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Ultra-low fertility in Shanghai: a model for elsewhere?

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The end of 'lowest-low fertility'?

For many parts of the industrial world, the past twenty years have been characterized by low, and falling, period total fertility rates (pTFR). In the early 2000s, Kohler *et al*. coined the expression 'lowest-low' fertility, referring to societies where pTFRs fell below 1.3 – *far* below the replacement level of 2.1 (Kohler, Billari et al. 2002; Billari and Kohler 2004). Levels this low, 'characterized by a rapid shift to delayed childbearing, a low probability of progression after the first child (but not particularly low levels of first-birth childbearing) [and] a 'falling behind' in cohort fertility at relatively late ages (in Southern Europe)' were expected to not only persist in certain Eastern and Southern European countries, but also spread elsewhere (Kohler, Billari et al. 2006). Numerous scholars expressed pessimism about the likelihood of a significant upswing of fertility rates (Lesthaeghe and Willems 1999)and low fertility rates were written into national forecasts – most notably Japan, who forecast pTFRs of below 1.3 until 2055 (Kaneko 2008). The so-called 'low-fertility trap' hypothesis can be viewed as central to a pessimistic view of future population trends (Lutz, Skirbekk et al. 2006). This hypothesizes that small family sizes will become socialized and normalized over time, and become self-reinforcing through economic circumstances and cultural reflection. A first sign of this would be a move away from the oft-stated desired number of children of two.

Recently, however, a pTFR upturn has been reported in a large number of settings (Frejka and Sobotka 2008; Goldstein, Sobotka et al. 2009). Investigating the *reasons* for this shift are clearly crucial. An important study by Myrskylä *et al*., for example, suggests that there is a link between societal development (as measured by the Human Development Index) and fertility rates, with an about turn in falling pTFRs occurring after a critical level (Myrskylä, Kohler et al. 2009; Tuljapurkar 2009). However, perhaps the more influential reason given for this change in

pTFR patterns is that of a so-called 'tempo distortion' – that the very low rates of pTFR in Europe can be largely attributed to being a temporary consequence of the increasing age at motherhood (Bongaarts 2002; Sobotka 2004; Bongaarts and Feeney 2006). In other words, as the *postponement* of births reduces the number of births in a given period, the pTFR appears lower even if the completed cohort fertility remains unchanged; as such, once this tempo distortion is 'worked through', pTFRs should rise. (Goldstein, Sobotka et al. 2009). This assumption permits Goldstein *et al*. to assert that 'it appears that the widespread decline of TFRs to very low levels that began in many parts of Europe and East Asia in the early 1990s is nearly over, at least in Europe' (Goldstein, Sobotka et al. 2009)

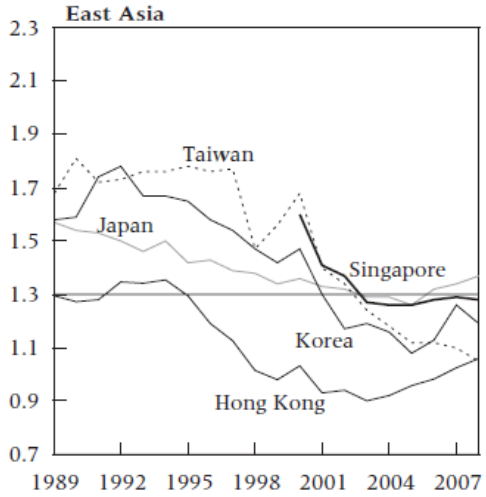
Low fertility in East Asia

The tempo-distortion effect within Europe is, undoubtedly, highly convincing. In Goldstein *et al*., the same pattern of a European fertility upswing is tentatively reflected in East Asia. Rates across the region fell heavily during the economic and financial crises of the 1990s, particularly as a consequence of the (Jones, Hull et al. 2000). As Table 1 (reproduced from Goldstein *et al*.) demonstrates, while pTFRs are still very low they *have* risen in a number of East Asian settings. However, the plot of pTFRs from recent years, also reproduced from Goldstein *et al*. is hardly indicative of a clear and sustained rise.

Table 1: Recent patterns of pTFRs in five East Asian settings, reproduced from (Goldstein, Sobotka et al. 2009)

Region/country	**Population in 2008 (million)**	**Lowest TFR**		**TFR in 2008**		**Total years of TFR <1.3**
		Year	*TFR*	*TFR*	*Change from lowest level*	
Hong Kong	7.0	2003	0.90	1.06	0.16	17
Japan	127.8	2005	1.26	1.37	0.11	3
Korea	48.3	2005	1.08	1.19	0.11	7
Singapore	4.8	2005	1.26	1.28	0.02	6
Taiwan	23.0	2008	1.05	1.05	0.00	6

Figure 2: pTFRs in five East Asian settings, 1989-2007, reproduced from (Goldstein, Sobotka et al. 2009)



Any examination of fertility patterns in China, meanwhile, is even less clear. There is, for example, considerable debate regarding the severity of undercounting of births and the effect that this might have on any forthcoming vital statistics (Merli 1998; Merli and Raftery 2000; Zhang 2004; Morgan, Zhigang et al. 2009). Despite this, a number of scholars have either played down the significance of under-reporting, or have created tests and weights to counterbalance the effect (Feeney and Jianhua 1994; Yi 1996; Retherford, Choe et al. 2005; Cai 2008). This debate is usefully re-stated in a paper by Lutz *et al*., which presents not one, but *31* different estimate for the pTFR if China in 2000 gleaned from the methodologies of 19 different authors (Lutz, Scherbov et al. 2007). These *national* pTFRs range from 1.22 (NSB 2002) up to 2.3 (Liang 2003) and are presented in a simplified version in Table 2. The general consensus appears to converge around 1.5-1.8.

