Does Policy Relaxation Increase Contraceptive Flexibility:

Short-Acting Contraceptive Use in China

(Draft version)

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Acknowledgement

The author thanks Wang Qian and Huang Yanni at the National Population and Family Planning Commission of China for the data used in the study. This paper also benefited from an award to the author of a post-doctoral fellow in the Department of Sociology, University of Toronto funded under the auspices of Prof. Monica Boyd, August 2006-April 2007.

Introduction

Development of Contraceptive techniques made great contribution to the fertility transition in many developed countries. High-level of contraception rate is usually a hallmark in these post-transition low-fertility countries. Short-acting contraceptives, such as condoms and pills, make up a significant portion in contraceptive composition in these countries. As more and more developing countries are reaching or trying to reach replacement level fertility, whether they will follow the same contraceptive pattern as those developed nations becomes a very interesting research question. Specifically, whether the fertility-declining developing countries would obtain a similar pattern of short-acting contraceptive use as those developed countries? From this perspective, this paper is intended to examine short-acting contraceptive use in a low-fertility developing country—China.

China has witnessed dramatic fertility decline in the last three decades, mainly because of to its strict birth policy. Currently, although different sources have quite different estimates on China's fertility level (Retherford et al. 2005), ranging from 1.3 to 1.8 in TFR, it is undoubtedly that China has already been a low-fertility country. In achieving such a low-level fertility, China's family planning program, the contraceptive program in particular, had made indispensible contributions. Contraceptive use in China in the last two decades has been characterized by dominant users of IUD and sterilization. IUD and sterilization users combined account for over 90% of contraceptive users. An important reason behind the extreme composition is a strict state regulation on birth and contraception. Contraceptive use has been characterized by its direct linkage with birth and parity, or as parity-driven prescriptions of contraceptive use. In many provinces in China and for many years, women have to use IUD after the first birth and to use sterilization after the second birth, and usually there was no counseling about choice of contraceptive methods and medical follow-up (Kaufman et al. 1992). Consequently, short-acting contraceptives have never played a significant role in contraceptive composition in China, especially in the rural areas. For decades, users of short-acting contraceptives have never been over 10 percent of total contraceptive users.

The reason behind the low prevalence of short-acing contraceptives is multi-faceted. However, among these reasons, policy pressure certainly would be put on the top of the list, especially in the rural areas. For years, women (or couples) were not able to choose contraception at their own will. Following the International Conference on Population and Development in 1994, however, the Chinese government started a policy reorientation in its family planning program in order to improve women's reproductive health in the mid-1990s (Gu et al. 2004, Kaufman et al. 2005). The State Family Planning Commission of China initiated a pilot program on quality of care in 1995. By the year 1999, over 660 counties (about 25% of the nation) have started a program on quality of care. At the beginning of 2000s the program has already spread over one third of counties in the country. The quality-of-care program marks a government reorientation from a target-centered to a client-centered working approach. One of the major components of the program is informed choice of contraception. The local family planning agencies started to offer women (or couples) a choice of different contraceptives and to provide necessary consulting and follow-up services regarding contraceptive use. Client satisfaction, replacing birth target, became the objective of family planning under the new program. Above all, the policy pressure on contraception should be greatly relaxed. Under the new program, government or family planning officials no longer choose contraception for women based on women's fertility history. Rather, women (or couples) are allowed to choose their preferred contraceptives based on informed knowledge of contraception.

Whether the reorientation program or policy relaxation will change the old contraceptive regime or contraceptive composition is currently unknown. The objective of this paper is to study this question by examining changes in short-acting contraceptive users after the reorientation of family planning since the mid-1990s. Major research questions include: 1) Does policy relaxation increase contraceptive flexibility or short-acting contraceptive uses? 2) What are the main characteristics of short-acting contraceptive users in China? Are there significant changes over years? And 3) what are the main reasons for not using short-acting contraceptives? Are there necessary connections between short-acting contraceptive use and unwanted pregnancies? To make

our definition more consistent, we refer short-acting contraceptives to pills, condoms, and injective throughout the paper.

The data we used were from two national surveys on family planning in 1997 and 2001. Both surveys were conducted by the National Population and Family Planning Commission (or NPFPC, formerly known as State Family Planning Commission). Although this study is policy-related, it is not intended to evaluate the effectiveness of a specific government policy, because we do not have any data from a controlled experiment. The data we used here were merely observational and have no information whether quality-of-care program has been applied in the local area or not.

