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## Below replacement fertility preferences in Shanghai

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### Abstract

China has joined the group of low-fertility countries; it has a TFR somewhere in the range of 1.4 to 1.6. Much speculation about China's future fertility depends on whether individual's fertility intentions and preferences are much higher than the state's fertility goals. If so, then a relaxation of family planning restrictions could lead to a substantial fertility increase. We directly ask a probability sample of Shanghai registered residents and migrants whether a policy relaxation would lead them to have additional children. Our results show that small families (one or two children) are intended in this urban setting. If family planning policy were relaxed, a relatively small fraction (fewer than 14%) reports that they would revise their intentions upward. Even this modest increase (as much as 10%) is suspect because factors that can deflate fertility relative to intentions are likely more powerful than the inflationary ones (in Shanghai). These empirical findings help ground speculations on the future of fertility in the hypothetical absence of policy constraints.

### Introduction and Context

China has joined the group of low-fertility countries. A variety of data sources and estimation approaches of its period total fertility rate (Retherford et al. 2005; Cai 2008; Goodkind, 2011), corroborated by cohort trends by parity (Morgan et al. 2009), suggest that China's TFR has dropped from 2.8 at the end of the 1970s to somewhere in the range of 1.4 to 1.6 in 2000. This fertility level is also consistent with local official fertility regulations showing that the aggregation of local policies results in between 1.5 and 1.6 children per couple at the end of the 1990s (Attané 2002, Gu et al. 2007). Indeed the timing of the transition to low fertility can be attributed in large part to the success of China's birth planning policies which were strictly enforced in urban areas, but with accommodations to the overwhelming preference for a son through the introduction of the One Son-Two Children policy in rural areas.

But what would trends have been and what would current levels be in the absence of the one-child policy? The answer to this interesting and important counterfactual is uncertain. Lavelly and Freedman (1990) argued that the fertility decline was underway among the urban and more educated prior to major governmental intervention. And other Asian countries with far weaker family planning programs (e.g., South Korea) have demonstrated remarkable fertility declines and contemporary fertility levels well below replacement.

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The results presented in this paper are based on the Shanghai Survey of Sexual Behavior and Sexual Networks (SSNS), 2008.

So a current focus of academic and policy debate is whether and how much China's fertility would increase if the current birth planning policies were abandoned. One view is that relaxation or abandonment of current policies would produce a significant baby boom. A sizeable proportion of the population may have a pent-up demand for second children and perhaps a latent desire for larger families. More exactly, some assume that the almost universal preference for two children in China today will set the minimum level of fertility at 2.0 (e.g. Zeng 2007). Others argued that Chinese fertility is somewhat higher than many current estimates suggest because of female children underreported in the census as a consequence of policies that hold birth planning officials responsible for achieving pre-set targets and quotas within their jurisdiction (Merli and Raftery 2000; Merli, Qian, and Smith 2004; Goodkind 2004; Goodkind 2011). For example, the TFR in the 2000 census (short form) of 1.35 children per woman (0.938 in urban areas and 1.43 in rural areas) is believed to be too low. Adjusted estimates range from 1.4 to 1.6 (Retherford et al. 2005).

The opposing view, supported by a significant amount of new data and some new arguments, questions whether the current policy is necessary (Merli and Smith 2002; Morgan et al. 2009; Cai 2010). As noted above other Asian countries with similar and different cultural heritages (e.g. South Korea, Singapore, Japan and Thailand) have low fertility without policies that explicitly constrain family size. Judging from the experience of these other countries, China's economic and social development would be expected to produce low fertility (although not necessarily at below replacement levels). To make this point more vividly, Figure 1 shows the total fertility rate (TFR) for selected Asian countries by a frequently used indicator of social and economic development – the Human Development Index (HDI<sup>1</sup>; See Bongaarts and Watkins 1996; Myrskylä et al. 2009). The data, plotted as a line for each country, trace consecutive five-year periods from 1960–2005. China's dramatic decline occurred at relatively low levels of HDI, a feature requiring an “exceptionalist” interpretation – such as the strong effect of China's population control policies, the “later, longer, fewer” campaign first and then the “one-child policy”. But the pace of decline for other countries vis-à-vis HDI is equally dramatic while beginning at higher HDI levels. At approximately 0.75 on the HDI index (China's value in 2000–2005), China's fertility does not seem “artificially low”. Moreover, these other countries show continued fertility decline with additional increases in HDI. Given these referents neither China's current level of fertility or predictions of further decline require the birth planning program's special explanation. Social and economic development, indexed by HDI, provides an explanation applicable to the full set of countries shown here.<sup>2</sup>

Equally compelling, internal comparisons suggest that some areas have fertility levels below those allowed by current government policy. Perhaps most importantly, multiple sources suggest that mean ideals/intentions below replacement level might remain even without policy constraints. Merli and Smith (2002) showed where and when women in four Chinese counties changed from wanting to not wanting more children by comparing reproductive behavior against previously stated fertility preferences measured with an hypothetical question (regarding additional births if government policies changed). Acceptance of the policy sanctioned family size was higher in most industrial and urbanized areas and in areas of strong policy enforcement and weaker in the poorest areas or where policy enforcement was most lenient. These findings suggested that a policy relaxation would allow some

<sup>1</sup>HDI is an additive index created from components measuring income per capita, literacy and educational enrollment, and life expectancy. See <http://hdr.undp.org/en/statistics/indices/hdi/>. Key articles discussed below use the HDI index.

