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Globalisation and Income Inequality: Evidence from Urban China

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Abstract
This paper examines the impact of financial globalisation and trade globalisation on income inequality using the Chinese urban household. It formally tests whether the effect of financial globalisation and trade globalisation on income varied at different levels in urban China between 1990 and 2017. Methodologically, it departs from the existing literature by exploiting quantile regression analysis. This methodological approach allows the testing of globalisation’s impact on income at different levels. The overall quantile regression results clearly reveal that the effects of various factors on urban household income are heterogeneous, depending on the income level. In the case of financial globalisation, the coefficients are positively and statistically significant at the usual level at all quantiles. However, a closer observation reveals that the magnitude of the impacts on income is heterogeneous. More specifically, at high levels of income (i.e., the 85th quantile), financial globalisation has a high impact on income compared to its impacts at low-income levels (i.e., the 20th quantile). This suggests that financial globalisation has improved the income of the rich more rapidly than that of the poor, mean financial globalisation would widen income gap within urban China.

Keywords: Globalisation, Urban China Income Inequality, Quantile Regression

Introduction
A significant volume of literature on Chinese income inequality reveals various impacts of globalisation on China. So much had been impressive success with this high level of performance in the last three decades was eclipsed, particularly income inequality in urban begs the attention: Were all the benefits shared equally among the citizens living in the urban area? Which China’s population growth rate rose from 19.39% in 1980 to 59.58% in 2018. The rural population was recorded as 540,822,641, and China’s urban population was 861,289,359, 37.20% greater than China’s rural population. Proved by Gini Coefficient, a standard measure for income inequality, rose from 0.16 in 1978 to 0.38 in 2021, China’s income inequality was higher than the rate in the US. Most importantly, this study extends the literature by providing a new way of testing the
impact of globalization on income inequality. This study applies quantile regression, enabling an examination of the impacts of globalization across different income level spectra in urban China. Specifically, this modelling strategy allows an investigation of the possible differential impacts of globalization on income at different levels. This is an improvement over studies that only explain changes in inequality Index such as Gini coefficient. Thus, we can identify the impact of financial and trade globalization on significant income gaps in urban China.

Over the past many decades, the impact of globalization on income inequality in developing countries has been one of the most debated issues. Previously, the significant role of globalization in influencing income inequality has been poorly understood. Most empirical studies show that globalization has increased income inequality in developing countries, inconsistent with Ricardo’s theoretical prediction, which states that integration might benefit poor countries. Nevertheless, the literature on the impact of globalization on income inequality has been largely inconclusive, with mixed findings. The theory shows that sustainable economic growth can eventually resolve income inequality (Le et al., 2020). Ricardo’s theory (1817) demonstrates the benefits of trade because of industrialization and cheap transportation of comparative advantages across countries. Through industrial specialization, international trade makes countries better by allowing all countries to produce various goods. However, looking at global integration, this will only increase the average income within countries (Berg & Nilsson, 2010). The model was then improved by Stolper-Samuelson (1941), which differentiates between employees and the owners of physical, financial, and human capital. The theory projected that world trade would favour the abundant production factor (the owners of capital in rich countries) and harm the limited production factor (the unskilled labor of rich countries). In this setting, workers are in a position to demand higher wages if they do not have to compete with abundant labor in poorer countries. Thus, the trade will reduce real wages if a country has limited labor.

Stolper and Samuelson’s theorem provides a strong protectionism theory. However, this argument can be countered with an appropriate redistribution policy to ensure that trade benefits all the factors of production in an economy. They explain how changes in product prices shift the demand for labor up and down. As a result, the wages of a segment of the workforce increase, but the same doesn’t happen for other segments, leading to bigger gap between segments. Eric Maskin supported this point of view in his theory which also predicts that the within-country gap to increase, leading to higher inequality. In this context, low-skilled workers must cope with international opportunities. This has been the key development strategy for developed and developing countries that tap into export diversification opportunities (Le et al., 2020). Furthermore, the existence and stage of the production cycle were viewed as important factors influencing trade’s effect on income inequality (Lim and McNelis, 2016). In the modernization theory, inequality cannot be at the early stages of development, but it tends to decline gradually until the development process achieves its targeted level. Modernization theory conceives that as society industrializes and further develops, the influence of social background and other attributes on educational and socioeconomic outcomes declines (Rostow, 1973; Marks, 2009). This is sensible at low development levels, but the effects reach maximum at middle levels and then decline at later stages (Weede, 1980). In developing countries, the early

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1 Income at different level categories by the quantile of income; low quantile represented low-income group; high quantile represented high income group.
stages of development show a big income gap between the high-income and low-income sectors. A demand for a more skilled workforce is generated through the implementation of capital-intensive technology, and a properly organized education system is needed to meet the demand for skilled labor (Prechel, 1985).

