived number of marriageable men may decrease. This phenomenon has been found

[14] As argued, for example, in Bongaarts (2006), Bongaarts and Potter (1983) and Rosero-Bixby (1996).

[15] In this case, the hazard rate is the instantaneous rate of leaving celibacy.

to be more pronounced under growing male wage inequality, which may reduce the propensity to marry, as argued by Loughran (2002).[16]

A woman having a higher income, as proxied by the variable 'woman finances marriage' in these estimates, is associated with a higher hazard of being married. Contrary to findings by Palamuleni (2011) in Malawi, wealthier women who finance their own wedding in Tunisia marry approximately one year earlier, perhaps because they are more attractive financially to male suitors. As is usually found, urban women marry later, albeit only by approximately seven months. [17] This is consistent with women in urban areas being more educated, having more job opportunities, and being less traditional. However, in contrast to its effect on other decisions, which we discuss below, a woman's education has no significant effect on age at marriage. However, it is found that the few women with higher education in the sample tend to have married later; we do not report this variable in the table for consistency with the sets of covariates in the other equations and to avoid drawing conclusions based on too small a subsample.

Finally, we find that the presence of social and family networks, proxied by the variable 'family meeting place of partner', increases the hazard of the marriage event. Women belonging to a traditional family, which typically arranges the marriage, spend on average 15 months less on partner search. This is not surprising, since traditional Muslims often marry first cousins or other kin. In addition, this is confirmed by the effect of the variable 'family intermarriage' that accelerates marriage occurrence by almost one and a half years. Traditional families typically push for early marriage lest late marriage harm a girl's reputation and her marriage prospects. We now turn to the second-stage decision, the timing of the first birth control use after marriage.

3.2.   Marriage Duration before First Birth Control Use

Once married, a woman and her partner can more easily plan the size of their family. In some cases, the spell before her first birth control use can be extended if a woman's goal (or her family's goal) is

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[16] See also Brown and Norville (2001); Hirschman and Rindfuss (1980); and Macunovich (1996).

[17] For example, in Zahangir et al. (2008) in Bangladesh.

to achieve a moderate family size. The delay, here measured in years, may also be motivated by timing the births in relation to other objectives, such as schooling, career development, financial constraints due to wedding costs, or temporary health issues.

The variable 'desired number of children' is found not to intervene significantly in regulating fertility. It may make sense that a woman, or her partner, decides to start using birth control because they want at least one birth, while the total number of desired children may not matter much for the timing of the first use of contraception. Moreover, the couple may seek to have a definite number of children only after having had their first child. Finally, any contemporary measure of ideal family size would not provide exact information on the woman's, or the couple's, past motives for having children, as it imperfectly reflects retrospective opinions that are easily modified over time. For example, a woman may adjust her desire to changes in socioeconomic conditions that alter the perceived costs and benefits of children. In the case of undesired births, ex post revision of her family size preference may occur through ex post rationalization. That is, the stated desired number of children may inaccurately reflect what the woman desired when she made the decisions to marry and to first use birth control.

The older a woman is, the greater the likelihood she has used contraception soon after marriage. This is consistent with older women facing health risks earlier when giving birth and with older women having already had more offspring. Conversely, the husband's age is only slightly negatively correlated, at the 10 percent level, with the timing of the first use of birth control after marriage.

The difficulty of reconciling a woman's tasks as a housewife and a worker shapes fertility regulation after marriage. Consistent with the previously obtained results for age at marriage, a woman who is able to perform both professional and housekeeping tasks is significantly less inclined to use birth control early, with an almost two-year delay. However, her possible career plans, as measured by whether she was employed before marriage, do not affect the hazard rate of her initial use of birth control, perhaps because it is a pre-marriage variable. Indeed, while 37.7 percent of respondents worked before marriage, only 14.4 percent were still working at the time of the survey. In contrast, her husband's professional skill level and education do not affect the timing of first birth control use. This

may reflect the smaller role that the husband plays in the fertility timing decision, as fathers typically spend less time with children than mothers.[18] In contrast, women's education matters a great deal. Educated women first use contraceptives earlier after marriage, which contrasts with findings obtained by Bloom and Trussel (1984) in the US. Never-educated women delay birth control use by as much as 34 months on average.