Table 2: Different estimates of pTFR for China in 2000, adapted from (Lutz, Scherbov et al. 2007)

pTFR											
1.2	***1.3***	***1.4***	***1.5***	***1.6***	***1.7***	***1.8***	***1.9***	***2.0***	***2.1***	***2.2***	***2.3***
(NSB 2002)	(Yu 2002; Ding 2003; Zhang and Cui 2003; Retherford, Choe et al. 2005)	(SPFC 2002)	(Yu 2002; Retherford, Choe et al. 2005; Cai 2006; Zhang and Zhao 2006; Guo and Chen 2007)	(Yu 2002; Yuan, Yu et al. 2003; Zhang and Cui 2003; Zhang 2004; Scharping 2005; Cai 2006)	(Yu 2002; Wang 2003; Yuan, Yu et al. 2003; U.S. Census Bureau 2004)	(SFPC 2001; ESCAP 2002; Yu 2002; CPDRC 2003; Zhai 2003; Zhang and Cui 2003)		(Zhang and Cui 2003; Zhang 2004)			(Liang 2003)

Note: Where the same study appears more than once, this is because either a range is given, or different methods of calculation are performed. For a fuller explanation of the various methodologies employed, see (Lutz, Scherbov et al. 2007)

However, in a country as large and diverse as China, there are likely to be strongly regional differentials in pTFR. These have been identified by numerous sources (NBS 2007; Chen, Retherford et al. 2009). As Chen notes, 'In 1975, only two provinces—Beijing and Shanghai—had below-replacement fertility, but by 2000, 29 out of 31 provinces had below-replacement fertility. Among these 29 provinces, 22 had a total fertility rate (TFR) below 1.7, and 20 provinces had a TFR below 1.5' (Chen, Retherford et al. 2009).

Calculating the *number* of people in China living in 'lowest-low' fertility regimes (i.e. with pTFRs of 1.3 or below) is important to gauge the scale of the issue in East Asia, given the relative population sizes of these provinces compared to the areas listed in Table 1 and, indeed, to the average European country. Goldstein *et al*., in an earlier version of their *Population and Development Review* paper, used provincial data based upon the 2000 Census to try to calculate this figure. By using two different methodological principles (Baochang, Feng et al. 2007; NBS 2007), they calculated that 12 provinces experienced a 'lowest-low' fertility regime in 2000, accounting for 464.0/473.4 million people, or roughly 36% of China's total population.

In 2005, however, an inter-census population survey was performed on a 1% national sample (Weimim 2005). The enumeration was taken between November 1st and 15th 2005, where over 200,000 enumerators and supervisors made visits to 5.43 million households in 77,000 enumeration blocks in 61,000 rural villages and urban neighborhood committees from 21,000 townships throughout China (Nailin 2006). Although continuing problems have been identified with the inter-census survey regarding undercounting (Nailin 2006), on the whole a large number of improvements were made upon the 2000 Census with specific measures incorporated to minimize under-counting and quality control methods designed to offset sampling bias (Zhang 2007; Zhu, Lu et al. 2009). After adjusting for the sample size, we were able to produce new simple estimates of pTFR in China based upon the 2005 Inter-census survey. Preliminary results from this exercise suggest that the proportion of china experiencing 'lowest-low' fertility has not declined – rather it appears to have increased since 2000.

The significance of having roughly 500 million people living in a 'lowest-low' fertility regime should not be underestimated – especially given that the total size of the countries/areas reported by Goldstein *et al*. to have had a pTFR of <1.3 numbers only 790.8 million (Goldstein, Sobotka et al. 2009). This fact is clearly recognized by Goldstein *et al*., who acknowledge that 'many provinces of China, most of them well above the population size of an average European country, probably experience sustained lowest-low fertility' (Goldstein, Sobotka et al. 2009). However, they go on to state that 'reliable data are unavailable and lowest-low fertility there may be largely dictated by strict government policies promoting one-child policies' (Goldstein, Sobotka et al. 2009). In the remainder of this paper, we focus on one particular province – Shanghai – in an attempt to get a clearer picture of the state of fertility there, and the mechanics underlying the particular demographic state.

Shanghai

Shanghai is the largest city in China, and one of the largest in the world. It has seen phenomenal growth in the past thirty years as a financial, commercial and industrial centre. The 'headline' population of Shanghai in 2008 is given as 18,884,600. To put this in context, this is 1.42% of the total population of China, is greater than the Netherlands and roughly the same size as all of the Balkan States combined. This figure, however, is the *resident* population as calculated by the

Shanghai Statistical Bureau. One of the most significant problems in defining the 'true' demographic characteristics of Shanghai involves the number of temporary migrants to the city. They are locally termed as 'floating population' as they are not registered locally. In 2000, the *resident* population of Shanghai was calculated to be 16,086,300 while the *registered* population was 13,096,300, giving a floating population of 2,990,000 (or 18.58%). In 2008, meanwhile, the proportion had risen to 27.38%. Furthermore, if one includes the estimated number of migrants resident in Shanghai for less than six months (1,248,500) the proportion increases to 33.95% (Shanghai Statistical Bureau 2009). While the consequences of such a large body of migrants in the city is addressed later on in the paper, at present it is enough to note that the fluidity of Shanghai's population presents many difficulties in defining demographic characteristics with any certainty.

