# Access to Credit, Poverty and Inequality

## Some Findings from China Using Grouped Rural Household Data

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## Introduction

Improving the access of households to credit has been taken as an important intervention to poverty reduction by many developing countries and development assistance organizations. However, there are few studies investigating the relation of credit with poverty and inequality in China. This paper is going to analyze the effects of credit resource distribution on poverty and inequality in rural China using the grouped data. The paper is organized as following. Section two introduces the research methodology and data used for this study. Section three describes credit resource distribution in China's rural areas. Section four and section five analyze the effects of credit on consumption inequality and income inequality respectively. Finally presented are the conclusions in section six.

## Methodology and Data

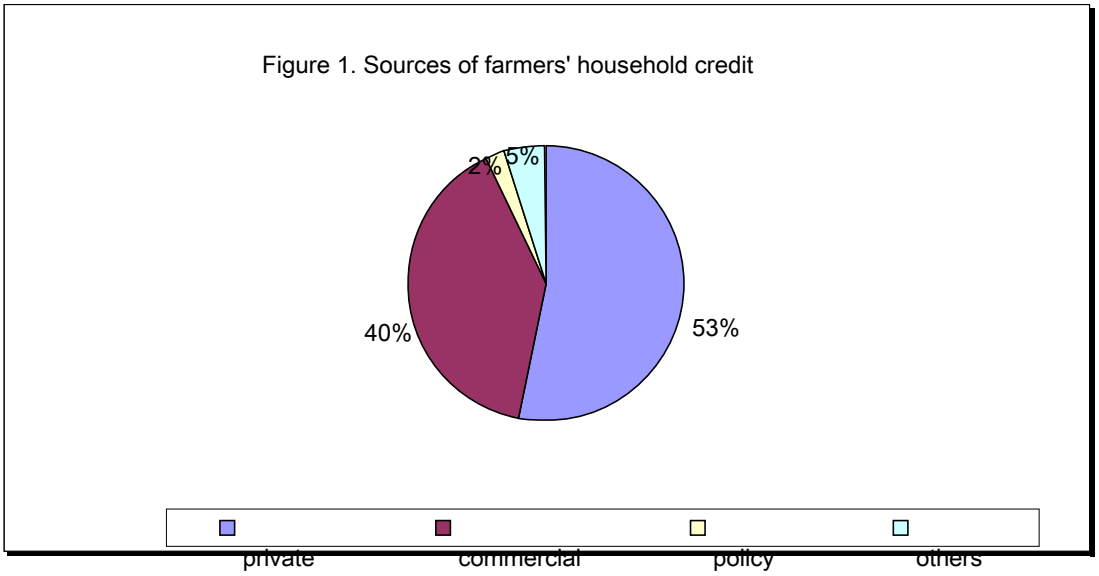
It is believed that credit service can affect poverty reduction and economic inequality in ways of (1) employment generation and income transfer by stimulating or restricting macro economic growth, (2) smoothing consumption shocks, (3) increasing productive inputs and moving the production possibility frontier upward, and (4) improving the productivity or developing new businesses. The effects of credit service through affecting the macro economic growth and national income redistribution has been rising in China recently with the increase of income share of migration in farmers' income and of transfer payment. This study mainly looks at the effects of credit service on households' income and consumption and dose not take the macro effect of credit service into account.

The methodology used for this study is a comparison of consumption expenditure and income inequality between the existing situation and the assumed pseudo situation without credit. Gini coefficient is used to estimate the inequality in access to credit, income and consumption.

