



***FINANCIAL SECTOR POLICIES, POVERTY AND
INEQUALITY***

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Abstract

While finance has been shown to influence the distribution of income, little research has been devoted to the potential impact of financial sector policies on inequality. This study analyzes the relationship between financial repression and inequality across countries and across China's provinces. Using several alternative estimation procedures including fixed effect, dynamic panel and instrumental variable regressions, we find that financial repression is positively associated with inequality across countries. Moreover, we find that this relationship is stronger in less developed economies and that interest rate controls, capital account controls, poor banking supervision and a concentrated banking sector are the most important financial policies influencing inequality. Furthermore, financial repression is associated with a higher fraction of the population living in poverty. Focusing on China, financial repression again acts as a driver for inequality and its effect is stronger in less developed provinces. These results have important policy implications, not the least so for China, where rising inequality poses a significant problem for the government.

JEL Classification: D31; G00; O11; O16

Keywords: Income distribution; Poverty; Financial repression; Capital markets; China

1 Introduction

The levels of inequality and poverty vary significantly across countries and regions. The Human Development Report in 2011 also shows that overall inequality has worsened. Furthermore, the distribution of both income and poverty vary significantly over time. While some countries undergo considerable declines, others experience increases in inequality (e.g. Beck et al., 2007). These patterns indicate that the understanding of what drives inequality is as important as ever.

There is a growing literature on finance and inequality that primarily focuses on the link between financial development and inequality. As Demirguc-Kunt and Levine (2009) point out, a less developed financial system may influence how important individual skills versus parental wealth, social status and political connections are for an individual's economic opportunities. A poorly developed financial system may therefore increase the persistence of the gap between rich and poor. In addition, financial development or the general quality of a financial system may affect capital allocation, which in turn has an effect not only on economic growth in general, but also on the demand for labor across sectors, thus influencing income levels for different parts of society. A number of studies have linked finance to inequality with analyses based on arguments like these.

However, while the link between finance and inequality is now commonly acknowledged, much less research has gone into trying to identify potential relationships between financial policies and inequality. Demirguc-Kunt and Levine (2009) note that there is “startlingly little research on how formal financial sector policies – such as bank regulations or securities markets laws – affect inequality”. Using a comprehensive cross-country panel data set, this study attempts to shed light on the potential link between financial policy and inequality. In particular, we focus on how repressive financial policies affect the level of inequality. Given the rapidly increasing level of inequality and the social tensions it may bring about in China, we also devote a separate section to the analysis of financial repression and inequality in a Chinese context. Our empirical analysis supports the hypothesis that repressive financial

policies increase inequality. In addition to initial fixed effect regressions, we also take potential endogeneity issues into consideration by performing robustness checks with dynamic panel and instrumental variable regressions. We also find that the relationship between financial repression and inequality is significant for low- and middle-income countries, but not for high-income countries. In China, the pattern is similar, with more adverse effects of financial repression on inequality in the less developed western and central parts of the country compared to the more developed coastal areas in the east. Finally, we identify several individual policies including interest rate controls, capital account controls, weak banking supervision, and concentration in the banking sector that are especially important for inequality. We believe that these results are of particular importance to policymakers in low- and middle-income countries that are experiencing high and increasing levels of inequality.

The rest of this study is structured as follows. In the next section, we frame the topic of financial repression and inequality with two strands of literature, one that links finance in general to inequality and one that focuses on financial repression. Section 3 introduces the data and then discusses the empirical methodology. Section 4 presents the results from the baseline regression model as well as robustness checks and the effects of individual policies across countries. Section 5 then focuses on the case of China. Finally, Section 6 concludes the study.

2 Literature Review and Theoretical Discussion

The importance of finance is not new to the literature on inequality. Finance is often incorporated in theoretical models in the form of exogenous financial market imperfections that lead to income inequality. For example, Mookherjee and Ray (2002) note that credit markets must be assumed missing or imperfect in dynastic models, otherwise finances necessary for offspring to further their education may be borrowed, leading to equalization of wages (net of costs) across professions. Becker and Tomes (1986) employ the often used

argument that human capital functions as poor collateral to lenders due to the risk of moral hazard to incorporate imperfect access to capital in their model on transmission of earnings, assets and consumption (and thus inequality) across generations. Galor and Zeira (1993) show that, in the presence of credit market imperfections, countries with different wealth distributions that invest in human capital can follow very different growth paths. Banerjee and Newman (1993) model economic development by focusing on occupation decisions. They demonstrate that poor agents choose to work for a wage over self-employment due to capital market imperfections. In their dynastic model, Mookherjee and Ray (2003) demonstrate how imperfect capital markets result in persistent inequality. Finally, Matsuyama (2004) incorporates credit market imperfections in an overlapping-generations model to analyze financial market globalization and the inequality of nations.

As noted earlier, capital market imperfections can have particularly severe consequences for the underprivileged as such imperfections limit their economic opportunities. A relaxation of credit constraints can thus reduce inequality and allow for a more efficient credit allocation. However, it has also been argued that financial development may actually increase the level of inequality, as improved financial services may favor those who are already using them the most (Greenwood and Jovanovic, 1990). Clarke et al. (2006) show that financial development does reduce inequality and therefore reject the argument that financial development favors the rich. Similarly, Beck et al. (2007) provide evidence that financial development increases income for the poorest more than for wealthier income groups, thereby reducing overall inequality. They also find that financial development brings with it a significant drop in the fraction of the population that lives on less than \$1 day, thus emphasizing the importance of financial development for the poorest.

While the studies above are important for the understanding of the relationship between finance and inequality, they do not focus on financial policy. Demircuc-Kunt and Levine (2009) argue that economists tend to underestimate the potentially important impact of financial sector policies on inequality. This paper is, to the best of our knowledge, the first

study that focuses on how repressive financial policies may affect inequality. McKinnon (1973) was arguably the first to use the term financial repression. He defined it as financial policies set by the government for the purpose of regulating interest rates, setting reserve requirements on bank deposits, and allocating resources in the economy. Such repressive policies are commonly believed to be hindering financial deepening, lowering the efficiency in the financial system and, as a result, holding back economic growth (McKinnon, 1973; Shaw, 1973). Roubini and Sala-i-Martin (1992) develop a theoretical model that incorporates the negative effect of financial repression on growth and then show empirically that this indeed seems to be the case for a large panel of countries. In a related paper, King and Levine (1993) present a model in which financial sector distortions have a negative impact on the rate of innovation, which in turn leads to lower overall economic growth.

We argue that repressive financial policies have the potential to greatly increase the level of inequality. Linking the literature on financial development and inequality with that on financial repression, previous research shows that financial repression may hinder financial development. For example, King and Levine (1993) find that financial repression can have a negative effect on financial development. In a related paper, Ang and McKibbin (2007) show that repressive financial policies have a significant negative effect on financial deepening. When implementing repressive and distortive financial policies, the government is in effect allocating financial resources to certain sectors in the economy. In line with this reasoning, Johansson and Wang (2011) develop a model in which financial repression distorts the economic structure in favor of the industry sector. In a related study, Johansson and Wang (2012) find that severe repressive financial policies lead to external imbalances, most likely a result of a distorted economic structure due to the emphasis on allocation of capital into the domestic manufacturing sector. The allocation of capital into selected economic activities may in turn reduce the efficiency in the financial sector and limit economic opportunity. Based on the previous discussions on lower efficiency and limited economic opportunity due to credit constraints for the poor, repressive financial policies can thus be

expected to increase the level of inequality.

