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Evolution of the family planning policy in China: 1949-2004

Daniel LEE

Social Science Division HKUST, Clear Water Bay, Hong Kong. E-mail: yfdlee@yahoo.com.

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Family planning (or population) policy is one of the most contentious policies in China. Some studies suggest that family planning policy reduce total fertility and China demonstrates how, with appropriate population policy, a low-income country could achieve demographic transition. On the other hand, critics complain about the problem(s), such as rising sex ratio at birth arising from the policy. This motivates the current debate about whether China should give up the one-child policy, and also the appropriate policy to replace the current policy. This paper first describes how the four family planning policies have been carried out in China. It is observed that the role of ideology in dictating population policy declines overtime and material incentives and the effect of international community become increasingly important. Then the paper examines the revision of provincial family regulations and demonstrates the spatial heterogeneity in family planning policy. Finally, using a village level dataset, the paper analyzes local variations in family planning rules in rural China. The results of the determinants of village-level family planning rules reveal that local, provincial and national factors affect the setting of rules in the villages.

Key words: China, family planning, policy, provincial, regulation.

INTRODUCTION

Family planning (or population) policy is one of the most contentious policies in China.¹ Four waves of family planning campaigns have been initiated in the past five decades and since 1979, a one-child policy has been implemented in most cities in China.

Despite the precipitous decline in fertility rate in China, there is no consensus about the contribution of the family-planning policy. Some studies suggest that family planning policy reduce total fertility (Zhang, 1994; McElaroy and Yang, 2000), and China demonstrates how, with appropriate population policy, a low-income country could achieve demographic transition (Birdsall and Jamison, 1983).² On the other hand, critics challenge the effectiveness of the policy and complain about the problem(s) arising from the policy. An alarming consequence of the family policy is the rising sex ratio at

birth, which admittedly indicates either infanticide or sex-selective abortion.³ However, sex ration at birth may also increase in country with strong son preferences but no involuntary family-planning policies.⁴ Another concern of the family policy is its effect on the age structure. It is estimated by 2030 that China will become an aging economy.⁵ This motivates the current debate about whether China should give up the one-child policy, and also the appropriate policy to replace the current

¹ The concept of family planning is different from that of western world. Instead of letting individual to choose the number of children they want,

² It is estimated that from 1980 to 1990, the accumulated number of children born was reduced by 140 millions, about one half of the children born during the period (Pang, 1997: 545). Many studies found that economic factors are more important in causing fertility decline. Among these factors, female education is always identified to be the most important one (Moore, 1998). Controlling for education and socioeconomic development, Li and Ballweg (1992) find that there is no urban-rural differences in fertility. In fact, economic development may have an indirect effect on fertility through family planning policy (Poston and Gu, 1987).

³ A higher sex ratio due to sex-selective abortion may be a substitution of pre-natal discrimination for post-natal discrimination (Goodkind, 1996; Das Gupta and Mari Bhat, 1997). In 2002, the sex ratio at birth in the world, defines as the number of male per 100 female, ranges from 1 (in Fareo Islands and Grenada) to 1.17 (in Armenia). The average sex ratio is 1.05. The sex ratio at birth in China is 1.12. Only two countries have sex ratio higher than that of China (Georgia and Armenia) Source: <http://www.gnXP.com/MT2/archives/000490.html>.

⁴ In South Korea the sex ratio at birth increased from 1.04 in 1980 to 1.13 in 1989. In 1989, this sex ratio increased in the ascending order of birth from 1.05 for the first-born child to a strikingly high ratio of 2.17 for the fourth-born child (Schultz, 1997). To prevent sex-selective abortion, the Korean government has enforced strict measures to prevent identification of the sex of fetuses (Park and Cho, 1995).

⁵ The Chinese elderly age 65 and older will account for 15.8 percent of the total population by 2030 (Zeng and Vaupel, 1989).

policy.⁶

This paper aims to describe the evolution of family planning policies in China from 1949 to 2004. First, a description was made on how the four family planning policies have been carried out in China. It is observed that the role of ideology in dictating population policy declines overtime, and material incentives and the effect of international community become increasingly important. Secondly, by examining the revision of provincial family regulations, the spatial heterogeneity in family planning policy was demonstrated. Finally, using a village level dataset, local variations in family planning rules were analyzed in rural China. The results of the determinants of village-level family planning rules reveal that local, provincial and national factors affect the setting of rules in the villages.

FAMILY PLANNING POLICY AND DEMOGRAPHIC TRANSITION IN CHINA 1949-2004

Here, the evolutions of the four waves of family planning policies, and the reasons for the underlining changes were described. It is observed that the role of ideology in dictating family planning policy declines overtime, which is gradually replaced by pragmatic goals in policy formulation and material incentives in policy implementation. Towards the mid-1990s, international community began to play a more active role in shaping the focus and strategy of family planning policy in China.

The first birth planning campaign

Prior to 1954, family planning policy in China was predominantly determined by Marxist ideology.⁷ The State undermines the injurious impact of population on food and employment and rejects the Malthusian theory. Party leaders held a sanguine view on population, regarding people the most precious capital for the prosperous future of China (Aird, 1972).⁸ In this light, the First Marriage Law stipulated in 1950 which increases the minimum age of marriage should be more appropriately interpreted as a policy for women emancipation, not a policy for birth control.⁹ Sterilization was outlawed by the

end of 1952 (White, 2006), and the importation of contraceptives was prohibited in 1953 (Aird, 1972). The revelation of the titanic number of 583 million of population from the first census ended the ideologically dictated policy on population. The number suggests a two percent annual growth rate of population, which would slow down the pace of economic growth, especially amid a widespread local crop failures and famine in 1953-1954.¹⁰

To the first open demand for birth control by Shao Li-tzu, a non-Communist intellectual and deputy to the First National People's Congress in 1953, the attitude of the Party turned to less defensive. In November 1954, Vice Premier Deng Xiaoping instructed the Ministry of Health to revise its regulations to encourage voluntary use of birth control methods. High demand for contraceptives from high rank women cadres also succeeded in making contraceptives available in cities in 1955.¹¹ However, abortion and sterilization were still discouraged. The first birth control campaign only gains its full momentum after Premier Zhou Enlai's speech in the Eight National Party Congress in September 1956. Zhou defended birth control by highlighting its role of women's protection and up-bringing of children.¹² The speech of Chairman Mao in 1957 on "the contradiction among the people" ended the ideological struggle in birth control.¹³ The speech of Mao unquestionably inspires open discussions on population policy by the mass and eminent scholars. Ma Yin-hu, a renowned economist and the President of Peking University, in his 1957 paper, *On New Theory of Population*, elicits the adverse effect of population growth on economic development. Concurring with Chairman Mao, Ma suggests that population of China should be limited to 600 million with the use of birth control (Table 1).¹⁴

Table 2 summarizes the family planning policies before 1979. The first birth control campaign began amid the turbulent of "hundred flowers" blooming. Party's stand on family planning policy changed abruptly, tracking closely the capricious thought of Mao. First, Mao considered both human reproduction and material production requiring state planning in a socialist economy. In other words,

⁶ Zeng (2007) discuss the different options for fertility policy transition.

⁷ "The absurd argument of Western bourgeois economists like Malthus that increases in food cannot keep pace with increases in population was not only thoroughly refuted by Marxists long ago, but has also been completely exploded by the realities in the Soviet Union and the Liberated Areas of China after their revolutions." *Selected Works of Mao Tze-tung*, Vol. IV, Peking Foreign Languages press, 1961, p.453.

⁸ Birth control was "reactionary", "anti-humanitarian," and a "way of killing off the Chinese people without shedding blood" Aird (1972).

⁹ The minimum age of marriage is 18 for female and 20 for male.

¹⁰ Before the 1953 census, 475 million was officially used for the population of China. Curiously, there was no other comment on the new figure of population collected in the 1953 census. Presumably, this suggests that Party members were divided on the question.

¹¹ Aird (1972) points out that women cadre provided the main pressure for relaxation of the restrictions on abortion. In the second meeting of the eighth central party committee, Zhou reported that "currently population is increasing at a rate of 2 percent per year, about 10 million of new born. Grain output is increasing as a rate of 3 percent per year. . . It might be beneficial for late marriage." *Collective Papers of Zhou Enlai*, Part II p. 230.

¹² Zhou, Enlai, "Report on the Second Five-Year Plan", September 20, 1956.

¹³ In his 1957 speech about "contradiction among the people", one of the contradictions was between population growth and economic development.

¹⁴ In his 1957 speech, Mao was reported to say that "when the population of China reached 600 million, it would hasten its own extinction." (Aird, 1972, p.238).

Mao subtly transformed the concept of birth control, which depends on individual choice, into birth planning, whose aim is to align the size of population with material production. When food demand went beyond food supply in 1954-1956, Mao supported birth control.¹⁵ Later, when Mao mobilizes the mass to increase output through collectivization, he praises huge population a valuable asset and supports a pro-natal policy.¹⁶ When Party suffered from unexpected criticisms from the “hundred flowers” movement in June 1957, Mao criticizes Malthusian ideas and the supporters on birth control (Aird, 1972). Ma-Yin-chu was removed from the position of the President of Peking University. The birth control was put into a halt.