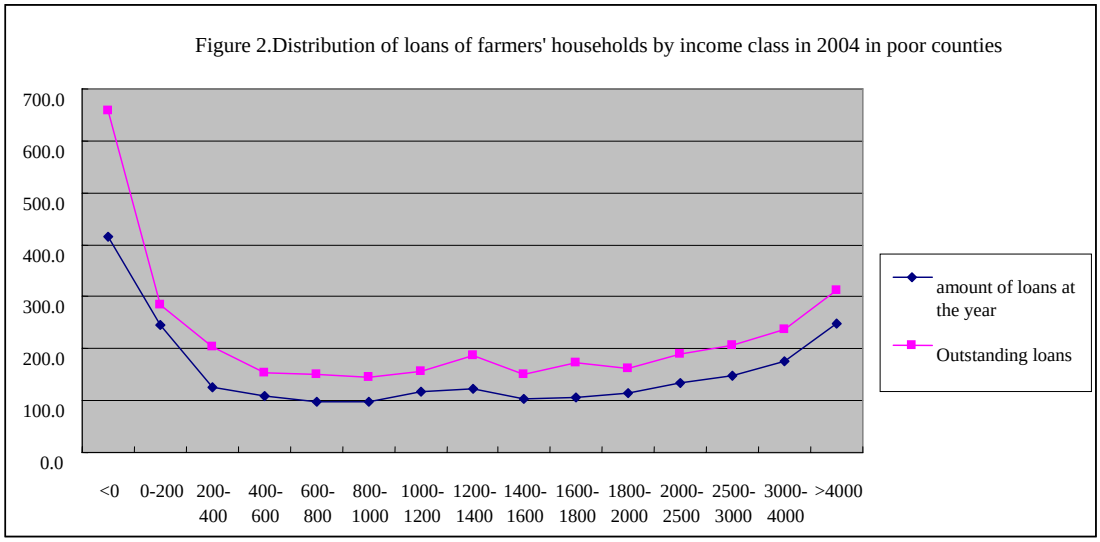
The data used for this study are mainly the grouped data from the household sample survey in 592 nationally designated poor counties which cover 19.95% of national rural households and 21.32% of the total population in 2004. There are 52940 sample households surveyed by the national Rural Survey Organization networks. The original data come from the daily record of the sample households. The data used in this study are the grouped data based on income classes. It is kept in mind that the limitation of the data used will lead to bias of estimated results and missing of the details.

# Credit Resource Distribution in China's Rural Areas

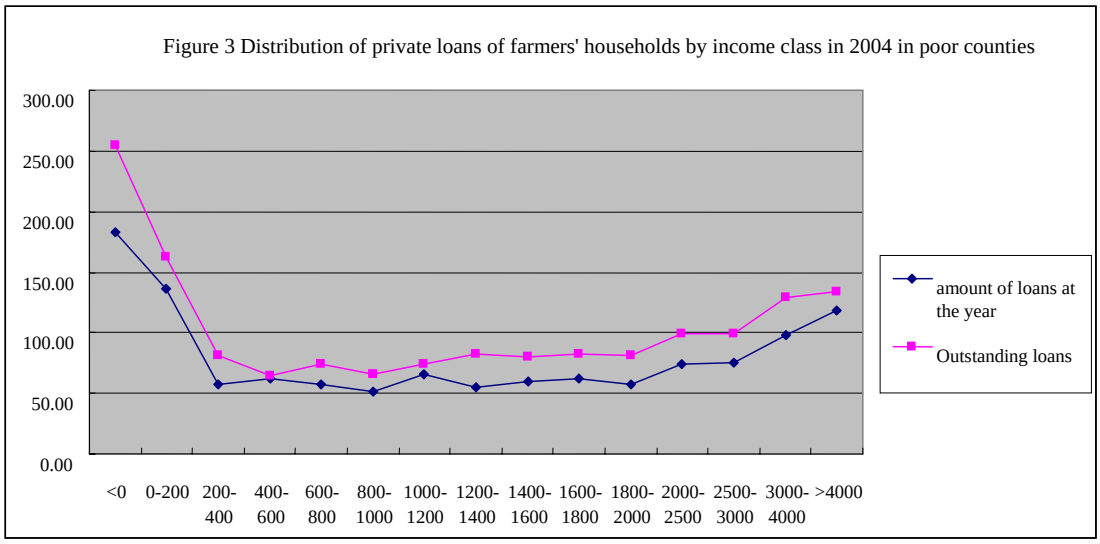
The bias distribution of credit resources against the poor has been criticized in China by scholars. However, the data for credit resource distribution show picture somehow different from the imagined. The amount of loans secured by farmers' households averaged RMB 127.7 per person in 2004. 53% of the loans come from private. 40% are from commercial banks or rural credit cooperatives. 2% and 5% are from policy loans and other sources (figure1)