The paper is organized in the follow. The second section review short-acting contraceptive use in the context of low fertility. We compare China with other low-fertility developed countries in terms of short-acting contraceptive use and its implications. Then we briefly report the data and variables used in the paper in section three. The Fourth section presents descriptive analysis of short-acting users in China over the two years, and the Fifth section compares the probability of using short-acing contraceptives in the two years, by controlling for different individual socioeconomic variables. A multivariate analysis on using short-acting contraceptives was also included. In the final section, we summarize our findings and discuss the possible theoretical and policy implications.

Short-acting contraceptive use in the context of low fertility

Short-acting contraceptives, mainly condoms or pills, are very convenient and easy to use, and their costs are relative very low. Therefore, they are quite popular in the industrialized countries. Meanwhile, the efficiency of condoms or pills is also very high. However, in China, condoms or pills are by no means the main options of contraceptives among married couples. The main reason is policy pressure. The Chinese policy presumes that every couple has strong preference for more than one child. Therefore, to reach and maintain low-level fertility, long-acting and permanent contraceptives should

be best option from the government perspective. Condom or pills, unlike IUD or sterilization, are easy to discontinue by couples as long as they want. Therefore, it imposes a potential threat for China's fertility target, because couples use condom/pills could easily get pregnant once they stop contraception.

China's fertility has reached a very low level in the last decades, and it remains quite stable. Although many demographers and policy makers have different thoughts regarding China's fertility level, it is undeniable that China's now is a low-fertility country. All direct evidence from census or national surveys showed that China's TFR was about 1.2-1.5 in the late 1990s and earlier 2000s. After taking consideration of highest possible underreporting, the TFR was still below 1.8. Under this circumstance, would contraceptive flexibility jeopardize China's low fertility? The fact in the low-fertility countries in Europe and North America indicated that a high level of short-acting contraception rate is not necessarily associated with unwanted pregnancies.

Table 1 shows some statistics on contraceptive and fertility in a few selected low-fertility countries and China. Apparently, short-acting contraceptives, mainly condom, are much more popular contraceptive choice in these countries, especially Japan (UN Millennium indicator database, 2005). Compared with these low-fertility countries, China has a very low prevalence rate of short-acting contraceptives, although China has a similar or even lower fertility level. For instance, In Japan, the proportion of condom use was 78% in 1994, and it was 23% in Italy in 1995. Even in the US, whose TFR is higher than that of China, the proportion of condom use was 17% in 1995. However, at the same time, the abortion rate in these countries was much lower than that in China (Henshaw et al 1999).

Table 1. Comparison of Fertility and Contraception between China and Selected Developed Countries

	TFR[1]	Contraceptive rate[1]	Abortion rate[2] (Per 1000 Women)	Condom use[3] (%)
China	1.6	87%	26	4.1 (1997)
US	2.0	73%	--	17 (1995)
Canada	1.5	75%	15.5	13 (1995)
Italy	1.3	60%	11.6	23 (1995)
Japan	1.3	56%	13.4	78 (1994)

Source of data: 1 TFR and Contraceptive rates are from 2005 World Population Data Sheet, Population Reference Bureau.

2 Henshaw, Stanley, et al. 1999. 'The Incidence of Abortion Worldwide.' I*nternational Family Planning Perspective* 25(S): S30-S38. This statistic for China might include both married and unmarried. In US: 344 per 1000 live births in 1990, 311 per 1000 live births in 1995, and 246 per 1000 live births in 2001 (CDC, *Abortion Surveillance: Preliminary Analysis—United States, 2001*.)

3 UN Millennium indicator database, 2005

Two points could be made from the comparison in Table 1. The first one is that the prevalence of condom/pill is not necessarily related to high incidences of induced abortion. At the national level, there is no firm support for the assertion that high short-acting contraceptive prevalence is associated with high abortion rate. The second one is that the prevalence of condom/pill is not necessarily associated with potential fertility increase.

It seems that one of the main reasons that differ China from those low-fertility countries is that China has a strong government regulation which restricted free choice of contraception. Now, when the policy pressure has been relaxed, would the contraceptive pattern in China converge with these low-fertility (post-transition) developed countries? Has the contraceptive use become more flexible in China? Did the proportion of short-acting contraceptives increase? What else determines the use of short-acting contraceptives in China?