Inequality can also be explained in terms of dependency relations in trade, finance, and technology. The dependency theory concerns an international economy characterised by dependency that makes one country’s economy reliant on the growth and development of another country (Dos Santos, 1970). The theory clearly shows that the relationships between the dominant and the dependent states are complex, as their interaction appears to reinforce and strengthen the unequal patterns (Ferraro, 2008). The theory runs on existing trade and FDI between developed and developing countries. FDI tends to slow down the economy's growth and increases income inequality by producing disparities and dualism in productive economic structures (Frank, 1969; Amin, 1974). It happened when poor countries exported primary commodities to rich countries, which then produced and sold products to poorer countries. By producing a usable product, value-added always costs more than the primary products used to create those products. Thus, poorer countries would never gain enough to pay for their imports from their export income (Sau, 1978; Barrett and Whyte, 1982). Import substitution programs should be initiated in poorer countries so that they do not have to buy products manufactured from richer countries. Poor countries would still sell their primary goods on the world market, but their foreign exchange reserves would not be used to buy their products abroad. Meanwhile, Kuznets (1955) suggested the inverted-U pattern characterises the relationship between income level and income inequality. At the early stage of development, Kuznet states that income inequality would grow, leading to an increase in income inequality through industrialization, urbanization, and democracy (Nielsen and Alderson, 1997; Paweenawat and Mcnown, 2014). Most theories above predict that integration into the world economy increases the relative returns to unskilled labor in labor-abundant developing countries. Therefore, the skill premium and wage inequality should decrease when a developing country integrates into the world economy. Unfortunately, this prediction has not fared well empirically. Our word is related to studies examining the effect of financial and trade globalisation on income inequality in urban China. Through this contribution, test income inequality in urban China at different quantiles, which explain by two samples of group: low-level income at lower end quantile and high-level income at the high quantile.

Literature Review

Most empirical studies on globalisation’s effects in developing and developed countries found that globalisation is increasingly linked to inequality, but such research often produced divergent and polarised results (Mills, 2008). Recent studies illustrate the significance of globalisation on income inequality, as explained by its subdivision into economic, social, and cultural globalisation (Dreher & Gaston, 2008; Bergh & Nilsson, 2010; Ezcurra & Rodriguez, 2013). As Balan et al (2015) suggested, the positive and negative impacts of economic, social, and political globalisation on income inequalities differ between countries (with Canada, the UK, Italy, Japan, the USA, and France used as examples). As an aspect of globalisation, Bergh and Nilsson (2010) proved that social globalisation is more important in less-developed countries. A study by Chen (2016) demonstrated that the impact of globalisation on urban-rural income inequality was not equally
significant across various countries (France, Canada, the UK, Italy, Japan, and the USA). The impact of globalisation on urban-rural income inequality indicated a one-way causality from economic globalisation to income inequality in Canada and France, a two-way causality between economic globalisation to income inequality only in the UK, a one-way causality from social globalisation to income inequality in France and the UK; and a one-way causality from political globalisation to income inequality only in France. When analysing the causality between aggregate globalisation and income inequality, it was observed that overall, globalisation positively caused income inequality in Canada and the UK. At the same time, an adverse effect was found in France. Meanwhile, in the cases of Germany, Italy, Japan, and the USA, no empirical evidence was found of causality between globalisation indices and income inequality in either direction.