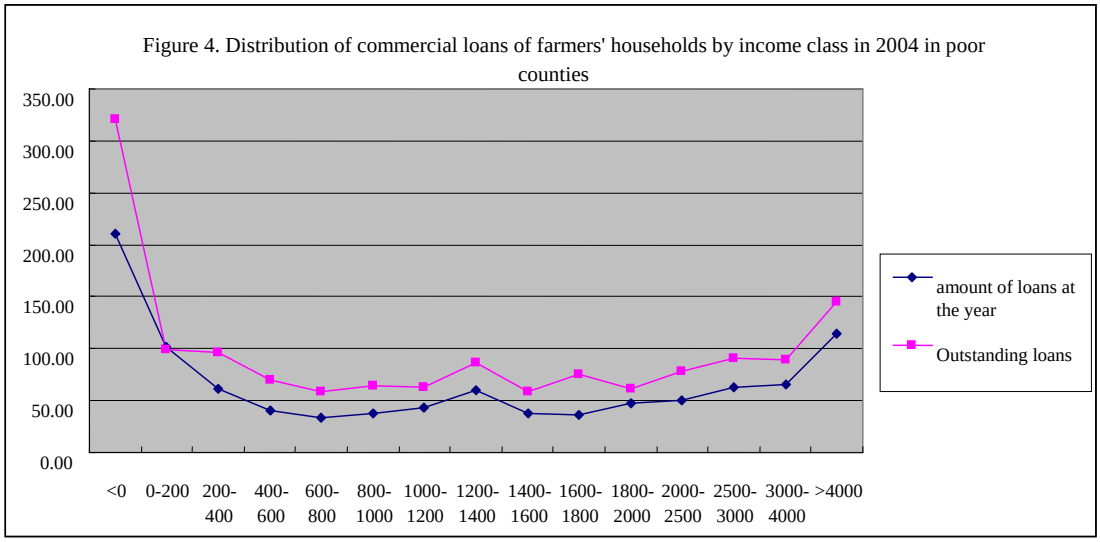



Different from the imagined situation many researchers held, the distribution of credit resources among households is in U shape. The poorest decile household and top one thirds households took loans more than the middle income class households (figure2). The Gini coefficient for credit distribution in poor counties in 2004 is 0.1152, which is much smaller than that for income and consumption distribution.