To conclude, we hypothesize that there is a positive relationship between financial repression and inequality and that the poor are more adversely affected by repressive financial policies.

3 Data and Econometric Framework

3.1 Cross-Country Data

In this paper, our main focus is on the potential impact that financial repression has on income inequality. We define financial repression as policies that impede financial liberalization and thus hinder financial development. Typical repressive financial policies include regulated interest rates, credit rationing, entry barriers into the banking sector, capital controls, and so on. For inequality, we follow the literature and concentrate on income distribution as a proxy for the inequality of opportunity (Demirgüç-Kunt and Levine, 2009).

The measure we use for financial repression is from Abiad et al. (2008) and consists of an index based on seven different repressive financial policies: credit controls; interest rate controls; barriers to entry in the financial sector; state ownership in the banking sector; supervision of the banking sector; capital account restrictions; and repression of security markets. Abiad et al. (2008) score each country along each of these seven dimensions. The score is graded from 0 to 3, with 0 corresponding to the highest degree of repression and 3 indicating full liberalization. Before including the different measures in our analysis, we normalize each variable into the interval of 0 to 1 by dividing each of them by 3 and then subtracting the score from 1. Thus, the higher the score, the higher the degree of financial repression in terms of the financial policy in question.

To assess the impact of financial repression on income inequality across countries, we examine (i) the impact on poverty, (ii) the impact on the Gini coefficient, and (iii) the impact of each individual repressive policy. Poverty refers to the poverty headcount ratio

provided by the World Bank in the World Development Indicator database. The poverty line was recalibrated from \$1 to \$1.25 a day in 2008. For completeness, we also look at the alternative poverty line of \$2 a day provided by the same source. Population below \$1.25 (\$2) a day is defined as the percentage of the population living on less than \$1.25 (\$2) a day at 2005 international prices. The poverty headcount ratio shows that countries marked by abundant poverty are mainly concentrated to Africa and a few Asian countries. Typical examples of extreme cases are Mozambique with a poverty level \$1.25 (\$2) of 74.7% (90%) in 2003 while the poverty level in Nepal was 55.1% (77.6%) in 2004. Most countries have experienced significant declines in poverty. For example, China has come a long way to reduce overall poverty since the beginning of its economic reforms in 1978, with its poverty headcount ratio dropping dramatically from 84% (97.8%) for the poverty level \$1.25 (97.8% for the poverty level \$2) in 1985 down to 15.9% (36.3%) in 2005.

Following the literature on inequality, we use the Gini coefficient as a proxy for income inequality. The Gini coefficient is derived from the Lorenz curve, which measures the income distribution among different income groups. In this paper, we use Gini coefficients from the Standardized World Income Inequality Database (SWIID)¹.

We collect data for 66 countries for the period 1981 to 2005. Table 1 reports the summary statistics. The definition of the variables and their respective data sources are listed in an appendix. As mentioned earlier, the level of poverty varies significantly across time and countries, ranging from 0 to 84% in the sample when using the \$1 headcount ratio and from 0 to 98% when using the \$2 headcount ratio. The proxy for income distribution, the SWIID Gini coefficient, ranges from a low 0.20 to a extremely high level of 0.69. The financial repression index varies from 0 to 1 with a mean of 0.44. Similarly, the control variables openness, FDI, schooling, government size and growth in GDP exhibit great variation across the sample.

¹SWIID standardizes United Nations University's World Income Inequality Database (WIID) and income data from other sources. Data from the Luxembourg Income Study is used as standard. The standardization of the Gini coefficient better allows for broad cross-country research on income and inequality.

[TABLE 1 HERE]

3.2 Chinese Data

The Chinese experience during the reform period offers a particularly interesting case study for the effect that repressive financial policies may have on inequality. During the last 30 years, China has managed to achieve a continuous strong gross domestic product (GDP) growth, averaging 10% per year. However, despite substantial and wide-ranging economic reforms, the Chinese economy still possesses typical characteristics of financial repression, including heavily regulated interest rates, state-influenced credit allocation, frequently adjusted reserve requirements and a tightly controlled capital account. At the same time, income inequality is becoming an increasingly important issue for the Chinese government with economic opportunities for large parts of the population still being limited while certain parts of Chinese society are experiencing a fast and significant improvement in the quality of life.

Unfortunately, Gini coefficients are not reported at the provincial level by the Chinese authorities. We therefore need to find a suitable proxy for regional income inequality. Yang (1999) argues that increases in urban-rural income differentials have been the main driving force behind the rising overall inequality in China. Figure 1 presents the urban and rural household income per capita from 1978 to 2008 in China. It is evident that the income gap between the rural and urban population is increasing fast, with a surge from RMB 201 in 1978 to RMB 11,020 in 2008. We believe that the urban-rural income differentials can function as a proxy for income inequality in China. To see if it indeed is a suitable proxy, we take a closer look at the relationship between urban-rural income differentials and the Gini coefficient at the national level. Figure 2 shows that the two move closely to each other, indicating that the urban-rural income differential can be used as a proxy for overall inequality.

[FIGURE 1 HERE]

[FIGURE 2 HERE]

Next, we need a proxy for financial repression at the provincial level. Typical repressive financial policies are primarily carried out at the national level and therefore more or less have the same effect among different provinces in China. We therefore follow related studies and use the real interest rate as a proxy for financial repression to capture the variation across provinces (for studies that use the real interest rate as a proxy for financial repression, see Agarwala, 1983; Gelb, 1988; Easterly, 1992; Roubini and Sala-i-Martin, 1992). These studies have based their analysis on the fact that economies that are financially repressed are typically characterized by artificially low real interest rates. Governments in financially repressed economies tend to set deposit and lending rates below the level of the inflation rate, which reduces the financing cost for supported industries, especially if the government is directly involved in allocating capital in the economy. We therefore use the provincial real interest rate as a proxy for regional financial repression in China.

Summary statistics for the provincial data is presented in Table 1. Again, the level of income inequality, here proxied by the urban-rural income ratio, vary significantly from a low 1.045 to a very high 4.759 and with a mean of 2.487. Similarly, the different control variables differ noticeably across provinces and time. Finally, the measure for financial repression, the real interest rate, also varies quite noticeably in the sample, ranging from a very low -18.4% to a high 6.8% and with a mean of -1.3%.

3.3 Econometric Framework

Our main focus is on the relationship between repressive financial policies and inequality. To analyze this relationship, we use several alternative model specifications. In the benchmark model, we run a fixed effect regression with inequality as the dependent variable and financial repression as the main independent variable:

$$INEQUALITY_{it} = \beta_0 + \beta_1 FREP_{it} + \beta_2 X_{it} + \alpha_i + \lambda_t + \xi_{it}. \quad (1)$$

Here, $INEQUALITY_{it}$ is the measurement of the inequality of income distribution of country i at year t proxied by either the poverty headcount ratio or the Gini coefficient. $FREP_{it}$ represents the level of financial repression of country i in year t . X_{it} is a vector of control variables that affect income distribution, including: *openness*, measured as the ratio of export and import to GDP; *FDI*, calculated as the ratio of FDI inflows to GDP; *governmentsize*, measured as the ratio of government expenditure to GDP; *schooling*, measured as the enrollment rate and real GDP growth. We include two fixed effects: α_i is the country-specific effect, λ_t is the year effect. Finally, ξ_{it} is an unobserved error term that varies across time and countries.