Table 3: Characteristics of Shanghai Province's demographic profile in comparison to other Chinese Provinces, 2007 (unless otherwise stated) (China Statistical Bureau 2009)

	Lowest Illiteracy	**Advanced Education (College or Above)**	**Aged Dependency Ratio**	**Urban Population**	**Life Expectancy (2000)**	**Lowest Average Family Size (person / household)**
Top four provinces	Beijing (3.34%)	Beijing (30.13%)	**Shanghai (18.32)**	**Shanghai (88.70%)**	**Shanghai (78.14)**	**Shanghai (2.65)**
	Liaoning (3.76%)	**Shanghai (21.34%)**	Chongqing (16.84)	Beijing (84.50%)	Beijing (76.10)	Beijing (2.65)
	Tianjin (3.85%)	Tianjin (15.74%)	Sichuan (15.72)	Tianjin (76.31%)	Tianjin (74.91)	Zhejiang (2.84)
	Shanghai (4.04%)	Liaoning (10.00%)	Jiangsu (14.95)	Guangdong (63.14%)	Jiangsu (73.91)	Liaoning (2.91)
	National (8.40%)	*National (6.56%)*	*National (12.86%)*	*National (44.94%)*	*National (71.40)*	*National (3.17)*
Bottom four provinces	Guizhou (16.59%)	Gansu (3.82%)	Xinjiang (9.49)	Yunnan (31.60%)	Qinghai (66.03)	Yunnan (3.65)
	Qinhai (18.40%)	Chongqing (3.77%)	Tibet (9.26)	Gansu (31.59%)	Guizhou (65.96)	Gansu (3.69)
	Gansu (19.33%)	Guizhou (3.21%)	Qinghai (9.19)	Tibet (28.30%)	Yunnan (65.49)	Hainan (3.85)
	Tibet (36.77%)	Tibet (1.21%)	Ningxia (8.88)	Guizhou (31.60%)	Tibet (64.37)	Tibet (4.70)

As discussed in the introduction, calculating Period Total Fertility Rates for China is fraught with difficulties and, as such, a wide array of figures have been posited (Lutz, Scherbov et al. 2007). This problem is likely to be magnified when attempting to calculate pTFRs on the provincial or local level, with the most systematic attempt performed by the Chinese National Bureau for Statistics and the East-West Centre in Honolulu (NBS 2007). By their estimates, Shanghai was, by some margin, the first province in China which saw a sustained pTFR below 1.7. Table 4 gives some estimates of Shanghai's recent pTFRs. These are, undoubtedly, far from accurate and should be interpreted with extreme caution – particularly those based upon the 2005 1% Census Sample. On the one hand, it is possible that the greater levels of surveillance in large urban centers such as Shanghai might make the pTFRs presented more accurate than, say, a large rural province. However, the city's large floating population does provide a potentially significant problem for accuracy. Despite this, even if one builds in an undercount of 20% these numbers are still incredibly low and amongst the very lowest in China – if not the world (Retherford, Choe et al. 2005).

Table 4: Estimated pTFRs, Shanghai

1987	1988	1989	1990	2000	2001	2002	2003	2005	2006	2007
1.48▪	*1.46*▪	*1.37*▪	*1.42*▪	*0.68*	*0.79*	*0.64*	*0.64*	*0.67*	*0.88*	*0.89*

Sources: 2000 from NSB (National Statistics Bureau), Population Census Office under the State Council, Department of Population, Social, Science and Technology Statistics. 2002. Tabulation on the 2000 Population Census of the People's Republic of China. Beijing: China Statistics Press; 2005 from NSB (National Statistics Bureau),2007. Tabulation of the 2005 National One Percent Population Sample Survey, Beijing: China Statistics Press; 2001-2004 and 2006-2008 from the web of Shanghai Population and Family Planning Committee, China, access to http://rkjsw.sh.gov.cn/stat/ssh/

A final important demographic characteristic of Shanghai is it's rapidity in aging. In 1990, 1.89 million in the city were aged over 60. This rose to 2.41 million in 2000 and 3.05 million by 2008 (Peng 2005; Shanghai Statistical Bureau 2009). In other words, while the total *registered* and *resident* populations of the of the city grew by 5.3% and 14.83% respectively between 2000 and 2008, the number of old people increased by 26.55% - or five times the total registered population increase. As Peng observes, while it took France around 140 years and Sweden 85 years to see an increase in the proportion of people aged 60 or over from 9% to 18%, in Shanghai this process took a mere 20 years. Peng further estimates that population aging will become an even greater presence in Shanghai (Peng 2005). Indeed, the latest data released by the Shanghai

Research Center on Aging shows that there were 3.0057 million aged over 60 in Shanghai, accounting for 21.61% of the total population (SRCA 2009).

Fertility surveys in Shanghai

In order to further understand these low rates of pTFR in Shanghai – and the prevailing levels of pessimism concerning a recovery, it is necessary to consider future fertility intentions, as demonstrated in a number of surveys.

1. Shanghai Fertility Desires Survey 2008 and 2003

The 2008 study, conducted by the Shanghai Municipal Population and Family Planning Commission, surveyed 12,000 males and females aged between 20 and 45 (Commission 2008), while the 2003 study surveyed 20,649. The most notable results of the surveys were that:

1. Since the 2004 liberalization of family planning policy (described below), desired family size among Shanghainese has *decreased* and childlessness intentions have *increased*.
2. There is relatively no gendered differential in fertility desires
3. The Floating Population generally has a *higher* desired family size – perhaps due to their rural background
4. Unmarried Shanghainese have particularly low desired family size
5. Desired family size increases with salary progression
6. 81% of respondents to the 2003 survey preferred to have one child, with only 14.5% stating they wanted two

A particularly striking finding, however, is the effect of siblings on desired family size. It appears that growing up alone has a non-negligible effect on decreasing fertility desires. This is important given that only-children are prioritized in being allowed to have more than one child under the current family planning regulations.

Table 5: Main results of SMPFPC Fertility Desires Survey (Commission 2008)

		Desired family size	Intend to be childless
Shanghainese	Total (2003)	1.07 (1.17)	7.93% (3.37)
	Male	1.06	
	Female	1.08	
	Married	1.14	
	Unmarried	0.85	
	No siblings	1.02	
	1+ siblings	1.13	
Floating Population	Total (2004)	1.33 (1.31)	2.49% (1.39%)
	Male	1.30	
	Female	1.36	
	Married	1.30	
	Unmarried	1.25	
	No siblings	1.23	
	1+ siblings	1.35	
Income	<2000¥	1.00	
	2001-6000¥	1.12	
	6001-10000¥	1.16	
	>10000¥	1.32	

2. Shanghai 2009 Fertility Forecasts

These projections, made by the SMPFPC, were based upon the results of the 2003 and 2008 surveys discussed above (SMPFPC 2008; SMPFPC 2009). The headline projections of the exercise were that Shanghainese household fertility would continue to decline while the average fertility of the city's floating population will remain essentially flat.