<sup>2</sup>China's low fertility at the national level masks significant variation in fertility at the local level with completed fertility in provinces like Guangdong during the 1980s still well above policy sanctioned limits despite faster economic growth (Attané 2001, 2002). Nonetheless, about half of the recent fertility decline in Guangdong between 1990 and 2000 was attributed to social and economic change (Chen et al. 2010). Similarly, much of the fertility variation in Jiangsu and Zhejiang as measured in the 2000 census was attributed to development factors rather than policy (Cai 2010).

women to have the additional children that they intended. But few wanted more than two children and many had accepted the government goal of one child as a personal one. Thus, to the extent that policy constraints are internalized and that other non-policy constraints are operating to dampen fertility levels, the effect of policy on intentions will not fully translate into raised fertility levels under a hypothetical suspension of policy. Zheng et al. (2009) focused on the fertility intentions of young couples in Jiangsu province, where the husband or the wife was a singleton and thereby qualified for a second child; they found that intended family size for these couples is largely below the current policy limit of two. Gu and Liu (2009) report that fertility increase associated with relaxing policy restrictions in several experimental counties was modest – far less than allowable by the policy change. As Merli and Smith (2002) claim for China and Goldstein and colleagues (2003) argue for German speaking parts of Europe, a generation of constrained low fertility may usher in acceptance of -- or accommodation to -- very low fertility. Finally, Morgan et al. (2009) argue that China has a set of characteristics that make it increasing likely that fertility levels will fall short of stated intentions. Specifically, using a low fertility proximate determinants model usefully applied in a number of settings, these authors reckon that there are only weak forces leading couples to have more children than intended (e.g., “unwanted” births are rare). In contrast a set of factors are likely to lead to fewer children than intended, especially the effects of fertility postponement in the face of economic pressures.

With much of the speculation about the future of fertility in China (and elsewhere) depending on stated fertility intentions, a closer examination of these intentions is warranted. Evidence suggests that the gap between individual and state fertility preferences is narrowing and that achieved fertility may not reach women’s stated goals due to social and economic constraints

Shanghai provides an interesting and important setting to study fertility preferences because of its significant heterogeneity in policy-sanctioned fertility options now available to its population. Since the launching of the era of economic reform and opening to the outside world, Shanghai, presently the largest city in China with 19 million people as of 2008, has been a center of economic growth in industry, finance and commerce. It has experienced the fastest pace of modernization, market transition and per capita income growth. Shanghai’s history of low fertility is related to socio-economic factors as well as to its long history of fertility control policies, which the Shanghai government started advocating already in the 1960s (Nie and Wyman 2005; Guo 1996). Shanghai’s fertility decline started approximately 10 years ahead of other Chinese provinces. Fertility dropped from four children per woman in 1963 to close to one child per woman in 1979, a level much lower than the national average of 2.7 children per woman at the end of the 1970s, suggesting that in Shanghai a one child norm was already prevalent at a time of the nationwide launch of the One Child Policy (Peng and Cheng 2005; Guo 1996). Although socioeconomic development explains the early onset of the Shanghai fertility transition, the very rapid achievement of low fertility was attributed to the birth planning program, in particular the promotion and regulation of abortion (Guo 1996). Over the last decade, Shanghai period TFR was consistently below 1, reaching a low of 0.88 children per woman in 2008 (Lutz and Basten 2010; Shanghai Population and Family Planning Commission 2010).

After decades of very low fertility, today many newly married Shanghaiese of child-bearing age are themselves only children. By policy, married couples in which both members are singletons are allowed to depart from the strict one-child rule by having two children. This was a provision of the One-Child Policy as promulgated in 1979, but one that until recently, most newly married in China were not eligible to invoke. The extent to which eligible couples are taking advantage of this option is unclear but of great interest. The behavior of this group provides a natural experiment of the impact of relaxing the one child policy.

Shanghai is also a major destination for China's internal migrants. The number of migrants in Shanghai, that is people living in Shanghai without a permanent Shanghai household registration (*hukou*), has grown unabated since the early 1980s, from 0.26 million in 1981 to 2.6 million by 1997 to 4.4 million in 2005, an amount equal to 25% of Shanghai's total population. While the birth planning regulations that apply to migrants with an urban *hukou* are similar to those applying to Shanghai's registered residents, the fertility of migrants with a rural *hukou* is subject to the regulations of their areas of origin, which, with some exceptions, allow rural couples to have two children if the first-born is a girl.

While previous studies of fertility preferences in Shanghai have relied on small nonprobabilistic samples of the Shanghai population (e.g. Nie and Wyman 2005) or on samples of the population living in the most developed urban districts (Liu 2005), we rely on data collected from a probability sample representative of the citywide Shanghai population. We use these data to assess whether there is a pent-up demand for second and higher order children or if a rationale for very small families has established fertility preferences at or below the level currently allowed by Chinese policy. Our results will not be generalizable to the rest of China, especially rural China. However, very low fertility was documented for Beijing, Changchun and Shenyang (the latter two being the capitals of two provinces, Jilin and Liaoning, which boast among the lowest fertility levels in China) (Liu 2005). Differences in fertility between the Shanghai/Beijing pair and Changchun/Shenyang were explained by differences in levels of socioeconomic development (Liu 2005). Hence, Shanghai can provide insights into the future of fertility of other urban areas in China as they approach similarly high levels of social and economic development. It is reasonable to think of Shanghai, a city at the forefront of social and economic transformations, as a window on the future of urban China.

## Data

Data come from the Shanghai Sexual Behavior and Sexual Networks Survey (SSNS), the first ever local sexual networks survey in China conducted between October 2007 and January 2008. The design of the study (see Appendix A for details) yielded citywide representative samples of Shanghai 18–49 year old residents with a Shanghai household registration (*hukou*) and migrants (residents without a Shanghai *hukou*). Response rates, 56% for registered residents and 61% for migrants, were lower than in the first ever nationwide survey of sexual behavior, the 2000 China Health and Family Life Survey (CHFLS), which achieved a response rate of 75% (Parish, Laumann, Cohen, Pan, Zheng, Hoffman, Wang and Ng 2003; Parish, Laumann and Mojola 2007). However, such low response rates are not uncommon in urban China where rapid social changes increasingly constraint access to the urban population and their willingness to participate in social surveys (de Leeuw and Heer 2002; Treiman, Lu, and Qi 2009). In the SSNS, the total sample sizes were adjusted for non-response (see Appendix A for details) with final samples of 1,192 Shanghai registered residents and 496 migrants. Sampling weights were calculated in two stages to compensate for unequal selection probabilities and non-coverage, the latter stage involving calibration of the sample age-sex distribution to match the values in the Shanghai 2005 3% intercensal sample survey. When weighted according to sampling fractions, the dataset had too few young women and men (age 18–24), compared with intercensal survey sample figures, although undercoverage was slightly more severe among young women. After calibration, weighted percentage distributions for urban residence, age, and education in the SSNS paralleled the Shanghai 3% intercensal sample data. The adjusted samples were thus representative of Shanghai registered residents and migrants age 18–49.