We use the same general framework when we analyze the case of China. We thus add trade openness, FDI inflows, government size, schooling, and GDP growth as control variables when estimating the model. However, to do our best to control for potentially omitted variables, we also take certain unique features in the Chinese economy into account. Cai et al. (2010) note that two apparent characteristics of the Chinese economy are a prominent state ownership and a growing rate of urbanization. The large number of low-income rural workers moving into the cities looking for higher wages has resulted in a high rate of urbanization. Cai et al. (2010) argue that this can drive inequality as it increases the low-income population. However, it is also possible that urbanization has an opposite long-term effect. Based on Kuznets' (1955) work on economic development, the rural-urban component of inequality is similar to the relationship between overall inequality and income growth (Cali, 2008): the urban sector first expands due to a fast growth in labor productivity and a related increase in the rural-urban income gap. This is then followed by a catch-up of rural labor productivity as a result of migration and spillover effects from the urban to the rural sector. To acknowledge these features of the Chinese economy and their potential influence on inequality, we introduce the share of state-owned enterprises (SOEs) in GDP and the ratio of urban population to the total population as explanatory variables in the regression model.

There is a risk that the relationship between repressive financial policies and income distribution might be driven by reverse causation. For instance, an improvement in income distribution and a lower income inequality might lead to political pressures to create a more efficient financial system that allows for reasonable competition and funding of projects based on market criteria, not political intervention and allocation. Moreover, a reduction in poverty might stimulate the demand for easy access to financial funding. Both of these examples indicate that a reduction in income inequality might require the alleviation of repressive financial policies to facilitate a more efficient allocation of financial assets in the economy. To deal with this potential problem, we first employ a generalized method of moments (GMM) panel estimator for dynamic models developed by Arellano and Bond (1991) and Arellano and Bover (1995). We estimate the model by using both the difference and level terms, using the lagged values in levels of all explanatory variables as instruments. In addition, lagged differences of the different independent variables are used as instruments for the level variables. This approach allows us to use so-called internal instruments, which are based on previous realizations of the independent variables.

Finally, in an effort to fully confront the potential issue of endogeneity, we also perform an instrumental variable (IV) analysis. Which variable to use as an instrument for repressive financial policies is not self evident. We choose institutional quality because we believe that high levels of repressive financial policies are closely related to low institutional quality. For the cross-country data set, we use the International Country Risk Guide (ICRG) constructed by Political Risk Services (PRS), which is widely used in the literature on institutions. More specifically, we use the ICRG index for rule of law as a proxy for institutional quality. For China, we need an instrument at the provincial level. Similar to the PRS index, the marketization index developed by National Economic Research Institute (NERI) include a sub index for the legal framework for each province. We thus use this index as an instrument when we run the regressions on China's provinces. One limitation of this index is that the period it covers is shorter than that of the ICRG index. For the

estimations focusing on China, we are therefore only able to analyze the period from 1997 to 2005. In order to take fixed effects into account, we use a fixed effect two stage least square (2SLS) estimator (within) when we perform the IV analysis.

4 Empirical Analysis - Cross-Country Data Set

4.1 *Financial Repression and Poverty*

As noted earlier, research on financial development and inequality shows that improvements in financial intermediation, markets and contracts result in better economic opportunities, reduced inequality and a more equal income distribution. By implementing repressive and distorted financial policies, the government can allocate financial resources directly to certain preferred sectors or groups, which in turn will reduce the efficiency of the financial sector, limit economic opportunities and therefore raise inequality and worsen the income distribution. As noted in Section 2, we hypothesize that the poor face inferior access to financial support for their businesses in financially repressed economies, something that in turn will increase the poverty headcount ratio among the population.

Before our analysis of the relationship between financial repression and inequality, we therefore start with an examination of the impact of repressive financial policies on poverty. We run both ordinary least square and fixed effect regressions with the poverty headcount ratio as the dependent variable. The results are presented in Table 2, where the first three columns present the impact of financial repression on the fraction of population living on less than \$1.25 a day. We first introduce the financial repression index into the pooled OLS regression model as a single independent variable in column 1. Column 2 then adds the control variables trade openness, FDI and government size. The estimation results show that financial repression is positively associated with the headcount ratio at \$1.25 per day. Also, trade openness is significantly negatively associated with the poverty headcount ratio,

indicating that trade facilitates a reduction in poverty.² FDI and government size are both positively associated with the poverty ratio, but neither are significant.

We then introduce schooling and GDP growth rate in Column 3. Here, we also control for country-specific effects. The estimation results confirm that an increase in financial repression is significantly associated with an increase in the poverty headcount ratio. Furthermore, increases in openness and schooling are significantly associated with a drop in the poverty headcount ratio. The effect of trade openness is once more negative and significant, while FDI inflows, government size and GDP growth are insignificant.

The dependent variable in columns 4 to 6 is the fraction of the population living on less than \$2 a day. When using the same methodology as in the first three columns, our regression results show that the relationship between financial repression and poverty is robust when using the \$2 a day poverty headcount ratio as an alternative measure of poverty. The coefficient for financial repression is again positive and significant (albeit at the somewhat lower significance level of 5% in the most complete model specification presented in column 6), while trade openness is once more negatively associated with poverty. The other explanatory variables are all insignificant. We can therefore conclude that repressive financial policies are positively associated with poverty.

[TABLE 2 HERE]

4.2 Financial Repression and Income Distribution

We have argued that financial repression disproportionately affects economic opportunities. In a financially repressed economy, wealthy individuals have better access to financial support while the poor face more limited economic opportunities due to constraints in the

²While a more detailed analysis of the relationship between trade and inequality is beyond the scope of this paper, it suffices to say that this relationship is still being debated in the literature. Early studies link trade to lower inequality through the Hecksher-Ohlin model and the Stolper-Samuelson theorem. In this framework, inequality should decrease with increased trade in developing countries and but increase in developed countries. Later studies show that trade is actually associated with an increase in inequality in some developing countries (e.g. Goldberg and Pavcnik, 2007). For a more detailed discussion on this topic, see Harrison et al. (2010).

financial system, something that results in higher income inequality. In this subsection, we examine the impact of financial repression on income distribution. Table 3 represents the main results. The dependent variable is the SWIID Gini coefficient. We again estimate the potential impact of financial repression in stages in which we add explanatory variables and control for fixed effects.

