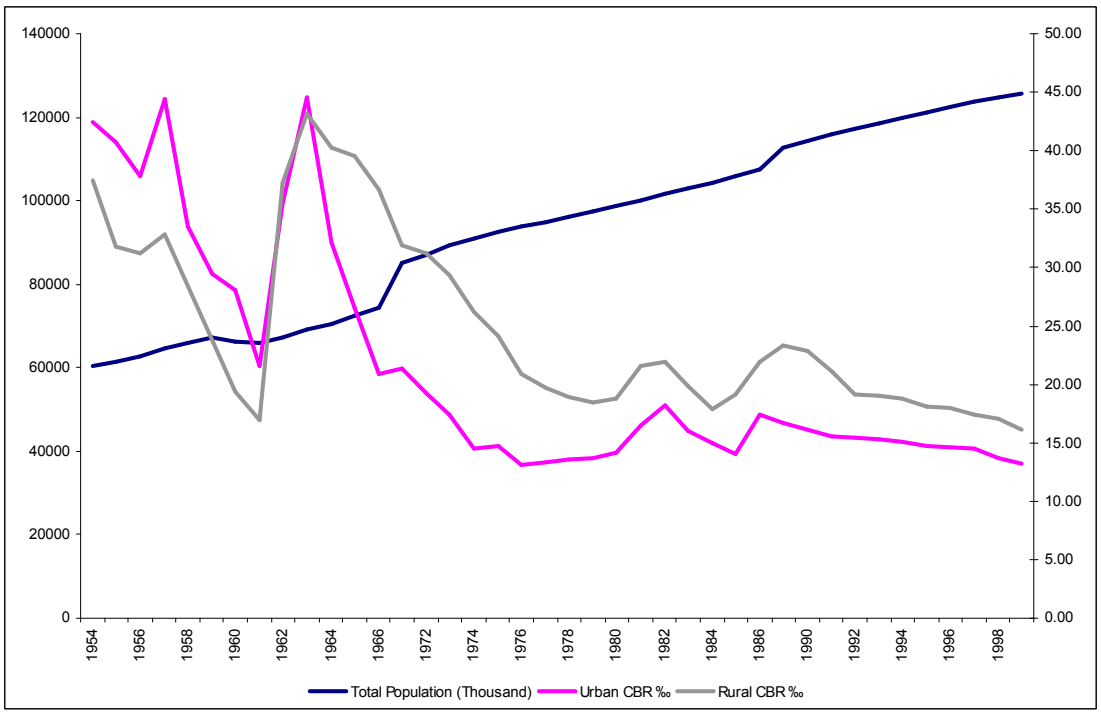
Extended Abstract:

The population of China exhibited a rapid growth in the past six decades. The number of population in 1949, the year of the Communist Party of China (CCP) came into power, was 541.67 million, while the figure increased by about 1.84 times and reached around 1000 million in the early of 1980s (Ministry of Agriculture, 1989 pp: 6-8). Excepted for a temporary population shrink due to Great China Famine from 1959 to 1961, the average population growth rate in the remaining years was more than 20.14 per thousand. Correspondingly, Chinese government introduced its unique one-child policy in the early of 1980s under the concern that development would be compromised by rapid population growth[①]. Despite the increase in population size, the Crude Birth Rate (CBR) of China arrived its peak in 1963 with the number 43.37 per thousand, after that, the figure dramatically dropped to around 20 per thousand after 1984. In addition, the pattern of population growth in China is also characterized by salient difference in fertility ratios between urban and rural areas. Average crude fertility rate in rural China was 1.86 times or 46.22 percent higher than that in urban areas from 1962 to 1984. This discrepancy emerged at the beginning of People's Commune, enlarged under collective system and started to converge in the late commune times (Figure 1). Figure 1 also shows that the fertility in rural areas from 1960s to the end of 1970s was not only higher than its urban counterparty but also higher than the fertility rate pre- and post-commune period. Considering the fact that all rural population at the time was ruled under People's Commune, an initial intuition naturally arises, that is whether commune system has a causative impact on fertility rate.

Figure 1: Total population of China and CBR in urban and rural areas



Source: China Population Yearbook

① Under this policy, each famine is allowed only one child and is given birth quotas, and the famine is penalized for "above quota births".

As a part of Great Leap Forward policy packages, People's commune was established in 1962[②]. In the commune, there were no private belongings and peasants should turn in their production instruments and livestock. All members worked together and remuneration was distributed basing on work points earned by each member. The most obvious characteristic of commune is equalitarianism dominated and high share of welfare benefits. After state procurement, more than 70 percent of total outputs, in the form of grain or cash, were equally distributed among members, while the remains were distributed according to member's work effort. Such kind of institutional arrangement is partially due to the consideration of socialism ideology which lays special emphasis on equalitarianism. Besides, the low level of agricultural development at the time is also a determinant, all commune members should be guaranteed to survival when grain output is modest.