The variable indicating frequent discussions between spouses significantly and substantially increases the risk of the birth control event—that is, diminishes the span without birth control—by more than five years on average. In couples that communicate well, the woman may not feel an obligation to have children immediately after her marriage to increase her likelihood of retaining her husband. Instead, early contraception takes place. This is the case, for example, for couples in which both spouses are enrolled in higher education and decide to complete their studies before having children.

Urban women have a higher hazard level—that is, contraception occurs on average fifteen months earlier. Sometimes regarded as an alternative measure of the costs of children, due to the presumably higher shadow price of children, residing in an urban area induces women to reduce their demand for children and hence to intensify contraception.

Belonging to a traditional family in which the marriage is arranged by the parents and the presence of family interference are found to delay the use of contraceptives by 13 and 16 months, respectively, perhaps because conservative values favor large family size. This is consistent with findings in the literature that family-arranged marriages are associated with higher fertility.[19] Moreover, the availability of financial parental assistance is found to significantly delay first birth control use by almost four years. In addition, beyond direct family pressure, parental financial assistance induces a positive income effect on fertility, which may lead the couple to adjust their family size upward and delay birth control use.

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[18] Consistent with Becker and Lewis (1973) and Schultz (1986).
[19] Ghimire and Axinn (2013); Hong (2006); Frini (2014).

3.3.   Contraceptive Use

The third regulation decision considered in this paper is captured by two dummy variables indicating whether a contraceptive is currently used or has ever been used.[20] It is typically difficult to elicit significant correlates of contraceptive use in the literature. For example, using data from Ghana, Johnson et al. (2012) only find effects (significantly positive) for two district-level variables: a general socioeconomic development index and population density. In our case, the estimated marginal effects from the respective probit models for the two contraception-use variables are shown in Table 4. We discuss them jointly because the significant effects are often similar in the two models.

The estimates again highlight familial influences as significant factors in determining fertility strategy. When family members are tightly knit through family intermarriage, encroachment on marital life, or intergenerational financial transfers, contraceptive devices are less often used, at the time of the survey or before. As in Ghimire and Axinn's (2013) findings in Nepal, the widespread erosion of family-arranged marriages may also have weakened resistance to contraception use in Tunisia.

Family interference, which is generally accompanied by opportunities for childcare by grandparents, often reduces the time that a woman has to devote to her children and thereby reduces her opportunity cost of having children. In that case, it gives her incentives to have more children and, as a consequence, diminishes her use of contraceptives. In line with the literature, benefiting from family childcare facilitates the coordination of a woman's roles as worker and housewife, thereby allowing higher fertility. [21] As in Del Boca (2002), Ermisch (1989), and Frini (2014), additional family childcare availability fosters fertility. In our estimates, the presence of family interference is associated with a similar decline in the probability of having used contraception at the time of the survey or ever by approximately 15 percent in both cases. Moreover, as previously found for the delay in the first use of birth control, the availability of parental financial support also allows for higher fertility by diminishing the likelihood of having ever used contraception by 29 percent and using it at

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[20] 'Are you using any contraceptive method at the moment?' and 'Do you have any experience of contraceptive practice?', respectively.
[21] See recent contributions by Aassve et al. (2012); Compton and Pollak (2011); and Rindfuss et al. (2007).

time of the survey by 35 percent. Finally, marriages arranged by families are also associated with an 11 percent lower use of contraception at the time of the survey.

A traditional sociocultural context still appears to be unfavorable to birth control use. Indeed, women who believe that having an additional child is a 'decision made by God' are half as likely to practice contraception. These women may often simply act as passive observers of their own procreation process. As in the equation for the delay in first birth control use, strong communication between spouses affects birth control use in the past (decreasing the probability of use by 40 percent) but not at the time of the survey. Similar to findings in Link (2011) and Sharan and Valente (2002), better communication between the husband and wife increases contraception use, at least in the past. This is consistent with contraception often being a decision made jointly by spouses.

A woman's age positively affects her contraceptive use, at the time of the survey and in the past. Although many respondents are observed around the end of their reproductive period (49 percent are 37–49 years old), there is sufficient variation in the age variable to reveal a decline in the need and capacity for children with age (by between one and three percent per year), as women approach the end of their fertile period. However, the husband's age does not influence contraceptive use.