This study is also related to the growing literature exploring the impact of globalisation on income inequality in China. A significant volume of literature on Chinese income inequality reveals various impacts of globalisation on China. A study by Munir and Bukhari (2020) showed the impact of three models of globalisation, namely trade globalisation, financial globalisation, and technological globalisation. According to their findings, trade globalisation has contributed significantly to China's income inequality reduction. The impact of financial globalisation on income inequality suggests that financial integration has caused income inequality to rise. As a result, the benefits of financial globalisation were not found to be distributed equally among the rich and the poor. Technological globalisation has contributed significantly to the reduction of income inequality. Unlike in highly urbanised countries, urban segregation remains a serious issue in most developing countries (Farrell, 2017), particularly in China (Qiu & Zhao, 2019; Hamnett, 2020). This study relates to a broad literature addressing income inequality in China, which has been explained by the country gap, urban-rural gap, and within-urban gap (Zhu & Wan, 2012; Zhou & Song, 2016; Gustafsson & Wan, 2020). After reviewing the paradoxes concerning inequality during the reformation and opening-up policies in China, Lee et al. (2019) found that while the income inequality division has been weakened in some respects, it appears to have been further widened in other areas. His work implies that globalisation is too complex to be generalised. Wang et al (2013) identified and examined several major dimensions of this divide, including income, consumption, education, employment, healthcare, pensions, access to public services, and the environment. Other studies usually focused on one or more specific aspects, such as urban income inequality (He & Qian, 2017), land and housing (Wu, 2001), financial development (Liang, 2006), unemployment (Li & Sato, 2006), foreign direct investment (Braunstein & Brenner, 2007) and gender inequality (Shu et al., 2007). However, urban inequality through the impacts of globalisation has been studied far less frequently.

Meanwhile, Wu (2009) compared the level of income inequality between China and Hong Kong using population survey data, revealing higher degrees of income inequality and income distribution in Hong Kong than on the mainland. Over the past three decades, China and Hong Kong have experienced dramatic economic growth, which has led to greater income inequality. Other researchers also debated this assertion about mainland China and Hong Kong, citing the Gini coefficient to illustrate the growing income disparity noted in recent years. Some even suggested that the Gini coefficient should be used to monitor social and political stability. Thus, a single Gini coefficient may have overstated the degree of inequality. For this reason, the researcher computed the Gini coefficient for rural and urban areas separately, finding it to be
0.32 and 0.35, respectively, placing the values within a reasonable zone. Hence, the gap between rich and poor and the trends toward social polarisation may not be as severe as the single Gini coefficient suggests. Many researchers have debated using the Gini coefficient as the primary variable as a proxy for income inequality. Heshmati (2005) examined simple correlations among indices for income inequality, poverty, and globalisation, using the database created by the Kearney Foreign Policy magazine (2002, 2003). She found that the Gini coefficient did not correlate with the economic component and was negatively correlated with the disaggregated personal, technology, and political components. This data constituted a small, balanced panel covering 62 developing countries observed between 1995 and 2000. However, this data is not widely available in many countries, which limits the possibility of analysing the impact of globalisation on income inequality. This study proposes a new way of testing the impact of income inequality that maximises the use of the available data. Specifically, this study uses quantile regression analysis to evaluate globalisation’s impact on different income spectra in urban China.

Methodology
This study sought to determine how globalisation has affected income inequality. In particular, the study assessed whether globalisation would have a varied impact on various income levels in urban China. The estimated model and dataset used to assess this aim are described in detail in the following subsections.

Model Specification
To test the impact of globalisation on urban China’s income inequality, a model was essentially the same as those employed in earlier works (e.g., Dreher, 2006; Ahmad, 2021). Equations (1 and 2) below can be used to express the baseline model:

\[
\begin{align*}
\text{UrbanHousehold}_{t} &= \beta_0 + \beta_1 \text{Financial Globalisation}_{t} + \\
&\quad \beta_2 \text{Trade Globalisation}_{t} + \\
&\quad \beta_3 \text{Population Growth}_{t} + \beta_4 \text{Human Capital Index}_{t} + \epsilon_t \\
\end{align*}
\]

(1)

UrbanHousehold is the households of urban Chinese people, and Globalisation is an index of financial globalisation and trade globalisation. Meanwhile, a set of control variables was hypothesised as affecting household income, while \(\epsilon\) is the usual error term. The influence of trade and financial globalisation on urban family income is tracked by the coefficient of interest, \(\beta_1\). Control variables were selected based on previous empirical works (see, for example, Ezcurra and Rodriguez-Pose, 2013). This covers population growth and the human capital index. Except for population growth, all data was turned into logarithmic form before analysis.