Data and Method

We use data from the 1997 and 2001 National Demographic and Reproductive Health Surveys, which are repeated cross-sectional surveys using the same sampling clusters. The data were conducted by the State Family Planning Commission of China. Both surveys used the same clusters (rural villages or urban resident committees), selected based on a multi-stage probability sampling scheme (Wang and Wang 2001). Although a few clusters surveyed in 1997 were not able to be surveyed again due to changes in local administrative structure or other reasons, the impact on data quality was minimal. The only difference at the individual level is that all women aged 15-49 in the selected clusters were interviewed in the 2001 survey, while only one third women aged 15-49 were interviewed in 1997. Both surveys emphasized on individual fertility history and contraceptive use. Many questions on contraceptive section are virtually identical, which makes cross-sectional comparison possible. Furthermore, both surveys are nationally representative.

In this study, we mainly use descriptive statistics to make comparison between the two years. We compare the composition of short-acting contraceptive users in the two surveys. We also make comparisons in the probability of using short-acting contraceptives in the two years.

Short-acting contraceptives in China: overall trend

According to the national statistics, the percentage of short-acting contraceptives among all women using contraception has been constantly low in the past two decades (7.6% in 1988, 5.6% in 1992 6.3% in 1997, and 7.2% in 2001[1]). In the rural areas, the percentage is even lower. Depending on different data sources, there are some differences with regard to contraceptive prevalence. The survey data we used indicated that in 1997 among all married women, 5.37% were using short-acting contraceptives. In term of contraceptive composition, short-acting users made up 5.87% of all contraceptive users in the 1997 survey. In the 2001 Survey, among all currently married women, 6.42% of them

[1] 1988, 1992, and 1997 statistics are from Li and Lin 2004. 2001 rate is from NPFPC.

were using short-acting contraceptives at the time of interview. In term of contraceptive composition, short-acting users made up 7.39% of all contraceptive uses in 2001.

With in the categories of short-acting contraceptives, condom is the main choice by many Chinese couples. According to the Statistics in the past two decades, there is a gradual increase in the share of condom use in China (Li and Lin 2004). The 1997 survey showed that condom consists of 64.3% of short-acting contraceptives. The share of condom increased to 69.7% in the 2001 survey. Pill is the second most popular short-acting contraceptives in China, making up 27.2% of the composition.

The comparison between 1997 and 2001 survey results suggests that short-acting contraceptive prevalence has not been substantially increased after the policy reorientation, despite there was indeed a little increase in the share of short-acting contraceptive uses. Comparison based on national-level statistics provides a general picture about the trends of short-contraceptive uses in China. However, it is unable to answer some specific question regarding barriers of short-acting contraceptive uses at the individual level. Therefore, in the following sections, we'll specifically examine how short-acting contraceptive uses changed at the individual-level and what might be the barriers that prevent the spreading of short-acting use.

Description of short-acting users

Table 2 presents the basic description of short-acting contraceptives users in the two surveys. By comparing some characteristics of the short-acting users over the two years, we can identify whether there were some changes in short-acting use over years. Fertility history, or child composition, is an important indicator of policy pressure. Usually after having one or two children, the policy pressures women to choose long-acting contraceptives, e.g. IUD or sterilization. Therefore, checking the short-acting contraceptive use among women by their fertility history sheds some light on whether policy pressures have changed. By comparing 1997 and 2001 short-acting users, we found that there is more women with one child chose short-acting contraception in 2001.

However, the difference is less than 5 percent. In terms of education and short-acting contraceptive use, there is a little increase among women with junior school education in 2001. The distributions of ethnicity and residence among short-acting users in the two years are very close. Even the way of choosing contraceptives did not increase. The likelihood of reporting self-choice on short-acting use was even lower in 2001. Meanwhile, the percentage of using free contraceptives dropped about 9% in 2001. In other words, more women had to buy short-acting contraceptives after a few years of program reorientation.

