Chapter 11
Familial and Socioeconomic Reasons Behind Discrimination

As seen above, the masculinization of the child population is mainly due to discriminatory practices against girls, such as sex-selective abortions (the main cause of the sex imbalance at birth), and the neglect of girls leading to excess female mortality at young ages. While the cultural determinants of discrimination are well known, the socioeconomic factors are less clear. The processes in place, the way each one influences the decision to carry out a discriminatory act, and the mechanisms whereby they interact to reinforce each other or, on the contrary, cancel each other out, are difficult to grasp.

We know that variables such as education, standard of living and density of the health and medical infrastructure are likely to influence the preference for boys and the accomplishment of a discriminatory act, but the way these variables operate is not always easy to demonstrate. Contrary to what might be expected, the Indian example shows that sex-selective abortions are more frequent among educated people, and that, paradoxically, the overall emancipation of women is not always favourable to young girls (Bhat and Zavier 2007). A similar observation can be made for Vietnam, where the sex ratio at birth exceeded 120 among the two richest socioeconomic quintiles of the population in the 2009 census, by contrast with a normal level (105.2) among the poorest quintile (MPI 2011). The trend is similar in China, where in the 2000 census, the sex ratio at birth rose from 109.7 boys per 100 girls among mothers with a primary school education, to 119.9 for women with a secondary school education, and was still as high as 109.3 for women with higher education (PCO 2002). Education is commonly perceived to be a factor in the improvement of women's status, since it provides access to better paid jobs with higher social value, and is associated with behaviour more favourable to the survival of children, as well as a fertility decline. In the case of China it seems, on the contrary, to be a factor that exacerbates discrimination against girls, with whom women apparently have far more complex relationships.

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11.1 A Typology of Determinants

Most existing studies are based on the sex ratio of infants (before 1 year of age) or young children (1–4 years), i.e. on the indicators that combine the effects of sex-selective abortion and neglect causing excess female infant mortality. The present analysis seeks to disentangle the determinants of discrimination towards girls by distinguishing between these two discriminatory practices on the basis that each is potentially dictated by different circumstances.[1] We ran a series of statistical regressions[2] in order to analyse the contextual factors of discrimination towards girls as revealed by the imbalance in the sex ratio at birth (used as a proxy for sex-selective abortion) and by excess female mortality (used as a proxy for neglect of girls in terms of preventative and curative health), in order to highlight potential links between various socioeconomic and demographic characteristics and the propensity of couples to intervene actively in the gender composition of their children. To this end we identified seven series of variables:

- a standard of living and socioeconomic development variable: the average income of urban and rural residents (in thousands of yuan);
- a minimum housing amenities variable as a proxy for extreme poverty, i.e. the proportion of households whose homes do not have drinking water and individual or collective toilets;
- an "exposure to the media" variable: the number of TV sets per 100 households;
- variables to measure access to the healthcare infrastructure, in this case the number of healthcare structures per 1,000 inhabitants and the number of maternity units and children's hospitals per 100,000 inhabitants;
- educational level variables, i.e. the mean duration of male and female education in years;
- fertility variables describing the constraints imposed by the state birth control policy, observed fertility, "policy fertility" (i.e. fertility dictated by the birth control programme) and levels of resistance to official birth control measures;
- variables showing the propensity of couples to care for at least one elderly parent, which may be used as a proxy for their degree of attachment to traditional values of family solidarity. This is expressed as the proportion of households composed of at least three generations and those composed of people aged 60 and over who are financially dependent on a family member, since these variables reveal the family pressure that is likely to be exerted on couples to select their child's sex.

[1] The results presented in this part are drawn from a previous publication (see Attané (2009). The determinants of discrimination against daughters in China: evidence from a provincial-level analysis. *Population Studies*, 63(1): 87–102).

[2] Tibet was excluded from this analysis because of insufficient data.

