Replacement-Level Fertility in Egypt: Obstacles and Facilitating Factors

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ABSTRACT

The most recent estimate of the total fertility rate in Egypt is 3.2, i.e. one child above replacement-level fertility. The national population policy stipulates achievement of replacement-level fertility by 2017. Working against further fertility decline are the expressed desires of a large fraction of reproductive-age women to have at least three children. Even among women under age 30, roughly one-half profess three children as their ideal number. In this paper we investigate the fertility desires of Egyptian women under age 30, currently married and never married, using recent national survey data. The focus is the desire to have two (or fewer) children, as against three (or more) children, the critical distinction in mid-fertility societies such as Egypt. We hypothesize that, in addition to standard background variables (such as region and type of place of residence, educational attainment, and household wealth), the desire to have just two children is influenced by four factors: perceived costs and benefits of children; preferences concerning the sex of children; gender roles (intra- and extra-household); and economic stress and anxiety (concerning the present and the future). The latter is rarely considered in research on fertility desires in low-income countries, despite ample evidence from qualitative research that micro-economic considerations bear heavily on fertility demand. The survey data offer multiple indicators of each of the four factors. Regression analysis provides evidence for net and relatively powerful effects of each factor. Especially deserving of emphasis are the effects of son preference – large in magnitude, and pertinent for a substantial fraction of women – and the effects of economic stress and anxiety. Achievement of replacement-level fertility in Egypt will, it would appear, require major further transformation in reproductive attitudes and behaviors.

I. Introduction

According to the most recent estimates of the United Nations (United Nations 2005), about one-third of the world's population currently lives in countries with a total fertility rate [TFR] between 2.50 and 4.49:

TFR Range	Number of Countries	Total Population (000s)	Percentage of World's Population
2.50 – 2.99	18	318.6	4.9
3.00 – 3.49	11	1435.8	22.2
3.50 – 3.99	15	91.7	1.4
4.00 – 4.49	12	241.1	3.7
Total	56	2087.2	32.2

The most populous country in this range is India, with a TFR of 3.07 and a population of 1.1 billion. But also included are Pakistan (TFR = 4.27, population = 158 million), Bangladesh (TFR = 3.25, population = 142 million), the Philippines (TFR = 3.22, population = 83 million), and Egypt (TFR = 3.29, population = 74 million). Virtually all of these 56 countries have experienced substantial reductions in the TFR – one birth or greater – from pre-transition levels. And yet they remain some distance above replacement-level fertility (taken as a TFR of 2.1). In this paper, we shall refer to this set of countries as "mid-fertility" societies.

The view that these fertility declines are relatively recent, and can be assumed to be on their way to replacement-level fertility, applies to some but hardly all of these countries. Fertility decline in India (TFR=3.1) appears to have begun in the 1950s and was certainly well underway in the 1960s, i.e. four decades ago. Caldwell perceived glimmerings of fertility decline in Ghana (TFR=4.4) as of the mid-1960s, i.e. four decades ago. Colombia (TFR=2.6) was already a celebrated rapid decline as of the late 1970s, i.e. twenty-five years ago[1], while Bangladesh's (TFR=3.2) rapid decline through the 1980s drew considerable attention from policy-makers and scholars during the 1990s. Egypt (TFR=3.3) and the Philippines (TFR=3.2) enunciated national policies of curbing population growth and launched well-financed family planning programs in the 1960s, i.e. roughly four decades ago. To be sure, there are counter-balancing cases of rapid declines to replacement-level fertility (or below): all of East Asia, Thailand, Sri Lanka, Iran. But one can argue that these "success stories" have exerted undue influence on prevailing views about the nature of fertility decline and prospects for future decline. As much, or more, might be learned

[1] Indeed, it is striking how much of Latin America – with its high levels of urbanization and education and economies that are largely non-agricultural – falls into this mid-fertility range: all the Andean countries, from Venezuela south to Bolivia (plus Paraguay); and all of Central America, with the exception of Costa Rica.

from countries that have not followed a trajectory of rapid decline to replacement level.

Influential analyses of future population prospects have taken as given that fertility in all countries will proceed relatively rapidly – and, seemingly, without much difficulty -- to replacement level (Bongaarts 1994). A more recent National Academy of Sciences report (Bongaarts and Bulatao 2000) takes a somewhat more equivocal stance but appears to endorse the view that replacement-level fertility (or lower) will be the nearly universal outcome. Among the factors assumed to make this possible is social diffusion, breaching the barriers presented by slow economic development and culture (Bongaarts and Watkins 1996, Cleland and Wilson 1987). The United Nations has, at least implicitly, embraced this view -- "Total fertility in all countries is assumed to converge eventually toward a level of 1.85 children per woman" (United Nations 2005) – although the new set of UN projections allows for somewhat more variability in the speed at which this post-transition level is reached than did past UN projections.

Our view is that the level of post-transition fertility – whether close to replacement-level, or above or below this level – should be regarded as an open question for many of these societies.[2] A post-transition level of 1.85 births per woman is conceivable, but so too is a level of 2.35 births per woman (or perhaps even higher). The ultimate level will be a joint function of fertility demand and the extent to which this demand is fulfilled. As is the case in many contemporary Western societies (Bongaarts and Bulatao 2000, Goldstein *et al.* 2003, Quesnel-Vallée and Morgan 2003), achieved fertility may fall short of desired fertility in some settings. But where a large fraction of women's reproductive years are spent sexually active and where neither sterilization nor induced abortion are readily available as birth control mechanisms – conditions that currently obtain in a number of the mid-fertility societies – the risk of unwanted births is relatively high, and restraining achieved fertility at two births per woman on average is accordingly difficult to accomplish (Costello and Casterline forthcoming).

This brief, and admittedly superficial, discussion provides the backdrop for our examination of current fertility in Egypt, which, as indicated above, is among the populous countries where the current level of fertility is well above replacement level. A sustained decline in fertility in Egypt began in the 1960s (Robinson and el-Zanaty forthcoming). After a rapid decline during the 1980s that continued though the first half of the 1990s, in the second half of the 1990s the pace of decline appeared to slow or even come to a halt (Eltigani 2003). But the decline resumed again in the early years of this decade, and the 2003 Egypt Interim DHS [EIDHS-03] estimates the TFR for 2000-2003 as 3.2, about one-quarter birth less than the estimate for 1998-2000. Achieving replacement-level fertility, in order to bring a halt to population growth, is an

[2] Our view that the level of post-transition fertility is very much an open question concurs with Morgan (2003). But, contrary to our position, he accepts the proposition that declines in fertility inevitably proceed to replacement level or below.

explicit national goal, as re-iterated in periodic Presidential pronouncements and frequent ministerial statements. The current policy goal is replacement-level fertility by 2017.