The estimation method used in Columns 1 to 3 is a fixed effect panel regression, in which we control for both country and year effects. The estimation coefficient of financial repression is positively significant at the 1% level, indicating that an increase in financial repression is associated with an increase in the Gini coefficient. More specifically, a one percentage point increase in financial repression will lead to a 0.022 percentage point increase in the Gini coefficient. Focusing instead on government expenditures, the literature on government spending and inequality does not give a definite answer to how government expenditures may affect inequality. For example, Fan and Zhang (2004) find that increased expenditures on infrastructure are positively associated with the alleviation of inequality in China. This indicates that higher levels of government consumption may decrease inequality if a majority of the redistribution through taxes and transfers are geared toward low-income groups. However, it could have a direct opposite effect if high-income groups use their political power and thus are able to exploit lower-income groups. For example, findings in Banerjee (2004) and Banerjee and Somanathan (2007) indicate that access to important infrastructure services and public goods in India is related to income and social status, supporting the argument that wealthier individuals in general have better access to such services. Cai et al. (2010) find that the effect of government size on inequality in urban China is insignificant, probably due to the fact that a major part of local government spending is being channeled into capital formation rather than being used for redistribution across income classes. Lustig (2012) emphasizes that the relationship between the size of government spending and inequality differs significantly in Latin America. In several cases, countries with the same level of government spending have opposite experiences in inequality reduction. Looking at the results

in Table 3, our initial results show that government size is significantly and positively associated with the Gini coefficient, indicating that redistribution on average does not appear to be geared toward low-income groups. Focusing on the remaining control variables, we find that trade openness and GDP growth are negatively associated with inequality, while FDI inflows and schooling are positively associated with the Gini coefficient. However, all four of these control variables are largely insignificant across the different estimations.

[TABLE 3 HERE]

4.3 Robustness Checks

As we discussed in Section 3.3, there is a risk that the relationship between repressive financial policies and income distribution is driven by reverse causation. To deal with the potential problem of endogeneity, we first employ a GMM panel estimator. The estimation results are presented in Column 4 of Table 3. The effect of financial repression is still statistically significant, albeit at the 5% level. The only other difference from our initial fixed effect estimates is that the positive effect of schooling on inequality is now small but significant. We can thus conclude that an increase in the general level of financial repression will result in an increase of overall income inequality.

In a further attempt to control for potential issues of endogeneity, we also run an IV regression in which we use the rule of law as an instrument for financial repression. Columns 5 to 7 in Table 3 present the results of the IV estimations. Using a progressive approach similar to the one in columns 1 to 3, we first include the predicted value of financial repression as a single independent variable in column 5. Financial repression is still significant, albeit at the 5% level. Similarly, when we add the two sets of control variables in columns 6 and 7, the predicted value of financial repression is again positive and significant at the 5% level. We thus again conclude that the results hold when we control for endogeneity and inclusion of the lagged dependent variable as an independent variable: financial repression increases income inequality.

4.4 Variation across Income Cohorts

Financial repression not only varies over time but also across countries, partly because countries at different stages of economic development tend to utilize repressive financial policies differently. Therefore, financial repression might have different effects on different income groups depending on the level of economic development. Examining the effect of repressive policies on countries with different income levels may shed more light on the importance of financial repression and inequality. Following the standards set up by the UN, we classify our country sample into different groups based on income level: the high income group, which includes high income OECD countries and high income non-OECD countries; the middle income group, which includes high middle income countries and low middle income countries; and low income countries. We present the results for high income, middle and low income as well as middle and low income separately.

Table 4 presents the estimation results for the new estimations in which we divide the sample into the different income groups. The estimation results in Column 1 are taken from Column 3 in Table 3 for comparison. Columns 2-5 present the estimation results of the high income group, middle and low income group, middle income group and low income group, respectively. The coefficient of financial repression is positive but insignificant for high income countries. However, it is positive and significant for all other income groups and increases in size when we move from middle to low income countries. These results indicate that financial repression is not affecting income distribution in high income countries, but does have a significant effect on income inequality in countries with lower income levels. More specifically, the impact of financial repression is decreasing with income level. Keeping other factors the same, a percentage point decrease in financial repression will result in a 0.061 percentage point decrease in inequality in low income countries and a 0.025 percentage point decrease in inequality in middle income countries, respectively.

[TABLE 4 HERE]

4.5 Effects of Individual Policies

The empirical results so far suggest that financial repression increases the poverty ratio and the level of income inequality. This effect is likely due to a more inefficient asset allocation and a worsening of the distribution of economic opportunity among the population as a result of repressive financial policies. That repressive policies might result in higher income inequality is quite intuitive. So why do governments choose to adopt these policies? It has been argued that central planners devise and adopt repressive financial policies, such as interest rate restrictions, credit allocation regulations, capital account controls, and barriers to entry in the banking sector in order to achieve faster economic growth (Hellmann et al., 1998, 2000). In the presence of incomplete information, such policies can be Pareto improving by providing a direct allocation of limited financial resources, thereby at least partly solving the problems of market failure and financial instability.

An examination of individual policy variables and their relationship to inequality may shed light on the impact of specific policies and thus have significant policy implications. Given the potential issue of multicollinearity among the individual policy variables (Abiad et al., 2008), we will not include all seven variables in a single regression. We instead run separate regressions with inequality as the dependent variable and each of the seven policies as the key explanatory variable.

Table 5 presents the results of the regressions with the individual repressive policies as explanatory variables. The dependent variable is again the SWIID Gini coefficient. The estimation coefficients for credit controls and barriers of entry into the banking sector are negative but insignificant. The coefficient for the restrictions in security market is positive but only at the 10% level. The coefficients for bank supervision, interest-rate controls, capital-account controls and the degree of monopoly degree in the banking system are positive and significant. One conclusion of these estimations is that by improving the efficiency in banking supervision, liberalizing the interest rate and the current account and introducing competition in the banking system, governments will be able to alleviate at least some of

the existing poverty, expand economic opportunity and reduce overall income inequality.

[TABLE 5 HERE]

5 Financial Repression and Income Inequality in China

5.1 Financial Repression and Income Distribution

The Chinese experience during the reform period offers an interesting case study for the relationship between financial repression and inequality. During the last 30 years, China has managed to achieve a continuously high GDP growth, with an annual average of approximately 10%. However, despite substantial and wide ranging economic reforms, the Chinese economy still possesses typical characteristics of financial repression, including heavily regulated interest rates, state-influenced credit allocation, frequently adjusted reserve requirement and a tightly controlled capital account. At the same time, income inequality is becoming an increasingly important issue for the Chinese government with economic opportunities for large parts of the population being limited while certain parts of Chinese society are experiencing a fast and significant improvement in the quality of life.

In this section, we take a closer look at the potential impact of financial repression on inequality in China. We run regressions similar to those in Section 4, where we analyzed the relationship between the two variables across countries. Columns 1 and 2 in Table 6 present the results when we use the real interest rate as a measure of financial repression in China's provinces. Note that the lower the real interest rate, the higher the level of financial repression. Similar to the results in the cross-country section, financial repression (here marked by a lower real interest rate) significantly contributes to increasing the urban-rural income differential. Moreover, a higher urban-rural income differential is associated with a larger size of the government, more years of schooling, smaller FDI inflows and a lower level of real GDP growth. Furthermore, a decline of state ownership as a ratio of GDP is associated with a drop in income inequality. Cai et al. (2010) find that a decline in employment

share results in an increase in inequality. However, our focus is not on the relatively short period of SOE reforms that Cai et al. analyze (1992-2003), but instead on the ownership structure in the economy over the whole period beginning with the initial economic reforms. In general, a decline in state ownership means a relative increase in the activities of small- and medium-sized private companies, which is likely to create more job opportunities and absorb workers who are laid off during the reform process and the economic transition that is still underway in China. Our results support this argument, with a positive relationship between state ownership and inequality. Finally, the coefficient of urbanization is negative but insignificant, perhaps a result of the non-linear relationship between urbanization and inequality discussed earlier.