A woman having more education is associated with greater use of contraception, whether in the past (a 22 percent increase in the probability of use relative to women with no education) or at the time of the survey (a 15 percent increase). The literature has long shown that women's schooling favors better knowledge and more effective and intensive use of contraceptive methods.[22] The effect of education may also be related to labor market participation. For example, Adebowale et al. (2014) find that more-educated Malawian women are more likely to be engaged in professional activities and, as a consequence, more likely to want to limit their number of children. As before, male education does not influence the contraception decision, in contrast to Cochrane and Guilkey's (1995) findings for Tunisia in 1988.

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[22] Rosenzweig and Schultz (1989); Chen et al. (1990); Schuler et al. (1997).

The effect of the compatibility between the woman's two roles as housewife and worker negatively impacts the probability of past contraceptive use (by 15 percent), although it is insignificant for current use. Perhaps this compatibility matters mostly in the early lifecycle, when the woman is attempting to establish her career. If this were the case, it would correspond generally to some 'past use' of contraceptives and explain the results. However, this is not supported by the other variable on careers (woman employed before marriage), which has no significant impact on contraceptive use, either at present or previously. Moreover, the husband's skill levels and residency in urban areas are not associated with fertility control in this case.

The number of children desired is negatively associated with current contraceptive use, as in Bollen et al. (1995) for Tunisia in 1988, but only slightly at negative four percent per additional child, and it does not significantly affect past use. This may be because past contraceptive use is not directly related to the current number of children desired because fertility goals may change over time and are only binding when reached. In addition, the contemporaneous use of contraceptives at the time of the survey is often associated with the youngest women in the observed sample, who have a short fertility history. In that case, the stated number of children desired should relatively accurately express their motivation for fertility regulation. In contrast, large spells of past regulation often correspond to older women who have a long fertility history and have adjusted their desire for children over time.

Finally, the use of contraceptives is also related to health. Lost pregnancies, which may be a sign of health problems, seem to induce women to avoid sexual relationships and thereby the probability of contraceptive use by almost one-third, in the short and long run.

3.4.   Birth Control Methods

Once the decision to use a contraceptive is made, a woman has to select a birth control method. This matters, first, because different methods may have different rates of failure. Hotz and Miller (1993) found that US couples use more efficient contraceptives when they have more children, which may be

the result of having experienced several methods over time. The methods also affect sexual pleasure and comfort differently. For example, Rosenzweig and Schultz (1989) found in the US that the more educated couples were, the more sexually satisfying the methods they chose, while they also achieved better protection due to greater knowledge. Methods may also differ in their availability and in their cost when they are not free.

We estimate a multinomial logit model in which IUD is the base category, as this is the most frequent alternative (58 percent). The other categories are calendar methods, a combination of the pill, IUD, and the calendar method, and other methods. This division both preserves sufficient frequencies in all alternatives and allows for meaningful analyses. The estimates are reported in Table 5.

Only a few effects appear to be significant. Conditional on the list of independent variables included in the multinomial model, which appear insignificant when comparing these choices, IUD and the pill are found to be substitutable. Indeed, none of the introduced effects significantly distinguishes the use of IUD from the use of the pill. This is interesting because these two methods give a woman more decision power over birth control.

A woman's age increases the probabilities of using all methods other than the pill and IUD. This is the case for using the calendar method or various combinations of methods, including (or not) the calendar. This may involve cohort issues, as some older women did not have as much choice of methods in their early fertility span as are available today. Once again, the husband's age does not influence the choice of birth control method.

Living in an urban area and women being more educated are positively associated with the use of the calendar method relative to IUD (and the pill), regardless of whether the calendar method is considered in isolation or grouped with IUD and the pill. Specifically, 79 percent of urban women and 86 percent of educated women use the calendar method, while only 21 percent of rural women and 14 percent of the non-educated women do. The opposite result was found in the very different context of Ethiopia, where educated women and urban women tended to use modern contraception (Lakew et al.

2013; Mekonnen and Worku 2011). This may be related to the fact that the calendar method, based on monitoring one's fertility each month, requires the husband's cooperation. In urban areas, men are often more open minded and cooperative, which may facilitate the use of the calendar method instead of IUD. For example, a husband having a positive attitude toward contraception was found to facilitate an increased use of contraceptives in Cameroon (Pillai and Teboh 2011). Additionally, urban women have a greater tendency to use a diverse mix of methods. As women's education seems to favor the calendar method (whether on its own or combined with the pill and IUD), it may be that the calendar method requires some minimal knowledge of mathematics for efficient application. More active women, as measured by having been employed before marriage, are more likely to choose a diverse mix of other methods of contraception, perhaps because this mix better fits the more diverse circumstances encountered in an active life.