Information was collected from respondents on their own and their marital or cohabiting partners' demographic and socio-economic attributes (e.g. age, marital status, education,

previous and present occupation, income, etc.), their most recent three non-marital partnerships and these partnerships' attributes. An additional module on respondents' fertility preferences included questions about current number and sex of children with current spouse or cohabiting partner, personal feeling about current number of children, the number of children they were entitled to have under the current policy regime, and, if they were entitled to more than one child, the type of policy exception. Respondents were also asked whether they would have an additional child in the event of policy relaxation, and reasons for wanting or not wanting an additional child.

The first half of the interview, which included questions on individual social and demographic characteristics and actual and preferred fertility, was administered verbally by interviewers with the traditional paper and pencil method. For the sake of privacy, interviews took place away from the respondents' home, in private rooms in local neighborhood committee offices or in hotels. All interviewees were administered an informed consent during which they were ensured confidentiality of responses and were given a small compensation for successful participation.

To assess potential validity of the responses, at the end of each interview, respondents were asked whether they would participate in a second interview at some later date. Among respondents who agreed to this request (89%), we selected a random sample of 100 to whom we administered a repeat interview after a gap of between one and two months. The items on actual fertility and fertility preferences had an average kappa statistics of 0.89, suggesting very strong agreement between interviews. While this is not the best indicator of accurate reporting, those who reported on these items did so consistently.

Table 1 presents weighted descriptive statistics of the Shanghai population by sex (top panel) and household registration (bottom panel). Migrants make up approximately 40% of the Shanghai male and female populations age 18–49. 71% and 77% of 18–49 year old Shanghai men and women are currently married, and, consistent with very low divorce rates in China (Zeng et al. 2002) and the relatively young age of the sample, very few are divorced or widowed. Most Shanghai residents have only one child. Because of gender differences in mean ages at marriage and first birth, proportionately more women than men are currently married and with child. Differences are starker by household registration. Migrants are, on average, five years younger than Shanghai registered residents. They have less education than the well educated Shanghaiese. Proportionately more migrants report two or more children, while only 3.3% of Shanghaiese do so.

Because all childbearing in China still takes place within the contours of marriage and questions on actual and intended fertility were not asked of unmarried or non-cohabiting respondents, we analyze the data for the combined sample of Shanghai registered residents and migrants but limit the analyses to 1,241 currently married or cohabiting respondents out of a total of 1,689 respondents interviewed for the survey. Unmarried, cohabiting respondents were included only if they acknowledged plans to marry as they may have discussed fertility preferences with their future spouse, and, most importantly, they would know the number of children allowed by policy, a number dependent on their own and their future spouse's characteristics. Cohabiting respondents with plans to marry amounted to 30 of the 34 cohabiting respondents. This small fraction of cohabiting respondents is not surprising even in Shanghai, a city at the cutting edge of social change, but where cohabitation prior to marriage is still frowned upon. Here forth, we will refer to currently married or cohabiting respondents simply as "married."

## Actual fertility, policy fertility and preferred fertility in Shanghai

### Actual versus policy fertility

For the nation as a whole the TFR is very close to the population weighted average of local birth planning targets (Gu et. al.2007). Our Shanghai respondents were asked the number of children that they were allowed to have under the current population policy. Thus for this sample, we can calculate the average number of children allowed per couple. After excluding one respondent who reported a plan number of children of 0 and 16 respondents who did not know their policy limit, Table 2 shows the percentage distribution of the Shanghai population by plan parity together with population counts (adjusted with weights to reflect the 2005 3% intercensal sample counts) based on 1,224 observations and average number of children born by plan parity. Most Shanghai people (75.1%) can have one child by policy, 24.9% can have two and 0.07% can have three. Thus, if all realized their current plan fertility, the average number of children born to Shanghai married men and women would be 1.25.

Note that this level is above one child because there are a range of policies applicable to the Shanghai population. The most common reason is a rural household registration that allows for a second child given that the first is a girl (56%). The next most important reason for an exemption is that both spouses are only children (25% of all exemptions). Indeed the role of migrants in determining fertility levels in Shanghai can be seen in Figure 2, which shows the mean number of children for married female registered residents (N=441) and married female migrants (N=210). This figure summarizes the completed fertility of a synthetic cohort. The fertility of married women with a Shanghai *hukou* is complete by the early 30s and does not exceed one child, while some migrant women are moving beyond one child starting in their early 30s. The timing of second births is consistent with the birth planning rules according to which eligible couples are allowed a second child after four years of spacing from the birth of the first child or when the mother turns 28. However, migrant women in Shanghai fail to reach the 1.5 child limit that we would expect if all migrants originated from rural areas that allow a second child. A variety of factors may explain the lower fertility of migrant women in Shanghai: migrant's selectivity, assimilation, and type of policy in their locations of origin. In fact, about 50% of female migrants in Shanghai have their household registration in areas with an extant one-child policy: 25.2% are registered in another urban area, while 31% of women with a rural *hukou* are registered in Jiangsu province or Sichuan province, the only two provinces in China which implement a province-wide one child policy regardless of *hukou* status.

Shanghai respondents were asked the hypothetical question whether they would have another child if birth planning policy was abandoned. We use these responses and information on current parity and plan parity to address the counterfactual: what would the average number of children be in the absence of policy constraints? The answer to this question requires that we consider where each person is vis-à-vis their plan-parity. Each percentage cell in Table 3 shows the fraction of the Shanghai married population age 18–49 by actual and plan parity.

62.6% of Shanghai residents are allowed one birth and are at parity one, 8.1% are allowed two and are at parity two, while 14.1% are at parity one but are one birth shy of their plan parity of two and 10.5% (8.5+2.0) have yet to have the one or two children that they are allowed. Few (3.7+0.7 = 4.4%) are above the policy limit, although these represent about one third of the people in Shanghai with two or more children ( $4.4/(11.8+1.03) = 0.34$ ).

## Fertility preferences in the hypothetical absence of policy

The columns of Table 4 show plan fertility relative to current parity and the rows display a measure of preferred parity, derived from information on current number of children and responses to a question of whether respondents would have another child in the event of policy relaxation. This table presents results for married people with at least one child.