Table 11.1 Simple linear correlation between discrimination against girls and various socioeconomic and demographic variables

Variables	Sex ratio at birth		Excess female infant mortality	
	r correlation coefficient	*p* value	*r* correlation coefficient	*p* value
Average income of urban and rural residents	–0.026	ns	–0.222	ns
Extreme poverty	0.407	0.026	0.566	0.001
Exposure to media	0.164	ns	–0.059	ns
Density of health infrastructure	–0.432	0.017	–0.343	ns
Density of maternity units or hospitals for children	–0.485	0.007	–0.242	ns
Mean duration of male education	0.136	ns	–0.121	ns
Mean duration of female education	0.050	ns	–0.217	ns
Total fertility rate	0.115	ns	0.370	0.044
Policy fertility	–0.180	ns	0.062	ns
Resistance to official birth control policy	0.219	ns	0.495	0.005
Households comprising three generations or more	0.410	0.024	0.447	0.014
Proportion of persons aged 60 or over financially dependent on a family member	0.262	ns	0.453	0.012

Sources: Proportion of households not equipped with toilets and running water (used to create the 'extreme poverty' variable), mean duration of male and female education, and proportion of households comprising three generations of more: PCO (2002, 2003). Proportion of persons aged 60 or over financially dependent on a family member: NBSp (2005); annual average income of urban and rural residents (in thousands of yuan); number of TV sets per 100 households (used for the 'exposure to media' variable), number of health structures per 1,000 inhabitants, number of maternity units and hospitals for children per 100,000 inhabitants: NBS (2004); Total fertility rate in 2000: Guo (2004). Policy fertility': Guo et al. (2003). Degree of resistance to official birth control policy: Attané (2002b). N.B.: The explanatory variables used in this regression are defined above in the text

ns not significant

The degree of socioeconomic development and the standard of living are the variables usually taken into account to analyse the determinants of discrimination against girls in Asia (Murthi et al. 1995; Banister 2004; Guilmoto 2005a; Bhat and Zavier 2007). As explained by Banister (2004, p. 33), it is plausible that poverty forces families who are unable to support a large number of children to eliminate a daughter. At provincial level in China, however, there is no significant linear correlation between the standard of living as measured by the average income of urban and rural residents (in thousands of yuan), and discriminatory behaviour, with $r = -0.026$ and $p = 0.890$ for sex ratio at birth, and $r = -0.222$ and $p = 0.239$ for female infant mortality (Table 11.1). If such a relationship exists, it must be concealed by other factors.

11.1.1 Fertility and Discrimination: A Complex Relationship

All Chinese provinces saw a rapid decline in fertility after the 1980s (Chen and Coale 1993; Ding 2003; Guo 2004), and the relationship of cause and effect between this decline and the increase in the sex ratio at birth in a context of a strong preference for sons, as in China, has been frequently demonstrated (Chen 1993; Gu and Roy 1995; Croll 2000; Poston 2002; Ding and Hesketh 2006). In 2000 no such relation existed at aggregate provincial level (with $r=0.115$ and $p=0.545$). However, a positive, albeit weak, linear correlation was observed between the mean number of children per woman and excess female infant mortality (with $r=0.370$ and $p=0.044$), which signifies that the higher the fertility level, the greater the neglect of girls leading to premature death, at provincial level. Absence of data on infant mortality by birth order for each sex at national level did prevent us from looking deeper into the process by which this correlation might be formed. However, although this cannot be proved, it appears that in provinces where fertility is highest (such as Jiangxi or Guangdong), and where high order births are, by implication, more frequent, the propensity of couples to neglect their daughters increases. That appears to confirm the observation that excess female infant mortality mainly affects high birth order girls, who might already have an elder sister (Choe et al. 1995; Han and Li 1999), and therefore that couples are prepared to accept one daughter but no more.