In addition to the standard contraceptives, a novel vacuum method for induced abortion was developed in China. Traditional contraceptive formulae were also recommended and freely available in the mass media.¹⁷ In 1957, some hospitals in Shanghai began to provide IUD insertions services for women. For the first time, the Ministry of Health issued regulations to permit induced abortion without restrictions, but marriage was not promoted in this period.¹⁸ Perhaps as Zhao Li-tzu openly denounced and many scholars agree that late marriage, given the availability of contraceptives, is an unnatural idea for birth control. It was until February 1957 that late marriage was encouraged, with the proper age of marriage of 25 years old for women and 30 for men. Compared to the many new devices and services available for birth control during this period, there were only a few institutions established.¹⁹

Second birth planning campaign

In 1961, the post-famine baby boom fosters population to grow at a disturbingly high level.²⁰ The central government issued a directive entitled “On Enthusiastically Promoting Planned Birth,” to declare the resumption of birth planning in December 1962.²¹ There are many changes made in the second campaign compared to the first one. First, instead of relying on

slogan and movement of the mass, many institutions were established. For example, the National Family Planning Office was founded in the State Council, with its corresponding offices established in some provinces and municipalities in 1964. Also, the medical teams established in villages and “barefoot doctors” who provide basic healthcare services to rural areas were also delegated the responsibility for birth control, including the operation of sterilization and abortion.²² Second, the focus of the birth control has changed. While the first birth planning campaign focuses on urban areas, the second birth planning campaign extends its focus to densely populated rural areas. Third, the strategy of birth control had changed to rely more on late marriage. While the minimum age of marriage in the Marriage Law remains the same, an optimal age of marriage, 30 for men and 22 for women, was recommended. Small family size, with two children of 3 to 5 year interval, was promoted as an optimal family size (Aird, 1972).

There was noticeable improvement in contraceptives supply in the second campaign. Import duty of contraceptives was eliminated.²³ Condoms, Diaphragm and spermicide were widely used. For the first time, IUD was offered to the public on a massive scale. Improvement of technology in abortion certainly reduces Party’s hesitation on its use. For instance, the then newly invented suction method of abortion was reported to be “simple, reliable, and quick, and less painful to expectant mothers” (Aird, 1972). More importantly, chances of death and complications from clinical abortion were found to be lower than normal delivery. Regarding sterilization which received more press attention than abortion, the main emphasis was on the promotion of vasectomy, a much simple operation compared to tubal ligation. Compared to the first campaign which relies mainly on newspaper, the second campaign draws much less press coverage. Rather, its campaigning strategy is more target-specific; news items appeared more often in women and youth magazines than in the daily newspaper.²⁴

Inside the Party, Premier Zhou Enlai was the main advocate for the birth control campaign. Zhou aligns the notion of Mao’s idea of birth planning with birth control to defy the attack from the leftists. On economic grounds, Zhou was concerned about the burdens imposed by population on the nation. He urged families who had two children to undergo sterilization. Zhou was impressed by the fertility decline in Japan to one percent and points out that China should reduce fertility to the same level

¹⁵ Once being regarded as “a Malthusian type of weed”, birth control was “recognized as a scented flower” in 1956 (Aird, 1972).

¹⁶ This is consistent with Engels (1884) that production and reproduction are deterministic factors of history. Friedrich Engels (1884). The origin of the family, private property, and the state / Friedrich Engels; introduction by Michèle Barrett. London : Penguin Books, 1986

¹⁷ One of the most well known examples was the use of live tadpoles as a contraceptive, which had been proved to be ineffective and hazardous to women’s health (Chen 1970).

¹⁸ There was a universal objection about abortion. In particular, the whole medical profession seems to have united together against any changes that made abortion more easy (Aird, 1972).

¹⁹ Until 1956, there was only a new office of Birth Control was created under the State Council for organization and administrative purpose of birth control.

²⁰ In 1963, the gross birth rate was 33 per 1000 and the total fertility was 7.5. The population size increased to 694.5 million in 1964, confirming the worrying of leaders on the resurging of high rate of population growth.

²¹ *Zhongguo renkou ninajian*, 1985, p.14.

²² Prior to 1965, Ministry of Health put its primary attention to urban healthcare while basic medical services in rural areas were lacking.

²³ In January 1962, the customs office in Guangdong announced to eliminate any duty on contraceptives imported from abroad.

²⁴ In terms of the number of new items, there were 1000 items for the first campaign but only 150 items for the second campaign (Aird, 1972, p.287). The main campaigning strategy of the second birth control campaign is to exaggerate the adverse health effect of early marriage on mothers, children and even on fathers.

(White, 2006).²⁵ However, there were still great conflicts between Party leaders toward birth planning, which prevented the incorporation of birth planning into the third five-year plan (1966-1970). Instead, a Central Committee directive was issued stating that the population goal of the third five year plan was to hold population within eight hundred million (White, 2006). The second birth planning campaign was put into a halt by a political movement, the Cultural Revolution in 1966.

Given the scanty of demographic statistics available, it is difficult to give a comprehensive evaluation of the first two birth control campaigns. But the crude birth rate did not show perceivable change during this period, suggesting that the campaign fails to modify people's fertility behavior (Figure 1). On top of the erratic stand of the Party to birth control, shortage of contraceptives was the main reason for the failure of first campaign. During this period, shortage of contraceptives was often reported in the cities, while in rural areas they were totally unavailable. Whenever they were available, contraceptives were expensive and their quality poor (Aird, 1972). As for the second campaign, the growing supply of contraceptives and qualified medical workers in the 1960s were still far from enough to achieve a national birth control campaign in China. And political decentralization after the Great Leap Forward also restrains the capacity of the State to launch any large-scale plan, including the birth control campaign.

Cultural revolution and third birth planning campaign

Despite the destructive impact on State administrative capacity of the Cultural Revolution, the birth planning campaign was resumed in 1971, two years after the beginning of the Cultural Revolution because birth control becomes a pressing issue for two reasons. First, the regional grain self-sufficiency policy reduces total grain output and intensifies the problem of food shortage. At the same time, for war consideration, a regional decentralization policy was adopted. State capacity in controlling labor movement was significantly reduced (White, 2006). In 1970, Zhou Enlai included birth planning into the fourth five-year plan (1971-1975). The initial target is to reduce population growth rate to 10 per 1000 in urban areas and to 15 per 1000 in rural areas by 1975. The main policy tool is to control the tempo and total number of children in each family. This campaign requires couples to delay the time for the first childbirth, wait longer time between births, and have fewer children (*wan, xi, shao*). The policy encourages urban citizens to have no more than two child and rural villagers to have

²⁵ Another development during this period was the launching of socialist education campaign. This campaign was a reaction of Mao to the revisionists in time when the relationship between China and the USSR was in great tension. To prevent corruption of communist party from inside, a campaign that emphasized class struggle, political education and cadre rectification was initiated. In some occasions, Zhou requested the incorporation of birth planning into socialist education given to rural cadres and peasants.

no more than three. Since 1973, explicit target of population growth was included in the annual economic plan for local governments. More resources and material incentives were allocated to the family-planning policy.²⁶ Many new institutions and networks were established. In July 1971, birth planning offices within the public health bureaucracy at each level of government were established, which improved the bureaucratic status of birth control work and its personnel.²⁷ Led by the deputy party secretaries and vice-governors, the birth planning leading small groups, which provided planning and coordination of birth planning work in their local areas, were established in 1973.

Despite precipitous decline in total fertility, from 5.8 in 1970 to 2.73 in 1978, a consensus was reached by top Chinese leaders that overpopulation will obstruct economic development in 1979. On the basis of the demographic projections by Song Jian, *Wan, Xi, Shao* was not effective enough to limit the population of China to 1.2 billion by the end of the twentieth century.²⁸ A fourth wave of birth planning began in 1979.

The fourth wave of birth planning campaign: One-child policy

In 1979, a new wave of campaign was initiated to discourage couples to have a second child and the ethnic Han are forbidden to have a third child. Commonly known as the one-child policy, this campaign initially targeted a 50% rate for rural households and 80% rate for urban areas as one-child families. The targets were revised upward to 90 and 95% in rural and urban areas respectively by 1980 (Davin, 1984). By 1983, mandatory intra-uterine device (IUD) insertion, abortion, and sterilization were reported (Short and Zhai, 1999). In the early 1980s, provinces in China revised their regulations and imposing financial penalties on couples who had more children than permitted. When the policy was strictly implemented from 1980 to 1984, total fertility dropped from 2.61 in 1980 to 2.35 in 1984.²⁹

By the end of 1984, great resistant about this policy appeared in the rural areas. Understandably, a policy that deprives half the villagers the right to continue their family

²⁶ In 1970, the Chinese government allocated 203 million *yuan* (at current price) for family planning. This rose to 4.8 billion *yuan* (at current price) in 1990 (Pang, 1997, p. 544). In the Marriage Law in 1950, the minimum age for women to marry was 18. During this campaign, women were advised to marry after 23. The percentage of women first married under 18 dropped from 28.8 in 1960 to 16.2 in 1970. In 1975, only 5.9 percent of women married before age 18 (United Nations 1997). Since 1970, government offered subsidies for people to use contraceptives and medical services.