Again, male education and skill levels do not intervene in fertility regulation, beyond a slight negative effect (at the 10 percent level) of being an unskilled worker on preferring the calendar method. In these data, as opposed to Cochrane and Guilkey (1995), women's education affects the choice of method, while the husband's education does not matter much.

Finally, the number of children desired is not correlated with the choice of method. This suggests that all methods may be perceived as sufficiently efficient means of birth control by the surveyed women. In addition, most of the family relationship variables we consider, whether with the husband or the rest of the family, do not affect a woman's choice of method. For instance, this is the case for communication between spouses, family intermarriage, and encroachment on marital life, which were nonetheless correlated with the previously considered decisions.

However, a deficit in female autonomy measured by the obligation to have a relative accompany the woman when she visits a health center is positively and significantly correlated with the use of methods not hindered by this restriction, as opposed to IUD, which requires visiting a doctor to obtain a prescription. In general, greater female autonomy has been found to contribute to increasing contraceptive use (Sallee 2000). We find that it may also affect which kind of contraceptive is used.

Finally, descending transfers are positively and significantly associated with a lower occurrence of the combination of the calendar method, the pill, and IUD.

It is worth considering these results in terms of beneficial or undesirable consequences for (1) efficiency, (2) pleasure and comfort, and (3) health. In doing so, the main comparison we can consider is between IUD/the pill on the one hand and the calendar method on the other. IUD and the pill are more efficient than the calendar method. However, they may be less comfortable and create health problems. Using condoms provides the best protection against venereal diseases, while the calendar method and IUD do not protect against sexually transmitted diseases. In contrast, IUD is very efficient birth control; it is followed in this respect by the pill, which has good efficiency unless the patient forgets to take it, while the other methods may involve rare accidents that allow for unwanted births. In terms of comfort outcomes, condoms are the least comfortable method, while calendar is the most comfortable method, and IUD and the pill occupy an intermediate position. Focusing mostly on the comparison of IUD and the pill with the calendar method, we may attempt to deduce the consequences for some significant correlates in the estimation. In this respect, a woman being young is the variable that has the best consequences because it simultaneously improves efficiency, comfort, and health. In contrast, roughly speaking, a woman's education and a rural location have positive impacts on efficiency but negative impacts on comfort and health. This is mostly because the calendar and associated methods are less efficient and do not protect well against sexually transmitted diseases, while they are more comfortable.

4. Conclusion

In this investigation, we consider fertility decisions made by married women and their families in Tunisia through several consecutive choices: age at marriage, marriage duration at the first contraceptive use, contraception decision, and choice of method. A sequential perspective makes it possible to better capture distinct lifecycle stages, given, for example, concerns about completing schooling or professional establishment early in life, then fertility plans, and finally health concerns.

This approach may reveal the successive motivations of women, couples, and families that can help us to better grasp the overall birth control trajectory.

Although strict causal inference is not possible with cross-sectional data, the correlations obtained here provide suggestive explanations that call for additional collection efforts to better identify lifecycle decisions of family members and the precise interaction with the extended family. Only the woman's age is a significant correlate in all the estimated successive birth control decisions. The other independent variables appear to differently affect the different stages. Some of these factors are notably not influential, such as the number of children desired, which has no significant effect on contraceptive choice or first birth control timing, although its effect is significant for the age at marriage, and the education of the woman, which has no effect on age at marriage but does on delaying first birth control use.

Among our main findings is the ubiquitous influence of the family on a woman's birth control strategies. In particular, the availability of family childcare and parental financial assistance and direct family pressure likely make a couple less inclined to limit fertility. Thus, failing to consider the husband and other extended family members may make family planning policies less efficient in Tunisia.

This work has a number of policy implications. Although we cannot assess using these data the direct effects of social policies or the changes in services offered on contraception practices, it is nevertheless valuable to draw tentative policy lessons. The successive motivations of women have also suggest that family planning policies should be more a matter of 'fine tuning' than a simple focus on the general target of the number of children as the exclusive fertility objective pursued by women and their families. In particular, the fertility decision—that is, having a child or not—and the number of children desired or the spacing of births have sufficiently distinct correlates that policy designs addressing these dimensions should be distinct.