Elsewhere we have shown that reducing fertility in Egypt from its present level to replacement level requires reductions in both wanted and unwanted fertility (Casterline and Roushdy 2005, Casterline and el-Zeini 2005b). The EIDHS-03 estimates the wanted TFR as 2.5 births per woman,[3] and our analysis of these same survey data indicates that 54 percent of reproductive-age women want three or more births.[4] Without denying the potential demographic impact of reducing unwanted fertility (Casterline and el-Zeini 2005b), replacement-level fertility appears improbable until a two-child target predominates among reproductive-age couples.

With this underlying rationale, in this paper we examine in some detail the determinants of Egyptian women's desires to have two (or fewer) children, as against three or more. From the standpoint of fertility demand, this is the decisive choice in Egypt at this historical juncture. Survey data collected in 2003-04 afford an unusual opportunity to consider a variety of factors hypothesized to bear on the preference for two children.

II. Conceptual Framework

To organize the determinants of fertility desires, we propose a simple framework that nevertheless encompasses a diverse set of variables. The outcome of interest is the desire for a small family, defined as two children (or less). Such desires are posited as a function of four major factors:

- Perceived costs and benefits of a small family
- Preferences for the sex of children
- Gender roles (intra- and extra-household)
- Economic stress and anxiety

We consider each factor in turn. The discussion is deliberately concise, with a highly selective citation of the relevant literature.

[3] Casterline and el-Zeini (2005b) submit a revised and lower estimate of wanted fertility, but argue that a substantial fraction of unwanted fertility in Egypt can be attributed to ambivalence about family-size desires and weak commitment to the goal of two children.

[4] This estimate is based on the same composite measure of fertility desires that is employed in the present analysis. See Section III below.

Costs and Benefits of a Small Family

We use the term "small family" to refer to a small number of children, and specifically two or less. At issue are the perceived costs and benefits of restricting childbearing to two (or less) as against three (or more). "Costs and benefits" encompasses the full range of gains and losses from having children – economic, social, and psychological. These have been elaborated in a vast literature that has accumulated during the past four decades. Concise conceptualizations that remain useful are Bulatao (1981) and Fawcett (1983).[5]

Three features of this construct deserve some emphasis. First, at issue are the costs and benefits of children and child-bearing irrespective of other individual, household, and family constraints. That is, these are the perceived intrinsic costs and benefits of children and child-bearing, which of course must then be weighed against other factors. Were this a micro-economic specification, the utility function would include the satisfactions/dissatisfactions derived from children – the factor identified here -- as well as various constraints (income, time). The implication is that, in attempting to measure perceived costs and benefits, to the extent possible these should be abstracted from existing constraints (except to the extent these constraints are part-and-parcel of the costs/benefits of children *per se*).

Second, it is perceived costs and benefits that are posited as affecting fertility desires. These perceptions in turn may be derived from individuals' personal experience of parenting, or from their observation of other persons' experiences, or from significant cultural systems (mass media messages, religious doctrine), or from childhood and adolescent socialization (in turn drawing on all of the just-mentioned sources). The source of the perceived costs and benefits, and the forces that lead to change in perceived costs/benefits, are themselves important topics for research.

Third, the construct of interest is the perceived costs and benefits of a small family as against a larger family (i.e. three or more children). This is a critical distinction in contemporary Egypt and, we suspect, in many other mid-fertility societies. The key question is not the rather general one of whether or not children have value, but rather the perceived net value of a third (or higher order) child. That is, the theory allows for potential costs and benefits to vary by birth order, and hence the empirical challenge is to determine the patterning of perceived costs and benefits by birth order – the extent to which they are fixed or, if they vary, the nature of this variation (e.g. after which birth order costs sharply increase and/or benefits sharply decline). This suggests research akin to Bulatao's (1981) on variation in the value of children by birth order,

[5] Note that both of these pieces are products of the Value of Children project based at the East-West Center in Hawaii in the 1970s. It is striking that this line of inquiry has almost vanished from research on fertility in pre- and mid-transition societies during the past two decades.

although our strategy for investigating this empirically is different than his.[6]

Preferences for the sex of children

Preference for sex of children can pose an obstacle to an acceptance of the two-child family. At issue are a preference for sons (at least one, preferably two), and a preference to have both a son and a daughter. A preference for sons has previously dominated in Egyptian society, reflecting the perceived greater net value of sons as against daughters. In itself, son preference encourages the one-quarter of women with two children who have no sons to proceed to a third child, and it might even encourage the further one-half of women with just one son to proceed to a third child in an effort to have a second son. Note, however, that a desire to have both a son and a daughter in principle works more strongly against a small family than does simple son preference: whereas three-quarters of women with two children are expected to have at least one son, only one-half will have both a son and a daughter. Most facilitative of the two-child family is indifference about sex of children.

Gender roles (intra- and extra-household)

A second but distinctive gender factor is the definition of gender roles within and outside the household, which in turn affects how the costs of child-rearing are distributed between men and women (and, in particular, husbands and wives). Demographic research during the past decade has singled out this factor as determinative of variation in levels of aggregate fertility among low-fertility societies (e.g. Chesnais 1996, Bongaarts and Bulatao 2000, McDonald 2000, Morgan 2003) – where women bear a relatively larger share of the costs of child-rearing, fertility is lower. The relative costs borne by women are, in turn, affected by a number of variables, most notably: division of labor in the household; availability and cost of non-maternal child-care (kin- or market-based); women's labor market opportunities (i.e. the opportunity cost of child-rearing). (For an excellent discussion of the latter two variables, with literature review, see Rindfuss *et al.* 2003.)

How this factor influences fertility decisions – and specifically the decision about whether to proceed to a third (or higher-order) child -- in mid-fertility societies such as Egypt is a different matter. Our hypothesis on the face of it runs counter to the explanation just-described for variations in levels of fertility among low-fertility societies.[7] As articulated by Mason (1993,

[6] As will be evident in Section III, in our fieldwork in Egypt we did not exhaustively assess perceived costs and benefits of children order-by-order, rather took a shortcut and focused on the distinction between small and large numbers of children.

[7] A reconciliation of these two apparently contradictory theoretical stances is outside the bounds of this paper. Suffice it to say that the critical and inter-related issues are (i) allocation of child-rearing costs (absolute costs) by gender, and (ii) allocation of child-bearing decisions by gender.

2001), we expect that a transition towards adult roles for men and women that result in less marked gender differences will, *ceteris paribus*, lead to desires for a smaller number of children. That is, to the extent that men and women carry more similar intra-household and extra-household responsibilities, a desire for two (or fewer) children will be more prevalent. This is the direction of the effect because in societies such as Egypt, for multiple reasons, a trend towards more similar gender roles increases the net costs – both direct costs and opportunity costs – of children for the husband and wife considered jointly. Furthermore, to the extent the issue is attitudes towards gender roles, these are embedded in larger value changes about the family that on balance support the emergence of small-family norms (Thornton 2005).

