

# **Cesarean Birth Rate in China: Trends and Patterns**

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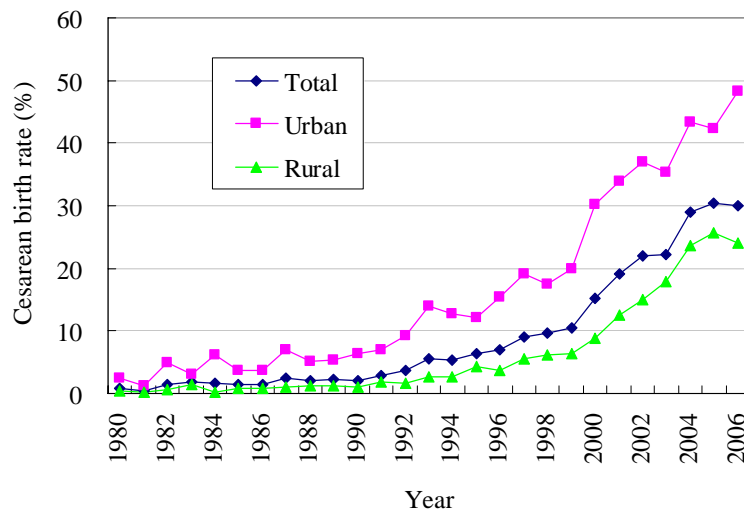
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Cesarean birth rates are increasing in many developing countries. However, data on cesarean birth were not available in China until recently. Some studies collecting local data particularly from large cities show that cesarean birth rate has been in sharp rise in China exceeding or far exceeding the WHO guidelines of an upper limit of 15%. Cesarean birth rate in some city hospitals reached as high as 60%. Despite this, national levels and trends of cesarean birth rate were not clear, and there was no national survey to document the trend. The National Population and Family Planning Commission of China has been conducting national fertility surveys since the early 1980s on a regular interval. The 2006 fertility survey, for the first time in China, collected information on cesarean birth from a nationally representative survey. This paper analyzes trends and patterns of cesarean birth in China using the 2006 survey data. The 2006 survey records fertility history of every woman at reproductive ages. Questions on each pregnancy and its result, date of every birth, whether it is a vaginal or cesarean birth, and where the birth occurs, were asked to the respondents. This information together with other available information from the survey makes possible to establish trends and patterns of cesarean birth as well as total birth in China.

This paper aims to answer two questions: (1) What are the levels and trends of China's cesarean birth rate over the last 20 years? (2) What factors are associated with the probability and number of cesarean birth occurred to women? This paper uses bivariate and multivariate analysis to address these questions. Figure 1 shows rapidly rising cesarean birth rate in China over the last 25 years, which is particularly apparent since 1999 and in urban areas. China's national cesarean birth rate stood at 30% in 2005, with urban areas nearly 50% while rural areas about half of the urban rate. There are very large differences in cesarean birth rate between social demographic groups of women. Women with college education and over had cesarean birth rate of 56% while it is very low at only 6% for illiterate women. Women engaged in non-agricultural jobs had cesarean birth rate that is more than double that of women in agricultural sector. Migrant women have higher cesarean birth rate than native women. The lower the birth parity, the higher the cesarean birth rate. The higher the age of woman at childbearing, the higher the cesarean birth rate. Over-weight babies had much higher cesarean birth rate than normal-weight babies.

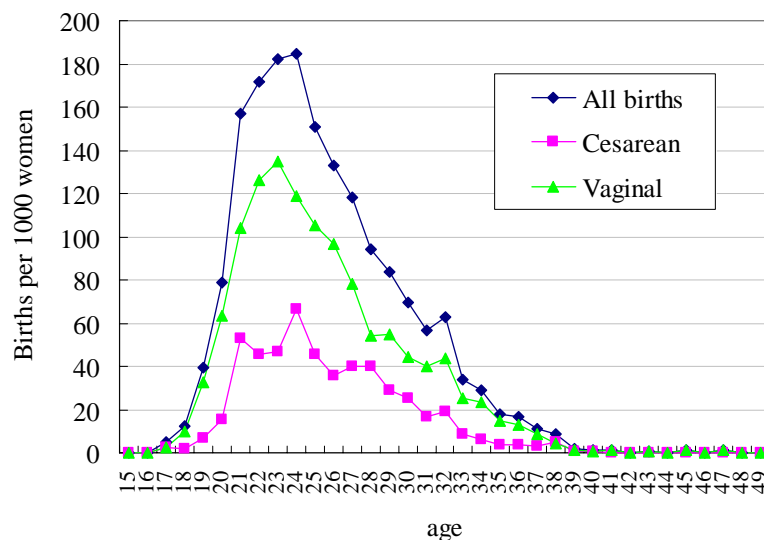
Cesarean birth rate was not much different for male and female babies.

Figure 1 Trends in Cesarean Birth Rate in China, 1980-2006



It is a conventional practice to calculate total fertility rate in demographic analysis of fertility. We calculated China's total fertility rate in 2005 which is broken down into total cesarean and total vaginal fertility rate. To facilitate the calculation, Poisson regression is used to generate regression coefficients for one-year age variables which are exponentiated to obtain age-specific fertility rate. Figure 2 presents age pattern of fertility, cesarean versus vaginal birth. China's total fertility rate of 1.726 in 2005 is a combination of a total cesarean fertility rate of 0.521 and a total vaginal fertility rate of 1.205. On average half a birth was cesarean and 1.2 births vaginal if Chinese women had lifetime fertility of 1.7 births.

Figure 2 Age Pattern of Fertility (Cesarean versus Vaginal Birth) in China, 2005



The socio-demographic patterns of cesarean birth are also assessed in two multivariate regression models. Logistic regression is performed to examine the significant factors affecting the probability of having cesarean birth, while Poisson regression is conducted to explore socio-demographic effect on lifetime cesarean birth. The cesarean birth patterns established in bivariate analysis are largely persistent in multivariate analysis. Age, place of residence, education, occupation, *Hukou* status, migration status, time period and region are all significantly associate with incidence of cesarean birth.

In conclusion, China's cesarean birth started to exceed the highest rates reached in Europe and North America (20-28%), and is joining the group of Latin American countries having highest rates (30-40%). Urban China, having a population bigger than any Latin American country, now may have top the world in cesarean birth rate. In China, like elsewhere in the world, modernization drives upward cesarean birth rate. However, there are other circumstances surrounding cesarean birth which are peculiar to China and might be more important forces. China's one-child policy dramatically reduced fertility posing a strict limit on number of births a couple could have. Thus more and more cesarean procedures are applied to guarantee safer delivery and healthier birth of the only child. Another major consideration involves traditional Chinese culture which is rather complex. But simply it is that in the Chinese calendar dividing a day into 12 two-hour periods together with the 12 animal years, the exact birthday (the hour, day, month and year) of the baby is determined by some fortune teller in advanced and cesarean procedure is used to bring out the baby at that exact time although in many cases expected date of childbirth resulting from full-term pregnancy has not arrived. Avoidance of labour pains and hospital's interest are also among the factors behind the rising cesarean birth rate in China.