3. Xuhui Fertility Desire Survey 2003

Xuhui is a core zone of central Shanghai with a population of 982,000 (of which 139,000 are 'floating'). The area has a population density of 17,936/km^2, recorded a natural growth rate in 2007 of -0.7% and 23.4% of the population of Xuhui are aged over 60 (Statistics 2009). The Xuhui Fertility Desires Study surveyed 1904 married women sampled from the Shanghai Family Planning Database and 1850 unmarried men from the PSB Household Registration System. Both samples were born between 1973 and 1985. The 'headline' figures from the survey is that the fertility *desires* of the married women averaged out at 1.1505, while the unmarried men ran to 1.1042. 4.23% and 62.36% of married women and 8.21% and 63.4% of unmarried men said that

they would choose to be childless or have only one child respectively. As such, only 30% of respondents wanted more than one child. Secondly, respondents were asked about what they felt were ideal family sizes both within and without the Family Planning Policy Regime present in 2003. As Table 6 demonstrates, the *ideal family size* rises with education progression. Curiously, while males' fertility *intentions* appear lower than females, their sense of ideal family *size* is, in fact, higher. Perhaps most interesting, however, is relatively scant effect of removing policy constraints on childbearing. It should be borne in mind that this survey was conducted before the Shanghai reforms of 2004. As such, it is not surprising that the effect of the relaxations had much effect on a macro-level.

Table 6: Main findings from Xuhui Fertility Desires Study 2003[1]

		N	Under <2004 Family Planning Regime	Without Family Planning Regime	Impact of Removing Policy
Sex	Males (unmarried)	1850	1.16	1.26	**0.11**
	Females (married)	1904	1.09	1.16	**0.07**
Age	18-20	623	1.11	1.21	**0.01**
	21-25	1215	1.10	1.21	**0.12**
	26-30	1923	1.14	1.27	**0.13**
Education	<=Primary School	21	0.80	0.90	**0.10**
	Junior High School	207	1.13	1.16	**0.03**
	High School	1305	1.01	1.18	**0.09**
	College Graduates	1058	1.01	1.22	**0.13**
	University Graduates	1045	1.18	1.33	**0.15**
	PG Students	111	1.33	1.55	**0.21**

[1] So far I have only been able to get the summary report for this study

4. Caveats of Surveys

While the results presented in the surveys above are certainly striking, they should, again, be approached with some caution. It is important to consider the possibility that, in certain cases, the respondents are simply stating either what they believe the interviewer, or the interviewing body (such as the Municipal family Planning Commission) *wants* to hear. While this is an important caveat, it should perhaps not be overemphasized. In tandem with the reportedly very low levels of pTFR, the diminishing power of the One Child Policy and the social, economic and cultural conditions – all discussed below – the surveys do fit into a body of evidence that suggests low, and perhaps continuing, low levels of fertility.

The 'One Child Policy' in Shanghai

Often the first response to being told that the fertility rates in Shanghai are so low is that it is simply as a result of China's One Child Policy (计划生育政策). Introduced in 1979, the policy was designed to curb excessive population growth in an attempt to alleviate social, economic and environmental condition. (For comprehensive introductions to the Policy see, for example, (Greenhalgh and Winckler 2005; da Silva 2006)). While the popular perception of the policy is of a hegemonic, all-encompassing *national* family planning system, the reality is quite different (Baochang, Feng et al. 2007). Indeed, nationally, the Chinese Government claims that only 35.9% of the population is, in fact, restricted by the policy in different ways across the country (Xiaofeng 2007). In 19 rural provinces, covering 52.1% of China's population, couples are permitted to have a second child if their first is a girl (Xiaofeng 2007), while farmers in Hainan, Yunnan, Qinghai, Ningxia and Xinjiang, accounting for 10% of the national population, are allowed to have two children (Xiaofeng 2007). Furthermore, in many cases local authorities turned a 'blind eye' to extra children being born – as the figure below suggests.

By national standards, the application of the 'one-child policy' in Shanghai has been demonstrated to be quite relaxed in practice, even since the 1980s (Attané 2002; Zhu, Lu et al.

2009). In 2004, the Municipal Population and Family Planning Commission drafted a set of regulations pertinent to the management of family planning in the city (SMPFPC 2004). While late marriage (after age 25 for men and 24 for women), late childbearing and one child per couple was explicitly advocated, it was made clear that 'those who meet the conditions specified by law and these Regulations may apply for another childbearing'. As Table 7 demonstrates, couples where both partners are only children are permitted to have two children. As there has been an entire generation of such children now, this number is incredibly substantial. As such, according to the SMPFPC, well over 70% of Shanghainese are exempt from the 'One Child Policy' (Sun 2009). Figure 4 below, in showing the coverage of the one-child certificate (i.e. the proportion of the population *not* permitted to bear more than one child) clearly shows how this policy is becoming increasingly less important. As such, the combination of the results of the Xuhui survey and the sheer number of people permitted to have more than one child in Shanghai, it is clear that policy restrictions *in their current form* do not play an overwhelming role in limiting fertility in Shanghai. This echoes evidence from other studies, notably Liu's examination of Shanghai, Beijing, Changchun and Shenyang (Liu 2005)

Table 7: Exemptions to 'One Child Policy' in Shanghai (SMPFPC 2004)

a. Both the husband and wife are single children
b. The first child is identified as disabled due to non-hereditary reasons by medical identification agencies of disabled child at municipal, district or county levels, and there is little possibility that the child will grow up into an individual with normal working ability
c. One party of the couple is identified by proper agencies as disabled due to non-hereditary reasons, which affects work and makes him or her unable to take care of himself or herself in daily life
d. One party of the couple is a handicapped soldier of Degree 2, Class B or above
e. One party of the couple has been working in the fishing industry as a fisherman on the sea for over five consecutive years
f. One party of the couple holds the Municipality's rural household registration and either party is single child
g. The wife holds the Municipality's rural household registration and has no brothers but sisters who each have only one child, and the husband lives in the wife's home to support the elderly