From Table 4, among Shanghai married men and women who are allowed one birth and have one birth, 19.8% say they would have or are unsure if they would have another birth if the birth planning policy was relaxed. We make the “liberal” assumption that the preferred parity for these respondents equals 2. Of those whose actual and plan parity are both 2, only 7% state that they would have or are uncertain about having another child. We assign these people a preferred parity of 3. Of the few who are above the policy limit, only 4.9% might have another birth (say yes or “don’t know”) if policy were relaxed. The fourth column shows an interesting group. These are people who by policy are allowed 2 children but currently have one. Surprisingly, only 33.9% of these say they would have another child even if policy changed. In fact, considering married men and women with one child, satisfaction with their current number of children does not vary between those who are allowed to have one more and those who are not – 81% and 76% respectively say one child is just right ( $p=0.26$ ). That such a high fraction of married people in Shanghai is satisfied with their only child regardless of whether they are entitled by policy to have a second speaks to the future of fertility in the event of policy relaxation.

Concerns regarding this interpretation (that Shanghai men and women are satisfied with one child) could be raised. One possibility is that people would intend no more children (even if policy changed) because they are “too old” – in a social or biological sense. To address this concern, in Table 5, we focus on those currently with one child (the majority of those in Table 4: 821+146), and disaggregate by age of child (0–9, 10+) and age of mother ( $\leq 30$ , 30+). People in couples where mother and child are young are at a life course stage where having an additional child is most likely (i.e., they are not “too old”).

Arguably one key estimate in Table 4 is the percentage of people (19.8%) at *Parity 1-Policy 1* who report that they would have more children if policy changed (or the 80.2% that would not). If we focus on cases with a young mother ( $\leq 30$ ) and a young child ( $< 10$ ), the percentage that would have another child is higher, 30%. But this estimate still implies that the great majority of those at *Parity 1 – Policy 1* (70%) are not being constrained by policy. The second key estimate in Table 4 is the percentage of those at Parity 1 that are allowed to have a second child under the current policy regime (*Parity 1 – Policy 2*). If we again focus on cases where mother and child are young (see Table 5), 43% would have another child if policy restrictions were lifted. The comparable estimate for the full sample (in Table 4) is nearly 10% lower (33.9). So intentions are sensitive to life course stage, but even among people where mother and child are young, most do not intend another child even with policy relaxation.<sup>3</sup> These findings suggest that: 1) any change in policy will not affect fully the entire population of women. Some will be “too old” to respond to the policy changes. This will dampen the immediate effect. But all subsequent cohorts will pass through this life course stage and could be impacted by a policy change.

The distribution of preferred parity of childless men and women is displayed in Table 6 by current and plan parity. 7.5% of married respondents were childless at the time of the survey. It is hard to estimate with confidence preferred parity in the absence of policy for

<sup>3</sup>These analyses were also performed separately by gender of respondent but no meaningful gender differences were observed in reports on family size preferences by actual and policy parity categories or when we disaggregated by mother’s age or age of first child. These results (not shown here) are available from the authors upon request.

these individuals. Childless people's fertility preferences are highly unstable. Forecasting their fertility under the current policy is already a difficult task since this group includes some people who are childless by choice, some who are in subfecund couples and some who have yet to reach the policy-sanctioned parity potential (70% of childless respondents have been married for three years or less). For childless respondents at the time of the survey, we therefore provide a range of preferred estimates which include a low, medium and high estimate of preferred parity in the absence of policy. Our low estimate assumes that childless respondents consider the answer to the hypothetical question "would you have another child in the absence of policy?" as a question on their desired number of children. Under this low estimate of preferred fertility, we assign one child only to respondents who answered in the affirmative to the hypothetical question and assume that those who did not answer prefer childlessness. The medium estimate assumes that all childless respondents will have at least one child and a fraction of them, corresponding to those who answered in the affirmative to the hypothetical question of fertility in the event of policy relaxation, would have an additional child. For these respondents, we assign two children to those who say they would have another child if policy relaxed and 1 child otherwise. The high estimate assumes that currently childless respondents will all reach their plan parity and a fraction of them, corresponding to those who answered in the affirmative to the hypothetical question of fertility in the event of policy relaxation, would have an additional child. We assigned to each their plan parity limit and one more child if they said they would have an additional child in the event of policy relaxation. This is equal to a preferred mean number of children among childless couples of 0.40, 1.40, and 1.59. The true value is likely to lie somewhere between 0.40 and 1.40 because 43% of childless married men and 38% of childless married women are older than 30, which means that a sizable proportion of childless men and women have already surpassed an age by which Chinese men, but especially Chinese women, are expected to have a child.

Combining the "derived" preferred parity categories for childless people from Table 6 and for people with one or more children from Table 4, we estimate that married people in Shanghai "prefer" 1.25, 1.36 or 1.38 children, depending on which assumptions we make about the preferred parity of childless couples. This is respectively equal to, 8.6% higher or 10.2% higher than their current plan parity of 1.25. Stated differently, if policy were relaxed and all those answering in the affirmative to the hypothetical question of "would you have another child if policy was relaxed?" had one more child, the mean number of children would not exceed 1.38 children. If we only focused on cases where the last-born child is younger than 10 and the mother is age 30 or less, the estimate of intended fertility would rise to 1.43. Thus, even allowing for the sensitivity of intentions to life course stages and projecting the behavior of future cohorts, intended fertility in the absence of policy would still be less than 1.5 children.

### **Are stated fertility preferences consistent with policy limits?**

Are people's stated intentions consistent with policy limits or do they reflect their real preferences unfettered by political correctness? In Table 7, we compare respondents' feeling about their current number of children and intentions in the absence of policy by cross-classifying satisfaction with current number of children by preferred parity and actual parity versus policy parity. Among people with two children, there is nearly complete consistency between their stated intentions and their feelings about current number of children. Among people with one child, 90% of those who say they would not want another child report that their current number of children is "just right" and these feelings do not differ by whether they are entitled to two children by policy ( $p = 0.67$ ). But 7.6% with one child and an intended parity of one say their current number of children is too few. This might suggest that stated intentions incorporate the current policy limits, but it might also suggest other



non-policy constraints which prevent the achievement of desired family size. The inconsistency between stated intentions and satisfaction with the current number of children is especially striking among those with one child who intend two children. Despite their preference for two children in the absence of policy, close to half feel their only child is just right. A “just right” answer by those who intend two children but are allowed one by policy might suggest that respondents respond with the state’s preferences in mind regarding their current number of children but with their personal preferences in mind regarding a hypothetical absence of the policy.<sup>4</sup> However, a similar fraction ( $p = 0.84$ ) of those who can have two children by policy and prefer two children express satisfaction with their only child. This apparent inconsistency between preferred family size in the absence of policy and feelings about the current number of children suggests that the latter measure reflects non-policy constraints. This explanation is reinforced by rationales for intending no more children as shown in Table 8 below.