Additionally, policy-makers should take greater consideration of the extended family when designing family planning programs. For example, fertility surveys could be directed not only toward women but also husbands and their families. Moreover, media and advertising campaigns for fertility monitoring should also be targeted at men and families, not just women. Finally, future research should incorporate more sequential perspectives on women in relation to family interactions within fertility processes. This broader perspective suggests that the resurgence of traditionalist politico-religious movements, sometimes associated with youth radicalization, may affect future fertility regulation.

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Appendix

Table 1. First birth control

	Marriage duration before first birth control use			Number of surviving children before first birth control use		
	Marriage duration at first birth control use by region	Marriage duration at first birth control use by education level		Surviving children at first birth control use by region	Surviving children at first birth control use	

Age					Average			by education level		Average
	Urban	Rural	Illiterate	Educated		Urban	Rural	Illiterate	Educated	
20–24	1.22	1.59	1.59	1.28	1.37	0.94	1.12	1.14	0.96	1.01
25–29	1.85	2.54	3.07	1.77	2.10	1.15	1.51	1.62	1.17	1.28
30–34	2.05	3.94	3.89	1.94	2.64	1.18	1.99	1.95	1.15	1.44
35–39	2.82	5.76	5.19	2.70	3.62	1.45	2.70	2.41	1.42	1.79
40–44	4.17	6.93	6.80	3.80	5.03	2.02	3.13	3.06	1.87	2.37
45–49	5.10	10.11	8.76	4.09	6.56	2.35	4.25	3.76	1.96	2.91
Total	3.16	5.60	5.84	2.71	3.92	1.61	2.63	2.68	1.46	1.93

Table 2. Descriptive statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max
Dependent variables					
Woman's age at marriage	3,175	21.61	4.20	10	45
Marriage duration before first birth control use	2,595	4.28	4.77	0	28
Contraceptive currently used	3,175	0.62	0.48	0	1
Contraceptive ever used	3,175	0.82	0.38	0	1
Pill	3,170	0.43	0.49	0	1
IUD	3,172	0.58	0.49	0	1
Calendar	3,122	0.19	0.39	0	1
Modality grouping implant, injection, tying tubes, gel, coïtus, condom…	3,175	0.37	0.48	0	1
Modality grouping pill, IUD and calendar	3,175	0.38	0.48	0	1
Independent variables					
Woman's age	3,175	35.85	7.45	16	49
Husband's age	3,175	42.95	9.44	22	99
Woman never educated	3,173	0.37	0.48	0	1
Husband educated	3,165	0.82	0.38	0	1
Job and housekeeping compatibility	3,137	0.59	0.49	0	1
Woman employed before marriage	3,175	0.32	0.46	0	1

	N	Mean	SD	Min	Max
Husband skilled worker	3,094	0.14	0.35	0	1
Husband unskilled worker	3,094	0.62	0.48	0	1
Urban	3,175	0.60	0.48	0	1
Woman finances marriage	3,175	0.00	0.01	0	1
Couple finances marriage	3,175	0.00	0.04	0	1
Family interference	3,029	0.52	0.49	0	1
Descending financial transfers	3,175	0.06	0.24	0	1
Family intermarriage	3,172	0.45	0.49	0	1
Family meeting place partner	3,175	0.69	0.46	0	1
Discussion between wife and husband	3,175	0.97	0.15	0	1
Companion to health center	3,174	0.24	0.43	0	1
God gives baby	3,175	0.01	0.13	0	1
Lost pregnancies	3,175	0.09	0.28	0	1
Number of desired children	3,175	3.23	1.46	0	16

Table 3. Estimates of Weibull duration models (estimated coefficients)

Woman's age at marriage		**Marriage duration before first birth control use**	
Woman's age	-0.022***	Woman's age	0.0134***
	(0.0038)		(0.003)
Woman never educated	-0.0632	Husband's age	-0.00539*
	(0.078)		(0.002)
Job and housekeeping compatibility	-0.149***	Woman never educated	-0.231***
	(0.058)		(0.058)
Woman employed before marriage	-0.359***	Husband educated	0.0475
	(0.066)		(0.072)
Urban	-0.139*	Job and housekeeping compatibility	-0.14***
	(0.071)		(0.054)
Woman finances marriage	0.213***	Woman employed before marriage	0.0736
	(0.066)		(0.060)
Family intermarriage	0.161**	Husband skilled worker	0.085
	(0.063)		(0.093)
Family meeting place partner	0.290***	Husband unskilled worker	-0.046
	(0.067)		(0.063)
Number of desired children	0.0903***	Urban	0.109**
	(0.016)		(0.054)
		Descending financial transfers	-0.309***