Economic stress and anxiety

Systematic attention to the determinative role of micro-economic attitudes is a distinguishing feature of our research in Egypt. In deciding to invest substantial effort in measuring economic attitudes, we were heavily influenced by existing empirical evidence from developing countries, much of it qualitative, in which economic concerns consistently come to the fore when reproductive-age adults are asked for reasons for restricting family size (Casterline 1999). A generic response in this body of evidence is, "everything costs so much these days, who can afford to have a large family?" Expressions of this sentiment are typically accompanied by descriptions of household economic distress – difficulties in affording the goods and services required to satisfy basic needs – and admissions of deep worry about future economic prospects. Occasionally respondents also articulate a more positive view that children from small families will be better positioned (because they are healthier and/or because they have more schooling and/or because of relatively larger property inheritance) to take advantage of the opportunities for financial success in the emerging modern segments of the economy (i.e. an acknowledgement of the quantity-quality trade-off). But the more commonly expressed attitudes are of economic distress and anxiety, leading to deep misgivings about the affordability of higher-order births.

Elsewhere (Casterline 1999) we have described this motivation to restrict childbearing as reflective of a disjuncture between economic aspirations and economic expectations – where aspirations substantially exceed what is expected, children are viewed as especially unaffordable. This is a variant of "relative deprivation" theory, originated by Stouffer and collaborators in the 1940s (Stouffer *et al.* 1949). At the heart of this theory is comparison – individuals' comparisons of their circumstances with a selected standard for judging whether they are doing well or poorly. In its original formulation, relative deprivation theory hinged on social comparison, but as reformulated in subsequent decades the standard for comparison is not exclusively other persons' circumstance but, more fundamentally, comparisons with individuals' notions of what they are entitled to have or would like to have (Tajfel 1981, Folger 1986, Olson and Roese 2002). A

related stream of literature in economics, to which Richard Easterlin (1974, 1995) has made seminal and provocative contributions, has developed the concept of relative income.[8] This concept has recently been revived in economics via an emphasis on "subjective poverty" (Ravallion and Lokshin 2002, Carletto and Zezza 2004). In an exciting piece by a leading development economist that is roughly consonant with our argument about childbearing decisions, Ray (2004) posits that it is the "aspirations gap" – the difference between the standard of living aspired to and the standard of living actually experienced – that affects micro-level future-oriented behavior in developing economies. Child-bearing decisions certainly rank among the more consequential future-oriented decisions that individuals must make.

This renewed interest in "subjective well-being" and "subjective poverty" has received several distinct articulations that lend themselves to empirical investigation, including: (i) consumption adequacy – i.e., is consumption of certain goods and services insufficient (however that is defined)? (Pradhan and Ravallion 2000); (ii) vulnerability – i.e. what is the risk of inadequate consumption in the future? (Dercon 2002); and (iii) simple economic expectations, as assessed *ex post* or *ex ante* – i.e. has the household's economic situation improved or worsened during the past year, and what is anticipated during the next year? (e.g. Kedir and McKay 2003).

How to extract from this complex of concepts and arguments some propositions that might be applied to fertility demand, and in particular the desire to restrict fertility to just two children? We propose two key constructs and accompanying hypotheses:

1. *Current economic stress*. By "stress" we mean an inadequacy of current living standards and current consumption, with determination of the standard for assessing adequacy residing with the respondent not the researcher (i.e. at issue is "subjective well-being", not objective material circumstances). Our hypothesis is that those reproductive-age adults who feel more distressed are more likely to favor a small family.

2. *Anxiety (vs. optimism) about future economic prospects*. It is assumed that individuals have notions about how their economic situation is trending. This may be with respect to themselves, or their family/household, or the economy more generally. And it may be formulated in various time-frames (short-term or long-term). As with *current economic stress*, embedded in judgments about trends in economic well-being are standards by which economic well-being is assessed; that is, again at issue is "subjective well-being". Our hypothesis is that those persons who

[8] Easterlin has also been instrumental in applying this concept to fertility; see Easterlin (1966) and Easterlin *et al.* (1980). His student Macunovich has continued to refine and test Easterlin's relative income hypothesis in research on U.S. fertility (Macunovich 2002), with persuasive results.

are more pessimistic about their future economic prospects are more likely to favor a small family.

III. Data and Methods

III.A. Data and sample

We analyze survey data collected under the "Stalled Fertility Transition" [SFT] project, which has been a collaboration between the Population Council (Cairo) and the Cairo Demographic Centre.[9] The principal objective of the SFT project was to explore in depth, and from multiple perspectives, attitudes towards childbearing. The questionnaire included extensive investigation of fertility desires and family-size attitudes, and batteries of items about the advantages and disadvantages of having children, and more specifically the advantages and disadvantages of having two children only. There is explicit questioning about the child quantity-quality tradeoff. Other items link childbearing to women's roles in the household and marriage. For more detail about this survey and descriptive analysis of the data, see Casterline and Roushdy (forthcoming).

The SFT re-interviewed a nationally representative sub-sample of 3286 currently married women aged 15-44 who had previously been interviewed in the 2003 Egypt Interim DHS [EIDHS-03] (el-Zanaty and Way 2004). The present analysis draws almost entirely on information gathered in the SFT interview, although all information obtained from these women in the EIDHS-03 is also available. The data collection occurred during the period April–June 2004, with the elapsed time between the EIDHS-03 and SFT interviews being eleven months on average. About 83% of the women selected for re-interview were successfully interviewed. In addition, the SFT selected nationally representative samples of young (ages 18-29) never married women and men (n=909 women and n=953 men). These samples were also interviewed during April-June 2004.

For the present analysis, the sample of never married women is merged with the sample of currently married women. Our aim is to model the desire for two or fewer children (as against a desire for three or more children). To this end, the population of interest is women for whom having two children remains a choice. This is not the case for women who already have three or more children. Nor is this the case for women at older reproductive ages who have two children or less – arguably, the decision to stop at two or less was made some time in the past. With these considerations in mind, we limit the analysis to women under age 30 who have two or fewer living children. These selection criteria yield a sample (weighted) of 1849 women, of whom 54 percent are currently married. Note that this constitutes a nationally representative sample of never

[9] Financial support for the data collection was provided by the USAID and CIDA.

married and currently married women aged 18-29 of low parity, plus currently married women aged 15-17. (Missing from these age-cohorts are small fractions of divorced and widowed women.) We will refer to this merged sample, selected on age and number of living children, as "young women".

III.B. Measurement of the key explanatory variables

From our reading of the research literature on mid-fertility societies and, more specifically, our familiarity with existing evidence on fertility in Egypt, we select four factors as key determinants of the desire for two or fewer children, namely:

- Perceived costs and benefits of a small family
- Preferences for the sex of children
- Gender roles
- Economic stress and anxiety

The SFT offers multiple measures of each of these factors. In this section, we briefly describe the variables constructed for this analysis, with some mention of alternative variables that were examined and then set aside in the interest of parsimony. The SFT items used in the construction of each variable are listed in the Appendix.