The link between fertility and discrimination against girls is not clear. Indeed, the greatest imbalance in the sex ratio at birth is found in provinces with intermediate fertility levels. In the 16 provinces where the sex ratio at birth was above 115 boys per 100 girls in 2000, the mean number of children per woman, as adjusted by Guo (2004), ranged from 1.5 to 2.5 (as in Guangdong, Guangxi and Hainan). By contrast, in the eight provinces where the sex ratio at birth was below 110, either fertility was very low (below 1.6 children per woman as in Heilongjiang, Jilin and Inner Mongolia) or it was above the national average of 2.3 children per woman (as in Guizhou, Qinghai, Ningxia and Xinjiang). Thus at aggregated provincial level, fertility appears to have no linear correlation with the propensity of couples to discriminate against their daughters, or if such a relationships exists, it is counterbalanced by other factors.

Fertility per se may not be the only key factor influencing the propensity of couples to discriminate against their daughters by means of prenatal sex selection or neglect of girls leading to premature death. The influence of the discrepancy between the fertility desired by couples and that imposed by the authorities within the framework of the provincial birth control regulations ("policy fertility") also deserves further investigation.

However, we observe that local regulations on the number of authorized births, which vary from one province or region to another (Attané 2002b; Yin 1995; Guo et al. 2003) do not systematically effect the propensity of couples to select the sex of their future baby either. While the correlation is negative, there is no direct link ($r=-0.180$ and $p=0.342$) and all types of scenario exist. For instance, "policy fertility" in Hainan is high compared with other provinces (2.14 children per woman authorized in 2000) and there is a considerable imbalance in the sex ratio at birth

Table 11.2 Multiple linear regression between various socioeconomic and demographic variables and the sex ratio at birth

Multiple coefficient of determination				0.959
Adjusted R^2				0.864
P Value of F statistic				0.000
Observations				30
	Coefficients	**SE**	**t statistic**	**Probability**
Constant	−111.412			
Average income	−1.052	0.677	−1.555	
Extreme poverty	0.315	0.080	3.940***	$p=0.001$
Exposure to media	0.238	0.082	2.891***	$p=0.010$
Health structures	−3.479	1.157	−3.008***	$p=0.008$
Maternity units and children's hospitals	−1.206	0.646	−1.867	
Mean duration of male education	17.683	5.110	3.460***	$p=0.003$
Mean duration of female education	−1.235	3.261	−0.379	
Policy fertility	13.224	4.201	3.148***	$p=0.006$
Observed fertility (total fertility rate)	7.853	2.867	2.739**	$p=0.014$
Resistance to birth control policy	−0.086	0.045	−1.916	
Families composed of three generations or more	1.778	0.308	5.775***	$p=0.000$
% of people aged 60 and over financially dependent on a family member	0.215	0.100	2.148**	$p=0.046$

Sources: see Table 11.1
***$p \leq 0.01$
** $p \leq 0.05$

(135 boys for 100 girls). In Heilongjiang in the northeast, regulations regarding the number of children are very strict (1.39), but the sex ratio at birth remains relatively close to the norm (107.5). Last, there is the case of Xinjiang, where regulations are not strict (2.37) and the sex ratio at birth was normal in 2000 (106.7).

Furthermore, among the provinces with strict regulations regarding the number of children, we find both very imbalanced sex ratios at birth (which is the case in Jiangsu, Jiangxi, Guangdong, Anhui and Henan provinces in particular) and levels close to the normal (e.g. in Heilongjiang, Inner Mongolia and Guizhou). Low fertility and strict birth control regulations therefore do not systematically produce a rise in the sex ratio at birth. The correlation between "policy fertility" and excess female infant mortality, while positive, is not significant (with $r=0.062$ and $p=0.746$ in 2000). Thus at provincial level, the propensity of couples to neglect their daughters does not appear to have any link with pressure to reduce the size of their families – or if any connection exists it is counterbalanced or concealed by other factors exerting a contrary influence.