				(0.106)
		Family interference		-0.112**
Constant	-15.84***			(0.052)
	(0.434)	Family intermarriage		-0.0925*
				(0.052)
		Discussion between wife and husband		0.422***
				(0.148)
		Number of desired children		-0.0098
				(0.016)
		Constant		-2.187***
				(0.266)
Observations	3,132	Observations		2,901

Note: Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

Table 4. Probit model estimates of contraceptive use at the time of the survey and ever used (marginal effects)

	Contraceptive use at the time of the survey	Contraceptive ever used
Woman's age	0.0103***	0.0277***
	(0.003)	(0.004)
Husband's age	0.0011	-0.0039
	(0.002)	(0.003)
Woman never educated	-0.150***	-0.222***
	(0.05)	(0.06)
Husband educated	0.014	0.059
	(0.06)	(0.07)
Job and housekeeping compatibility	-0.080	-0.147**
	(0.04)	(0.05)
Woman employed before marriage	0.0072	0.009
	(0.05)	(0.06)
Husband skilled worker	-0.019	0.146
	(0.08)	(0.10)
Husband unskilled worker	-0.029	-0.007
	(0.05)	(0.06)
Urban	-0.0006	0.069
	(0.05)	(0.06)

Descending financial transfers	-0.352***	-0.290**
	(0.09)	(0.11)
Family interference	-0.146***	-0.158***
	(0.04)	(0.05)
Family intermarriage	-0.106**	-0.080
	(0.05)	(0.05)
Discussion between wife and husband	0.155	0.391**
	(0.15)	(0.16)
God gives baby	-0.583***	-0.475**
	(0.18)	(0.18)
Lost pregnancies	-0.289***	-0.330***
	(0.08)	(0.08)
Number of desired children	-0.0385**	-0.025
	(0.01)	(0.01)
Constant	0.187	0.102
	(0.25)	(0.29)
Observations	2,901	2,901

Note: Robust standard errors in parentheses *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 5. Multinomial logit: method choice (estimated coefficients with base category IUD)

	Pill	Calendar	Implant, injection, tying tubes, gel, coitus, condom…	Grouping of pill, IUD and calendar
Woman's age	-0.008	0.0666***	0.0699***	0.0600***
	(0.01)	(0.02)	(0.01)	(0.009)
Man's age	0.013	-0.012	-0.003	0.0004
	(0.01)	(0.01)	(0.008)	(0.006)
Woman never educated	-0.211	-1.180***	0.234	-0.375**
	(0.21)	(0.42)	(0.17)	(0.15)
Husband educated	-0.225	-0.167	0.064	0.129
	(0.27)	(0.41)	(0.19)	(0.16)
Woman employed before marriage	0.028	0.224	0.337**	0.179
	(0.24)	(0.31)	(0.16)	(0.14)
Husband skilled worker	-0.142	-0.662	-0.261	0.147
	(0.40)	(0.48)	(0.27)	(0.21)
Husband unskilled worker	0.267	-0.615*	0.021	-0.106
	(0.27)	(0.32)	(0.18)	(0.16)
Urban	-0.282	1.108***	-0.353**	0.322**

	(0.22)	(0.41)	(0.15)	(0.14)
Descending financial transfers	0.390	-0.227	-0.519*	-0.667**
	(0.39)	(0.54)	(0.29)	(0.26)
Family intermarriage	0.386*	-0.373	0.122	0.036
	(0.22)	(0.34)	(0.15)	(0.13)
Family interference	-0.20	0.23	-0.14	-0.088
	(0.21)	(0.30)	(0.14)	(0.12)
Discussion between wife and husband	0.669	1.052	-0.192	0.774*
	(0.75)	(1.09)	(0.39)	(0.41)
Companion to health center	0.316	0.511	0.393**	0.069
	(0.25)	(0.35)	(0.17)	(0.15)
Number of desired children	-0.129	-0.023	0.035	-0.016
	(0.08)	(0.09)	(0.05)	(0.05)
Constant	-1.591	-4.869***	-2.389***	-2.16***
	(1.10)	(1.76)	(0.75)	(0.68)
Observations	2,426	2,426	2,426	2,426

Note: Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1