Perceived costs and benefits of small family

The SFT questionnaire contains a large number of items on the perceived costs and benefits of children. One block of fifteen agree-disagree items inquire about the costs and benefits of having children, with most of the items referring to a large family. Another block of seventeen items ask about the advantages (nine items) and disadvantages (eight items) of having two children (as compared to more than two). On the face of it, the latter block of items is perfectly suited for an analysis of the desire for two children. But we are concerned that asking explicitly about the advantages/disadvantages of two children is tantamount to asking about the desire to have two children, a circularity that would lead to upwardly biased estimates of the effects on fertility desires of the perceived costs and benefits of children. Hence we opt for an index constructed by counting the number of "agree" responses to the fifteen items on the costs and benefits of children, as listed in the Appendix. This index ranges from 0 to 8+, with the sample distribution shown in Table 2 (left-hand column); the index is skewed away from endorsement of large families. Although this index would seem to be subject to less endogeneity bias than an index constructed from the blocks of items on the advantages/disadvantages of having two children, it must be acknowledged that some of this bias may remain: respondents may hear the items asking for their views about the costs and benefits of large families as, effectively, questions about how many

children are desirable. As a general rule when modeling relationships between attitudes as closely linked as costs/benefits of children and desired family size, it is desirable to account for the fact that they may be simultaneous determined.[10]

A distinct and oft-cited benefit of children is support in old-age. Expectations about old-age support were explored in the SFT. An index of expected old-age support is constructed by summing responses to five items about residence in old age, income in old age, and emotional support in old age. A majority of the young women agree with one or two of these items (see Table 2).

In most micro-economic theory about fertility, the opportunity cost to women of child-bearing and child-rearing figures centrally (Becker 1981, Rindfuss *et al.* 2003). The SFT was not designed to provide a rigorous test of this hypothesis, but the respondents were asked whether they perceived such an opportunity cost (item included in the fifteen-item index described above), and they were asked about their own recent employment experience.[11] From this latter information, we construct an indicator of the opportunity cost of child-bearing via its impact on women's income contribution to the household.

Preferences for the sex of children

Our assessment of the potential strength of sex preferences is based on responses to two items. The young women were given two hypotheticals. In one, a couple has three children, all of which are daughters; in the second, the couple also has three children, all of which are sons. The women were asked in each case whether they feel the couple should continue child-bearing for the purpose of having a boy/girl, or whether they should stop. A large majority (87%) of the women thinks that both couples should stop (Table 2); as compared to women who think one or both couples should proceed, this will be regarded as "gender indifference". Virtually equivalent small fractions of women favor either continuing childbearing in the effort to have a son but not for the purpose of having a daughter -- this will be regarded as reflective of son preference – or think that neither couple should stop. These percentages are six and seven percent, respectively.[12] Clearly these items do not offer a balanced assessment of the prevalence of sex preferences in Egyptian society, because they pose somewhat atypical choices – proceeding beyond three daughters and three sons -- resulting in highly skewed distributions of responses. Instead, as expressions of an

[10] As we continue to analyze the SFT data, we will attempt to estimate models that more satisfactorily allow for endogeneity among the blocks of variables of interest.

[11] The SFT used an innovative approach to the measurement of women's work that appears to yield far more comprehensive coverage of women's economic contribution. See Langsten and Salem (forthcoming).

[12] A few respondents (n=31, less than 2% of the sample) favored proceeding beyond three sons but not beyond three daughters, suggestive of a stronger preference for daughters than sons. These women are included in the third category, with those women who favor proceeding to have another child under both hypotheticals.

underlying attachment to having sons or daughters or both, these items serve the purpose of permitting a test of how such sex preferences can affect fertility demand.

Gender roles

The SFT included several blocks of items on gender roles that are now standard in demographic surveys in Egypt. These include blocks on: decision-making about household and family matters (i.e. whether specific decisions are made by the husband or other family members, by the respondent alone, or by the respondent jointly with others); women's freedom of movement outside the home; and attitudes towards husbands beating their wives (under what conditions this is justifiable). For the present analysis, we have set aside the first block (decision-making) because the items are intrinsically different for the currently married and never married women (the former asked with reference to husbands, the latter with reference parents). Indices were constructed based on the second block (women's mobility) and the third block (attitudes towards domestic violence), but in exploratory analysis neither index showed explanatory power in relation to the desire for two children, and hence these too were set aside (although we here report their low exploratory power as a finding from this research).

The SFT also contained a block of ten items on various social changes assumed to be underway in Egypt, asking one-by-one whether the respondent believes the change is "good or bad". Six of the ten items concern change in gender roles, both intra- and extra-household. (See list of items in Appendix.) The "good" responses are summed into an index of support for societal change towards gender roles that would be less differentiated and more egalitarian than gender roles in Egypt in the past. As is evident from Table 2, a majority of the young women supported most of these purported changes in gender roles.[13]

Economic stress and anxiety

As indicated in Section II, the SFT is somewhat exceptional among fertility investigations of which we are aware in the effort invested in the measurement of micro-economic attitudes. Hence we have at our disposal multiple items on the respondent's sense of recent/current economic distress, and multiple items on her evaluation of future economic prospects (both short-term and long-term). From these items we have constructed eleven indicators, as listed in the Appendix. The indicators fall into three categories: current economic stress, anxiety about household economic prospects, and long-term macro-economic prospects.

Because these items have not been standard in demographic research in Egypt, caution is in order about their validity or, more to the point, about what deep-seated attitudes they actually

[13] Interestingly, the never married young men interviewed in the SFT were far less supportive of such changes in gender roles (Casterline and Roushdy forthcoming).

capture. Hence we have taken a relatively agnostic exploratory approach to evaluating the associations of these indicators with the desire to have just two children: we examine each of the eleven indicators in separate multiple regression equations (i.e. eleven regression equations). Collectively these regressions afford a test of the notions presented in Section II about how micro-economic attitudes bear on fertility demand. But given the highly exploratory nature of this portion of the analysis, the results should be confirmed in separate analyses of independent samples.

Germane to our interest in the association between micro-economics and fertility demand is the actual economic status of the household, for example its level of income or wealth. Included among the background characteristics in this analysis is the so-called "household wealth index". This index is derived via principal components from a set of consumer durables possessed by the household.[14] The index has been shown to be highly consistent, in several distinct settings, with other measures of the long-term economic status of the household (e.g. permanent income) but more weakly correlated with short-term income and consumption expenditure. While the household wealth index has now become a standard variable in DHS analyses, we wish to emphasize what it does not accomplish for the purposes of this research. The notions discussed in Section II concern perceptions of economic distress (recently, or anticipated in the future), and these in turn are a function of the discrepancy between economic aspirations and economic realities (i.e. what is desired versus what is experienced/expected). This is a matter of relative income (or "relative deprivation"), with standards for comparison ultimately resting in the cognitive rather than the material domain. To be more concrete, the economic stress and anxiety of interest in this research need not be associated empirically with actual household wealth: stress and anxiety can be felt in all strata, from bottom to top, provided that economic aspirations exceed economic realities (Ray 2003).