### What do rationales given for not wanting or wanting another child suggest?

Table 8 shows the most frequently chosen reasons in reply to the question: “What are the main reasons why you would *not* have another child,” given by those with one only child who said they would not have another child in the event of policy relaxation, by plan parity. Respondents were invited to provide a maximum of three reasons. The three most commonly given reasons for not wanting another child are economic reasons (“can’t afford another one” or “the burden of raising children is too heavy”) and the policy slogan “one child is enough.” The high prevalence of the latter response, accompanied by the evidence that the perceived costs of children are more frequently chosen by those who have already achieved their policy fertility, provides strong indication that the policy rules have been internalized. The fourth most common reason is “I have no energy” which, in the Chinese context, might be a preferred option to the up-front “too old or in poor health”.

Table 9 displays the most frequent reasons given in response to the question: “What are the main reasons why you would have another child (provide a maximum of three reasons)” by those with one child who said they would have another child in the event of policy relaxation, by plan parity. “To give our child a playmate” is the most frequently given reason for intending a second child. This rationale is stronger among those who have achieved their current policy limit than among those who are eligible for a second child and may reflect different preferences for family size by parents who grew up with siblings (policy parity 1) and those who grew up without siblings (policy parity 2), consistent with findings of the effect of siblings on desired family size in Shanghai and elsewhere (Lutz, Basten and Qiang 2010). Otherwise, differences by policy limit are quite small.

### Conclusion: The effect of policy on stated intentions

We have addressed the counterfactual question: “What would happen to fertility in Shanghai if the birth planning policy was relaxed?” Specifically, we compare fertility levels that would result if all Shanghai people had all births allowed to them under current policy with the levels that correspond to their “preferred parity” in the absence of policy constraints. To measure this “preferred parity”, we rely on Shanghai women and men’s responses to the question: “If birth planning policy were to relax in a way that would allow you to have one more child, would you wish to have another child?,” collected in a citywide probability sample of the Shanghai population of registered residents and migrants in 2007–2008.

<sup>4</sup>This discrepancy between personal preferences and the state’s preferences was first noted by Milwertz (1996).

Most people who live in Shanghai are allowed only one child and currently have one child. When asked this hypothetical question, 19.8% of this group would wish to have another child or is uncertain. This finding does indicate substantial “pent-up” demand for a second child. Very few people with two or three children intend an additional child even in the event of policy relaxation. The most remarkable result is the large proportion of those eligible for two children who do not intend to have a second child (66.1%). These results are partially offsetting such that the mean preferred family size is estimated to fall between 1.25 and 1.43, depending on the assumptions we make about the preferences of respondents who were childless at the time of the survey and allowing for the sensitivity of intentions to life course stages. We also estimated the mean number of children if women had exactly the number of children allowed by current policy --1.25. Thus, the maximum level of preferred fertility in the absence of policy in Shanghai of 1.43 is 14% higher than the level consistent with everybody achieving their policy allowance, a difference which captures the deflating effect of policy on fertility intentions. However, the failure of a substantial number of people with one child to reach their policy allowance of two children implies a level of completed fertility of 1.16 if policy does not change, well below the policy estimate of 1.25. This sizable group of people for whom policy is irrelevant intends fewer than two children because of economic constraints, a perceived heavy burden of raising children in competition with other demands and compliance with and internalization of the One-Child policy. With continued social and economic development, the number of people who prefer one child or even childlessness might increase because of the growing expense of children as well as opportunities which compete with childrearing, especially in a city like Shanghai, but increasingly so in other urban areas characterized by pervasive ideologies stressing self-actualization, materialism and consumerism.

In thinking about the implications of intentions for actual behavior, a broader perspective is useful. In most contemporary contexts, fertility intentions are powerful predictors of fertility at the individual level (Schoen et. al. 1999; Morgan 2001), but they are far from perfect. Moreover, the “errors” (i.e., the differences between intended and achieved fertility) frequently do not “balance” (see Morgan 2001). Thus intentions do not provide reliable indicators of cohort or individual-level fertility (Westoff and Ryder 1977). Bongaarts (2001) has offered a conceptual model for understanding the pattern of such errors at the aggregate level (and the logic can be extended to the individual level; see Morgan and Rackin 2010).

Morgan et al. (2009) have applied the Bongaarts model to the Chinese case. Specifically, there is a set of factors that can inflate fertility relative to intentions and a set that can deflate it. The most important deflationary factors include: i) a “mechanical” effect of fertility postponement on the TFR (see Bongaarts and Feeney 1998), ii) a biological effect of declining fecundity at older ages and iii) a social process whereby postponement leads to revisions downward in children desired due to competition with other goals and preferences. It is indeed deflationary factors that, according to Morgan (2003), account for much of below replacement fertility in developed countries. All of these forces are operative in China and the latter two suggest that the actual fertility of contemporary Chinese cohorts may be well below the level intended. Yet, the greatest uncertainty regarding future Chinese fertility is represented by the levels of intended fertility in the event of current policy relaxation. The extent of the demand for children pent-up by current birth planning policy was raised by Morgan et al. (2009). It is precisely the question we address in this paper.

For Shanghai, our results suggest that in the absence of policy, preferred fertility would rise only modestly (by no more than 14%) over a policy fertility level of 1.25. Deflationary pressures, to the extent they are operative, would further deflate the expected impact of increased intentions on fertility, and, in the absence of major inflationary factors, Chinese below replacement-level intentions would imply fertility levels well below-replacement. To

explain, a major inflationary factor (i.e. a factor increasing fertility relative to intentions) in some contexts is “unwanted fertility” – births resulting from unintended pregnancies to women who intended no more children). Current availability of birth control, including the acceptability of abortion, and a historical/cultural “rationality” about child numbers (Greenhalgh 1988) suggests contraceptive failure will exert a very modest inflationary effect in China. Sex preference can also be an inflationary factor. However, its future effects are likely to be modest for several reasons. First, persons can allow for sex preferences in their statement of intentions. Second, sex selective abortion reduces the impact of this factor for those willing to use it. Third, our data suggest that son preference in contemporary settings like Shanghai is quite modest.