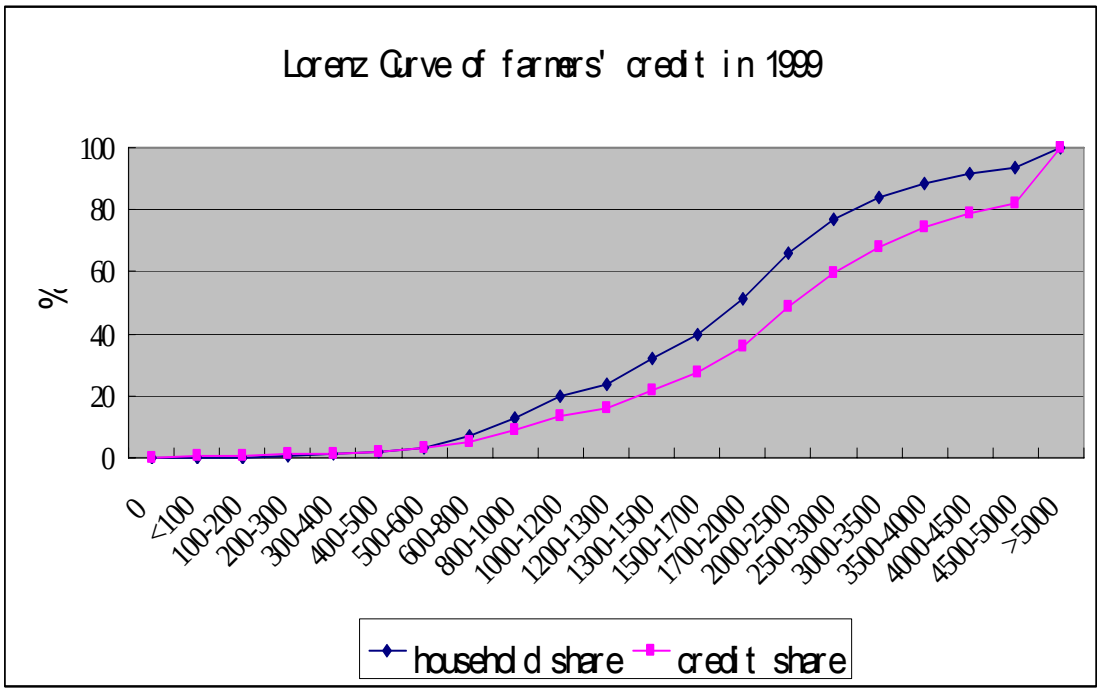



This form of distribution of credit resources of U shape exists for both private loans and commercial loans (figure 3 and figure4).






It is noted that not only the distribution of credit resources in U shape appears in poor counties but also for the country as a whole. The data from national rural household social and economic survey showed in 1995 and 1999 show pictures of credit resource distribution in the country as whole similar to that for poor counties (National Bureau of Statistics, 2001) (figure 5). Moreover, the turning point of the credit distribution of national farmers' households stands in almost same income group, the group of income RMB500-600.




It is understandable that the upper one-thirds households have taken more loans. The better off farmers have higher demands for credit and are able to provide better credit records and assets for collateral. The middle class of households have taken less amount of loans can be partly owed to the terms and transaction cost of lending which make lending for production unprofitable. Another reason is likely because of lacking effective demand. It is also understandable that the

poorest decile of households have to take loans to sustain survival and reproduction.

## Credit and farmers' consumption expenditure inequality

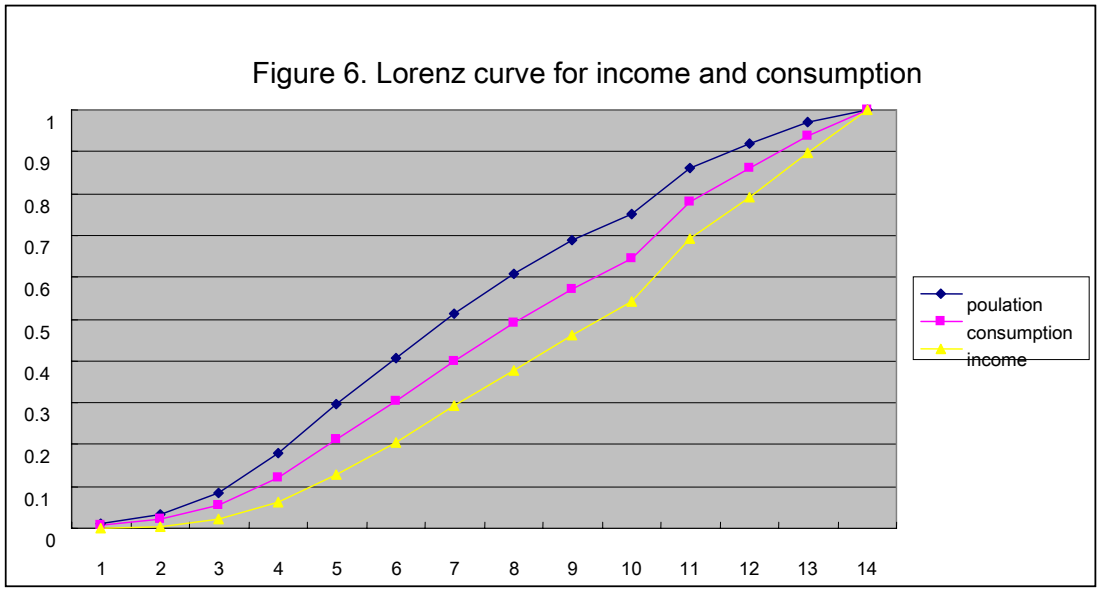
Poor households are usually unable to cover their consumption expenditure completely with their own income. There are about 36.8%[1] households whose income is insufficient to afford the expenditure in poor areas in 2004 (table 2). Similar to the situations in other countries, the extent of inequality of consumption expenditure is smaller that that of income (figure 6). The Gini coefficient for income in 2004 is 0.3198, almost twice as high as that for consumption expenditure (0.1617) (table 1).