III.C. Measurement of the desire for two (or fewer) children

Within the DHS universe, the standard measures of the demand for children are (i) the ideal number of children, and (ii) the desire to have another child. Together, these two measures offer a largely consistent picture of the acceptability of the two-child family among this set of Egyptian women (Casterline and Roushdy forthcoming).

If the responses to the ideal number of children item are taken at face value, 39 percent of these young women wish to have three or more children (Table 1).[15] Sub-group variation around this average is modest; the extremes are a low of roughly one-third with an ideal number of three

[14] For details on the calculation of this wealth index, see El-Zanaty and Way (2004).
[15] Women providing non-numeric responses are assumed to have an ideal of three or greater.

or more in metropolitan and urban areas and a high of roughly one-half in Upper Egypt. The mean ideal number, among women who provided numeric responses, averages 2.5 children and hardly varies from this mean in all sub-groups examined in Table 1.[16]

The ideal number of children item provides one basis for assessing the desire to restrict fertility to two or fewer children. An alternative is the item on the desire for another child at the time of interview, combined with the follow-up item on the additional number desired (among those desiring more). The existing research literature indicates that this latter item is more valid and reliable than the item on the ideal number of children (for a concise review, see Casterline and el-Zeini 2005a). Hence, for this analysis the item on the desire for another child is used to construct a measure of the desire for two or fewer children as against three or more, as follows:

> *Women with zero or one living child:* Their desire to stop with two births is determined by whether or not they wish to have another child and, if so, how many further children they wish to have.
>
> *Women with two living children*: Their desire to stop with two children is determined simply by whether or not they wish to have another child.

As already noted, women with three or more living children are excluded from subsequent analysis in this paper.

Table 2 shows the percentage of women wanting two or fewer children according to this composite measure. Overall, slightly more than one-half (56%) of young women with two or fewer living children at the time of the SFT interview want to terminate childbearing at two children. Variation across standard background characteristics is patterned largely as expected – the desire to stop is more prevalent among never married women, women in urban areas and in Lower Egypt, and better educated women (top panel of Table 1). But the differential by level of educational attainment is quite small, which may come as a surprise to readers familiar with research on fertility in developing countries during the past several decades. The relatively high fertility – both desired and achieved -- of more educated women in Egypt is a phenomenon that has been apparent in several recent rounds of the Egypt DHS, and it has been discussed at length by other scholars (e.g. Eltigani 2003).

Fifty-six percent desiring two or fewer children constitutes a bare majority of this sample of young women, most of whom have yet to begin childbearing. Or, alternatively, according to the

[16] Note that an aversion to providing an ideal number less than their actual number of living children – a phenomenon known to distort responses to the DHS item on the ideal number of children and typically labeled "rationalization" – does not bias the estimates in Table 1 of the percentage with an ideal of three children or greater, as this sample is restricted to women with two or fewer living children.

ideal number of children item, sixty-one percent of these women wish to have two or fewer children. An important inference from Table 1 is that the two-child norm has not yet taken hold in Egyptian society. Certainly a substantial minority of these young women retains an ideal of three or more children. Generational succession *per se* would not appear to lead to the firm establishment of the two-child norm during the next decade among Egyptian women in the prime reproductive ages. This returns us to the questions raised at the outset of this paper – with how much confidence can a decline of fertility to replacement level (or below) be expected any time soon in Egypt? These cohorts of women are in the early stages of their reproductive careers, and unless their achieved fertility falls markedly short of their desired fertility, their childbearing careers will not be consistent with the national goal of achieving replacement-level fertility by 2017.[17]

III.D. Modeling the desire for two children

Following the discussion in Section II and III.B., the demand for children can be estimated as a function of: perceived costs and benefits of children, preferences for sex of children, attitudes towards gender roles, and economic stress and anxiety, with controls for potentially confounding background characteristics (marital status, place of residence, schooling). Because the dependent variable is a dichotomy – desiring two (or fewer) children as against three (or more) – we estimate logit regression models. The regression equations consist entirely of additive effects; in analyses not reported here, we have examined selective interactive effects (specifically between the household wealth index and the indicators of economic stress/anxiety), but none of these proved informative.

IV. Results

The regression results are presented in Tables 3 and 4. Table 3 shows the coefficients for all variables in the final equations – three specifications, differing in the indicators of economic stress and anxiety. Table 4 reports the effects for the entire set of indicators of economic stress and anxiety that were examined. The reader is reminded that positive coefficients indicate a

[17] The reader is referred to Casterline and el-Zeini (2005b) for an analysis of pathways to replacement-level fertility in Egypt. It can be shown that in theory the combination of a sharp reduction in unwanted fertility and an increased fraction of the reproductive years without sexual exposure (e.g. non-marriage) could obviate the need for reductions in desired fertility. But reducing unwanted fertility will be difficult unless either sterilization or induced abortion become readily available as methods of birth control; neither development seems likely any time soon in Egypt. Nuptiality patterns are more difficult to forecast. At present marriage in Egypt, as compared to other Arab countries, is highly prevalent (close to universal) and occurs at relatively young ages. The upshot is that replacement-level fertility seems unlikely during the next 10-15 years without meaningful reductions in desired fertility.

greater likelihood of desiring two children and negative coefficients a greater likelihood of desiring three (or more) children.

Although the effects of the background characteristics are substantial in magnitude, these are of lesser concern in this research and hence will be reviewed quickly. There is no significant difference between currently married and never married women in this measure of fertility desires; apparently marriage among younger women is not selective of those women who desire larger families. As is commonly observed in analyses of Egyptian data, women in Upper Egypt desire larger families and women in urban areas desire smaller families, even with controls for schooling and, more importantly, the various attitudinal variables (perceived costs and benefits of children, preference for sex of children, gender roles, economic stress/anxiety) through which effects of region and type of place might operate. Finally, from this regression analysis one would conclude that the net effect of schooling is to reduce the likelihood of women wanting to stop childbearing at two children. Note that the large negative coefficients are contrasts with no schooling, and such women represent only sixteen percent of the sample (Table 2). But putting these women aside and considering the two larger schooling categories, it is striking that women with secondary and higher education are, if anything, slightly less likely to indicate a desire to stop at two children than women with primary education. The oft-observed positive effect of formal schooling on small-family desires is attributed to various mechanisms, including several that are represented by variables in the Table 3 regressions, namely ideational factors (Cleland and Wilson 1987, Thornton 2005) and opportunity costs of childbearing (especially women's labor market potential) (Becker 1981). To the extent these mechanisms for the effects of women's educational attainment are well represented by these variables, the negative coefficients on the education variables in Table 3 should not draw excessive attention, as they are residual net effects that may not be meaningful in any real-world sense. It should be noted again, however, that even the unadjusted educational differential in fertility desires in Table 2 does not show the expected positive association between schooling and small-family desires.