²⁷ Prior to the change, birth planning works were divided among Office of Maternal and Infant Health in the Ministry of Health.

²⁸ Greenhalgh (2006) argues that the demographic projections of Song provide the main support for the one-child policy. Obviously, the quantitative projection provides much more compelling evidence than the evidence provided by scholars in social science in that period when the study of demography was highly underdeveloped in China.

²⁹ Birth control became mandatory in the Marriage Registration Regulations in 1980 (Palmer, 1995).

lines was hard to enforce, especially when cadres lost much of their power of income redistribution during the economic reform. The declining strength of law enforcement of the cadres met with the growing demand for children in rural areas.³⁰ To reduce tension between the State and rural people, the State retreated from enforcing a strict one-child policy, allowing local governments to modify the policy to better suit local needs. Different exception rules that allow couple to have a second child appear in different provinces. Officially Document No.7 recognizes the difficulty in enforcing the one-child policy and allowed some families to have a second child under certain conditions; "It opened a small hole to prevent a large hole" (Zeng, 1989). By 1985, a *de facto* two-child policy had allegedly been implemented in some rural areas (Lee and Feng, 2000). The compromise met the state's goal of limiting birth on the one hand, and satisfied the local demand for children on the other (Greenhalgh, 1986). Thus, 1984-1988 was a period of lenient policy enforcement. Total fertility rose up to a disturbing level. The target population was revised from 1.2 billion to about 1.2 billion.

Policy enforcement was strengthened again from 1989 to 1993. The *de facto* two children policy in rural areas was tightened. More resources have been allocated for the personnel and cadres that implement the family-planning policy. Local officials responsible for the family-planning policy may be denied promotion, and under the "one vote down" campaign, cadres may be fired if they fail to meet the target for the family-planning policy. As a result, many "crash campaigns", such as the abortion of all out-of-plan pregnancies and the sterilization one member of couples who have out-of-plan children took place (Greenhalgh, 2001). The intensification of policy enforcement no doubt is one contributing factor for the decline in total fertility from 2.35 in 1989 to 2 in 1992.³¹ However, the pressure on funding also made pervasive misappropriation of cash penalty revenue. In many counties, cadres allowed couples to have above-quota birth and collected penalty from the couples. Despite these problems, top leaders were still committed to carry out the policy as illustrated by the slogan of "three unchangeables", that is, there is no change in the present birth planning policy, no change in population control targets and no change in the policy that top leaders take full responsibility of the policy (Greenhalgh, 2001). Another policy change is that since the 1993 policy, enforcement became largely routinized. For instance, of

the "three priorities" slogan, one priority is that routine work is more important than crash campaigns.³²

Another significant policy change is since 1994, instead of relying primarily on penalty for policy enforcement, the new strategy is to link family planning policy to household material incentives, such as the provision of poverty alleviation programs. Local cadres are encouraged to design local policies that enable households with fewer children to get rich faster (Greenhalgh and Winckler, 2001). The combination of fertility policy with economic development of the community – "collateralization" and the use of material incentive rather than penalty – "incentivization", are the two transformations that are emphasized in this period. Together with the "three integrations", they are the main policy stand of the Chinese government for rural development of the 1990s and in the early 21st century.³³ Another change observed in this period is the increasing impact of international community on the strategy of family planning policy in China. The watershed is the 1994 international conference on population and development that significantly alters the focus of the Chinese government from targeting the number of birth to women's reproductive health, rights, and choice (UNFPA, 1996). In the Nine Five-Year Plan period, client-centered approaches that focus on women's reproductive health are used to replace the previous quantitative targeting approach.

Since 1995, a set of counties were chosen for the experiments of new family planning which eliminate local birth quota.³⁴ Instead, couples are provided with better material services, information of alternative contraceptive methods and the choice of contraceptive method.³⁵ Preliminary results show that such a quality-focus approach reduces contraceptive failure and abortions, and a normal sex ratio at birth. A case study of one pilot county shows a significant change in contraceptives mix that sterilization was replaced by the use of condoms (Table 2), suggesting the transition from State-dictated method to the method of individual's choice (Kaufman et al., 2006). The quality-of-care approach was endorsed by the State in 2000.³⁶ It is announced that this approach will be extended to the whole country by 2010 (Greenhalgh

³² The other two priorities are (1) the implementation of the policy emphasizes more on propaganda and education than economic enforcement, and (2) pre-pregnancy contraception is more important than pro-pregnancy birth control (abortion).

³³ The three integrations include (1) developing the agricultural village economy, (2) helping farmers achieve a modestly comfortable standard of living and (3) to construct "civilized and happy" families. (Greenhalgh and Winckler, 2001).

³⁴ Six rural counties and cities in Jiangsu, Jilin, Liaoning, Shandong, Shanghai, and Zhejiang were chosen for participation in the experiment. (Kaufman et al., 2006).

³⁵ Five types of contraceptives were provided including IUD, oral contraceptives, condoms, nonplant implants, and sterilization of either partner.

³⁶ The central government issued a document "China's Population and Development in the 21st Century" to endorse the quality-of care approach in family planning.

³⁰ The demand for children increase with income (Becker, 1995; Schultz and Zeng, 1995) and children will provide labor for farm production (Moore, 1998).

³¹ In 1992, a national fertility survey reported that total fertility dropped to 1.65 in 1991 and 1.52 in 1992. Zeng (1996) argues that there is substantial underreporting in the 1992 fertility survey. He suggested that a 25 percent upward adjustment was appropriate. This brings the number to about 2.2, or near the replacement level.

and Winckler, 2001). In year 2000, a girl care program was also launched in a set of poor provinces to protect the rights of girls. Funding was split between State and Local government. In Fujian, for example 24 million has been allocated for nearly half a million households, with some 100,000 girls to be exempted from school fees. From 2004 to 2006, more than 3.6 billion Yuan were awarded to 5.74 million couples.³⁷ Additional financial support is offered to couples who limit themselves to two girls.³⁸

MATERIALS AND METHODS

This study collects the provincial family planning rules and regulations in different years from the internet. It analyzes how the family planning rules vary in different provinces and also how family planning regulations change overtime within each province.

POPULATION AND FAMILY PLANNING LAW

Revision of provincial birth control regulations

Since the retreat of the State from enforcing a stringent one-child policy in 1984, provinces in China revised their birth control regulations to better suit local needs. Clearly, there are remarkable differences in the timing and the number of time regulations was revised between provinces, ranging from 4 times (for example in Yunnan) to 9 times (in Shanghai), with the average number of 6 revisions. Differences in population pressure, level of income and ethnicity of the population in the province are important factors to explain the variations in the frequency of regulation revision. Heterogeneity in provinces may also explain why it took two decades for the State to draft its first Population and Family Planning Law (Winckler, 2002).³⁹ The national population law in 2002 initiates a new wave of regulations revision. Appendix 1 summarizes by province some important rules in Population and Family Planning Law that allow couples to have a second child, fines for couples who have more children than the province allowed, and the rewards to the one-child family. To examine how regulations change overtime, the classification of Gu et al. (2007) which divides provinces into three regimes was adopted: 1) One-child policy which include 6 provinces: Beijing, Tianjin, Shanghai, Chongqing, Jiangsu, and Sichuan; 2) "1.5-child" policy which includes 19 provinces; and 3) two-child policy which includes five provinces: Hainan, Ningxia, Qinghai, Yunnan, and

Xinjiang.⁴⁰ Table 3 summarizes the family planning law in the late 1990s and the revised law after 2002.

Table 3 shows that even in the one-child regime, couples are allowed to have a second child if they are coming from one-child family themselves. While offering incentive for couples to have one child only, this rule puts pressure on fertility in the next generation, a problem which will be discussed subsequently. The main difference between the one-child and the "1.5 child" policy regimes is the rule that allows couple whose first born child is a girl to have a second—first girl second child rule. While all provinces in the "1.5 child" regime allow couple to have a second child for this reason, only villagers living in mountainous areas with real difficulties in the one-child regime are allowed to have a second child under this rule.⁴¹ For provinces in the two-child regimes, their exception rules are more detail about the ethnic minority. In some cases, for example in Xinjiang, minorities are allowed to have three children.

There are three important changes about the cash penalty. First, the title of the penalty has changed from fine for "above quota birth" to "social child-raising fee". By changing the title of the fine, this revision subtly alters the nature of conflict induced by the fine from between the State and the people (fine for not following the State's order) to between people in the society (the additional child imposes cost on the society). The legitimacy of family planning will also be reinforced. The child-raising fee also provides a better justification for determining the appreciate level of the fine.⁴² Second, cash penalty, previously stipulated in absolute terms, is now stipulated in terms of per capita net income of the locality.⁴³ Third, the revised regulation in many provinces stipulate that fine is paid directly to local office of State government in each county. The last two arrangements are clearly used to take away the authority of local cadres in setting and collect cash penalty, which will prevent local cadres by charging excessively high penalty and corruption.⁴⁴ To

⁴⁰ Gu et al. (2007), p.133. Tibet is excluded from the classification. We include the family planning rules of Tibet in Appendix 1 and Table 1.