Tablle 1 Consumption expenditure and income of farmers in 2004 (RMB)

| Income class | Consumption expenditure per capita | Net income per capita | Expenditure income difference |
|---|---|---|---|
| <200 | 986.7 | 113.7 | -873.08 |
| 200-400 | 924.1 | 314.9 | -609.20 |
| 400-600 | 903.5 | 513.1 | -390.44 |
| 600-800 | 964.0 | 701.7 | -262.30 |
| 800-1000 | 1071.3 | 898.9 | -172.45 |
| 1000-1200 | 1155.9 | 1101.7 | -54.28 |
| 1200-1400 | 1254.9 | 1297.7 | 42.80 |
| 1400-1600 | 1341.9 | 1498.2 | 156.30 |
| 1600-1800 | 1449.2 | 1697.0 | 247.79 |
| 1800-2000 | 1569.3 | 1896.1 | 326.80 |
| 2000-2500 | 1689.2 | 2227.7 | 538.50 |
| 2500-3000 | 1926.1 | 2721.4 | 795.29 |
| 3000-4000 元 | 2201.5 | 3407.7 | 1206.21 |
| >4000 | 2922.4 | 5509.4 | 2587.04 |

Data source: National Bureau of Statistics. 2005. *Poverty Monitoring Report of Rural China*. China Statistics Press.

[1] The precise figure is unknown because of lacking data within the group for income RMB 1000-1200.




Borrowing for survival is a popular strategy of the poor for coping with the income deficiencies. It is believed that a large part of the credit taken by the poor is used for filling in the income gap though there is no available data for the utilization of credits for the country. Some studies based on small scale of sample data evidenced that. If assuming that all the loans of the households with income consumption deficiency are used for consumption, access to credit would give rise to 15% lowering of the gini coefficient for consumption expenditure. In other word, excluding the credit from the households whose income cannot afford their consumption, the consumption inequality in terms of Gini coefficient would rise 17.52% (table 2).

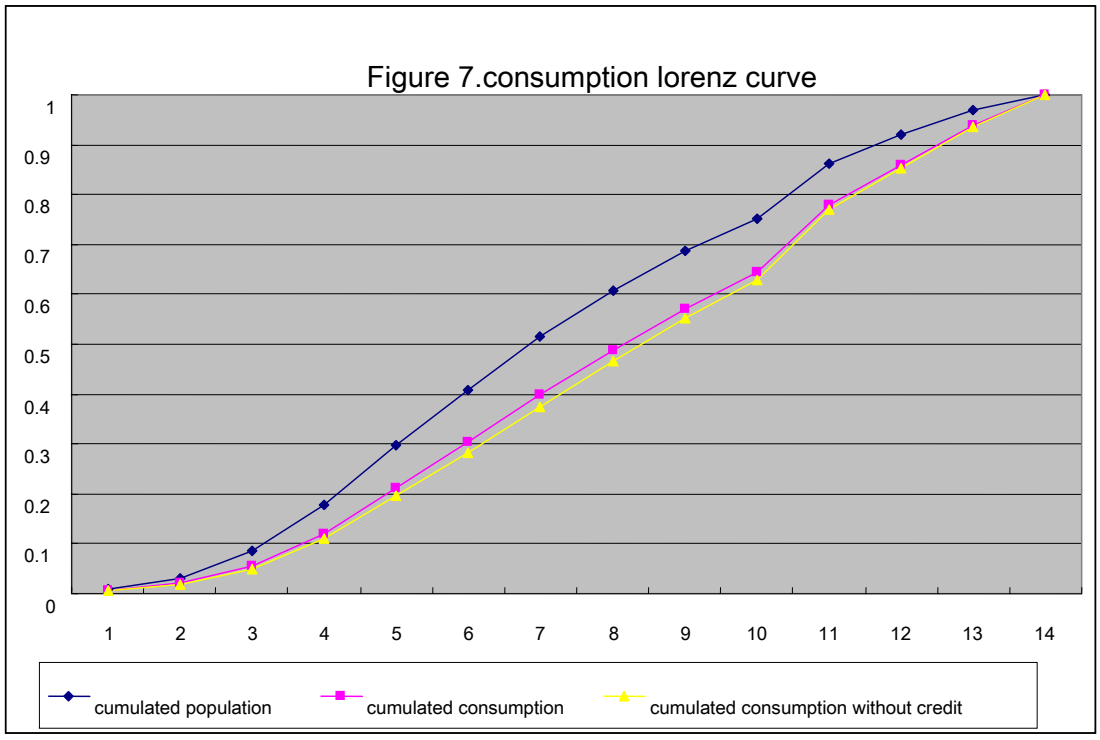



Table 2. Gini coefficient for income and consumption of farmers' households in poor counties in 2004