Turning to the blocks of variables of more central interest in this research, two of the three indicators of the costs and benefits of children have significant effects in the expected direction: the "appeal of large family" index (constructed from fifteen items on the perceived costs and benefits of children), and the opportunity cost indicator (based on the woman's income contribution to the household). Both coefficients are substantial in magnitude and highly significant, consistent with the argument that perceptions of children's costs and benefits weigh heavily in the formulation of family-size desires. Expected old-age support, in contrast, has a small and insignificant effect. Evidently this deferred benefit of child-bearing does not influence more near-term family-size deliberations. This result may reflect weak attachment of these young women to this potential benefit, or it may reflect a belief that old-age support can be effectively

provided by just two children – indeed perhaps more effectively, if children from smaller families are thought to have better prospects of economic success.

The regression analysis indicates that preferences for the sex of children can exercise a powerful influence on the number of children desired. The coefficients in Table 3 are contrasts with women who express "indifference" about the sex of children when presented with two hypotheticals (i.e. whether or not to continue childbearing beyond three daughters and beyond three sons). As compared to these women, the small fraction of the sample (7%) that reveals an attachment to having both a son and a daughter are far less likely to want to stop at two children. The nearly equivalent fraction of the sample who are classified as having son preference – these respondents think it is advisable to proceed to a fourth child if the first three are daughters, in an effort to have a son – also have a negative coefficient that is large in magnitude and highly significant. The coefficient for son preference is roughly one-half the magnitude of the coefficient for those women who express both son and daughter preference. This is as expected – the most pronatalist preference is to have children of both sexes. We stress again that these indicators of sex preference clearly do not accurately capture the distribution of sex preferences in the Egyptian population – far more than six percent of women hold son preference to some important degree -- but their estimated effects on fertility desires are indicative of the influence of sex preferences on fertility demand. This is but one of many different analyses that could be conducted with recent survey data from Egypt which strongly suggest that a desire to have sons stymies the establishment of the two-child norm in Egyptian society.

Our assessment of the impact of gender roles on fertility desires is restricted to gender role attitudes.[18] These show highly significant effects in the hypothesized direction: women are more likely to want to have just two children if they favor gender-role definitions characterized by less marked male-female distinctions and by more equitable division of power and resources.

The final set of explanatory variables of particular concern in this research is "economic stress and anxiety". In Section III we argued that although there are sound reasons to posit that micro-economic attitudes -- themselves reflecting concurrence or disjuncture between economic aspirations and realities (perceived or actual) – have a decisive influence on family-size desires, research on this topic is undeveloped, especially in Egypt, and therefore it is difficult to choose *a priori* among the various indicators of economic stress and anxiety offered by the SFT data. Hence we have deliberately adopted an exploratory approach to this set of indicators, estimating separate regressions for each indicator and contrasting the results. We must concede, however, that in adopting this analytical approach we weaken the inferences that can be drawn: the failure

[18] As already noted, indices of women's freedom of movement and attitudes towards domestic violence were tested and did not show significant net effects.

of certain indicators to show significant effects can be regarded either as evidence that the indicators are not valid (i.e. do not accurately capture the respondent's true economic stress and anxiety), or as evidence that economic stress and anxiety do not influence fertility demand. This is an uncomfortably equivocal stance.

In Table 4 net effects of the eleven indicators of economic stress and anxiety are presented. The results are clear and simple. Nine of the indicators fail to show significant effects on fertility desires. The two exceptions, which show highly significant effects, are the counts of the number of goods and services that the household has difficulty paying for, either during the past month or expected during the next year. (The lists of goods and services – six and eight, for the past month and the next year, respectively – are shown in the Appendix.) As hypothesized, those women who report difficulty in paying for a larger number of goods and services are more likely to express a desire to have just two children. Note that a household's difficulty in affording goods and services is in part a function of its choices about what goods and services to consume, i.e. a function of aspirations. This is certainly the case with respect to rent, clothing, and saving for children's marriages, to select a few of the listed items. In this sense, these two indicators would appear to be especially well-suited for tests of the argument developed in Section II about how economic stress and anxiety bears on the formulation of fertility demand.

What to make of the failure of the other nine indicators of economic stress and anxiety? We are inclined to dismiss many of these non-significant effects as due to invalid measurement of the construct of interest, although admittedly this dismissal comes after observing their poor performance in the regression analysis. Responses to some of these items, we suspect, are affected by a strong norm in Egyptian society that one should outwardly express gratitude for one's circumstances, whatever these might be. This norm may have affected responses to the item on how the household has fared during the past year (better, worse, or same economic situation) as well as the item on how the household is expected to fare during the next year (better, worse, same). It is also plausible this norm influenced the responses to the four items on long-term economic prospects. We also note that all six of these items on trends over time (short-term or long-term) do not ask explicitly about income sufficiency: households whose economic situation has deteriorated, for example, may nevertheless be able to achieve most of their current economic aspirations. That is, whether households' economic situation has improved or worsened (or remained the same) is a different matter from whether it is suffering economic distress or its members are anxious about their future economic prospects. (To be sure, one would expect the two to be associated.) This criticism can also be leveled at the item on the woman's expectations of increased income from her personal economic activity – this too does not speak to the issue of whether the woman expects her household's economic aspirations to be met. The remaining indicators that failed to show significant effects in Table 4 – household income is sufficient to

cover "basic needs", and household income is at or below the minimum "with which you can live adequately" – on the face of it are appropriately phrased for testing the hypothesis of interest.[19] In fact the first of these two has a relatively large coefficient in the expected direction that is significant at the .10 level in some specifications.

In short, we are prepared to regard most of the small and non-significant effects in Table 4 as indicative of invalid measurement of the underlying concept of interest. We admit this is a highly subjective assessment. Among other things, this implies that some items that are standard and well-established in survey research and opinion polls in the West – for example, "How does the economic situation of your household now compare with one year ago? Is it better, same, or worse?" – do not yield valid responses in Egyptian society. And we are not entirely confident about dismissing all of the items classified as indicators of long-term (macro-)economic prospects. Their face validity appears to us to be relatively high, especially the item on children's educational opportunities. When it comes to this set of indicators, the regression results may well be informative: long-term economic prospects, especially as viewed from a more macro perspective, may have less bearing on fertility demand than immediate and micro-level stress and anxiety.