[TABLE 6 HERE]

5.2 Robustness Checks

As with our cross-country sample, we may be dealing with endogeneity issues when we analyze the relationship between financial repression and inequality across China's provinces. We therefore first run a new dynamic panel regression, this time using Chinese provincial data. The results are shown in Columns 3 and 4 of Table 6. We again find that financial repression is positively associated with inequality, with the coefficient for financial repression being negative and significant at the 5% level in both dynamic panel estimations. FDI inflows and SOE as ratio of provincial GDP are both no longer significant, while the rest of the independent variables exhibit features similar to the ones in the initial fixed effects regressions.

To further strengthen these results, we also run IV regressions using the NERI sub index for the legal framework at the provincial level as an instrument for financial repression. The results are reported in columns 5 and 6 in Table 6. We once more find that financial repression is positively associated with urban-rural income inequality at the 5% level. The only explanatory variable that is affected is that of FDI inflows, which is once more insignificant

when we move from the fixed effects procedure to the IV estimation. To conclude, even after controlling for potential endogeneity, we find that financial repression is significantly and positively associated with income inequality in China.

5.3 Regional Variation in Inequality

It is a well known fact that income levels vary significantly across provinces in China. To take this into account and to see if the relationship between financial repression and inequality differs across regions in a way that is similar to our results in the cross-country section, we divide our sample into three regional groups: east, central and west. Table 7 presents the new estimation results on these three regional samples. The results indicate that financial repression is a factor that contributes significantly to income inequality in all three regions. More importantly, the impact is larger in less developed regions. In the full regression model, the coefficient for financial repression is a relatively small -0.591 for the eastern region, a much larger -2.293 for the central region and an even larger -3.307 for the western region. These results are in line with our results in Section 4.4 that showed how financial repression plays a more important role for income inequality in low and middle income countries. Moreover, we again find that reducing the ratio of state ownership to GDP, a policy that is favorable to competition, results in a lower urban-rural income differential.

[TABLE 7 HERE]

6 Concluding Remarks

Previous research has shown that there is a significant relationship between finance and inequality. However, to the best of our knowledge, there is as of yet no study that focuses on the potential impact of repressive financial policies on inequality. If financial policies turn out to have significant effects on overall inequality and poverty, that would have direct and important policy implications. To shed light on this issue, this study uses data for a large

set of countries from 1981 to 2005 to analyze the relationship between financial repression and inequality. The empirical results support the argument that repressive financial policies increase inequality and worsen poverty. The effect of repressive financial policies is linked to the national level of income, with less developed countries exhibiting much a much stronger association between financial repression and inequality. When focusing on individual repressive policies, we find that interest rate controls, capital account controls, weak banking supervision, and concentration in the banking sector all have a significant and positive relationship with inequality. These results have direct practical implications for policy makers, especially in less developed countries that are experiencing fast increases in inequality.

To get a better understanding of the relationship between financial repression and inequality, we also take a closer look at China, a country that has experienced tremendous economic changes since the beginning of its economic reforms in 1978. Using provincial data, we find that financial repression again drives inequality, and especially so in less developed provinces. The relationship between financial policies and inequality is stronger in less developed provinces, again showing that such policies have more adverse effects in poorer regions. As rising inequality has become a key concern for Chinese policy makers (e.g. Johansson, 2012), these results provide further support for the need of continued reforms of China's financial sector.

While the results in this study highlight an important link between financial repression and inequality and poverty, further research is needed for us to better understand that link. Having used cross-country and provincial macro-level data as a first step to assess the effects of financial repression, a natural next step is to complement this study with micro-level data to hopefully better understand how different repressive financial policies affect individuals across regions.

Appendix 1 - Data

Variable	Source	Variable Description
Cross-Country Data		
Poverty headcount ratio \$1.25 (\$2)	WDI	The percentage of the population living on less than \$1.25 (\$2) per day at 2005 international prices
Financial repression	IMF; Abiad et al. (2008)	Financial repression index
Government	WDI; IMF	Government expenditure to GDP ratio
GDP growth	Penn World Table	Growth of real per capita GDP
Openness	WDI	Openness at current prices
FDI	WDI	FDI inflow to GDP ratio
Schooling	WDI	Primary school enrollment rate
Chinese Data		
Urban household income	NBS	Urban household disposable income per capita
Rural household income		Rural household pure income per capita
Real interest	PBOC	Real interest rate, deposit rate minus
Government	NBS	Government expenditure to GDP ratio
GDP growth	NBS	Growth of real per capita GDP
Openness	NBS	Openness at current prices
FDI	NBS	FDI inflows to GDP ratio
Schooling	Li et al. (2009); NBS	Years of schooling

Note: Abbreviations for data sources are: International Monetary Fund (IMF), the World Bank's World Development Indicators (WDI), China's National Bureau of Statistics (NBS), and the People's Bank of China (PBOC).

References

- Abiad, A, Detragiache, E and Tressel, T., 2008., A New Database of Financial Reforms, *IMF Working Paper* WP/08/266.
- Agarwala, R., 1983. *Price Distortions and Growth in Developing Countries*. Washington, D.C.: World Bank.
- Ang, J.B. and McKibbin, W.J., 2007. Financial Liberalization, Financial Sector Development and Growth: Evidence from Malaysia. *Journal of Development Economics* 84, 215-233.
- Arellano, M., Bond, S., 1991. Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations. *Review of Economic Studies*, 58, 277-297.
- Arellano, M., Bover, O., 1995. Another look at the instrumental-variable estimation of error-components models. *Journal of Econometrics* 68, 29-52.
- Banerjee, A., 2004. Who Is Getting the Public Goods in India? Some Evidence and Some Speculation, in Basu, K. (ed.), *India's Emerging Economy: Performance and Prospects in the 1990's and Beyond*. Cambridge: MIT Press.
- Banerjee, A.V., Newman, A.F., 1993. Occupational Choice and the Process of Development. *Journal of Political Economy* 101, 274-298.
- Banerjee, A., Somanathan, R., 2007. The political Economy of Public Goods: Some Evidence from India. *Journal of Development Economics* 82, 287-314.
- Beck, T., Demirguc-Kunt, A., Levine, R., 2007. Finance, Inequality and the Poor. *Journal of Economic Growth* 12, 27-49.
- Becker, G.S., Tomes, N., 1986. Human Capital and the Rise and Fall of Families. *Journal of Labor Economics* 4, 1-39.