⁴¹ Only one province requires that households have real difficulties in living. Real difficulties here refer to the need of male laborers for farming.

⁴² In 1997, the direct cost of raising a child (from 0 to 20 years old) in the city is about 111000 yuan and 53320 yuan in rural areas. (National Population and Family Planning Commission of China: http://www.chinapop.gov.cn/rkzh/rk/wxz/t20040326_51297.htm).

Understandably, the cost varies with the income in different areas. In 1995 in Shaanxi the cost of raising a child (from 0-16 years old) is 30000 yuan but in Fujian it was 119829 yuan (China Popin: http://www.cpic.org.cn/yjwx/yjwx_detail.asp?id=4169).

⁴³ Even when the fine is stipulated in terms of per capita net income, local government could still vary the value of the fine according to the income of the couples. For example, the fine for having one more child than allowed may vary from 3-10 times of per capita net income. Poor family with below average income may be charged for 3-5 times of per capita net income, families with average income may be charged for 6-7 times of per capita net income, and rich couples may be charged for 8-10 times of per capita net income.

⁴⁴ Many provinces regulations state explicitly that fine could not be retained or misappropriated by institutions or individuals. Despite this change, abuse of fine and corruption is still common. For example it was reported in Guangxi, local cadres even collect social child raising fee for all couples who

³⁷ National People and Family Planning Commission of China.

³⁸ Couples will receive a combined annual pension of about \$150 for the rest of their lives.

³⁹ Local governments of county and above, according to their population planning, formulate their own family planning policy (Chapter 2 Article 10, China Population and Family Planning Law 2002).

compare the level of cash penalty before and after 2002, cash penalty before 2002 was divided by provincial per capita income (PCI). Cash penalty for having one more child increases in the one-child and the two-child regimes, but it decreased in the "1.5 child" regime (from 6.48 times of PCI to 5.37 PCI). Thus, if cash penalty is a proxy for the stringency of the policy, there is no clear answer of whether the policy becomes more stringent or not after 2002.⁴⁵ Finally, one notable change is that the cash penalty for having a child out of marriage increases significantly in all regimes.

The new regulations also increase the benefits, in terms of value and categories, for couples who agree to have one child only. Seven provinces setup family planning funds in seven provinces for accidents happening to one-child family,⁴⁶ many provinces increase the value of monthly subsidy and one province prolong the year of receiving benefits.⁴⁷ Values of cash subsidy are not the same in different regimes, being higher in the two-child than in the one-child regime (13 yuan versus 6 yuan). Some provinces offer a one-child policy, while the 1.5 child regime offered high compensation both in one-time cash subsidy for one-child parent in their retirement and higher monthly retirement pensions in 1995 to 1999, the one-child regime caught up in 2002 to 2004 period.

Despite that the State has changed its attitude about family planning, from pursuing a pure quantitative target to caring about the people and a client-oriented approach, this aspect has not been reflected in the revision of regulation. For example, only the regulations in Beijing expresses that any contraception operation should be carried out when the person is safe (Beijing Population and Family Planning Regulation, 2003).

RESULTS

Performance measures of the family planning policy

Here, the performance of family planning policy was examined in different regimes. The performances of the outcomes of family policy were documented in national level in Appendix 2 and these measures by policy regime were summarized in Table 4. The one-child certificate is no doubt the most important measure of the one-child family policy. A one-child family who commits to have no more children will receive a one-child certificate which offers them many privileges: the child is guaranteed to have better education, health care, housing, and job security. They are also guaranteed to have food and

have above quota birth since 1980, which eventually resulted in large scale riot (*Asian Magazine*, 2 May 2007).

⁴⁵ Since we do not have information about the actual fine paid by each couple, it is difficult to evaluate the stringency of the policy by just comparing the mean level of payment.

⁴⁶ They include Zhejiang, Shandong, Hubei, Fujian, Sichuan, Jiangxi, and Xinjiang.

⁴⁷ For example Gansu increases the number of years from 14 to 16. On average, the one-child family is entitled to have cash subsidy for 15 years.

other cash subsidies until they reach the age of over 14 years old (under the revised provincial law, the average year is 15). The one-child certificate rate declines in the one-child policy regime and it increases in the 1.5 children and two children policy regimes. This could be partly explained by the success of this policy in the one-child policy regime in the past two decades. As a result, most couples in that regime are themselves coming from a one-child family and under the current family planning law they are allowed to have a second child. Thus, in the one child policy regime, even the one-child rate drops and its two children rate rises, the planned birth rate was still on the rise from 2002 to 2004. For this and other reasons, Chinese demographers anticipate a resurging of fertility rate in China in the next five years.

Another support for the effectiveness of the family planning policy is that part of the rise in the two-child rate was coming from the decline in multi-child rate. Just before the implementation of the one-child policy, there was a heated debate about whether a two-child policy with control on tempo (time before the two birth) can achieve the same objective of population control. The result here suggests that the state government focuses more on higher order birth than on the second child. There is also a change in the means of birth control, from sterilization to Intra-Uterine Devices (IUD) and other means. For instance in the one-child policy regime, the ratio of women who are using IUD to those who receive sterilization increases from 3.7 (from 1981 to 2001) to 6.4 (from 2002-2004). Similar increases in the use of IUD are also observed in the 1.5 children policy and the two children policy regimes.

LOCALIZATION OF FAMILY PLANNING RULES

The analysis of the provincial population and family planning law already demonstrates the heterogeneity of this law. Here, the issue of the localization of family planning rules was examined by analyzing the village level family planning rules collected by the China Health and Nutrition Survey (CHNS) conducted by the University of North Carolina and the Institute of Nutrition and Food Hygiene of the Chinese Academy of Preventive Medicine during seven successive periods – 1989, 1991, 1993, 1997, 2000, and 2004. Primarily, the survey aims to document the change, in both rural and urban areas, in people's lives after two decades of economic reforms. Nine provinces, representing the spatial distribution, income levels and industrial structural diversities of China were carefully chosen, including Liaoning, a prosperous, heavy-industry-based northern province; Henan, an agriculture-based, middle-income eastern province; and Guizhou, a poor southwestern province (Figure 2). Each survey will collect data from 60 urban cities and 120 villages. Focus was on the discussion of the family planning rules in the rural areas. Two exception rules that allow couples to have a second child were examined: (1)

Table 1. Important events of family planning policy.

Date	Event
1950	The First Marriage Law which stated that the minimum age of marriage were 18 for females and 20 for males
April 1953	The Maritime Customs Office in Canton banned the importation of contraceptives, not exempting those prescribed by doctors
August 1953	The State Council instructed the Ministry of Public Health to help the masses exercise birth control
1955	Beginning of mass production and distribution of contraceptives
1956	An office of birth control was created (under the State Council)
1956	Condoms, foam tablets, diaphragms and jellies are manufactured
August 1956	The Ministry of Public Health issued a directive to all local health departments ordering them to set up birth control clinics, train cadres in birth control guidance, and improve the supply of contraceptives.
September 1956	Zhou En-lai gave an endorsement of birth control in his report on the drafting of the Second Five-Year Plan
1956-1958	Many traditional contraceptive formulae were freely recommended in the mass media
1957	Both abortion and sterilization were legalized
May 1957	A new type of contractive pill had been preliminary synthesized
May 1957	Ministry of Health issued new regulations which permitted induced abortion without restrictions
1958	Some Shanghai hospitals began to provide IUD insertion services for their patients
1962-1966	A renewed family planning campaign was visible
1962	Great stress had been laid on vasectomy. If an employee has a vasectomy, his employer will pay him 20% of his monthly salary as expenses in addition to paying for all medical fees
1962	The socialist education movement was launched
March 1963	The Party quietly handed down a recommendation on the "optimal age" for marriage: 30 for men and 22 for women
1964	The State Council set up the first National Family Planning Office
1970	Two birth control pills based on synthetic progesterone and oestrogen became available for general use in at least some areas (Aird, 1962: 314)
1970	China had repealed all legal barriers to the use of birth control techniques
1971	Married couples of reproductive age throughout China would receive IUD insertions, vasectomies, tubal ligations, induction abortion, pills, and barrier methods of contraception without charge

the first-girl-second-child rule, and (2) the rule that allows a couple to have a second child if the couples are coming

from a one-child family. Also, this study examines whether village provides a one-child family any subsidy

Table 2. Use of different types of contraceptive devices in China (%) in 1992 and 2002.

Method	1992	2002
Female sterilization	41.7	36.0
Vasectomy	11.8	8.2
IUD	40.1	48.1
Implant	-	0.4
Oral pills and injectable	3.8	2.0
Condom	1.8	4.9
Other methods	0.8	0.5

Source: National Population and Family Planning Commission of China (<http://www.npfpc.gov.cn/en/fpcn02-en.htm>).