Hence we regard the regressions in Tables 3 and 4 as providing support for the economic stress and anxiety hypothesis articulated in Section II – those women whose households are struggling to cover the expenses of desired goods and services are more likely to desire just two children. Note that these significant effects are net of household wealth, which itself shows no net effect on fertility desires. These two findings together provide reinforcing evidence that what matters for fertility demand in Egypt is relative economic status, as determined by economic aspirations that vary among individuals and households within the population.

It is natural to ask what these findings imply about how economic trends might affect fertility in Egypt. The net positive effects of economic stress and anxiety on the desire for two children suggest that were this stress and anxiety to be relieved through favorable economic trends, this in itself would have a pronatalist effect. But economic trends will also affect the goods and services which individuals aspire to have. Hence while an improved economy might have a pronatalist effect initially, given the likelihood that economic aspirations too will respond to changed macro-economic circumstances, the longer-term effect on fertility is more difficult to predict.

[19] Although the "basic needs" item might be perceived as asking about absolute economic well-being, not economic status in relation to economic aspirations.

V. Summary and Concluding Remarks

The over-arching objective of this paper is to better understand fertility desires in one of the more populous mid-fertility societies, Egypt. As documented in Section I, such societies constitute roughly one-third of the world's population at present. Our view is that the post-transition level of fertility in these societies, not to mention the speed at which this will be reached, should be regarded as an open question at this historical juncture. As one means of acquiring insight about this question, we have examined cross-sectional correlates of the desire for two (or fewer) children in Egypt, through analysis of recently-collected national survey data. These data are distinctive in containing indicators of many hypothesized determinants of fertility demand that are not customarily measured in national surveys (Egypt DHS), and in providing comparable data on reproductive attitudes and behaviors for both never married and currently married women (uncommon in Egypt).

In addition to a standard battery of background characteristics (region and type of place of residence, educational attainment), four factors that are hypothesized to influence small-family desires have been investigated: perceived costs and benefits of children, preferences for sex of children, gender role attitudes, and economic stress and anxiety. The regression analysis provides evidence for effects of each of these four factors, and indeed most of the measured indicators show rather powerful net effects.

The estimated effect of son preference deserves some emphasis, because it is so large. On average one-quarter of women with two children will not have a son, and three-quarters will not have two sons. Given that only a tiny fraction of women express a desire for just one child (the achievement of which might offset desires to have three children in order to have a son), it is clear that son preference remains an impediment to the achievement of replacement-level fertility in Egypt.

We also wish to draw attention to the net effects of economic stress and anxiety, because consideration of this factor is a distinguishing feature of this research. In pursuing this topic, we were motivated by an extensive qualitative literature – from Egypt and elsewhere – in which micro-economic considerations figure prominently when individuals are asked why childbearing should be restricted. Admittedly our findings about the effects of economic stress and anxiety on small-family desires are mixed. We take the position that this mixed picture reflects in part our imperfect measurement of the pertinent economic attitudes. There is much room for improvement in research strategies for examining how micro-economic attitudes – and, in particular, the confluence of economic aspirations and expectations – bear on fertility desires.

It is striking that at present roughly one-half of women under age thirty in Egypt profess a

desire to have at least three children. In common with the experience of women in Europe and the U.S., it is conceivable that a substantial fraction of these women in the end will fall short of their desired number of children. But at present marriage remains universal and occurs at relatively young ages in Egypt (early 20s). And even were married Egyptian women to desire two children on average, the relative unavailability for the foreseeable future of sterilization and induced abortion as means of birth control makes it a challenge for couples to terminate their childbearing at two children. If this situation does not change, then couples' strength of commitment to the two-child target (which presumably affects their contraceptive diligence) looms as a factor of great importance.

In short, given the prevalence of desires for at least three children in these young cohorts, and the ambivalence of many women who profess a desire for two children about this target (as the SFT data reveal – see Casterline and Roushdy forthcoming), the national goal of reaching replacement-level fertility by 2017 will demand relatively profound further changes in reproductive attitudes and behaviors.

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APPENDIX

Measurement of Key Explanatory Factors

Costs and Benefits of Children

Appeal of large family

Count of "agree" with following fifteen statements:

Parents should have many children so that they will not be lonely when they are old
Many children is not an obstacle for parents to achieve what they would like to achieve
Having more children will increase the family's income
Having many children is good because they provide help to parents in household tasks
Parents can raise all their children properly, even if they have many children
Increasing the number of children in a family does not affect their educational level
Having many children does not increase the financial pressure on the family
If people had more income, they could have more children
Parents feel alive after death when they have many children because their name will be continued
Families must have more children to increase the power of their family and tribe
Having many children does not cause many disagreements and problems between husband and wife
A person with many children is looked up to in the community more than a person with 1 or 2 children
Is it always true that a man with more brothers has better opportunity in life
Is it always true that a man with many relatives has better opportunity in life
Is it always true that help from extended family is essential for success in life

Old-age support

Count of "agree" with following five statements:

Raising children requires a lot of money and effort, but you get it all back later in life from your children
In old age, for most people it is best to live with their son, daughters or either
In your old age, you expect to live with your sons, daughters or either
In your old age, you expect your income to be from your sons or daughters
Parents should have many children so that they will not be lonely when they are old

Opportunity cost indicator

Women's economic activity during the three months preceding the survey
Dummy variable: 1 if the woman worked for no pay or if she worked for pay and contributed at least one-half of her earnings to household expenses;
0 otherwise

Preference for Sex of Children

Son preference only

Dummy variable: 1 if the woman thinks that a couple with three girls should have another child but a couple with three boys should stop: "In your opinion, should the couple continue to have children until they have a son, or should they stop?"
0 otherwise

Daughter and son preference

Dummy variable: 1 if the woman thinks that a couple with three sons should have another child and a couple with three daughters should have another child;
or if a woman thinks that a couple with three sons should have another child and a couple with three daughters should stop (n=17 women).
0 otherwise

Gender Roles

Attitudes towards social change in gender roles

Count of the number of social changes in Egypt that the respondent supports:

Girls marrying at later ages
Husband's doing more domestic chores
More women occupying leadership positions in society
Wives having more power in household decisions
Boys and girls getting the same amount of schooling
Boys and girls getting the same treatment

Economic Stress and Anxiety

Current economic stress

1. Number of goods and services the household had difficulty paying for last month from the following list of six goods/services:

   Food and daily household supplies
   Rent
   Medical expenses for adult
   Infant/child care and medical expenses
   Children's schooling
   Debt

2. Agree with the following statement: "Do you think your household income is enough to cover your basic needs (from food, education, health, child, care,…..)?"
3. Household income is at or below "minimum income with which you can live adequately".
4. "Better" in response to: "How does the economic situation of your household now compare with one year ago? Is it better, same, or worse?"