In sum, Shanghai people report very low fertility intentions. They also report that their fertility intentions would increase only modestly if family planning restrictions were relaxed. Even this modest increase is suspect because factors that can deflate fertility relative to intentions are likely more powerful than the inflationary ones (in Shanghai and beyond). The norm of two children has eroded because of the experience of accommodation to policy and economic constraints.<sup>5</sup>

Our interpretation of these results and the literature on fertility intentions and behaviors leads us to conclude that the current birth planning policy in Shanghai is anachronistic – in the contemporary socioeconomic context very low fertility would exist without it.

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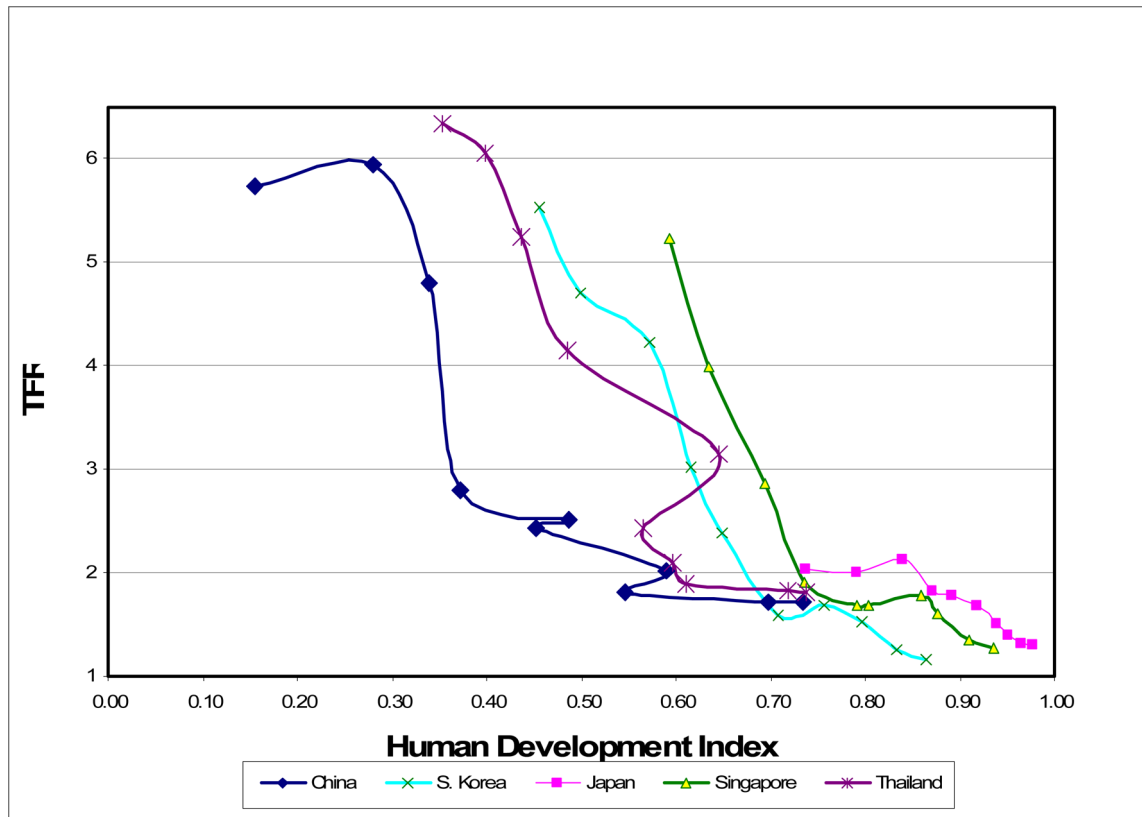
<sup>5</sup>However, this norm has not disappeared. The majority of people who are only eligible for one child say they prefer this only child even with policy relaxation, but the preference for a second child to give the first child a playmate is more visible among those whose fertility is constrained to one child, who are more likely to have grown up with siblings.

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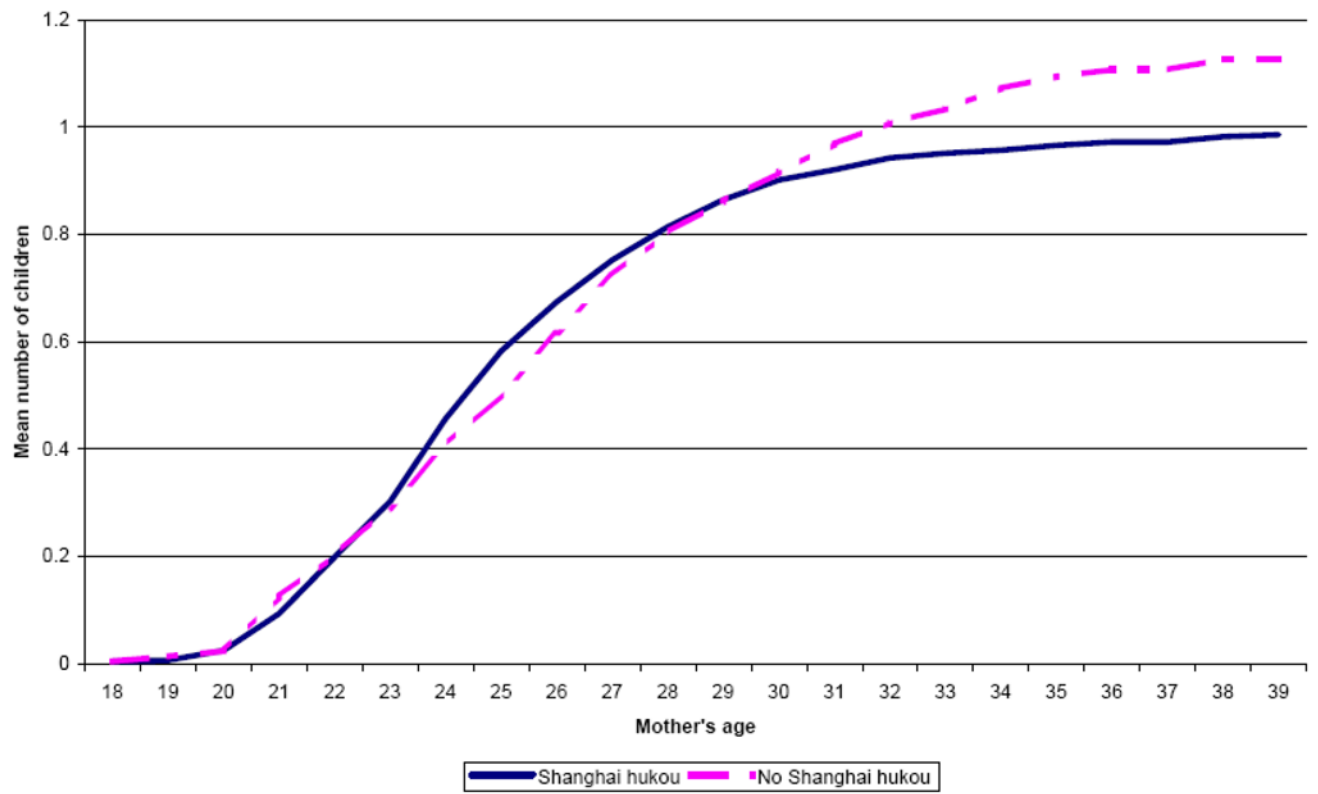
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## Appendix A: Sampling Scheme