Quantile Regression
Quantile regression (QR) was the method used in this paper to figure out how globalisation affects income inequality (Dreher, 2006). This estimation, proposed by Koenker and Basset (1978), suggests employing quantile regression to examine the conditional quantiles of a dependent variable using covariates. Conditional median regression typically acts at the
quantile's median. According to Koenker and Basset (1978), the model can be expressed using Equation (2)

\[ \text{Log UrbanHousehold}_t = x_{it}\beta + \mu_{it}\theta \]  \hspace{1cm} (2)

In this paper, regression analyses were performed for seven different quantiles of household income (i.e., the 25th, 35th, 45th, 55th, 65th, 75th, and 85th percentiles). In this case, \( \beta(q) \) is the vector of parameters to be estimated for a given value of the distribution quantile q. The coefficient of \( \beta \) forms represented a quantile regression in \( \theta \)th to minimise any errors, with \( \theta \) explained a positive error and \( (1 - \theta) \) reveal a negative error. It is assumed that the error term, \( u_i \), has an identical and independent distribution with symmetric distribution close to zero. For instance, if the impact were negative (i.e., income was falling) at the 25th quantile and positive (i.e., income was increasing) at the 85th, this would represent evidence that globalisation has led to increased income inequality in Urban China by the definition of two extreme quantiles (e.g., 25th and 85th). The two possible hypotheses made in this research which: the lower increasing rate of urban household income at the lower percentiles implies the widened gap of income inequality in urban China. At the same time, the gap between rich and poor will get smaller because the rate of growth of high-quantile household income in urban is high and rising.

**Description of Data**

This study focused on China's national data from 1990 to 2017. Household Urban China is used as a dependent variable, information which was collected from the National Bureau of Statistics of China. Next, the study used the index of globalisation, constructed by Dreher (2006) and updated by (Dreher and Gaston, 2008). The index is a ranking of the most globalised countries based on two dimensions of economic globalisation: financial globalisation and trade globalisation. On a scale of 1 to 100, it rates globalisation, with higher numbers indicating greater globalisation. In terms of population growth, the exponential growth rate of the midyear population from year t-1 to year t, expressed as a percentage, is the yearly population growth rate for year t. The population reported here is based on the term's de facto definition, which includes all residents regardless of citizenship or legal status. Following that, the Human capital index based on average years of schooling incorporated the rate of return to education. Gross capital formation includes expenditures on fixed asset additions and net inventory adjustments. These variables were obtained from Penn World Tables.

**Results**

Table 1 reports the results using the overall index of globalisation. The pooled OLS estimation results are also provided in the table to facilitate comparison. The OLS results reveal that the globalisation variable is statistically significant at the 1% level, suggesting that the financial globalisation of economic activities will improve income (Han et, 2012). Additionally, all the other coefficients were found to be statistically significant at the usual level except population growth.

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2 When both high-income and low-income groups' incomes move up because of globalisation, but low-income groups' incomes get it up more slowly than high-income groups', the income gap gets bigger.
To control for distributional heterogeneity, the quantile estimator suggested by Koenker and Basset (1978) was used. Table 1 presents the results of the quantile regression estimation for the 25th, 35th, 45th, 55th, 65th, 75th, and 85th percentiles of the conditional urban household income. The overall quantile regression results clearly reveal that the impacts of various factors on urban household income are heterogeneous, depending on the income level. In the case of financial globalisation, the coefficients are positively and statistically significant at the usual level at all quantiles. However, a closer observation reveals that the magnitude of the impacts on income is heterogeneous. More specifically, at high levels of income (i.e., the 85th quantile), financial globalisation has a high impact on income compared to its impacts at low-income levels (i.e., the 20th quantile). This suggests that financial globalisation has improved the income of the rich more rapidly than that of the poor, mean financial globalisation will widen income disparities within urban China, which is consistent with Han et al (2012); Cabral et al (2016) proved that globalisation has not likely narrowed the income gap. Multinational corporations in urban China have grown excellent by hiring low-wage migrant workers from villages and establishing this low-wage migrant as the factory of the world. When the income increase in low wages is still far away than the high pay job, globalisation benefits high-income groups in Urban China. This finding contrast with previous literature, which showed the greater impact of globalisation fall in low-income countries than in high-income countries that improved the income gap (Berg & Nilsson, 2010; Ezcurra & Rodriguez, 2013; Ahmad, 2021).
Table 1  
Quantile regression estimation