Table 2. Demographic and Socioeconomic Characteristics of Short-acting Contraceptive users in China, 1997 and 2001

	1997 %	**2001 %**
Children ever born		
no child	13.8	11.6
one boy	39.6	44.3
one girl	30.9	31.0
two more	15.7	13.1
Having abortion experiences	56.1	50.0
Ethnicity		
Han	90.6	91.6
Ethnic Minorities	9.4	8.4
Education		
Primary or less	24.5	19.9
Junior high school	33.1	37.3
High school or above	42.4	42.8
Free contraceptives or not		
Completely free	64.2	55.5
Charged	35.8	44.5
Way of choosing contraception		
By self or husband	80.2	83.0
By other	19.8	17.0
Region		
Eastern Provinces	54.0	55.7
Central Provinces	32.5	29.5
Western Provinces	13.5	14.7
Urban Residence	62.1	61.5
N	661	2085

Source of data: 1997 and 2001 National Demographic and Reproductive Health Surveys

Inappropriate or untimely use of contraceptives might lead to contraceptive failures, or unexpected pregnancies, which are usually more likely to be ended in induced abortions. In this analysis, we found that among all short-acting uses in the 1997 survey, 56% of them had abortion experiences, while 50% of short-acting users in the 2001 survey had abortions. On the other hand, among all currently married women, 32.3% of women surveyed in 1997 had abortions, and 27.3% surveyed in 2001 had abortion experiences. Apparently, women with short-acting contraceptives had higher percentage of abortion experience than women with other contraceptives. However, because we don't have complete history of individual contraceptive use, it is impossible to establish a causal linkage between specific contraceptive use and contraceptive failure. We don't know whether the previous contraceptive failure was the result of using the same contraceptive as currently being used. Furthermore, some empirical studies showed that unwanted pregnancies or induced abortions, to a large extent, were outcomes of contraceptive failure from IUD, even sterilization, in China (Wang and Diamond 1995, Wang et al 2003, 1991)[2]. The linkage between short-acting contraceptive use and induced abortion still could not be supported here at the individual level.

Contraceptive knowledge might play an important role in preventing contraceptive failures. Previous studies showed that many Chinese women lacked knowledge of appropriately using contraceptives (Kaufman et al 1992), which might be another factor that prevents short-acting contraceptive uses. Among women who currently use contraceptives in the 2001 survey, 57.3% did not know anything regarding side effects of the contraceptives they chose. In the 1997 survey, 63.9% of all currently-married women did not know what to do after a woman forgot to take a pill. Among all currently-married women in the 2001 survey, 87.5% of them never heard of 'emergency contraception'. The percentage is even higher among rural women, which was 92.1%.

Rural-urban difference and Change

[2] Che and Iceland found the linkage between contraceptive discontinuation and abortion in China (2004).

Significant rural-urban differences could be observed in many different social, cultural, and economic aspects in China. Apparently, contraceptive use is not an exception. Table 3 presents the probability of using short-acting contraceptives over the two years by different personal characteristics across rural and urban areas. The differences in the probability of using short-acting contraceptive use between rural and urban women are very significant by different characteristics. Within rural areas, there was no substantial increase in the probability of short-acting contraceptive use after a few years of policy reorientation. Urban areas are quite the same situation. For urban women, there was only a little increase in the probability of short-acting contraceptive use by ethnicity and education. The comparison on probability between years and rural-urban areas could not provide firm evidence of contraceptive flexibility.

Table 3. Probability of using short-acting contraceptives in China, 1997 and 2001

	1997			**2001**		
	Total	Rural	Urban	Total	rural	urban
Ethnicity						
Han	5.4	2.4	15.1	6.5	3.3	16.2
Minority	5.4	4.1	14.7	5.9	3.4	18
Education						
Primary or less	2.4	2.2	5.3	2.3	2.3	5.7
Junior high school	6.12	3.5	12.7	7.1	4.6	13.8
High school or above	19.7	5.2	25.9	22.1	7.3	27.7
Fertility Experiences						
No child	15	7.1	31	15.5	5.5	34.8
One boy	9.9	4.6	19.2	11.2	6.6	18.5
One girl	10	5.9	15.3	11.5	6.6	17.4
Two or more children	1.5	1.2	4.4	1.6	1.4	4.1
Regions						
Eastern provinces	6.6	3.1	14.8	8.2	4.5	16.5
Central provinces	4.0	2.0	15.4	4.6	2.5	15.8
Western provinces	5.8	3.4	16.0	6.4	2.0	16.7
n	12305	9579	2726	32464	24611	7853

Source of data: 1997 and 2001 National Demographic and Reproductive Health Surveys

It is worthwhile to examine the reason of not using contraception, because it provides a different angle to examine contraceptive flexibility and policy relaxation. Among women who did not use any contraception in the 1997 survey, most of them were because of menopause (63.8%) or being/expecting pregnant or breastfeeding (22.1%). Among women who did not use contraception in the 2001 survey, 32.3% of them were because of menopause or uterus-removed, and 42.9% were being/expecting pregnancy or breastfeeding. It seems that more women didn't use contraceptives for other personal reasons in the 2001 survey.