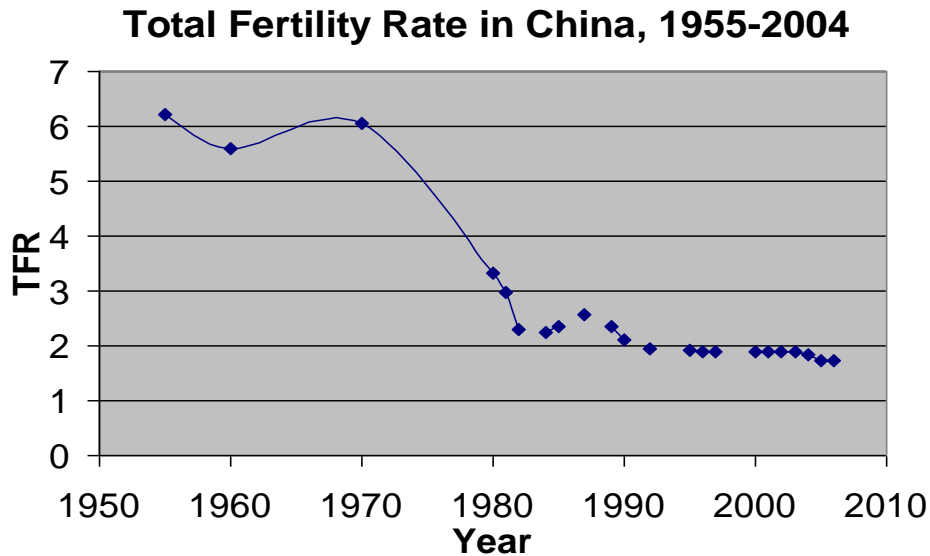


Figure 1. Total fertility rate in China.

and health subsidy.

Table 5 summarizes family planning rules by provinces in the CHNS data. Only one of the provinces in the survey belongs to the one-child policy regime (that is, Jiangsu), other provinces belong to the 1.5 children policy regime. This study examines the first-girl-second-child rule. Since this rule allows about 50% of couples to have a second child, increase in the share of village that approve this rule could be interpreted as a more lenient family policy. The decline in the sample mean of village that approves this rule from 1989 to 1993 is consistent with the national trend that a stringent policy was implemented from 1989 to 1993. The rising mean value of village approves this rule from 1997 to 2004 suggesting that a more lenient policy had been used in this period of time. Huge variations between provinces in approving this rule are observed. For example, no village in Jiangsu approved this rule. There are also huge

variations of the percentage of villages that approve this rule in the same province in different period of time. In other words, even in provinces of the “1.5” children policy regime, many counties in the same province have, according to their local conditions, disapproved this rule, an observation which supports the argument of the localization of family planning rules. For the rule that allow couples who come from a one-child family to have a second child, we observe that the share of villages that approve this rule declines from over 70% in 1991 to about 50% from 1993 to 2004. Even in Jiangsu, a province that approves this rule in the provincial level, not all villages allow couple to have a second child under this rule.

For the two questions asking whether village offers subsidy to one-child family, it is observed that while the percentage of the village that offers subsidy only varies slightly over (more than 50% of the villages offer subsidy



Figure 2. Location of surveyed provinces.

to one-child family and more than 22% of the villages offer health-care subsidy to one child family), but indeed the share of the village that offers subsidy to one-child family varied considerably within a province. For instance in Jiangsu, while more than 80% of the villages offer subsidy to one-child family from 1989 to 1997, just more than 40% of the villages offer subsidy to one-child family from 2000 to 2004. Similar decline in health-care subsidy is also observed in Hubei. Villages that offered health-care subsidy to one child family decreased from over 60% in 1989 to less than 20 percent in 2004.

Determinants of family exception rules and subsidies

This study examines the determinants of the two exception rules in family planning policy that allow couples to have a second child and whether a village offers any subsidy and child care subsidy to one child family by estimating the following model:

$$R_{it} = \alpha X_{it} + \beta A_{it} + \chi Time + \varepsilon_{it} \quad (1)$$

The dependent variable R_{it} is either a family exception rule or whether the village offers subsidy to a one child family. X_{it} is a set of village level characteristics, which

includes the share of labor force in agriculture, whether the village is a minority village or a poverty village. A_{it} is the provincial population growth rate from 1949 to 1988.⁴⁸ This growth rate proxies the effect of the family policy in the past, which may affect villages to set their family planning rule from 1989 onwards. We cannot use provincial dummies to control for this effect because all villages in Jiangsu do not allow couples to have a second child when the first child is a girl. The inclusion of time trends help to identify any changes in family planning rules in all villages, which at least partly reveal the stand of the state government in enforcing birth control. Table 6 provides mean statistics of the variables in the regression. A random effect logit model was used in the estimation. Table 7 presents the results of the regression.

For the first-girl-second-child rule, location and economic structure of the village is important. It is found that villages located in mountainous areas and with high percentage of labor force in agriculture are more likely to approve this rule. That minority villages are less likely to approve this rule is consistent with the finding in the provincial family planning law. The reason is that most minorities are approved to have a second child on ethnical ground. The first-girl-second-child rule is more

⁴⁸ We take the log difference between population in 1988 and 1949 and divide it by 41 to obtain the simple annual population growth rate.

Table 3. Population and family planning law in China.

Family policy exception rules		One Child Policy		1.5 Child Policy		Two Child Policy	
		1995-1999	2002-2004	1995-1999	2002-2004	1995-1999	2002-2004
Both husband and wife come from a one-child family	Yes	6	6	15	18	6	6
	No	0	0	4	1	0	0
The first child is a girl	Yes	0	0	19	18	na	na
	Yes, with conditions	5	5	0	1	na	na
	No	1	1	0	0	na	na
Both or one of the spouse is ethnical minority	Yes	0	0	4	4	na	na
	Yes, with conditions	3	4	15	15	na	na
	No	3	2	0	0	na	na
Penalty							
Have one more child than allowed		4.76	5.30	6.48	5.37	5.45	7.1
Spouse are qualified to have a second child but the women is under (26 or 30)		3.03	0.78	1.71	0.95	0.17	0.4
Have a child out of marriage		2.3	6.07	3.91	11.49	4.60	8.17
Rewards							
Monthly cash reward (yuan)		5.6	6.2	6.5	9.0	10.9	12.8
Age to which the monthly cash reward cease		14.7	15.7	14.7	15.2	14	15.0
One-off cash reward (yuan)		167	167	174	128	0	8.3
Additional pension (%)		1.67	2.5	2.35	2.3	0	1.7
One-off cash reward (yuan), when retired		0	550	131	753	0	333

Provinces: Beijing, Chongqing, Shanghai, Anhui, Fujian, Gansu, Guangdong, Guangxi, Hainan, Ningxia, Qinghai, Tianjin, Jiangsu, Sichuan, Guizhou, Hebei, Henan, Heilongjiang, Hubei, Tibet, Xinjiang, Yunnan, Hunan, Jiangxi, Inner Mongolia, Jilin, Liaoning, Shaanxi, Shandong, Shanxi, Zhejiang.

Table 4. Performance of family planning policy.

Performance	One Child Policy		1.5 Child Policy		Two Child Policy	
	1981-2001	2002-2004	1981-2001	2002-2004	1990-1999	2002-2004
One-child certificate rate [#]	43.99	36.60	15.76	19.02	8.88	9.58
Planned birth rate	92.58	96.45	85.69	94.46	81.31	92.71
One-child rate	84.69	82.92	68.57	73.03	49.39	56.37
Two-children rate	13.93	16.07	25.40	25.99	29.66	32.17
Multi-children rate	1.38	1.01	6.04	0.99	20.95	11.46
Female sterilization	1297645	840581	716707	716278	86419	75698
Vasectomy	1008203	746130	3175981	3825939	472324	656933
Intra Uterine Devices (IUD)	3763214	4793801	2818076	4019387	773967	1259186
Ratio of IUD/female sterilization	3.73	6.42	0.89	1.05	1.64	1.92

[#] The beginning year for the computation of one-child certificate is 1984.

relevant to ethnic Hans. While more detailed examination is needed, this result suggests that minority may have negative externality to ethnic Hans. Should a high population growth rate in the past means a more lenient family policy, the positive effect of the provincial

population growth rate suggests that villages in provinces with high growth rate in the past also are more likely to approve the first-girl-second-child rule. Finally, a clear time trend is observed in the first-girl-second child rule; family planning rule is more stringent in 1991 and more

Table 5. Family planning rules by province, 1989-2004.