Anxiety about household economic prospects

5. Number of goods and services concerned that household will not be able to pay for during the next year from the following list of eight goods/services:

   Food and household supplies
   Clothing
   Rent
   Medical expenses for adult
   Infant/child care and medical expenses
   Children's schooling
   Savings for children marriage
   Installments and debt repayment

6. "Better" in response to: "Now looking ahead- how do you expect the economic situation of your household in one year will compare with now? Do you expect it to be better, the same, or worse?"

7. Woman expects her income to increase, or to have income if not currently earning.

Long-term macro-economic prospects

8. "Harder" in response to: "Some people think that each year the living circumstances are improving. Other people think that each year it is getting harder. Which do you think?"
9. "Harder" in response to: "How about your children in the future? Do you think it will be easier, harder or about the same to cover the costs of food and housing?"
10. "Worse" in response to: "Do you think that your children will have better educational opportunities than you had, the same, or worse opportunities?"
11. "Harder" in response to: "Do you think that it will be easier, harder, or about the same for your children to find a decent job as compared to now?"

Table 1. Ideal Number of Children, by Selected Background Characteristics

Background Characteristic	Percent Ideal Number 3 or Greater [a]	Mean Ideal Number [b]
Total	**39**	**2.5**
Marital status		
Never married	40	2.5
Currently married	38	2.5
Number of living children		
0-1	38	2.5
2	41	2.5
Urban-rural residence		
Urban	32	2.4
Rural	45	2.6
Region of residence		
Metropolitan governorates	30	2.4
Lower Egypt	33	2.4
Upper Egypt	52	2.7
Educational attainment		
No Education	41	2.5
Primary, incomplete or complete	38	2.4
Secondary completed or higher	38	2.5
Household wealth index		
Lower: First quintile	41	2.6
Middle: Second – Fourth quintiles	38	2.5
Upper: Fifth quintile	40	2.5
Number of women [c]	*1849*	*1814*

[a] Non-numeric responses are grouped with numeric responses of 3 or greater.

[b] Calculated for women who provided a numeric response.

[c] Currently married and never married women under age 30 and with two or fewer living children. Sampling weights applied.

Table 2. Sample Distribution and Percent Wanting Two or Fewer Children[a], by Variables Used in the Regression Analysis

Variable		Sample Distribution (%)	Percent Wanting < 3 Children [a]
Total		**100**	**56**
Background Characteristics			
Marital status			
Never married		46	60
Currently married		54	57
Urban-rural residence			
Urban		45	66
Rural		55	52
Region of residence			
Metropolitan & Lower Egypt governorates		65	65
Upper Egypt		35	46
Educational attainment			
No schooling		16	57
Primary, incomplete or complete		16	56
Secondary completed or higher		68	59
Cost and Benefits of Children			
Appeal of large family (index)			
	0	23	63
	1	24	67
	2	17	63
	3	11	55
	4	8	52
	5	6	55
	6	3	47
	7	3	31
	8	6	29
Old-age support			
	0	10	58
	1	40	62
	2	30	60
	3	11	54
	4	9	45
Opportunity cost indicator		64	17

Table 2. Sample Distribution and Percent Wanting Two or Fewer Children[a], by Variables Used in the Regression Analysis (continued)

Variable		Sample Distribution (%)	Percent Wanting < 3 Children [a]
Preference for Sex of Children			
Gender indifference		87	63
Son preference		6	36
Daughter and son preference		7	19
Gender Roles			
Attitudes towards social change in gender roles (index)			
	0-2	2	42
	3	6	51
	4	18	51
	5	43	60
	6	31	63
Economic Stress and Anxiety			
Household wealth index	Lower: First quintile	21	54
	Middle: 2nd – 4th quintile	44	59
	Upper: Fifth quintile	35	60
Difficulty paying for goods/services last month (count)			
	0	60	55
	1	11	62
	2	9	59
	3	7	62
	4	6	65
	5	6	72
Concerned about paying for goods/services next year (count)			
	0	51	56
	1	11	51
	2	5	62
	3	5	65
	4	5	53
	5	5	69
	6	7	69
	7	11	66

[a] This measures is constructed as follows: for women with 0-1 living children, based on desire for another child and number of additional children desired; for women with 2 living children, based on desire for another child.

Table 3. Desire for Two Children[a]: Regression Results

Variable		Equation 1	Equation 2	Equation 3
Background characteristics				
Currently married		-0.133	-0.173	-0.139
Upper Egypt		-0.665***	-0.653***	-0.662***
Urban area		0.443***	0.453***	0.447***
Educational attainment: at least some primary		-0.503**	-0.512**	-0.511**
Educational attainment: secondary or higher		-0.584**	-0.624***	-0.590**
Cost and Benefits of Children				
Appeal of large family		-0.112***	-0.109***	-0.111***
Old age support		-0.046	-0.047	-0.044
Opportunity cost indicator		0.413**	0.412**	0.408**
Preference for Sex of Children (omitted=indifferent)				
Son preference		-0.938***	-0.937***	-0.932***
Daughter and son preference		-1.682***	-1.681***	-1.682***
Gender Roles				
Attitudes towards social change in gender roles		0.220***	0.226***	0.222***
Economic Stress and Anxiety				
Household wealth (Omitted=Lower)	Middle	0.023	0.029	0.034
	Upper	-0.078	-0.077	-0.070
Difficulty paying for goods/services last month		0.124***		0.085*
Concerned about paying for goods/services next year			0.070***	0.039
Intercept		0.298	0.336	0.253
Number of women [b]		*1849*	*1849*	*1849*

*** p< 0.001 ** p< 0.05 * p<0.10

[a] Dependent variable: desire for two (or fewer) children. See text and Table 2.

[b] Currently married and never married women under age 30 and with two or fewer living children. Sampling weights applied.

Table 4. Effects of Economic Stress and Anxiety on the Desire for Two Children: Regression Coefficients [a]

Variable [b]	Coefficient [a]
Current economic stress	
Difficulty paying for household goods/services during last month (number items)	0.124***
Household income is enough to cover your basic needs	-0.211
Household's income is at or below minimum	-0.035
Household economic situation is better as compared to one year ago	0.071
Anxiety about household economic prospects	
Concerned about paying for household goods/services during next year (number items)	0.070***
Expects household economic situation to get better	0.089
Woman expects her income to increase, or to have income if not currently working	0.112
Long-term macro-economic prospects	
Living circumstances becoming more difficult each year	0.111
Children will have more difficulty covering the costs of food and housing	-0.004
Children will have worse educational opportunities than respondent's generation	0.135
Children will have more difficulty finding a decent job as compared to now	-0.056

*** p< 0.001 ** p< 0.05 * p<0.10

[a] Each variable is entered separately in an equation that contains all other blocks of explanatory variables shown in Table 3 (background characteristics, costs and benefits of children, sex preferences, gender roles). I.e., these coefficients are obtained from 11 separate regressions.

[b] For definition of each variable, see Appendix.