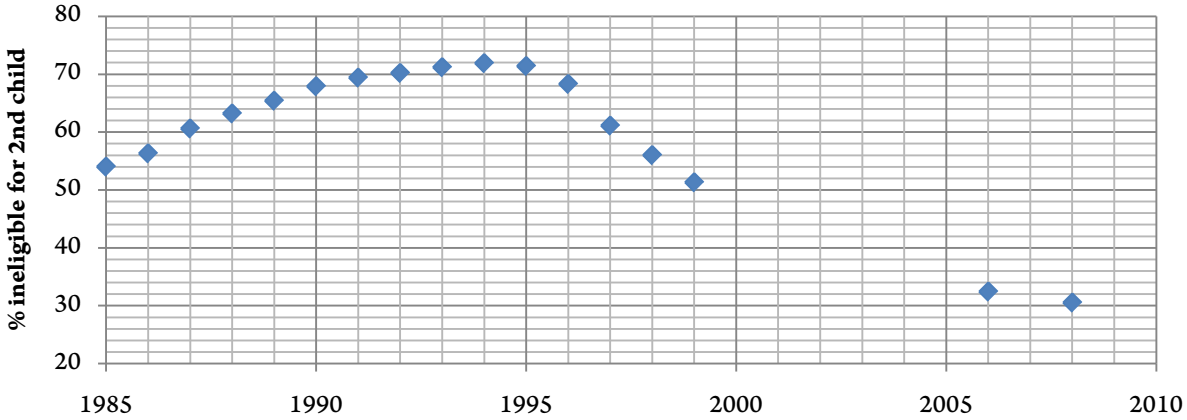
Where one party or both parties of a couple had children before marriage, the said couple may give birth to another child if they meet one of the following conditions:

a. One party of the couple had no child before marriage, and the other had one or two children before marriage
b. Each party had a child before marriage, and both parties are single child
c. Each party had a child before marriage, one of them holds the Municipality's rural household registration, and either of them is single child
d. Each party had a child before marriage, the child of one party of the couple is identified as disabled due to non-hereditary reasons by medical identification agencies of disabled child at municipal, district or county levels, and there is little possibility that the child will grow up into an individual with normal working ability.
e. A person whose brothers and sisters are all deceased or who was adopted before the age of 14, and the foster parents have no other children, may be regarded as single child referred to in this Article.

In addition

a. Where neither party of the couple had child before marriage, and one of them is diagnosed to be infertile after marriage by the Municipality's hospitals of second class level or above, but the wife becomes pregnant after they legally adopted a child, the said couple may give birth to another child.
b. Where a citizen of ethnic group immigrated from other provinces, autonomous regions or municipalities directly under the central government had obtained certificate for another childbearing from family planning administrations at or above county level in the original household registration place before immigrated into the Municipality, the said citizen may give birth to another child.
c. A person whose brothers and sisters are all deceased or who was adopted before the age of 14, and the foster parents have no other children, may be regarded as single child referred to in this Article.

Figure 4: Coverage of One-Child Certificate, Shanghai (Shanghai Municipal Statistics Bureau 2000; SMSB 2000; Shanghai Municipal Statistics Bureau 2006; Shanghai Statistical Bureau 2009)



Why is actual and desired family size in Shanghai so small?

> *I am earning a good salary and it's fun and exciting to be a part of the company. I learn new things every day. Things are still exciting with my husband too. I don't want to have kids. Maybe I will change my mind when things get boring, but not right now.* 24 year old Shanghainese female (Nie and Wyman 2005)

> *I don't want children. I don't want to lose my figure and become fat. I think it's OK if I have one child, but too many will be bad for my body.* 22 year old Shanghainese female (Nie and Wyman 2005)

> *I don't want a second child. One is enough, and I hope it is a girl. It is very nice to be the only child; you don't need to share or grab things from others. You can have all your parents' attention. My parents have brothers and sisters, but when my grandparents died they quarrelled over the legacy. That was horrible and hurtful. Being the only child, you won't have those problems.* 25 year old Shanghainese expectant mother (Branigan 2009)

What is clear, however, is that the One Child Policy has created a generation of couples who, overwhelmingly, are socialized into the concept of being only children. In 2001, for example, 97% of Shanghai families had one child, 2.9% had two, and only 0.1% had three or more (SPDF 2002). The socialization and normalization of such small family sizes is a basic tenet of the so-called 'Low Fertility Trap' (Lutz, Skirbekk et al. 2006). Nie and Wyman's 2005 paper, 'The

One-Child Policy in Shanghai: Acceptance and Internalization' took the form of interviews with 18 males and 29 females from both older and younger generations conducted in 2003 (Nie and Wyman 2005). As Table 8 demonstrates, there are a variety of reasons why Shanghainese accepted the One Child Policy.

Table 8: Reasons for accepting One child Policy among Shanghainese (Nie and Wyman 2005)

Older Generation	**Younger generation**
Deference to Government Policy	Used to being only child: forged strong friendships to replace siblings
Demographic considerations: history of starvation, 'national good'	Widely accepted by parents so less likely to question policy
More orderly and sophisticated than rural	'Personal' rather than 'national' interest
Allows females to focus on work and education	Maintain comfortable, modern lifestyle. Consumption, fashion
Economic punishments	Apprehension toward migrants with higher fertility, so keep policy
Costs of having 2+ children	Particular expense of raising children in Shanghai
'Most practical and economical choice'	No time

Nie and Wyman's paper introduces, through qualitative methods, an important set of themes which affect the mentality of the Shanghainese. Clearly, further surveys and in-depth interview following this model are highly desirable both in Shanghai and other Chinese urban centers.