Multivariate Results

We run a set of logistic regressions on whether choosing short-acting or not by years of survey and rural-urban residence. Although the portions of short-acting users are all very small, the statistical property of logistic regression guarantees that the estimates will be asymptotically efficient as the size becomes large. Table 4 presents the results of logistic regression on using short-acting contraceptives. In 1997, having no child would significantly increase the odds of using short-acting contraceptives in the rural areas. However, this association disappears in the 2001 survey in the rural areas, which couldn't support the hypothesis regarding policy relaxation. Meanwhile, having two or more children significantly reduces women's odds of using short-acting contraceptives in both years, which supports the previous finding that couples with more flexibility in family building may have less control over contraceptive method use (Short et al. 2000) or parity-driven prescriptions of contraceptive use (Kaufman et al. 2005).

Table 4. Coefficient estimates of logistic regression on determinants of using short-acting contraceptives in China, 1997 and 2001

	1997			2001		
	Rural	Urban	Total	Rural	Urban	Total
Intercept	-3.645 ***	-3.420 ***	-3.906 ***	-2.380 ***	-2.158 ***	-2.745 ***
Demographic characteristics						
Age	-0.006	0.019	0.005	-0.027 **	-0.014	-0.018 **
Married before 1990 (r.c.)						
Married in 1990s	0.304	0.744 ***	0.559 ***	0.148	0.266 *	0.238 **
Fertility History						
Having no child	0.608 **	0.527 **	0.594 ***	-0.059	0.783 ***	0.479 ***
Having one boy	-0.009	0.273	0.055	0.069	-0.016	0.060
Having one girl (r.c.)						
Having two or more children	-1.225 ***	-1.259 ***	-1.177 ***	-1.150 ***	-1.141 ***	-1.153 ***
Having abortion experiences	1.411 ***	0.307 *	0.785 ***	1.148 ***	0.503 ***	0.790 ***
Ethnicity						
Ethnic minorities	0.568 **	0.116	0.420 **	0.377 **	0.238	0.269 **
Education						
Primary school or less (r.c.)						
Junior high	0.134	0.523 *	0.221	0.303 ***	0.565 ***	0.368 ***
High school or above	0.540 *	0.968 ***	0.694 ***	0.808 ***	0.970 ***	0.817 ***
Residence						
Rural (r.c.)						
Urban	--	--	1.024 ***	--	--	0.889 ***
Region						
Eastern provinces (r.c.)						
Central provinces	-0.292 *	0.066	-0.142	-0.573 ***	-0.070	-0.312 ***
Western provinces	0.350	0.094	0.147	-0.495 ***	-0.047	-0.227 **
event	250	411	661	803	1282	2085
risk n	9329	2315	11644	23808	6571	30379
likelihood ratio	272.352 ***	171.754 ***	913.240 ***	794.304 ***	521.813 ***	2624.97 ***

Note: *** P<0.001; ** P<0.01; * P<0.05.

r.c. stands for reference category.

Source of data: 1997 and 2001 China National Demographic and Reproductive Health Surveys.

In 2001, the education effect on short-acting contraceptive use was significantly strengthened than that in 1997. The estimates associated with region variables indicated that there was no difference in the odds of short-acting use in the rural areas across different regions.

We also conducted a pooled analysis on short-acting contraceptive use, by pooling the 1997 and 2001 data together. The results are in the Appendix (Table A1)[3]. The result shows that in 2001 there in deed was some increase in the odds of using short-acting

[3] However, since we did not control the correlation resulting from pooling data, the results from pooled analysis are for reference only.

contraceptives, after controlling for other individual socioeconomic characteristics. Separate models on rural and urban women indicated that the change were significant in the rural areas, but not in the urban areas. A further model with interaction terms indicates that the parity/birth effect on short-acting contraceptives did not change in the year 2001.