First girl second child							Subsidy provided for one-child family						Minorities can have two children							
Year	1989	1991	1993	1997	2000	2004	Year	1989	1991	1993	1997	2000	2004	Year	1991	1993	1997	2000		
Whole sample	0.57	0.48	0.43	0.50	0.51	0.63	Whole sample	0.615	0.568	0.541	0.629	0.522	0.549	Whole sample	0.402	0.415	0.686	0.794		
Jiangsu	0	0	0	0	0	0	Jiangsu	0.813	0.938	0.875	0.813	0.438	0.438	32	0	0	0	0		
Liaoning	0.75	0.93	0.77		0.45	0.67	Liaoning	0.417	0.533	0.733		0.667	0.625	21	0.6	0.533		0.867		
Heilongjiang				0.60	0.60	0.64	Heilongjiang				0.933	0.600	1.000	23			0.643	0.857		
Shandong	0.81	0.44	0.50	0.67	0.58	0.73	Shandong	0.625	0.938	0.583	0.867	0.733	1.000	37	0.375	0	0.6	1		
Henan	0.56	0.50	0.27	0.71	0.25	0.87	Henan	0.188	0.267	0.313	0.563	0.625	0.438	41	0.533	0.313	0.875	0.333		
Hubei	0.81	0.69	0.78	0.79	0.86	0.75	Hubei	0.750	0.688	0.563	0.533	0.467	0.250	42	0.4	0.643	0.5	0		
Hunan	0.75	0.50	0.56	0.38	0.62	0.85	Hunan	0.688	0.438	0.313	0.133	0.333	0.250	43	0.2	0.133	0.4	1		
Guangxi	0.79	0.63	0.67	0.63	0.80	0.67	Guangxi	0.786	0.563	0.503	0.375	0.125	0.125	45	0	0.313		0.8		
Guizhou	0.13	0.20	0.00	0.30	0.73	0.56	Guizhou	0.625	0.667	0.467	0.813	0.733	0.813	52	1	0.938	0.857	0.917		
Parents are only children							Health care subsidy to one child family						Second child allowed for every couple							
Year	1989	1991	1993	1997	2000	2004	Year	1989	1991	1993	1997	2000	2004	Year	1989	1991	1993	1997	2000	2004
Whole sample	0.785	0.720	0.447	0.472	0.552	0.487	Whole sample	0.280	0.281	0.223	0.266	0.266	0.222	Whole sample	0.718	0.722	0.163	0.250	0.281	0.030
Jiangsu	0.875	0.938	0.750	0.875	0.625	1.000	Jiangsu	0.2	0	0	0.063	0.063	0	32	0.5	0	0	0	0	0
Liaoning	0.833	0.733	0.692		0.200	0.467	Liaoning	0.4	0.143	0.308		0.2	0	21	0.750	0.091	0.133		0.286	0.067
Heilongjiang				0.333	0.400	0.571	Heilongjiang				0.067	0.267	0.188	23				0.000	0.250	0.063
Shandong	0.750	0.313	0.003	0.583	0.455	0.111	Shandong	0.077	0.563	0.375	0.467	0.6	0.188	37	0.813	0	0	0.267	0.280	0

Table 5. Cont'd.

Hen an	0.6	0.6	0.4	0.4	0.2	0.4	Hen an	0.1	0	0.0	0.3	0	0.3	4	0.7	0	0.0	0.2	0.2	0
Hub ei	0.7	0.6	0.2	0.2	0.7	0.4	Hub ei	0.6	0.6	0.4	0.3	0.2	0.1	4	0.5	0.2	0.4	0.2	0.2	0
Hun an	0.7	0.7	0.3	0.5	0.7	0.1	Hun an	0.2	0.2	0.2	0.2	0.1	0.4	4	0.7	0.3	0	0.2	0.0	0.0
Gua ngxi	1.0	0.8	0.5	0.3	0.6	0.8	Gua ngxi	0.1	0.1	0.3	0.3	0.3	0.0	4	0.7	0.6	0.2	0.3	0.6	0.0
Guiz hou	0.7	0.9	0.5	0.4	0.8	0.1	Guiz hou	0.3	0.6	0.0	0.3	0.4	0.6	5	0.8	0.7	0.3	0.6	0.6	0
	50	33	00	00	18	43		75	43	71	125	67	25	2	75	50	75	25	67	

Table 6. Mean statistics of the variables in regression.

Family planning rule	Mean	S.d.	Min.	Max.
First-girl second child	0.456	0.499	0	1
Both parents from one child family	0.546	0.498	0	1
Any subsidy to one child family	0.564	0.496	0	1
Health-care subsidy to one child family	0.260	0.439	0	1
The village is in mountainous area	0.166	0.372	0	1
Percentage of village labor force in agriculture	46.018	33.895	0	100
Percentage of village labor force working outside the village	23.867	23.340	0	100
Daily wage for baby sitting	11.790	20.249	0	150
Is there any township village enterprise	0.453	0.498	0	1
Whether the village is a minority village	0.191	0.394	0	1
Whether the village is a poverty village	0.208	0.407	0	1
Provincial population growth rate of 1949-1988	1.868	0.393	1.450	3.157
Population growth rate of 1949-1988 by province				
Liaoning	1.890			
Heilongjiang	3.157			
Jiangsu	1.554			
Shandong	1.450			
Henan	1.768			
Hubei	1.789			
Hunan	1.752			
Guangxi	1.999			
Guizhou	2.03			

lenient in 1997 and 2004.

For other variables, the only variable that is important in all regression is the share of village force in agriculture. Village with high percentage of labor force in agriculture is more likely to allow couples who are coming from a one-child family to have a second child, and it is less likely to offer subsidy to one child family.

Conclusion

It is almost three decades since the implementation of the one-child policy. Instead of a unified one child family

policy, it is found that provinces in China could be classified into three groups: one child policy, “1.5 children” policy and two children policy. While provinces in these three regimes might differ in many other aspects, the main difference between them is the approval of the first-girl-second child rule. One indication of the claim that a more lenient stand of family planning began in 2002 is that more provinces in the “1.5 children” regime approve the first-girl second child rule. On the other hand, the fine for having more children than allowed has been standardized to net per capita income in most provinces, though the fine could still be varied even within the same

Table 7. Determinants of family planning rules.

Dependent variables	r1	r3	r16	r33
Village characteristics				
Whether the village is in mountainous area	1.061** (2.48)	0.099 (0.23)	0.018 (0.04)	-0.234 (0.52)
Percentage of village labor force in agriculture	0.013** (2.22)	0.014*** (2.76)	-0.011*** (2.77)	-0.012** (2.47)
Percentage of village labor force working outside the village	-0.004 (0.59)	0.013** (2.09)	0.002 (0.32)	-0.002 (0.34)
Daily wage of baby sitting	-0.003 (0.67)	-0.006 (1.02)	-0.003 (0.60)	-0.002 (0.20)
Is there any township village enterprise	-0.011 (0.04)	0.274 (1.05)	0.328 (1.40)	0.107 (0.33)
Whether the village is a minority village	-1.684*** (3.62)	-1.372*** (3.57)	0.969** (2.28)	0.407 (1.02)
Whether the village is a poverty village	-0.760 (1.64)	1.187** (2.52)	-0.216 (0.63)	-0.183 (0.48)
Provincial characteristics				
Average population growth rate of 1949-1989	3.259*** (2.74)	1.233 (1.52)	-1.731** (2.04)	0.714 (0.90)
Time trend				
t91	-1.064*** (3.45)	-0.497 (1.05)	0.465 (1.18)	0.559 (0.98)
t93	0.205 (0.67)	-1.402*** (3.54)	-0.488 (1.37)	-0.860* (1.89)
t97	0.588* (1.77)	0.134 (0.39)	0.162 (0.51)	0.495 (1.12)
t00	-0.084 (0.24)	0.471 (1.19)	-0.271 (0.85)	0.135 (0.31)
t04	0.769** (2.27)	-0.168 (0.39)	-0.161 (0.56)	-0.229 (0.52)
Constant	-5.367*** (2.61)	-1.741 (1.15)	3.522** (2.45)	-2.067 (1.37)
Observations	328	323	376	362
Number of comments	98	98	99	99

z statistics in parentheses: * significant at 10%; ** significant at 5%; *** significant at 1%.

r1: first girl second child rule;

r3: couple is allowed to have a second child if they are coming from a one child family;

r16: Any subsidy to one child family;

r33: Health-care subsidy to one child family.

country. Also the value of the fine has been revised upward in all family policy regimes. Combined, the state government seems to allow couples to have a second child, but not a third one.

While it is difficult to evaluate the performances of the family planning policy, a set of outcomes are presented in Table 2. These performance measures suggest an improvement of the one-child rate in the “1.5” children and two children regimes overtime. The decline in the one-child rate in the one-child regime might reveal the success of the one-child policy in the past that many of the couples are themselves coming from a one child family. This provides supportive evidence for the growing concern of demographers in China about the rising fertility rate in the next five years. The changing emphasis of the means of contraception, from sterilization to IUD, also demonstrates that more choices in the means of contraception have been provided to couples in rural China.

There are two interesting results in this study’s analysis of village-level family planning rule. First, the localization

of family planning policy takes place in an even lower administrative level. Secondly, the findings in regression analysis suggest that family planning rules are determined by local characteristics, provincial characteristics and the stand of the state government in population control.