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>(1)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(6)</th>
<th>(6)</th>
<th>(6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial Globalisation</td>
<td>1.031***</td>
<td>0.893***</td>
<td>0.943***</td>
<td>1.049***</td>
<td>1.048***</td>
<td>1.099***</td>
<td>1.237***</td>
<td>1.406**</td>
</tr>
<tr>
<td></td>
<td>(0.195)</td>
<td>(0.362)</td>
<td>(0.320)</td>
<td>(0.202)</td>
<td>(0.199)</td>
<td>(0.285)</td>
<td>(0.358)</td>
<td>(0.529)</td>
</tr>
<tr>
<td>Trade Globalisation</td>
<td>-0.380***</td>
<td>-0.324*</td>
<td>-0.336**</td>
<td>-0.342***</td>
<td>-</td>
<td>0.367***</td>
<td>0.351***</td>
<td>-0.357**</td>
</tr>
<tr>
<td></td>
<td>(0.080)</td>
<td>(0.174)</td>
<td>(0.137)</td>
<td>(0.068)</td>
<td>(0.072)</td>
<td>(0.093)</td>
<td>(0.135)</td>
<td>(0.186)</td>
</tr>
<tr>
<td>Population Growth</td>
<td>-0.096</td>
<td>-0.105***</td>
<td>-0.108**</td>
<td>-0.113**</td>
<td>-0.114***</td>
<td>-0.102*</td>
<td>-0.110*</td>
<td>-0.027</td>
</tr>
<tr>
<td></td>
<td>(0.022)</td>
<td>(0.035)</td>
<td>(0.041)</td>
<td>(0.042)</td>
<td>(0.039)</td>
<td>(0.049)</td>
<td>(0.055)</td>
<td>(0.087)</td>
</tr>
<tr>
<td></td>
<td>(0.255)</td>
<td>(0.426)</td>
<td>(0.419)</td>
<td>(0.788)</td>
<td>(0.314)</td>
<td>(0.445)</td>
<td>(0.545)</td>
<td>(0.878)</td>
</tr>
<tr>
<td>Constant</td>
<td>1.606***</td>
<td>1.430*</td>
<td>1.465***</td>
<td>1.541***</td>
<td>1.576***</td>
<td>1.700***</td>
<td>1.744*</td>
<td>2.512*</td>
</tr>
<tr>
<td></td>
<td>(0.393)</td>
<td>(0.505)</td>
<td>(0.502)</td>
<td>(0.491)</td>
<td>(0.518)</td>
<td>(0.531)</td>
<td>(0.833)</td>
<td>(1.287)</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.994</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: The table reports the quantile estimates, and the numbers in parentheses indicate the bootstrapped standard errors. ** significant at 1% **significant at 5% *significant at 10%
Thus, trade globalisation is affected by globalisation with negative significance at all quantile levels except the 85th quantile. Negative influences from trade globalisation explain that income will drop efficiently when trade increases. High-level income in urban China experiences decreases in income relative faster than low-level income in urban China. In this condition, the income gap was narrow than before when the size of the income gap was getting smaller, referring to the changes. The other results for the control variables included in the model are also informative. First, the impacts of the human capital index and population growth were observed. The impact of the human capital index indicates that greater capital in lower quantiles than in higher quantiles will have worse income levels. This finding differs from that of Huang et al (2017), whose decomposed wage inequality was improved by the human capital index. Besides, population growth negatively influences urban household income distribution, which is lower in low quantiles than in high quantiles. This indicates urban population has reduced income with high-capacity living in an urban area.

Figure 1

Conclusion
This study extends a previous study claiming that globalisation increased the income gap in urban China. Focusing on the urban Chinese population, large cities containing millions of people are confronted with the problem that globalisation exacerbates unequal distribution (low-income and high-income groups). This finding thoroughly explains each quantile response from the income distribution in urban China. The finding shows, financial globalisation has a greater effect
on income than it does at lower income levels. This implies that financial globalisation has increased the income of the rich faster than the poor, implying that financial globalisation will widen income disparities within urban China.

It was determined that globalisation’s impact on the high-income level is greater than its impact on the low-income level in urban China. The income gap between the low and high-income levels may not decline with rapidly growing unequal distribution. Since high income group gain more benefit than low income level. Thus, China's government should pay greater attention to the low-income group to mitigate the negative effects of financial globalisation and narrow the income gap in urban China. Better accessibility should be provided to low-income groups in urban areas. As a policy recommendation, it is suggested that China’s government improve the financial globalization policy to control the future income gap. At the same time, allows more trade globalisation activities, improving the income gap in urban China. To realise this, China should prepare a well-trained workforce to enable better accessibility through many globalisation platforms. This should continue until every worker can get a highly-paid job and the productive capacity among the low-level income group can be raised. Not only rural areas, urban areas also need to highlight and improve the income gap; until then, both levels of income can equal or narrow the income gap.

References