Conclusion and discussion

Does family planning reorientation significantly increase prevalence of short-acting contraceptives? The current answer to this question is no. At least there weren't very strong evidence of increased contraceptive flexibility, based on statistics from two national surveys on family planning and reproductive health. Although the quality of care program has spread over 800 countries in China, which account about 30% of the country, Policy reorientation did not significantly increase contraceptive flexibility in China, particularly promoting short-acting contraceptive uses. Only minimal changes have taken place in contraceptive composition after China's family planning program reoriented toward Quality of Care. The analysis found no real evidence of change regarding the practice of parity-restricted prescription of contraceptive use. Choosing short-acting contraceptives are still not quite possible among women already having one or more children. Therefore, there is no fundamental change in contraceptive flexibility.

Why the contraceptive pattern did not change much after policy reorientation? Or why policy relaxation wasn't able to increase contraceptive flexibility. One possible reason is that policy could not be enforced in the grassroots level as it suggests, which has been documented in lots of field studies (Greenhalgh 1994, Murphy 2003). There is no single policy exists, policy varies considerably from place to place and within individual communities (Short and Zhai 1998). Both surveys indicated that about half of the women could not choose contraceptives by themselves, and over 30% of short-acting contraceptive users have to buy contraceptives themselves, which was quite contradicting with the wide application of quality-of-care program in the country. Therefore, The quality of contraceptive services probably is the biggest problem. The current

contraceptive practices, particularly use of short-acting contraceptives, evoke two questions. The first one is whether there is a problem in 'Inform', and the other one is whether there is a problem in 'Choice'. In other words, are women informed all necessary information regarding contraceptives before they make choices? And are women allowed to choose any contraceptives they want? The second question probably still remains the central issue. As long as there are parity-driven prescriptions of contraceptive use (Kaufman et al. 2005), there is no real contraceptive flexibility, and the quality of care is not realized.

Appendix

Table A1. Coefficient estimates of pooled logistic regression on using short-acting contraceptives in China.

	Model I			Model II		
	Total	Rural	Urban	Total	Rural	Urban
Intercept	-3.172 ***	-2.931 ***	-2.551 ***	-3.176 ***	-2.947 ***	-2.546 ***
Demographic characteristics						
Women's Age	-0.011 *	-0.020 *	-0.005	-0.012 *	-0.021 **	-0.005
Married before 1990 (r.c.)						
Married in 1990s	0.329 ***	0.215 *	0.388 ***	0.324 ***	0.200	0.393 ***
Fertility History						
Having no child	0.524 ***	0.140	0.740 ***	0.609 ***	0.585 **	0.611 ***
Having one boy	0.050	0.043	0.061	-0.002	-0.108	0.223
Having one girl (r.c.)						
Having two or more children	-1.154 ***	-1.167 ***	-1.157 ***	-1.111 ***	-1.029 ***	-1.185 ***
Having abortion experiences	0.787 ***	1.207 ***	0.457 ***	0.788 ***	1.207 ***	0.455 ***
Fertility interaction with 2001						
Having no child X 2001				-0.115	-0.622 *	0.174
Having one boy X 2001				0.071	0.200	-0.234
Having two or more children X 2001				-0.059	-0.180	0.038
Ethnicity						
Ethnic minorities	0.309 ***	0.427 ***	0.213	0.310 ***	0.429 ***	0.213
Education						
Primary school or less (r.c.)						
Junior high	0.332 ***	0.263 ***	0.550 ***	0.332 ***	0.262 ***	0.549 ***
High school or above	0.782 ***	0.736 ***	0.961 ***	0.783 ***	0.743 ***	0.960 ***
Residence						
Rural (r.c.)						
Urban	0.913 ***			0.913 ***		
Region						
Eastern provinces (r.c.)						
Central provinces (r.c.)	-0.271 ***	-0.505 ***	-0.035	-0.271 ***	-0.508 ***	-0.035
Western provinces (r.c.)	-0.149 *	-0.249 *	-0.023	-0.150 *	-0.252 *	-0.023
Year 2001	0.123 *	0.218 **	0.039	0.143 *	0.308 **	0.021
Likelihood Ratio	3538.847 ***	1050.487 ***	685.224 ***	3539.518 ***	1056.504 ***	686.458 ***

Note: *** P<0.001, ** P<0.01, * P<0.05.
Year 2001 indicates that women were interviewed in the year 2001.
Source of data: 1997 and 2001 China National Demographic and Reproductive Health Surveys

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