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Appendix 1. Provincial level population and family planning law.

One Child Policy	Beijing		Chongqing		Shanghai		Tianjin		Jiangsu		Sichuan	
Exception rules												
Couples come from a one-child family	1		1		1		1		1		1	
The first child is a girl#	1		1		0		1		1		1	
Both or one of the spouse is ethnical minority#	1		1		0*		1		0		?	
Total number of exception rules	9		10		11		11		13		13	
Penalty												
Have one more child than allowed	3-10 times	b	2-6 times	b	3	b	2-5 times	b	4	b	6-8 times	b
Have two more child than allowed	6-20 times	b	4-12 times	b	6	b	6-10 times	b	5-8 times	b	12-16 times	b
Have three more child than allowed	6-20 times	b	6-18 times	b	6	b	6-10 times	b	5-8 times	b	18-24 times	b
Spouse are qualified to have a second child but without permission	0.2 time		2000	0.95 time	0.25	b	0.25	b	0.2	b	1	b
Spouse are qualified to have a second child but the women is under (26 or 30)	0.2 time	b	2000*year		0.25	b	0.5	b	?		2	b
Have a child out of marriage	1 time	b	6000	2.86 time	0.5	b	1-3 times	b	0.5-2 times	b	3-4 times	b
Married but have a child out of marriage	3-10 times	b	6-9 times	b	?		3-5 times	b	6-9 times	b	9-10 times	b
Rewards												
Monthly cash reward (yuan)	10		2.5-5		2.5		10		3.3		7.5	
Age to which the monthly cash reward cease	18		14		16		14		14		18	
One-off cash reward(yuan)	1000		0		0		0		?		0	
Additonal pension (%)	0		5		0	PCI=7066	0		5		5	
One-off cash reward(yuan), when retired	0	0.178 time	0		2300	0.33 time	0		0		0	
Privilege in education, medicare and employment (No=0, Yes=1)	1	PCI=5601	1		0		0		1		0	
More arable land	0		0		1		0		0		0	
More housing land (no=0, has previlage=1, one child has two=2)	1		0		2		0		1		2	
Cash subsidy for voluntarily giving up the second child or death or handicapped by accident	500	0.09 time	?		0 / 4000	0.57 time	0		0		0	

Appendix 1. Cont'd.

Year for the revision of the family planning regulations	1982	1982	2000	1981	1992	1982	2003	1979	1997	1982	2002
	1991	1984	2002	1982	1995	1988		1982	2002	1984	
	1999	1987		1984	1997	1993		1985		1987	
	2000	1993		1987	2004	1994		1990		1993	
	2003	1997		1990		1997		1995		1997	
The production responsibility contract is linked with birth control (No=0, Yes=1)	0	0		0		0		0		0	
social child-raising fee is submitted to the state government (No=0, Yes=1)	1	1		0		1		1		0	
Penalty (before the revision)	2000	PCI=4604	2000	1997		1997		1997		1997	
Have one more child than allowed	5000-50000 yuan		5 a	6	b	2.1*	a	6	b	3.5	a
Spouse are qualified to have a second child but the women is under (26 or 30)	500 yuan		?	6	b	2.1	a	6	b	0.8*month	a
Have a child out of marriage	2000-10000 yuan		?	?		2.1	a	?		3.5	a
Rewards (before the revision)											
Monthly cash reward (yuan)	5-10		5-10	5		5		3.3		5	
Age to which the monthly cash reward cease	18		14	14		14		14		14	
One-off cash reward(yuan)	1000		0	0		0		0		0	
Additional pension (%)	0		5	0		0		5		0	
One-off cash reward(yuan), when retired	0		0	0		0		0		0	
1.5-Children Policy	Anhui		Fujian		Gansu		Guangdong		Guangxi		
Exception rules											
Couples come from a one-child family	1		1		1		1		1		
The first child is a girl#	2		2		2		2		2		
Both or one of the spouse is ethnical minority#	2		1		1		1		1/con (10m)		
Total number of exception rules									8		

Appendix 1. Cont'd.

						PCI=1590				
Penalty										
Have one more child than allowed	6-8 times	a	2-3 times	b	4.2	b	4.5	b	8	b
Have two more child than allowed	12-16 times	a	4-6 times	b	11.2	b	9	b	12	b
Have three more child than allowed	18-24 times	a	8-12 times	b	28	b	4.5*n	b	16	b
Spouse are qualified to have a second child but without permission	200-500 yuan	PCI=2118	0.6-1 time		1250	0.79 time	?		?	
Spouse are qualified to have a second child but the women are under (26 or 30)	1000-2000 yuan		0.6-1 time	b	1500	0.94 time	1.5	b	0.5*year	b
Have a child out of marriage	2000-5000 yuan		4-6 times	b	1.4	b	2	b	0	
Married but have a child out of marriage	?		?		8.4	b	7.5	b	8	b
Rewards										
Monthly cash reward (yuan)	10		?		10		10		?	
Age to which the monthly cash reward cease	16		14	PCI=3539	16		14		18	
One-off cash reward (yuan)	0		500	0.14 time	0		0		0	
Additional pension (%)	5		?		0	PCT=1590	?		5	
One-off cash reward(yuan), when retired	0		?		1000	0.63 time	0		0	
Privilege in education, medicare and employment (No=0, Yes=1)	1		1		1		1		1	
More arable land	1		0		0		0		0	
More housing land (no=0, has privilege=1, one child has two=2)	0	0.71 time	2	0.28 time	1		1		0	
cash subsidy for voluntarily giving up the second child or death or handicapped by accident	1500	PCI=2118	1000	PCI=3539	1000	0.63 time	0 / 100%		10% / ?	
Year for the revision of the family planning regulations										
	1979	1995	1982	2002	1982	2005	1980	1998	1982	2002
	1981	1999	1988		1985		1986	1999	1985	
	1984	2002	1991		1989		1986	2002	1988	
	1988		1997		1997		1992		1994	
	1992		2000		2002		1997		1997	

Appendix 1. Cont'd.

The production responsibility contract is linked with birth control (No=0, Yes=1)	0				0		0		1		0
Social child-raising fee is submitted to the state government (No=0, Yes=1)	0				0		1		1		1
Penalty (before the revision)	1999	PCI=1900	2000		1997	a	1999		c		PCI=1446
Have one more child than allowed	7	a	5	a	2.1	a	5.6	b	26000		18 time
Spouse are qualified to have a second child but the women is under (26 or 30)	1500	0.79 time	1.6	a	2.1	a	0.8*year	b	15500		10.7 time
Have a child out of marriage	?		10	a	2.1		2.8	b	16000		11.1 time
Rewards (before the revision)											
Monthly cash reward (yuan)	5-15		0		5		10		?		
Age to which the monthly cash reward cease	16		?		14		14		14		
One-off cash reward (yuan)	1000-2000		400		0		0		0		
Additional pension (%)	5		increase pension		0		5		0		
One-off cash reward (yuan), when retired	2000-3000		0		0		0		0		
1.5-Children Policy	Guizhou		Hebei		Henan		Heilongjiang		Hubei		
Exception rules											
Couples come from a one-child family	1		1		0		1		1		
The first child is a girl#	2		2		1		2		2		
Both or one of the spouse is ethnical minority#	1		1/con (10m)		1		1/con (10m)		1		
Total number of exception rules	9				10		9		10		
Penalty					PCI=2854		PCI=2216		PCI=2405		PCI=2444
Have one more child than allowed	3.5	b	5	a	6 + 350	b	7500	3.12 times	6	b	
Have two more child than allowed	3.5	b	10	a	12+ 1250	b	45000	18.71 times	12	b	

Appendix 1. Cont'd.

Have three more child than allowed	3.5	b	(1+100%)n*5	a	12+ 1250	b	90000	37.42 times	12	b
Spouse are qualified to have a second child but without permission	?		1000	0.35 time	?		1000	0.42 time	?	
Spouse are qualified to have a second child but the women is under (26 or 30)	0.6*year	a	3000*year	0.35n time	?		3000	1.25 time	1000*year	n time
Have a child out of marriage	0.6	a	3000	1.05 time	?		?		1000	0.41 time
Married but have a child out of marriage	3.5	b	(1+100%)n*5	a	?		120000	49.89 times	12	b
Rewards										
Monthly cash reward (yuan)	5		10		10		10		10	
Age to which the monthly cash reward cease	14		PCI=1490	18	14		18		14	
One-off cash reward (yuan)	300		0.2 time	0	0		0		or 1500	0.61 time
Additional pension (%)	5		0		0		1		5	
One-off cash reward (yuan), when retired	0		3000	1.05 times	2000	0.9 time	3000	1.25 times	0	
Privilege in education, medicare and employment (No=0, Yes=1)	1		1		1		0		1	
More arable land	0		0		1		0		2	
More housing land (no=0, has privilege = 1, one child has two=2)	1		1		1		1		0 / +10%	
Cash subsidy for voluntarily giving up the second child or death or handicapped by accident	500		0.34 time	1000	0.35 time	2000	0.9 time	0 / 5000	2.08 times	1987
Year for the revision of the family planning regulations										
	1979		2002		1982		2001		1982	
					1982				2002	
					1986				1983	
					1989				1989	
					1987				1987	
					1984				1989	
					1987				1994	
					1987				1994	
					1998				2000	
					1997				2000	
					2001				1985	
					1982				1987	
					1982				1987	
					2002				1991	
					1979				1997	
					1982				2002	
					1987				1997	
					1998				2002	
					1997				2002	
The production responsibility contract is linked with birth control (No=0, Yes=1)	0		0		0		0		0	

Appendix 1. Cont'd.