Nor apparently is there a linear correlation between the propensity of couples to discriminate against girls by sex-selective abortions and the level of resistance to the various birth control measures,[3] (with $r=0.219$ and $p=0.244$) (Table 11.2). On the

[3] For details about how the indicator for the resistance to birth control policies in China, see Attané (2002b) pp. 105–106.

other hand, there is a positive linear correlation between excess female infant mortality and the level of resistance at provincial level (with $r = 0.495$ and $p = 0.005$). This suggests that neglect of girls leading to their excess mortality could, to some extent, be seen as a consequence of the strict limitation on births. Contrary to what is suggested by the absence of a crude effect of fertility or "policy fertility" on discrimination against girls, neglect is not entirely independent of the pressure placed on couples to limit their families.

These first results indicate that while discrimination against girls is apparently not linked to fertility levels, the context in which the birth control measures are implemented does influence the decision to carry out a discriminatory act. Furthermore, despite the absence of a crude standard of living effect on the propensity of couples to discriminate against daughters at provincial level, the hypothesis of a more complex relationship between these two characteristics should not be excluded.

11.1.2 Studying the Social and Family Context

This statistical analysis of aggregate data at provincial level shows first that the selected socioeconomic and demographic variables account for a large proportion of the variation in sex ratio at birth (with adjusted R^2 of 0.864) and, to a lesser extent, the variation in neglect of girls resulting in excess female infant mortality (with adjusted R^2 of 0.679)[4] (Tables 11.2 and 11.3). However, it appears that while the selected variables clearly reveal the determinants of sex-selective abortions, those likely to influence the female excess infant mortality, all other things being equal, are more complex. Nevertheless they share a number of points in common.

Extreme Poverty Favours Discrimination

Contrary to what has been suggested, notably by Banister (2004) and Guilmoto (2005a) for example, this analysis confirms observations made previously and does not reveal any correlation between the standard of living indicator (the average income of urban and rural residents) and the decision to carry out a discriminatory act. But while there is no linear correlation between average income and the propensity of

[4]Note that in view of the relatively high number of explanatory variables included this analysis because of the large number of observations, (12 variables and $n = 30$), the R^2 values may be overestimated by the R^2 calculated for the sample (0.959 and 0.901 respectively). That is why the adjusted R^2 is used here. Regarding this value, this multiple regression model appears to explain a large proportion of the variation in intensity of sex-selective abortions (R^2 of 0.864) and, to a lesser extent, a good portion of the variation in excess mortality of girls (adjusted R^2 of 0.679).

Table 11.3 Multiple linear regression between various socioeconomic and demographic variables and excess female infant mortality

Multiple coefficient of determination				0.901
Adjusted R^2				0.679
P value of F statistic				0.0004
Observations				30
	Coefficients	**SE**	**t statistic**	**Probability**
Constant	–6.205			
Average income	–0.038	0.034	–1.098	
Extreme poverty	0.009	0.004	2.251**	$p=0.038$
Exposure to media	0.006	0.004	1.458	
Health structures	–0.041	0.059	–0.700	
Maternity units and children's hospitals	–0.028	0.033	–0.851	
Mean duration of male education	0.783	0.259	3.024***	$p=0.008$
Mean duration of female education	–0.238	0.165	–1.443	
Policy fertility	0.271	0.213	1.272	
Observed fertility (total fertility rate)	0.357	0.145	2.460**	$p=0.025$
Resistance to birth control policy	–0.001	0.002	–0.339	
Families composed of three generations or more	0.031	0.016	1.960	$p=0.067$
% of people aged 60 and over financially dependent on a family member	0.011	0.005	2.119**	$p=0.049$

Sources: see Table 11.1

***$p \leq 0.01$

**$p \leq 0.05$

couples to discriminate against their daughters, extreme poverty, as measured by the absence of basic amenities such as drinking water and toilets, was, all other things being equal, positively associated with this propensity. Thus the significant positive correlation between extreme poverty and excess female infant mortality (with $p=0.038$) at provincial level, illustrates the cost/benefit calculation operated by poor families who, because of the sharp rise in health care costs resulting from reforms in the health care system, are less inclined to get into debt to care for a girl, as has been demonstrated by Li and Zhu 2001 (see above p. 159).