Whether a female member gives a birth is influenced by series of determinants including social, economic, demographic and personal factors. The question of how welfare benefits affect this decision focuses on the role of economic factors in determining this choice. Economists, demographer and other social scientists have a long time interest into the impact of institution or specific policy on fertility behavior. To estimate the potential effect, one needs a source of variation in the implementation of institution or policy, either spatially or temporally. However, the causal effect of welfare system on fertility is challenged by the absence of plausible control group and endogeneity problem. Take People's Commune system for instant, temporally, rural population experienced a recovery period from 1959 to 1964 after the strike of famine, the figure of crude birth rate jumped from 16 per thousand people to 45 per thousand people. The one-child policy implemented after commune system also significantly influenced fertility. It is estimated to induce the probability of having a second child by 11 percentage points (Li and Zhang et la, 2005). Spatially, direct comparison in fertility between rural and urban residents is infeasible. Urban residents should not be treated as a reference group, since they also enjoyed social welfare provided by (*danwei*) Work Unit under a central planning economy. Furthermore, the heterogeneity between peasant and urban residents makes some identification methods like Difference in Differences (DID) implausible. The relationship between commune and fertility is also confounded by endogeneity problem. The abolishment of commune may be a result of high local fertility, in which case there is a reversed casualty from fertility to institutional transition. Abolishment may also be a result of omitted local preferences, which affect both fertility choice and transitional choice. This paper addresses these problems by using a plausible exogenous source of variation across counties in timing of abolishment of People's Commune from 1978 to 1984[③]. Such institution transition can be regarded a "natural-experiment", since comparing with provincial government, county government is only policy taker,

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② The main rationale for collectivization was rooted in the notion that effectively mobilizing the peasants to conduct some large project such as dams and collecting agricultural procurement easily. The former cognation network in the village was drastically destroyed and replaced by highly-organized system. The chief aim of the total reorganization of rural life is to transfer surpluses of agricultural income to build up the industrial sectors in urban areas. At the same time, party expected that the communes would totally shatter the resistant social structure of Chinese traditional rural society, leaving isolated individuals to face the power of the state (Quigley, 1966).

③ As calculated on the county level, the proportion of People's Commune elimination had been started by 12.54% since 1978, while it was spread rapidly through direct adoption after that with 73.63% in 1979 and 93.89% in 1980 cumulatively. The elimination procedure was completed after 1984 across the country.

rather than policy maker. Another advantage of county level data is that it has modest big sample size and provides enough degree of freedom for identifying causality.

Stratified sampling method has been employed in the data collection. The high correlation between GDP per capita and birth rate particularly in China has been proved by voluminous empirical literatures and can be adopted as criterion to rank all counties nationwide (Barlow, 1994; Barro and Becker, 1989; Brander, 1994; Li and Zhang, 2007). We use industrial and agricultural production added value per capita in 1977 in the county instead of GDP per capita of the counties, since the later one cannot be achieved. About 1750 counties are ranked from the poorest to the richest. Conveniently I categorize all ranked counties into 350 strata with 5 counties in each stratum. After that, one county is randomly abstracted from each stratum, and if the county matches with above selection criterions, it is counted in the sample, otherwise, counted as miss value. 311 counties are finally abstracted and are constructed as panel data with 7 years time range for empirical analysis[④].

The dependent variable is crude birth rate. We use 2 variables to index People's Commune system, our key variable of interest. The first one is a simple two-value dummy variable indicating whether or not a country is ruled under commune in a given year, while the second one is the proportion of communes in a county which has not yet been abolished. The analysis also controls for other factors which have potential impact on birth rate including grain availability per capita, share of ethnic minorities and county dummy. The introduction of the last variable is to sort out the effect of those county-specific and time-invariant factors such as culture. The outcomes provide robust evidence that the commune system matters. Fertility patterns change in a sustained fashion across these institution transition. The magnitude of these changes is consistent and large; the estimates imply that two extra births per thousand people are born in rural China can be attributed to collective commune system. Considering the average crude birth rate in rural China during the sample time is around 29 per thousand people, a conclusion can be arrived that the institution alone contributed 7 percent of the total increased rural population.

The above findings have wider implications than simply improving the understanding of People's Commune in China. An important issue that confronts most countries, especially developed counties, is how to set an optimal level of welfare to balance equity and efficiency. To this point, this work can be thought as a part of large body of research from the past three decades on the effects of the welfare system on fertility outcomes. People's Commune in China provides an extreme context to demonstrate that high share of welfare benefits have positive and strong effect on fertility decision.

④ The five ethic autonomous regions are excluded in our sample because they implemented very different types of the collective commune system, compared with other places.