| | |
|---|---|
| Income | 0.3198 |
| Consumption | 0.1617 |
| Consumption without credit | 0.1900 |

## Credit and income inequality

Access to credit may affect the income inequality by altering the production input and distribution of household owned funds. Similarly, it is not sure what proportion of credit secured by the households is used for production. Here it is simply assumed that all loans are used for production. In order to estimate the effects of access to credit on income inequality, following steps are taken to reach the goal. Firstly, production function is developed to estimate the marginal return of funds. Secondly, the results of estimated production function are used to simulate household income for each income class. Thirdly, analyses are made of the effects of access to credit on income inequality in two assumed situation. One is removing all loans from household production costs and another is equally allocating the loans.

The household production function uses household operated income (excluding income from wages, property and transfer) as dependent variable. Dependent variables include labor for household operation (excluding migrated labors), illiteracy of labors, land, irrigated land, household operation costs, household productive assets. The description of the variables used for regression is presented in table 3.

Table 3. Description of the variables used for regression

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| Log (income) | 14 | 8.79 | 0.43 | 8.15 | 9.65 |
| Household labor | 14 | 2.39 | 0.19 | 2.12 | 2.68 |
| Log (household operation cost) | 14 | 7.84 | 0.20 | 7.61 | 8.35 |
| Log (household productive asset | 14 | 8.05 | 0.19 | 7.87 | 8.42 |
| % labors in illiteracy | 14 | 14.47 | 3.92 | 9.76 | 21.53 |
| Land (mu) | 14 | 9.72 | 1.14 | 8.54 | 12.79 |
| Irrigated land (mu) | 14 | 2.67 | 0.41 | 2.18 | 3.57 |

Using OLS and weighted by the sample size of each income class, come up the results of regression in table 4.

Table 4. Results of regression

| Household income | Coef. | t |
|---|---|---|
| | | |
| labor | 0.365663 | 0.5 |
| Production cost | 2.221414 | 2.77** |
| Productive asset | -1.75232 | -3.26** |
| % labor in illiteracy | -0.02728 | -0.87 |
| land | 0.019371 | 0.59 |
| Irrigated land | 0.190361 | 0.64 |
| _cons | 4.313758 | 1.21 |
| F=45; Adj R-squared = 0.9565 | | |

** significant at level 5%

Using the estimated coefficients to simulate the income of households, The per capita simulated income is RMB2460, 44% higher than the original income of farmers. The Gini coefficient for the simulated income after removing credit from production cost is 0.2629, 17.8% lower than that for original per capita net income. When replacing the actual amounts of credit of each income groups with the average amount of credit and assuming all credit used for production, the Gini coefficient of simulated income distribution declines to 0.2304, or 28.3% lower than that for the actual income distribution.

Table 5. Comparison of per capita real income and simulated income (RMB)

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| | | | | | |
| Real net income | 14 | 1707.08 | 1436.61 | 113.65 | 5509.44 |
| Simulated income | 14 | 2459.99 | 1599.47 | 898.10 | 6713.89 |

## Conclusions

The study comes up with following preliminary findings. Firstly, the distribution of credit resources in rural China is in U shape. The poorest one decile of households and one-thirds better off farmers households taking loans more than the middle class households. This distribution shape appears in both commercial loans and private loans, and in the poor areas and in the country as a whole.

Secondly, access to credit is an important strategy for the poor in filling the income deficiency. It helps reduce consumption expenditure inequality by 15%.

Thirdly, access to credit also helps reduce income inequality. Using developed production function and simulation, it is found that access to credit reduced income inequality by 17-23%.