- Cai, H., Chen, Y., Zhou, L.-A., 2010. Income and Consumption Inequality in Urban China: 1992-2003. *Economic Development and Cultural Change*, 58, 385-413.
- Calì, M., 2008. Urbanization, Inequality and Economic Growth: Evidence from Indian Cities and Towns. Background Note for the World Development Report 2009.
- Clarke, G.R.G., Xu, L.C., Zou, H.-Fu., 2006. Finance and Income Inequality: What Do the Data Tell Us? *Southern Economic Journal* 72, 578-596.
- Demirguc-Kunt, A., Levine, R., 2009. Finance and Inequality: Theory and Evidence. *Annual Review of Financial Economics* 2009, 1: 287-318.
- Easterly, W., 1992. Endogenous Growth in Developing Countries with Government-induced Distortions, in Corbo, V., Fischer, S., Webb, S. (eds.), *Adjustment Lending Revisited: Policies to Restore Growth*. Washington, D.C.: World Bank.
- Fan, S., Zhang, X., 2004. Infrastructure and Regional Economic Development in Rural China. *China Economic Review* 15, 203-214.
- Galor, O., Zeira, J., 1993. Income Distribution and Macroeconomics. *Review of Economic Studies* 60, 35-52.
- Gelb, A., 1988. Financial Policies, Efficiency, and Growth: An Analysis of Broad Cross-Section Relationships. Washington, D.C.: World Bank.
- Goldberg, P.K., Pavcnik, N., 2007. Distributional Effects of Globalization in Developing Countries. *Journal of Economic Literature* 45, 39-82.
- Greenwood, J., Jovanovic, B., 1990. Financial Development, Growth, and the Distribution of Income. *Journal of Political Economy* 98, 1076-1107.
- Harrison, A., McLaren, J., McMillan, M.S., 2010. Recent Findings on Trade and Inequality. *NBER Working Paper Series* No 16425.

- Hellmann, T., Murdock, K. and Stiglitz, J., 1997. Financial Restraint: Toward a New Paradigm, in Aoki, M., Kim H.-K. and Okuno-Fujiwara M. (eds.), *The Role of Government in East Asian Economic Development*, Oxford: Clarendon Press.
- Hellmann, T., Murdock, K. and Stiglitz, J., 2000. Liberalisation, Moral Hazard in Banking and Prudential Regulation: Are Capital Controls Enough? *American Economic Review* 90, 147–165.
- Huang, Y. and Wang, X., 2011. Does Financial Repression Inhibit or Facilitate Economic Growth? A Case Study of Chinese Reform Experience. *Oxford Bulletin of Economics and Statistics* 73, 833-855.
- Johansson, A.C., 2012. Financial Repression and China's Economic Imbalances, in McKay, H. and Song, L. (eds.), *Rebalancing and Sustaining Growth in China*, ANU E Press.
- Johansson, A.C. and Wang, X., 2011. Financial Repression and Structural Imbalances. Stockholm School of Economics, *China Economic Research Center Working Paper* 2011-19.
- Johansson, A.C. and Wang, X., 2012. Financial Repression and External Imbalances. Stockholm School of Economics, *China Economic Research Center Working Paper* 2012-20.
- King, R. G. and Levine, R., 1993. Finance, Entrepreneurship, and Growth: Theory and Evidence. *Journal of Monetary Economics* 32, 513-542.
- Kuznets, S., 1955. Economic Growth and Income Inequality. *American Economic Review* 45, 1-28.
- Li, K., Yun, L., Lui, G.C.S., 2009. Economic Performance of Human Capital in Post-Reform China. *Chinese Economy* 42, 40-61.
- Lustig, N., 2012. Taxes, Transfers, and Income Distribution in Latin America. World Bank, *Inequality in Focus* 1, 1-5.
- Matsuyama, K., 2004. Financial Market Globalization, Symmetry-Breaking and Endogenous Inequality of Nations. *Econometrica* 72, 853-884.

- McKinnon, R. I., 1973. *Money and Capital in Economic Development*. Washington, D.C.: The Brookings Institution.
- Mookherjee, D., Ray, D., 2002. Is Equality Stable? *American Economic Review, Papers and Proceedings*, 92, 253-259.
- Mookherjee, D., Ray, D., 2003. Persistent Inequality. *Review of Economic Studies* 70, 369-393.
- Roubini, N. and Sala-i-Martin, X., 1992. Financial Repression and Economic Growth. *Journal of Development Economics* 39, 5-30.
- Shaw, A. S. 1973. *Financial Deepening in Economic Development*, New York: Oxford University Press.
- Yang, D.T., 1999. Urban-Biased Policies and Rising Income Inequality in China. *American Economic Review Papers and Proceedings* 89, 306-310.
- Yu, M., 2008. Does Revaluation of the Chinese Yuan Decrease Imports to the U.S. from China? *Contemporary Economic Policy*, 1-15.

TABLE 1. Summary Statistics

Variable	Obs	Mean	Min	Max
Cross-Country Data				
Headcount ratio \$1.25	276	0.215	0	0.840
Headcount ratio \$2	276	0.371	0.001	0.978
Gini (SWIID)	1531	0.388	0.197	0.689
Financial repression	1650	0.444	0	1
Openness	1650	0.631	0.048	4.425
FDI	1625	0.020	-0.150	0.925
Government	1642	0.149	0.030	0.435
GGDP	1650	0.017	-0.174	0.162
Schooling	1462	0.997	0.179	1.550
Chinese Data				
Urban/rural income ratio	585	2.487	0.749	1.045
Urbanization	588	0.359	0.158	0.100
Government	587	0.144	0.070	0.005
FDI inflow	588	0.020	0.027	0.000
GDP growth	588	0.092	0.041	-0.097
SOE	588	0.657	0.169	0.114
Openness	588	0.201	0.316	0.006
Real interest rate	588	-0.013	0.051	-0.184

Note: See Appendix 1 for detailed information on the variables.

TABLE 2. Financial Repression and Poverty

Dependent variable	Headcount ratio \$1.25/day			Headcount ratio \$2/day		
	1	2	3	4	5	6
Poverty ratio						
Financial repression	0.144** (0.025)	0.143*** (0.030)	0.084*** (0.031)	0.132*** (0.025)	0.116*** (0.031)	0.075** (0.034)
Trade openness (ratio of GDP)		-0.089** (0.038)	-0.092** (0.038)		-0.128*** (0.039)	-0.145*** (0.042)
FDI inflows (ratio of GDP)		0.283 (0.298)	0.065 (0.328)		0.245 (0.303)	0.112 (0.357)
Government (ratio of GDP)		0.376 (0.199)	0.185 (0.206)		0.112 (0.202)	0.162 (0.224)
Schooling			-0.115** (0.057)			-0.012 (0.062)
GDP growth			-0.001 (0.125)			0.022 (0.136)
Constant	0.145*** (0.013)	0.205*** (0.032)	0.308*** (0.071)	0.308*** (0.013)	0.367*** (0.045)	0.427*** (0.075)
Estimation method	OLS	OLS	FE	OLS	OLS	FE
Country effects	No	No	Yes	No	No	Yes
Countries	42	42	42	42	42	42
Observations	276	272	233	276	273	233
R^2	0.121	0.117	0.221	0.133	0.152	0.174

Note: Unbalanced panel regressions with standard errors in parentheses. *, **, and *** indicate statistical significance at the 10 percent, 5 percent and 1 percent level, respectively.