The samples of Shanghai registered residents and migrants were selected as random subsamples of Shanghai registered residents and migrants from a stratified multi stage clusters sample screened by the Shanghai Statistical Bureau for the 2005 3% intercensal survey of the Shanghai population. Respondents for both subsamples were selected from 100 small groups (SG) (approx. 100 person each) in 50 neighborhood committees (NC) randomly selected from the 963 NCs selected for the 3% sample within each of three groups of the 19 Shanghai districts used for the 3% sample -- central city, inner suburbs, and outer suburbs--, with allocation proportionate to the population of the stratified subsample of NCs. Separate subsamples were selected for 18–49 year old registered residents and migrants in the two remaining sub-sampling stages. For the resident with Shanghai *hukou* subsample, exactly 12 registered residents were recruited within each selected SG using a currently updated list of household addresses in the SG as the sampling frame and one 18–49 year old household resident was randomly chosen from among those living in each participating household using a conventional “Kish table.” For migrants, a similar procedure was used with 5 migrants recruited per SG using a currently updated list of household addresses with at least one migrant present. Of the 1,200 Shanghai registered residents and 500 migrants identified for participation in the survey, participation rates were 56% for Shanghai registered residents and 61% for migrants. Of the total samples, 17.7% Shanghai registered residents and 17.8% migrants refused to be interviewed, 14% and 12% did not participate because of failure to reach them, 3.1% and 3% did not participate for other reasons. No reason was provided for nonparticipation for the remaining 9.7% and 5.2% of the samples. To prevent non-response from affecting the size of the samples, respondents who did not participate were replaced in the fourth stage sampling with respondents selected from replacement samples randomly selected from the sampling frame of households in each SG in a similar fashion as respondents selected for the initial samples. This yielded total sample sizes adjusted for non-response of 1,192 Shanghai registered residents and 496 migrants.



**Figure 1.**  
TFR by Humand Development Index: Selected Asian Countries



**Figure 2.** Mean number of children by mother's age at birth of last child. Shanghai 18–49 currently married women with and without Shanghai permanent registration. SSNS, 2008

**Table 1**

Weighted frequency distribution (%) of Shanghai residents (age 18–49) by gender and household registration status (*hukou*), SSNS, 2008.

	Male (50.9%) (N=840)	Female (49.1%) (N=848)
Household registration ( <i>hukou</i> )		
Shanghai hukou	58.7 (590)	59.8 (602)
Non-Shanghai hukou	41.3 (250)	40.2 (246)
Age (mean)	33.6	33.2
Educational attainment		
Primary or less	5.2 (41)	10.5 (85)
Junior high	43.7 (322)	40.3 (306)
Senior High	29.3 (248)	27.3 (251)
More than senior high	21.8 (229)	21.9 (206)
Marital status		
Currently married	70.8 (559)	77.5 (651)
Cohabiting/plans to marry	3.3 (24)	1.0 (7)
Not married	24.3 (230)	19.3 (153)
Widowed	0.2 (3)	0.3 (6)
Divorced	1.4 (24)	1.9 (31)
Current number of children with current spouse/cohabiting partner (%)		
0	12.9 (72)	8.4 (51)
1	72.5 (436)	80.6 (543)
2	12.9 (68)	10.6 (61)
3	1.6 (7)	0.4 (3)

	Shanghai hukou (59.2%) (N=1,192)	No Shanghai hukou (40.8%) (N=496)
Gender		
Male	50.4 (590)	51.6 (250)
Female	49.6 (602)	48.4 (246)
Age (mean)	35.7	30.0
Educational attainment		
Primary or less	3.9 (44)	13.6 (82)
Junior high	33.6 (368)	54.2 (260)
Senior High	32.0 (392)	22.9 (107)
More than senior high	30.5 (388)	9.3 (47)
Marital status		
Currently married	74.5 (809)	73.4 (401)
Cohabiting/plans to marry	0.9 (14)	4.0 (17)
Not married	21.5 (307)	22.4 (76)
Widowed	0.4 (9)	0.0 (0)
Divorced	2.7 (53)	0.01 (2)



	<b>Shanghai hukou (59.2%) (N=1,192)</b>	<b>No Shanghai hukou (40.8%) (N=496)</b>
Current number of children with current spouse/cohabiting partner (%)		
0	9.0 (77)	13.0 (46)
1	87.7 (723)	60.9 (256)
2	3.3 (23)	23.6 (106)
3	0.0 (0)	2.5 (10)

All percentages reflect sampling weights but their numerators (in parentheses) are the unweighted cell sizes

**Table 2**

Percentage distribution by policy parity. Shanghai 18–49 married men and women. SSNS 2008 (N=1,224)