Nevertheless, sex-selective abortions are also positively associated with extreme poverty (with $p=0.001$), a finding which appears to invalidate the argument that the high cost of selective abortion might impede the discriminatory act, and which is confirmed by the absence of correlation between discriminatory behaviours and the average income of urban and rural residents. The only variable related to the level of development that has a significant positive correlation ($p=0.010$) with the sex ratio at birth was the exposure to media as measured by the number of television sets per 100 households. However, no correlation of this variable with excess female infant mortality was found in this analysis.

Broader Medical Care Provision Would Not be Favourable to Abortion

Unexpectedly, the density of the medical infrastructure was negatively associated with the practice of sex-selective abortion (with $p = 0.008$ and a regression coefficient of −3.48) at provincial level. All other things being equal, the denser the healthcare infrastructure, the lower the sex ratio at birth, whereas no such connection appears to exist for the density of maternity units and children's hospitals. One might have expected a higher density of medical structures and health workers to facilitate access to techniques of prenatal sex determination, and hence possibly to abortion, but that hypothesis was invalidated by this analysis which showed, on the contrary, that a denser medical infrastructure tended, on provincial scale and all other things being equal, to foster a perception of social control that reduced the frequency of sex-selective abortions. One might also have expected a good medical infrastructure to compensate for parental failure in healthcare to some extent, thereby limiting the number of female infant deaths, but this was not confirmed here.

The Influence of Intergenerational Relationships

We also observed a positive correlation at aggregate provincial level (all other things held equal) between sex-selective abortions and the propensity of couples to cohabit with at least one grandparent (with $p = 0.000$), whereas in fact only a low-significance linear relationship with excess female infant mortality was found (with $p = 0.067$). Cohabitation with at least one elderly parent reflects a certain compliance with traditional values of family solidarity, including the filial piety promoted by Confucianism, in addition to family pressure that may be exerted on couples by the older generation to select their child's sex. But this might also reflect the inadequacies of the pension system, which excludes most elderly people and obliges them to cohabit with a child for financial reasons. This last argument is supported by the statistically significant positive correlation that exists between sex-selective behaviour and the proportion of people aged 60 or more depending financially on a family member (with $p = 0.046$ for the sex ratio at birth and $p = 0.049$ for excess female infant mortality).

Against a background of growing socioeconomic uncertainty, the absence of a pension system in the countryside may, all other things being equal, be considered as a determinant in the discrimination against girls at provincial level.

The Parents' Educational Level

Alongside observed fertility, the educational level is the variable most strongly associated with the sex ratio at birth. There is a significant positive correlation between the mean duration of male education and the sex ratio at birth (with $p = 0.003$), and the high regression coefficient (17.68) shows, all other things

being equal, the considerable impact of education on discriminatory behaviour at provincial level.[5] This positive correlation confirms the observation that sex-selective abortion is more frequent among educated people who are better informed about such practices (Bignami-Van Assche 2004; Edlund 1999). The mean duration of male education is also positively and significantly correlated with excess female infant mortality at provincial level (with $p = 0.008$). All other things being equal, the higher the male educational level, the greater the excess female infant mortality, with a high regression coefficient (equal to +0.783) implying that for a one-unit rise in the mean duration of male education, the excess female infant mortality (measured in a scale of between 0.7 and 2.3 for Chinese provinces) is likely to rise by +0.783 points, all other things being equal. As has been suggested by Murthi et al. (1995, p. 764) in the case of India, if men's education is positively associated with the mortality of girls, this is because in the first stage of the mortality decline, education of boys reduces the mortality of boys more than that of girls, thereby increasing the gender gap. A similar development appears to have affected behaviour in China in the 2000s.