TABLE 3. Financial Repression and Income Distribution

Dependent variable	FE			DP		IV	
Gini (SWIID)	1	2	3	4	5	6	7
Financial repression	0.015** (0.007)	0.018*** (0.007)	0.022*** (0.008)	0.025** (0.010)	0.085** (0.036)	0.075** (0.033)	0.077** (0.037)
Trade openness (ratio of GDP)		-0.005 (0.006)	-0.010 (0.008)	-0.011 (0.007)		-0.011 (0.007)	-0.019** (0.009)
FDI inflows (ratio of GDP)		0.008 (0.021)	0.014 (0.022)	0.013 (0.021)		0.007 (0.020)	0.010 (0.020)
Government (ratio of GDP)		0.124*** (0.038)	0.102*** (0.042)	0.108** (0.167)		0.135*** (0.043)	0.126*** (0.047)
Schooling			0.014 (0.011)	0.016*** (0.167)			-0.005 (0.015)
GDP growth			-0.031 (0.024)	-0.029 (0.024)			-0.001 (0.029)
Constant	0.145*** (0.013)	0.367*** (0.010)	0.354*** (0.071)	0.354*** (0.015)			0.367*** (0.023)
Sargan test				0.766			
AR(2) test				0.181			
Country effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Countries	66	66	66	66	66	65	64
Observations	1531	1503	1333	1285	1285	1321	1172
R^2	0.072	0.181	0.172	0.161	0.159	0.161	0.139

Note: Unbalanced panel regressions with standard errors in parentheses. *, **, and *** indicate statistical significance at the 10 percent, 5 percent and 1 percent level, respectively. Columns 1-3 present results for the fixed effect regressions, column 4 presents results for the dynamic panel regression, and columns 5-7 present results for the instrumental variable regressions.

TABLE 4. Different Income Cohorts

Dependent variable	All countries	High income	Middle and low income	Middle income	Low income
	1	2	3	4	5
Gini (SWIID)					
Financial repression	0.022*** (0.008)	0.002 (0.010)	0.036*** (0.013)	0.025** (0.011)	0.161*** (0.019)
Trade openness (ratio of GDP)	-0.010 (0.008)	-0.035*** (0.013)	-0.005 (0.010)	-0.004 (0.009)	0.010 (0.036)
FDI inflows (ratio of GDP)	0.014 (0.022)	0.022 (0.017)	-0.029 (0.074)	0.006 (0.072)	-0.402 (0.253)
Government (ratio of GDP)	0.102*** (0.042)	-0.017 (0.075)	0.097* (0.053)	0.136** (0.056)	-0.307** (0.124)
Schooling	0.014 (0.011)	-0.055* (0.029)	0.035** (0.014)	0.028 (0.019)	0.058** (0.023)
GDP growth	-0.031 (0.024)	0.074 (0.048)	-0.023 (0.031)	-0.005 (0.031)	-0.146* (0.078)
Constant	0.354*** (0.071)	0.367*** (0.010)	0.399*** (0.018)	0.405*** (0.024)	0.381*** (0.029)
Country effect	Yes	Yes	Yes	Yes	Yes
Year effect	Yes	Yes	Yes	Yes	Yes
Countries	65	21	44	29	15
Observations	1333	502	831	603	228
R^2	0.072	0.191	0.105	0.139	0.118

Note: Unbalanced panel regressions with standard errors in parentheses. *, **, and *** indicate statistical significance at the 10 percent, 5 percent and 1 percent level, respectively.

TABLE 5. Effects of Individual Repressive Policies

Dependent variable	Fixed-effect estimation						
	1	2	3	4	5	6	7
Gini (SWIID)							
Credit controls	0.000 (0.004)						
Interest rate controls		0.011** (0.003)					
Barriers to entry			-0.012 (0.014)				
Bank supervision				0.013** (0.015)			
Privatization					0.008** (0.004)		
Capital controls						0.011*** (0.004)	
Security market							0.011* (0.006)
Trade openness (ratio of GDP)	-0.007 (0.008)	-0.009 (0.008)	-0.007 (0.007)	-0.007 (0.007)	-0.008 (0.007)	-0.009 (0.008)	-0.008 (0.008)
FDI inflows (ratio of GDP)	0.015 (0.022)	0.015 (0.022)	0.016 (0.022)	0.016 (0.022)	0.016 (0.022)	0.015 (0.022)	0.014 (0.022)
Government (ratio of GDP)	0.092** (0.042)	0.084** (0.042)	0.071* (0.043)	0.096** (0.042)	0.093** (0.042)	0.103** (0.042)	0.108** (0.042)
Schooling	00.010 (0.011)	0.014 (0.011)	0.010 (0.011)	0.007 (0.011)	0.012 (0.011)	0.015 (0.011)	0.012 (0.011)
GDP growth	-0.040* (0.024)	-0.034 (0.024)	-0.041* (0.024)	-0.042* (0.024)	-0.033 (0.024)	-0.035 (0.024)	-0.034 (0.025)
Constant	0.374*** (0.014)	0.365*** (0.014)	0.385*** (0.014)	0.363*** (0.014)	0.367*** (0.014)	0.361*** (0.014)	0.362*** (0.015)
Country effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1333	1333	1333	1333	1333	1333	1333
R^2	0.070	0.076	0.073	0.074	0.073	0.076	0.072

Note: Unbalanced panel regressions with standard errors in parentheses. *, **, and *** indicate statistical significance at the 10 percent, 5 percent and 1 percent level, respectively.

TABLE 6. Financial Repression and Income Distribution in China

Dependent variable	FE		DP		IV	
	1	2	3	4	5	6
Urban-rural disparity						
Financial repression	-1.113** (0.526)	-1.426** (0.580)	-0.741** (0.356)	-0.951** (0.389)	-1.224** (0.566)	-1.684** (0.351)
Trade openness	-0.043 (0.063)	0.002 (0.070)	0.019 (0.041)	0.004 (0.044)	-0.286 (0.203)	-0.129 (0.188)
FDI inflows	-1.832*** (0.644)	-1.132** (0.757)	0.208 (0.412)	0.864 (0.485)	-0.278 (0.666)	0.040 (0.984)
Government	1.761*** (0.552)	1.407** (0.584)	1.069*** (0.389)	1.193*** (0.416)	4.526*** (1.179)	5.333*** (0.783)
Schooling	-3.357** (1.757)	-3.028 (1.992)	-0.369 (1.186)	-1.481 (1.321)	-0.112 (0.128)	0.082 (0.062)
GDP growth	-0.973*** (0.385)	-1.109** (0.442)	-0.861*** (0.252)	-1.067*** (0.289)	-0.035 (0.918)	-0.117 (0.379)
SOE		0.599*** (0.234)		0.147 (0.095)		0.996*** (0.202)
Urbanization		-0.227 (0.144)				-0.216 (0.161)
Constant	1.801*** (0.167)		0.578*** (0.107)	0.613*** (0.193)	1.918*** (0.290)	1.918*** (0.290)
Sargan test			0.407	0.510		
AR(2) test			0.124	0.224		
Country effect	Yes	Yes	Yes	Yes	Yes	Yes
Year effect	Yes	Yes	Yes	Yes	Yes	Yes
Provinces	25	25	25	25	25	25
Sample period	1985-2005	1985-2005	1985-2005	1985-2005	1997-2005	1997-2005
Observations	525	476	475	426	207	207
R^2	0.482	0.545			0.473	0.452