Age to which the monthly cash reward cease	14		14	14		18		0	
One-off cash reward (yuan)	0		0	0		0		plus 10 yuan	PCI=2934
Additional pension (%)	5		0	0		?		or 2000	0.68 time
One-off cash reward (yuan), when retired	0		0	0		?		1	
Privilege in education, medicare and employment (No=0, Yes=1)	1		1	1		1		0	
More arable land	0		0	1		0		0	
More housing land (no=0, has privilege = 1, one child has two=2)	1		2	1		1	PCI=2300	0 / 3000	1.02 times
Cash subsidy for voluntarily giving up the second child or death or handicapped by accident	0 / 100%		?	0		200		0.09 time	
Year for the revision of the family planning regulations	1979		1983	2002	1982	1999	1988	1979	1988
	1982		1985		1985	2002	1993	1980	1992
	1989		1990		1988		1997	1982	1997
	1999		1995		1990		2002	1984	2003
	2002		1997		1995			1985	
The production responsibility contract is linked with birth control (No=0, Yes=1)	0		0		0		0	0	
Social child-raising fee is submitted to the state government (No=0, Yes=1)	1		0		0		0	1	
Penalty (before the revision)	1999	a	1997		1999	PCI=2003	1997	1997	PCI=1757
Have one more child than allowed	2	PIC=2127	?		16000	8 times	?	27500	15.66 times
Spouse are qualified to have a second child but the women are under (26 or 30)	750	0.35 time	?		1250	0.62 time	?	3000	1.71 times
Have a child out of marriage	2	a	?		10500	5.24 times	?	3000	1.71 times
Rewards (before the revision)									
Monthly cash reward (yuan)	5		?		?		8	5-10	
Age to which the monthly cash reward cease	14		14		14		18	14	

Appendix 1. Cont'd.

One-off cash reward (yuan)	?	0	0	200	0			
Additional pension (%)	5	0	0	0	5 yuan per month			
One-off cash reward (yuan), when retired	0	0	0	0	0			
1.5-Children Policy	Shaanxi	Shandong	Shanxi	Zhejiang	Other Tibet			
Exception rules								
Couples come from a one-child family	1	1		1	1			
The first child is a girl#	2	2	1	2	0			
Both or one of the spouse is ethnical minority#	1/con (10m)	2	2	2	2			
Total number of exception rules		15						
Penalty		PCI=1596		PCI=2150	Han/Zang			
Have one more child than allowed	9	b	7	b 2.8	a 6	b 3000/500	975.95	
Have two more child than allowed	18	b	16	b 11.2	a 12	b 5000/1000	975.95	
Have three more child than allowed	9	b	16	b 11.2+	a 12	b 5000/1000	975.95	
Spouse are qualified to have a second child but without permission	750	0.47 time	1	b 2000	0.93 time	2.5	b 0	
Spouse are qualified to have a second child but the women are under (26 or 30)	3500	2.19 times	4	b 2000	0.93 time	2.5	b 500 / 150	975.95
Have a child out of marriage	3500	2.19 times	1	b 2.8+	a 3	b ?		
Married but have a child out of marriage	9	b	8	b 2.8+	a 12	b ?		
Rewards								
Monthly cash reward (yuan)	5	10	10	8.3	5			
Age to which the monthly cash reward cease	14	14	16	14	14			
One-off cash reward(yuan)	2000	0	0	0	50			
Additional pension (%)	5	5	0	0	0			
One-off cash reward(yuan), when retired	0	0.3Y	0	0	0			
Privilege in education, medicare and employment (No=0, Yes=1)	1	0	1	0	1			
More arable land	0	1	0	0	0			

Appendix 1. Cont'd.

Penalty	PCI=1917						PCI=1609	
Have one more child than allowed	7	b 8	b	3-4 times	1-10 times	10-16 times	b	
Have two more child than allowed	11	b 16	b	6-8 times	9	30	b	
Have three more child than allowed	11	b 8*n	b	6-8 times	4.5*n	15	b	
Spouse are qualified to have a second child but without permission	0.15	b 0		?	0	1200	0.75 time	
Spouse are qualified to have a second child but the women are under (26 or 30)	1.5	b 400	0.21 time	500 yuan	1/12*month	2500	1.55 times	
Have a child out of marriage	0.3	b 8	b	?	9	?		
Married but have a child out of marriage	11	b 8	b	?	9	7500	4.66 times	
Rewards								
Monthly cash reward (yuan)	30	12		10	10	10		
Age to which the monthly cash reward cease	18	14		14	16	14		
One-off cash reward (yuan)	0	0		0	0	0		
Additional pension (%)	5	0		0	5	5		
One-off cash reward (yuan), when retired	0	0		0	or 2000	1863	0	
Privilege in education, medicare and employment (No=0, Yes=1)	1	1		1	0	1		
More arable land	0	0		0	1	0		
More housing land (no=0, has privilege = 1, one child has two=2)	2	1		1	1	1		
Cash subsidy for voluntarily giving up the second child or death or handicapped by accident	5% on pension	0		0	2000	1863	?	
Years for the revision of the family planning regulations								
	1984	1982	2002	1982	1981	2002	1986	
	1985	1986		1986	1983		1990	
	1989	1990		1992	1988		1997	
	1995	1999		1999	1991		2002	
	2003	2000		2002	1997			
The production responsibility contract is linked with birth control (No=0, Yes=1)		0		0	0	0	0	0

Appendix 1. Cont'd.

Social child-raising fee is submitted to the state government (No=0, Yes=1)	1	0	0		0	0		
Penalty (before the revision)	1995	b	2000	1999	PCI=1467	1997		
Have one more child than allowed	5	b	8.4	a	3.5	a	4.9	a
Spouse are qualified to have a second child but the women are under (26 or 30)	0.2		8.4	a	400	0.27 time	4.9	a
Have a child out of marriage	?		8.4	a	750	0.51 time	4.9	a
Rewards (before the revision)								
Monthly cash reward (yuan)	20-30		8		7		7	5-10
Age to which the monthly cash reward cease	14		14		14		14	14
One-off cash reward (yuan)	5		0		0		0	0
Additional pension (%)	0		0		0		0	0
One-off cash reward (yuan), when retired	0		0		0		0	0

Beijing. Tianjin: Those villagers who live in mountainous areas, have real difficulties and have one daughter can have a second child.

Tianjin: Couples have to pay 30% of standard wage for 7 years.

Shanghai: Minorities who receive approval from home county before moving into Shanghai can have a second child.

a: personal income, b: per capita income.

#: No = 0, Some conditions = 1, Yes = 2.

Appendix 2. Performances of family planning policy.

Year	Sterilization		IUD	One-child certificate rate	Planned birth rate	One-child rate	Two-children rate	Multi-children rate
	Male	Female						
1981	10571341	27485212	53799749	na	68.1	57.71	25.55	16.74
1982	11550476	30551704	57338187	na	69.7	61.21	23.65	15.14
1983	16064210	46626107	51003623	na	74.20	65.9		11.7
1984	16661231	50435840	52890553	18.25		68.03	21.68	10.29
1985	16629285	51205891	55651296	18.14		67.66	23.89	8.45
1986	17000442	52793912	58792639	17.90		65.81	26.91	7.28
1987				18.14		67.2	26.63	6.17
1988	18750347	59246645	67559637	18.26		69.32	25.39	5.29
1989				18.1		69.82	25.23	4.95
1990	21577904	68529495	74324275	18.4		67.17	26.43	6.4
1991	23279505	74776462	74890193	18.66				
1992	23986381	78828727	77791681	19.2				
1993	23236455	81843830	81193119	19.09				
1994	22922276	84100932	84962290	19.24				
1995	22632163	85477441	89185344	20.72	88.28			
1996	22146213	86245787	92823958	21.67	90.66	73.54	23.71	2.75
1997	21625973	86372764	96494694	21.96	92.97	74.32	23.57	2.11
1998	21262490	86053948	99116499	21.73	93.16	73.93	24.05	2.01
1999	20853494	86272511	102657506	21.93	94.08	73.39	24.91	1.7
2000	20147987	85295212	105062397	22.24	94.64	73.69	24.7	1.61
2001	19430107	84119726	107666709	22	94.25	72.47	25.82	1.71
2002	18696905	82531728	110379070	22.27	94.63	72.37	26.16	1.47
2003	17762270	81098006	113036002	21.69		72.06	26.28	1.66
2004	17018219	79703894	114643758	21.75	94.13	71.73	26.54	1.73