Logically, couples under pressure to reduce their number of children, or who are more inclined to spontaneously limit their family size, should be more likely to select the sex of their children because of the traditional preference for sons. But we are faced with a contradiction: the positive and statistically significant correlation between the sex ratio at birth and not only the level of observed fertility, but also the "policy fertility" defined under the birth control policy (with $p = 0.014$ and $p = 0.006$, respectively). Given that for a one-point increase in observed fertility and "policy fertility", the sex ratio is, all other things being equal, liable to increase by +7.85 and +13.23 points, respectively, the constraints relative to family size may, at provincial level, be considered as a determinant of prenatal sex selection. A similar positive correlation appears between observed fertility and excess female infant mortality (with $p = 0.025$ and a regression coefficient of +0.357), for which no relationship with "policy fertility" is observed, however.

11.2 An Attempt at Explanation

This statistical analysis reveals that at provincial level, and all other things being equal, there are significant linear correlations between pre-and post-natal discrimination against girls and four types of variables in particular: extreme poverty; fertility levels; men's educational level; and the degree of solidarity with the grandparents' generation, expressed by the proportion of households composed of at least three

[5] Note that if we remove the "mean duration of male education" from the regression analysis, the "mean duration of female education" then becomes significant and with a positive correlation (with $p = 0.0007$ and a regression coefficient of +8.342 in the linear correlation with the sex ratio at birth, and with $p = 0.041$ and a regression coefficient of +0.197 in the linear correlation with excess female infant mortality).

generations, and of persons aged 60 or over who are financially dependent on a family member. It is logical that extreme poverty, at aggregated provincial level, and all other things being equal, favours discriminatory practices against girls, since the decision to reduce the number of offspring, especially female ones, is dictated by economic constraints. If couples can only support a small number of children, they prefer to have sons who can provide financial support for the family in the long term because of the traditional practice of patrilocal marriage and the absence of a universal pension system. The positive linear correlation between discrimination against girls and the level of intergenerational solidarity at aggregate provincial level, all other things being equal, is also logical, as it reflects adherence to the traditional values that promote the preference for sons, and the pressure exerted on couples by the grandparents' generation to select the sex of their child.

11.2.1 Education as an Ambivalent Variable

The relationship between fertility, education and discrimination against girls seems to be far more complex, however. Indeed, how can one explain that, all other things being equal, an increase in the mean duration of education can lead to an increase in discrimination against girls? As mentioned earlier, in principle, education helps to improve the status of women, because it leads to practices that are more favourable to the survival of children (and especially girls) and because, by giving women access to economic activities that are more rewarding both socially and financially, it is expected to confer greater social value on women and gradually eradicate discriminatory practices. Amongst other things, education probably helps to limit the transmission of cultural values traditionally favourable to boys.

To clarify this apparent contradiction, we could advance the hypothesis that the "education" variable can only influence discrimination against girls indirectly, because of the strongly negative correlation at Chinese provincial level between fertility and education (with $r = -0.788$ between fertility and mean duration of female education, and $r = 0.824$ between fertility and mean duration of male education, and $p = 0.000$ in both cases). In other words, the better educated the woman, the fewer children she tends to have and consequently the fewer girls. Thus the extent of the discrimination could be directly related to fertility, but only indirectly to the level of education.

It appears that all the Chinese provinces with a sex ratio at birth of more than 115 boys per 100 girls in 2000 (16 provinces) had fertility levels of between 1.5 and 2.5 children per woman, whereas those with a sex ratio at birth below 110 (8 provinces) either had very low fertility levels (less than 1.6 children per woman), or levels well above the national average, i.e. more than 2.3 children per woman.[6] While such an observation about aggregate data should be interpreted with caution,

[6] Total fertility rates taken from Guo Zhigang (2004).

this result nonetheless supports the still relatively unexplored hypothesis whereby discriminatory behaviour against girls, especially the practice of sex-selective abortion, is an additional but temporary component of the fertility transition in a context of a strong preference for sons. As has been suggested for Republic of Korea (Kim and Song 2007), very low fertility levels below 1.5 children per woman can even mechanically reduce the imbalance in the sex ratio at birth, since sex selection mainly occurs in second order births or more. In the case of China, this hypothesis is consistent with the positive and statistically significant connection, revealed by multiple regression, between discrimination against girls (the sex ratio at birth and excess female infant mortality) and the number of children per woman, bearing in mind that this is also strongly correlated with the level of education.