In the remainder of this paper, however, we examine features which characterize daily life in Shanghai for both natives and the floating population. In doing so, we hope to be able to show how conditions in the city interact with the socialized norm of low family size to make a return to higher family sizes seem unlikely. For example, while a recent study found that health-related quality of life (HRQL), using the 36-item Short Form Health Survey (SF-36) methodology, in Shanghai is 'quite good' (Wang, Wu et al. 2008), much evidence suggests otherwise.

a. Quality of life: housing

Shanghai has developed at an astonishing rate (Wu 2003; Chen and Karwan 2008; Wu and Barnes 2008; Longyu, Guofan et al. 2009). Between 1995 and 2004, for example, Shanghai's total residential housing stock rose from 119 million m^2 to 352 million m^2 with an annual

increase of 12.5% after 2000 (Chen 2006). Between 1978 and 1997, for example, while the average annual salary of a Shanghai worker grew by 300% (after inflation), the living space floor per capita only increased from 4.5m^2 to 9.3m^2 (Chen 2006). Indeed, numerous studies have demonstrated that the homes and communities of the urban poor have been displaced by the middle classes (who are in turn displaced by the super rich) as a consequence of development and gentrification (Wu 2008; He 2009) – although the evidence suggests that, for Shanghai at least, the anxiety of the process of displacement is neutralized by the (relatively) better housing conditions to which the poor are relocated (Li and Song 2009). Despite this, cramped housing conditions are commonplace. For example, 21.0% and 19.1% of school-aged children in Shanghai shared a bed or bedroom with their parents/caregivers respectively (Li, Jin et al. 2009). To place this in an international perspective, 10% of White Americans were found to share a room in early childhood while only 3.6% and 5.1% of Belgian and Swiss school-aged children regularly shared a bed with their parents (Schachter, Fuchs et al. 1989; Jenni, Fuhrer et al. 2005; Spruyt, O'Brien et al. 2005). While cultural factors are clearly important, finance and crowded housing conditions play a vital role in defining this characteristic of sleeping arrangements in Shanghai (Liu, Liu et al. 2003; Jiang, Shen et al. 2007; Li, Jin et al. 2009).

Property prices are rising at a phenomenal rate, adding further pressure upon young couples (Shaw 2009). Shanghai, in particular, has led the way in driving the home mortgage market (Chen 2006). The expression 'house slaves' (房奴) has become a popular slang expression in large Chinese urban centres for people who feel enslaved for life by heavy mortgage burdens. Indeed, this sense of desperation in relation to the property market has been reflected culturally in songs like 'Shanghai Doesn't Welcome You' and hit TV series 'Dwelling Narrowness' (蜗居) – a thinly veiled view of the stresses and expenses of life in Shanghai widely felt to be reflective and accurate (sina.com.cn 2009). The *White Paper on the Health of Chinese White-Collar Workers* confirms this cultural phenomenon, suggesting that the number one anxiety among white-collar Chinese workers is the ever-increasing cost of housing and property (people.com.cn 2009)

b. Quality of life: health and work-life balance

The 2009 *White Paper on the Health of Chinese White-Collar Workers*, published by the Chinese Medical Doctor Association (中国医师协会), reveals a stark picture of work-life

balance in large Chinese urban centers. Using three million physical health samples taken from ten of China's largest cities, the study found that 76% of white-collar workers are in bad health, almost 60% suffer overwork and fewer than 3% are defined as 'healthy' (cctv.com 2009). Furthermore, according to the study, the calculated 'biological age' (accounting for health and physical and emotional wellbeing) among high earning 35 to 50 year old was found, on average, to exceed 'real age' by 10 years – and the trend is accelerating. Among males in the 'elite group', metabolic disorders, fatigue, insomnia, psychological disorders are particularly prominent, while for elite women there is a high threat of cardiovascular diseases (cctv.com 2009).

More specifically, recent studies have identified trends towards weight gain, hypertension and liver abnormalities among Shanghai office workers (Jia, Xiang et al. 2002; Shen, Fan et al. 2003; Wang, Zhao et al. 2009) and elevated stress and depression levels among various groups of society (Chen, Pan et al. 1994; Xiao, Ji et al. 2000; Liu, Ding et al. 2004; Honglin Chen, Wong et al. 2009). High levels of suicide are the ultimate expression of the pressures and difficulties of life in Shanghai (Jianlin 1993; Phillips, Liu et al. 1999; Ji and Kleinman 2001; chinadaily.com.cn 2004).

c. Quality of life: pollution

Although the Shanghai authorities are investing heavily in environmental improvement measures, there is little doubt that the rapid growth and industrialization of the city has had a marked impact on degradation of land, air and water quality (Shi, Hutchinson et al. 2001; Shi, Hutchinson et al. 2004; Mead and Brajer 2005; Changhong, Bingyan et al. 2006; Mead and Brajer 2006; Wang and Mauzerall 2006; Wu 2008; Jiang, Wang et al. 2009; Shi, Chen et al. 2009). Indeed, it has been projected that Shanghai's energy use will rise by 63% from 1995 to 2020 to 1758PJ – equivalent to 55.5 billion m^3 of natural gas or 488.3 billion kWh – with the increase largely to be met by coal (Li, Guttikunda et al. 2004). This will, of course, have significant further effects on air pollution. This environmental degradation has had noticeable effects on the health and well-being of Shanghai's population (Cao, Li et al. 2009; Tan, Zheng et al. 2009; Zhang, Lin et al. 2009). In addition to this, activity in occupations popular in Shanghai appear to have a particularly deleterious effect on health (Gardner, Shu et al. 2002).