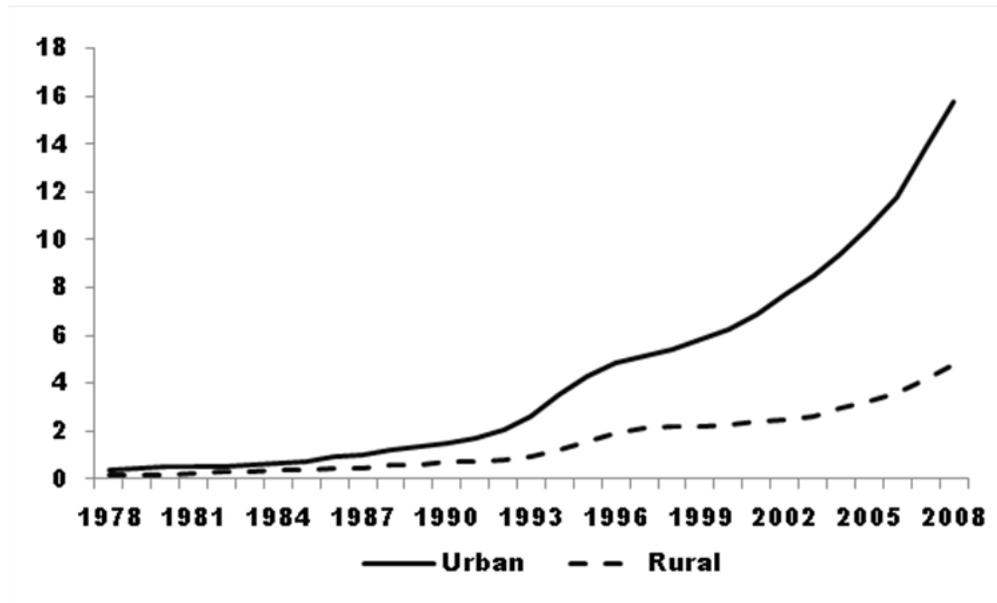
Note: Unbalanced panel regressions with standard errors in parentheses. *, **, and *** indicate statistical significance at the 10 percent, 5 percent, and 1 percent level, respectively. Columns 1-2 present results for the fixed effect regressions, columns 3-4 present results for the dynamic panel regressions, and columns 5-6 present results for the instrumental variable regressions.

TABLE 7. Income Distribution across China's Regions

Dependent variable	East		Central		West	
	1	2	3	4	5	6
Financial repression	-0.555** (0.286)	-0.591*** (0.285)	-2.345** (0.945)	-2.293*** (0.934)	-3.186*** (0.502)	-3.307*** (0.527)
Trade openness (ratio of GDP)	0.184*** (0.048)	0.205*** (0.052)	-2.107*** (0.746)	-2.217*** (0.782)	-0.878 (0.904)	-0.806 (0.957)
FDI inflows (ratio of GDP)	-0.853* (0.477)	-1.254** (0.535)	1.240 (1.650)	3.762** (1.761)	1.665 (2.282)	1.305 (2.370)
Government (ratio of GDP)	1.933*** (0.802)	2.040** (0.801)	5.260*** (0.589)	6.021*** (1.695)	0.333 (0.587)	0.436 (0.624)
Schooling	0.003 (0.019)	0.003 (0.019)	0.145*** (0.037)	0.034 (0.051)	0.099 (0.062)	0.064 (0.067)
GDP growth	0.604 (0.365)	0.511 (0.368)	-0.039 (0.582)	-0.035 (0.578)	-1.546** (0.709)	-0.893 (0.878)
SOE (ratio of GDP)		0.355* (0.226)		0.787** (0.341)		1.305*** (0.420)
Urbanization		-0.179 (0.147)		-0.829 (0.577)		0.180 (0.220)
Constant	1.241*** (0.119)	1.014*** (0.183)	0.397*** (0.314)	1.953*** (0.514)	1.838*** (0.0240)	0.741*** (0.446)
Estimation method	FE	FE	FE	FE	FE	FE
Country effect	Yes	Yes	Yes	Yes	Yes	Yes
Year effect	Yes	Yes	Yes	Yes	Yes	Yes
Provinces	8	8	8	8	9	9
Observations	168	139	168	163	189	174
R^2	0.312	0.419	0.148	0.463	0.358	0.424

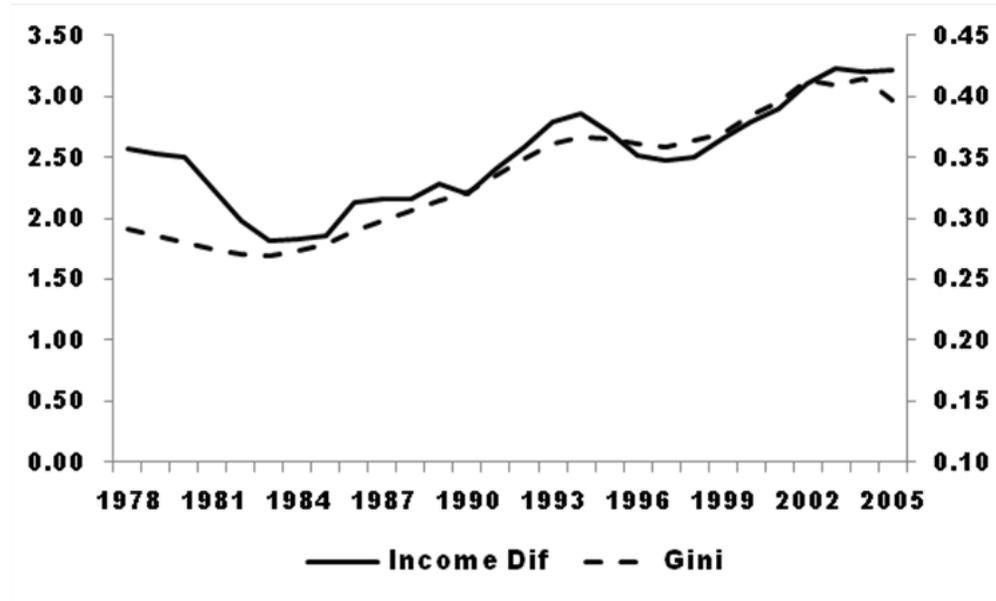
Note: Unbalanced panel regressions with standard errors in parentheses. *, **, and *** indicate statistical significance at the 10 percent, 5 percent and 1 percent level, respectively.

FIGURE 1. Urban Household Disposable Income and Rural Household Pure Income 1978-2008
(Thousand RMB)



Note: Data are from China Compendium of Statistics, NBS.

FIGURE 2. The Urban-Rural Income Differential and the Gini Coefficient



Note: Data are from NBS, SWIID, and authors' calculations. The urban-rural income differential is on the left-hand axis and the Gini coefficient on the right-hand axis.