11.2.2 A Specific Demographic Transition

These observations suggest that discriminatory behaviour against girls mainly occurs at intermediate fertility levels (and therefore on average at intermediate educational level), when families have a more urgent need to select their child's sex. Indeed, when fertility is, on average, relatively high (and therefore, on average, education level relatively low) the chances of obtaining a son without selecting the sex beforehand, are mechanically higher. Conversely, when fertility is, on average, very low at provincial level (a situation associated, on average, with a relatively high educational level), that signifies that one-child families – who have not yet implemented a sex-selective strategy – are, on average, more numerous, thereby reducing discriminatory practices at provincial level.

The processes at work in discrimination are complex and all the harder to grasp since discriminatory practices spread and therefore reach populations with increasingly diverse socioeconomic characteristics. Interestingly, the determinants of discrimination against girls by sex-selective abortion are not necessarily the same as those of excess female infant mortality. The family strategies behind the decision to carry out a discriminatory act are therefore extremely complex and may vary depending on the constraints to which the family is subjected.

In China, as in other Asian countries with high sex ratios at young ages (namely India, Taiwan, and Republic of Korea), the increase in the sex ratio at birth coincided with the widespread availability of techniques for prenatal sex determination, whereas excess female infant mortality has worsened progressively since the 1980s, despite the improvement in overall living standards and the increase in educational capital. The deterioration in the survival of girls due to sex-selective abortions and neglect seems to be as inevitable as the reduction in fertility. It appears to be an additional component in the demographic transition process, and while it may only be a transitory one, it could affect the growth and structure of the Chinese population for many years to come (Attané 2006a; Cai and Lavely 2003).

Appendix

Total Fertility Rate and Fertility Imposed by the Birth Control Programme in Chinese Provinces in 1990s and 2000s

	Total fertility rate		Fertility imposed by the birth control programme (i.e. "policy fertility")	
	1990	2000	Around 1990	Around 2000
Beijing	1.4	0.8	1.33	1.09
Tianjin	1.6	1.1	1.35	1.17
Hebei	2.5	1.8	1.67	1.59
Shanxi	2.4	2.0	1.69	1.49
Inner Mongolia	2.1	1.5	1.80	1.60
Liaoning	1.7	1.4	1.50	1.38
Jilin	1.9	1.4	1.50	1.45
Heilongjiang	1.9	1.3	1.44	1.39
Shanghai	1.4	0.8	1.28	1.06
Jiangsu	2.0	1.5	1.52	1.06
Zhejiang	1.6	2.0	1.54	1.47
Anhui	2.5	2.1	1.61	1.48
Fujian	2.6	1.6	1.61	1.48
Jiangxi	2.6	2.5	1.52	1.46
Shandong	2.1	1.5	1.55	1.45
Henan	2.9	2.0	1.56	1.51
Hubei	2.5	1.5	1.55	1.47
Hunan	2.4	2.0	1.64	1.48
Guangdong	2.5	2.1	1.85	1.41
Guangxi	2.7	2.3	1.57	1.53
Hainan	3.0	2.3	1.97	2.14
Chongqing	nd	2.2	nd	1.19
Sichuan	2.0	2.0	1.57	1.27
Guizhou	3.0	3.0	1.74	1.67
Yunnan	2.7	2.3	2.13	2.01
Tibet	3.8	3.4	nd	nd
Shaanxi	2.7	1.7	1.64	1.51
Gansu	2.3	2.1	1.58	1.56
Qinghai	2.6	2.5	2.08	2.10
Ningxia	2.6	2.3	2.06	2.12
Xinjiang	3.1	2.5	2.40	2.37

Sources: Total fertility rates: for 1990: reconstructions taken from Chen and Coale (1993); for 2000: adjustments taken from Guo (2004). For "policy fertility": around 1990: Yin (1995); circa 2000: Guo et al. (2003)