Apart from the residual effect of pollution on health and quality of life, there is a more direct biological effect on reproductivity. High levels of phthalate exposure in the city have, for example, been associated with low birth weights (Zhang, Lin et al. 2009) and declines in semen quality (Zhang, Zheng et al. 2006). Other studies, however, have suggested that semen quality in Shanghai is particularly *good* compared to other Chinese provinces (Liang, Wu et al. 2003; Wu, Yang et al. 2004).

d. Consumption and expectations

The development of a rampant consumerist ideology is a significant feature of Shanghai lifestyle. Indeed, the Shanghainese are stereotyped as money-oriented throughout China (News 2009). There is,perhaps some truth in these prejudices. Both historically and today Shanghai is *the* centre of trade, commerce and, ultimately, consumption in southern China. Surveys – some more scientific than others – provide further evidence of the importance of consumption to Shanghainese. A recent survey compiled by the All China Women's Federation (中华全国妇女联合会) (ACWF 2007) found that, compared to Beijing and Guangzhou, Shanghai women were 'more concerned with being fashionable', 'placed more emphasis on famous and foreign brands', and over 25% willing to buy expensive cosmetics. Interestingly, the survey also found that, unlike in Beijing and Guangzhou, more than half of the Shanghainese women were willing to borrow money from the bank to enjoy life now (ACWF 2007). Numerous studies have emphasized the role of consumption in Shanghai both in terms of acquiring consumer goods (Croll 2006; Cartier 2008; Choi, Liu et al. 2008; Willis 2008) and in the gentrification of property and residential areas (He 2007; Wang and Lau 2009)

As well as a consumerist ideology within an expensive, stressful, cramped existence which leaves relatively little room for extra expense on a second child, the relative expense in terms of time and finance of children in Shanghai is an important factor. One way of examining the expense of childrearing in China is through the so-called 'little emperor' phenomenon (Wang and Fong 2009). This refers, in an almost universally negative way, to only children being spoilt by their parents and grandparents. Some have theorized that this doting was originally a psychological compensation for the parents' upbringing in times of severe material shortage (Zhao 1996; Peng 2009). These are often deplored in the state media:

> *'[China's children are growing up] self-centered, narrow-minded, and incapable of accepting criticism.'* Yang Xiaosheng, editor of a prominent literary journal, in a recent interview in the Beijing Star Daily (Chandler 2004)

> '*Kids these days are spoiled rotten. They have no social skills. They expect instant gratification. They're attended to hand and foot by adults so protective that if the child as much as stumbles, the whole family will curse the ground.'* Wang Ying, Director, Beijing Intelligence and Capability Kindergarten (Chandler 2004)

Indeed, there is a strong and growing scientific literature on the strong development of materialism among Chinese children and the perceived need for parents to satisfy this (Zhao and Murdock 1996). Importantly, a number of studies by Kara Chan have identified different regional patterns of materialism among children, particularly between Hong Kong where materialism if greater than in mainland China (Chan 2003; Chan 2005; Chan and Prendergast 2007; Chan 2008). Although this has not been studied, one might *a priori* have similar expectations for Shanghai. As well as the expense of 'satisfying' these 'little emperors', some experts are concerned about the development of these children, and in particular their capability to form long-lasting relationships in the future – both with each other and to their children – as they are perceived to be much more self-oriented than other- or social-oriented (Mooney 2005; chinadaily.com.cn 2007; Xu, Shen et al. 2008). An example of this can be seen below:

> *'I care about my rights when it comes to the quality of a waitress in a restaurant or a product I buy. When it comes to democracy and all that, well …[shrugs]…That doesn't play a role in my life.'* Young female actuary (Elegant 2007)

However, the extent to which this is an overplayed cultural phenomenon is certainly questionable. A number of psychological studies have, for example, found negligible differences between only-children and children with siblings in terms of interpersonal relations, attitude toward manual labour, and being spoilt (Wan, Fan et al. 1994; Shen and Yuan 1999; Tseng, Tao et al. 2000; Wang, Kato et al. 2000; Hesketh, Qu et al. 2003; Edwards, Bangert et al. 2005)

Rather than simply 'spoiling' their children with material possessions, there are, of course, other ways by which Shanghai parents could be investing heavily in their children. Nie and Wyman's interviews reveal a strong correlation between the rising incomes seen by the Shanghainese in

recent years with a pressure to spend more on their children's education and personal development. This comes across strikingly in the following excerpts from their interviews:

> *With a higher income, most people would expect it to be more within their means to raise a child these days. That would probably be true if all we had to worry about was clothing and food, like in the 1950s. [Laughs] That would be dreaming. I need to worry about everything from school, to music lessons, tutoring, to English lessons, and so many other things. I really can't afford to have more than one child*. 32 year old Shanghainese female (Nie and Wyman 2005)

> *I want to provide my child with the best education I can give her. Piano lessons are mandatory and she must practice every day to get better. She is luck. I didn't have this opportunity to learn the piano when I was younger. Now, all the other children in this building play, and [my daughter] would be left behind if she didn't*. 21 year old Shanghainese female (Nie and Wyman 2005)

As Nie and Wyman observe, in the competitive, driven economy of Shanghai, 'good education' and a 'good job' rather than 'happiness' in itself defines a successful child. This correlates to the negative stereotype of the 'China Mom' (中国妈妈**)** prevalent in the United States, where Chinese students are (perceived to be) pushed and pushed to attend the best schools and take on as many activities as possible (rosseyzhong 2009). As such, having a second child compromises the potential of the first:

> *I can support two kids, but I would not be able to give them the best standard of living that I can. That would not be fair. If I have a child, I must be able to give him or her the best resources and all of my attention. Every child deserves this and I should be able to give it him. Otherwise, why would one give birth to him?* 24 year old Shanghainese male, (Nie and Wyman 2005)

Indeed, a 1994 psychological study confirmed that only children do, in fact, have a greater sense of achievement motivation than those with siblings (Wan, Fan et al. 1994).