	Percentage	Population counts	Average no. of children born (policy parity)
1	75.1	168,602	0.7505
2	24.9	55,873	0.4974
3	0.07	163	0.0022
Total	100.00	224,638	1.25

Cell size exclude 16 “don’t know” cases on plan parity and one case who reported his plan parity at 0. All percentages reflect sampling weights. Population counts were obtained after adjusting the survey data with sampling weights accounting for unequal selection probabilities and non coverage

**Table 3**

Joint percentage distribution of current and policy parity. Shanghai 18–49 married men and women. SSNS 2008 (N=1,224; Population Counts = 224,638)

Current number of children	Number of children allowed by policy			
	1 child	2 children	3 children	Total
0	8.5	2.0	0.0	10.4
1	62.6	14.1	0.0	76.8
2	3.7	8.1	0.0	11.8
3	0.2	0.7	0.1	1.03
Total	75.1	24.9	0.1	100.0

Cell size exclude 16 “don’t know” cases on plan parity and one case who reported his plan parity at 0. All percentages reflect sampling weights.

**Table 4**

Percentage distribution by preferred parity by actual and policy parity categories. Shanghai 18–49 married women and men with at least one child. SSNS 2008

Preferred parity in the absence of policy	Parity 1, policy 1	Parity 2, policy 2	Parity 2, policy 1	Parity 1, policy 2	Parity 3	Total
1	80.2			66.1		66.5
2	19.8	92.7	95.1	33.9		31.5
3	0.0	7.3	4.9		100.0	2.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
N	821	85	43	146	10	1,105
Counts	140,713	18,119	8,340	31,532	2,315	201,019

Unweighted cell sizes exclude 12 “don’t know” cases on policy parity with at least one child. All percentages reflect sampling weights. Unweighted cell sizes (N) are provided in parenthesis. Weighted cell sizes (population counts) are provided for column totals.

**Table 5**

Percentage preferring two children in the absence of policy by actual and policy parity categories, age of their only child and age of mother. Shanghai 18–49 married women and men with one child. SSNS 2008

Child age	Parity 1, policy 1		Total	Parity 1, policy 2		Total	Total (n)
	Mother's age	Mother's age		Mother's age	Mother's age		
Child age	30 or less	31+		30 or	31+		
0–9	30.0 (158)	28.9 (124)	29.7 (282)	43.0 (73)	21.7 (25)	38.8 (98)	32.3 (380)
10+	-- (1)	13.3 (538)	13.2 (539)	-- (0)	20.2 (48)	20.2 (48)	13.9 (587)
Total	30.0 (159)	16.3 (662)	19.8 (821)	43.0 (73)	20.8 (73)	33.9 (146)	22.3 (967)
Counts	35,297	105,416	140,713	18,567	12,964	31,532	172,244

All percentages reflect sampling weights. Unweighted cell sizes (N) are provided in parenthesis. Weighted cell sizes (counts) are provided for column totals.

**Table 6**

Percentage distribution by preferred parity by actual and policy parity categories. Shanghai 18–49 married women and men with no children, according to three scenarios. SSNS 2008

Preferred parity in the absence of policy	Low			Medium			High		
	Par 0, poli 1	Par 0, poli 2	Total	Par 0, poli 1	Par 0, poli 2	Total	Par 0, poli 1	Par 0, poli 2	Total
0	62.1	52.2	60.2						
1	37.9	47.8	39.8	62.1	52.2	60.2	62.1		50.4
2				37.9	47.8	39.8	37.9	52.2	40.6
3								47.8	9.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Count	19,008	4,422	23,430	19,008	4,422	23,430	19,008	4,422	23,430
N	93	25	118	93	25	118	93	25	118

Unweighted cell size exclude 4 don't know cases on policy parity and no children and 1 case reporting a plan policy of 0. All percentages reflect sampling weights.

**Table 7**

Percentage distribution of feeling about current number of children by preferred parity (in absence of policy), and actual versus policy parity. Shanghai 18–49 married women and men with at least one child. SSNS 2008.

	Preferred parity 1			Preferred parity 2				Total (N)
	Too few	Just Right	DK	Too few	Just Right	DK		
Parity 1, policy 1	7.6	90.1	2.3	44.2	45.3	10.5	100.0 (159)	
Parity 1, policy 2	5.2	92.0	2.8	40.1	46.1	13.9	100.0 (48)	
Parity 2, policy 2				0.0	98.9	1.12	100.0 (80)	
Parity 2, policy 1				0.0	100.0	0.0	100.0 (40)	
Total	7.23	90.4	2.4	26.2	66.5	7.3	100.0 (327)	

All percentages reflect sampling weights. Ns are unweighted cell size.

**Table 8**

Percent with one child giving selected reasons for *not* wanting an additional child by policy parity. Shanghai 18–49 married women and men with one child who would not have an additional child in the event of policy relaxation, SSNS 2008

	Policy parity 1	Policy parity 2	Total
One child is enough	54	55	54.2
Cannot afford another one	62	53	60.9
The burden of raising children is too heavy	73	63	71.7
Could affect quality of life	10	11	10.2
Too much pressure at work	15	19	15.9
Too old or poor health	1	2	1.2
No energy	22	23	22.5
N	662	99	761

All percentages reflect sampling weights but their denominators (Ns) are the unweighted cell sizes.



**Table 9**

Percent with one child giving selected reasons for *wanting* an additional child by policy parity. Shanghai 18–49 married women and men with one child who would have an additional child in the event of policy relaxation, SSNS 2008

	Policy parity 1	Policy parity 2	Total
I can afford it	11.4	13.9	12.1
My personal work situation allows it	2.9	2.9	2.9
We have enough space at home	8.7	5.2	7.7
I am in good health	10.7	16.5	12.3
I have a good marriage	9.5	10.4	9.7
Children bring happiness	10.8	11.1	10.9
I have help at home	4.1	5.3	4.4
Children provide security in old age	17.8	9.3	15.4
To give my child a playmate	52.6	34.5	47.5
To achieve gender balance	14.0	6.7	12.0
To carry on the family line	5.2	4.6	5.0
N	159	47	206

All percentages reflect sampling weights but their denominators (N's) are the unweighted cell sizes.