e. Easy access to abortion

Costing around 600¥, induced abortion is a well-accepted form of family planning procedure in China. Abortion levels in Shanghai far outstrip the rest of the country (Scharping 2005). There appears, however, to be a mixed picture of abortion characteristics within Shanghai. A 2009 report suggested that 62% of women presenting for abortions in Shanghai were in their 20s, while a doctor at the city's Punan Hospital suggested that 'About 80 per cent of the women

having abortions in Shanghai are unmarried, aged from 19 to 30 years old, with migrant women accounting for the largest percentage' (Shanghai-Star 2002; Wenjun 2009). However, further evidence suggests that an important number of abortions occur up to age 35 and, importantly, after the first live birth, clearly suggesting that abortion is a method of *limiting* as well as *preventing* (Sanderson, Shu et al. 2001). This is echoed by Che and Cleland, who studied contraceptive use in Shanghai before and after marriage for 7,336 couples between 1987 and 1995. They found that after the first birth, almost all couples adopted contraceptives – but the methods employed were often ineffective. As such, nearly 3,700 pregnancies were reported to have occurred during this phase, with 96% ending in induced abortion and only 2% carried to term (Che and Cleland 2003). Ling *et al*., meanwhile, found a strong positive correlation between poor husbands' education and higher abortion rates, suggesting a high prevalence of the so-called 'contraception care free husband' (Ling, Hayashi et al. 1998). In all, the picture of abortion in Shanghai is far from clear – however, it does appear fair to suggest that abortion is widely practiced and widely accepted. As such, it operates as a powerful tool to limit family sizes if desired.

f. Conclusion

Shanghai's parents, therefore, face a particularly heavy burden when it comes to investing in their children. While many no doubt disapprove of the growing materialist culture among children, given the environment and atmosphere of Shanghai this is unlikely to change markedly. In addition to this, as competition for the best educational and work opportunities will only increase, the perceived necessary familial investment of both time and money into children's academic career will no doubt rise. As has already been discussed, both of these investments must occur within an overarching structural environment of high wages mitigated by poor work-life balance, frequent ill-health, expensive cost of living, limited housing space, high levels of pollution, long working hours, and what might be termed a strong desire for personal self-satisfaction. Under these circumstances, it is indeed surprising that Shanghainese have any children at all. [For further reflections on this see, for example, (Foster 2000; Hobcraft 2006; Johnson and Lee Rodgers 2006; Rotkirch 2007; Basten 2008; Basten 2009)]

Conclusion: The Low Fertility Trap and Shanghai

The gradual diminution of the importance of the One Child Policy in Shanghai presents a very useful opportunity to test the 'Low Fertility Trap' hypothesis in a natural experiment context (Lutz, Skirbekk et al. 2006). While the 'Classic' LFT scenario shows a fall in fertility as a result of various inter-related factors, the fall in Shanghai is driven by an enforced decline dictated by policy (although the extent to which pTFR would have fallen *without* the One Child Policy is impossible to gauge). However, having fallen to a very low level, the evidence from Shanghai seems to suggest that small families have, indeed, become normalized and socialized. Propaganda slogans such as 'With two children you can afford a 14 inch TV, with one child you can afford a 21 inch TV' (Hesketh and Zhu 1997); the presentation of small families in the media and cartoons and posters such as those reproduced below all contribute to the cultural processes which normalize the small family size. These are then continually reinforced by the economic and social circumstances described above. Therefore, while the circumstances by which small family sizes *come about* are different from those stated in the LFT hypothesis, the *effect* is essentially completely in tune with the statement of the LFT – a perceived inbuilt bias towards small families.

Figure 5: One Child Policy propaganda. (left) 'Father, Mother and I' (Li n.d.), (right) 'Carry out family planning. Implement the basic policy' (Turnbull 2009)

Of course, there are many reasons why we should be incredibly cautious in interpreting these findings. Our knowledge of Shanghai's pTFR is unlikely to be accurate; the reliability of Chinese Fertility Intentions/Desires and Ideal Family Size Surveys is open to question; and there has been a recent slight upswing in pTFR in Shanghai. Despite this, the overall corpus of evidence points towards a socialized, normalized culture of the small family, with a continuation of pTFR below the so-called 'lowest-low' level of 1.3 (Kohler, Billari et al. 2002; Billari and Kohler 2004).

Elsewhere, however, the implications are potential great. While Shanghai's low fertility rates were certainly forced down by China's unique policy, they appear to be staying down because of cultural, social and economic effects. As such, this natural experiment suggests that, under a particular set of circumstances, it appears that the Low Fertility Trap Hypothesis *can* be shown to be in effect. The big question now, however, is whether or not these effects can exist under other political and cultural frameworks?

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Abstract When an unexpected financial crisis overtook Southeast Asia in 1997 planners and policymakers feared that the economic difficulties would unwind two decades of remarkable economic and social development. Newspaper headlines spoke of massive increases in poverty, unemployment and malnutrition, and it was speculated that family planning programs would collapse and fertility would rise dramatically. Infant and child mortality and maternal mortality were also expected to increase. This paper briefly reviews the onset of the financial crisis as a background for assessing whether speculations about die demographic and social effects tallied with reality. It is found that these effects were neither as dramatic nor as easy to monitor as some of the public debate implied. The general lesson is that the most serious social and demographic problems were not so much the products of crisis as embedded in chronic weaknesses that had become entrenched in times of economic growth. The crisis exposed these weaknesses.

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> The current study sheds light on factors affecting women's attitudes towards abortion in Shanghai, China. A sample of 1,000 women aged from 20 through 49 years were interviewed. The samples were obtained from the outpatients in visiting order in five clinics including that of Shanghai University of Medical Sciences and interviews were conducted concurrently in the clinics until the required numbers were obtained. Analysis revealed permissive attitudes towards abortion related not only to their demographic and socioeconomic background such as women's age, educational attainment, monthly income, residence during childhood days, but also to their husband's attitudes towards contraception. The results suggested that "contraception care free" husband would expose his spouse to risk of an abortion and the episode of abortion would subsequently shape the women's attitudes towards abortion reflecting their negative psychological response. The 1995 official statistics for Shanghai showed that 92% of married women had practised contraception. Taking the contraceptive prevalence rate into account, the current study seems to suggest that abortion control in Shanghai is greatly dependent on the educational level of the husband.

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