Empirical Analysis of the Impact of FDI on China's Urban-Rural Income Inequality—based on the Study of Inter-Provincial Panel Data

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Abstract: The article analyzes theoretically the conduction mechanism of impact of FDI on the residents’ income distribution, based on the panel data of the China’s provinces from 1988 to 2005, using STATA software and other measures, studies on the direct and indirect effects of FDI to China's urban-rural income inequality from the perspective of Empirical analysis, the results show that under interaction of the direct with indirect effects, an appropriate introduction of foreign capital helps to ease and narrow the urban-rural income inequality. Finally, the article summarizes the research results and presented its suggestions.

Keywords: FDI, China's urban-rural income inequality, the impact, Empirical analysis, Panel data

1 Introduction

Since reform and opening-up policy, China’s foreign direct investment has constantly expanded, China’s actual FDI is only 1.258 billion US dollars in 1984 and by 2002, FDI has increased to 52.74 billion US dollars, which made China exceed the United State to become the country absorbing the most FDI. In 2007, foreign direct investment in the country-wide data standards (including banking, securities industry): The newly established foreign-invested enterprises are totally 37,888, amount of foreign capital used is actually 82.658 billion US dollars, an increase of 13.8%. The newly established foreign-invested enterprises in National non-financial areas are 37,871; the amount of foreign capital actually used is 74.768 billion US dollars, an increase of 13.59%. According to statistics of foreign Express, from January to June in 2008, the newly foreign-invested enterprisesare14, 544, amount of foreign capital actually used is 52.388 billion US dollars, an increase of 45.55%.Although FDI has driven the flow of capital, labor, technology, management and other elements, and has played a positive role in China’s economic development, but we can not afford to ignore its negative impact on China’s economic security and social stability, the income distribution is one of the problems. In 1978, the per capita disposable income of urban resident is 2.57 times more than the rural per capita net income. Since 1986, the urban-rural income gap has expanded each year, it reached 3.27: 1 in 2006.

Clearly, the relationship of FDI and China’s urban-rural income inequality are complex and uncertain. Through what channels foreign capital influence urban-rural income gap, and what the conduction mechanism is? Under what conditions, the introduction of foreign capital is reasonable? Research on these issues is of great significance in promoting China’s economic development and alleviating income inequality. Therefore, we analyze the effect of FDI to China’s urban-rural income inequality empirically. This paper is structured as follows: The second part is about Literature Review on FDI and income distribution at home and abroad; the third part analyzes conduction mechanism of FDI to affect income distribution; the fourth part, based on China’s inter-provincial panel data from 1988 to 2005, we study the direct and indirect effects of FDI to China’s urban-rural income inequality empirically; the last part is conclusions and recommendations.

2 The relevant literature review

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In the research on FDI and income distribution in developing countries, Feenstra Hanson (1996, 1997) used the data from Mexico to prove that the foreign direct investment can explain 50% of the skilled labors’ wages growth, but the results showed that FDI deteriorated Mexico’s income distribution. Sun (1998) analyzed impact of FDI on China’s regional economic growth, found that FDI was an important factor affecting the income gap between China’s eastern and western regions since the reform and opening up. Hossein, John (2002) found that if multinational companies invest in capital and technology-intensive industries of the host country, it will make the unemployment of non-skilled workers rise and widen income gap. Using Panel data of the United States from 1982 to 1997, Boral Bhandari (2004) studied factors affecting income inequality each state (displayed by Gini Coefficient), such as macroeconomic policy and demographic characteristics, the results showed that in addition to the Northeast, FDI inflows significantly reduced income inequality in other regions. Changkyu Choi (2004) selected 119 countries from 1993 to 2002, established regression model of income distribution and FDI, the results showed that FDI would be expanded to increase income Gini coefficient, and the impact of FDI outflow on income is greater than that of FDI inflows.

In recent years, many domestic scholars have also researched on the economic effects of the foreign direct investment. Zhang Fan, Zheng Jingping (1999) argued that multinational corporations generally contributed to making resource distribution of China’s economy structure more efficient, and foreign capital increased income inequality between different trades. Fan Yanhui and Duan Junshan (2003) figured the urban income gap was even more obvious than rural-income income inequality, at the same time, the impact of FDI on the Gini Coefficient in urban was also significantly greater than that in the rural areas and rural-income income inequality. Ouyang Lihua (2006) revealed that the economy benefits brought by FDI mostly flowed to a relatively more developed eastern regions and industry groups with high-level knowledge. To a certain extent, it exacerbated China’s current gap between the rich and poor and expanded the polarization.

Generally speaking, most literatures only studied the impact of FDI on skilled and unskilled workers from the theoretical or empirical aspect, or according to spillover effect of FDI to the industry, employment, trade and technology, some simply summed up impact of FDI on income distribution and the effect of labor flow to income distribution but not studied them within the same framework. Secondly, either from the theoretical or empirical aspect, weaknesses in most literatures are that theory is separated from empirical analysis, and empirical analysis often didn’t reflect effect of FDI to income distribution systemically. Therefore, according to the realities in China, we attempt to analyze what effects of FDI to China’s urban-rural income inequality from the theoretical and empirical perspectives.

3 Conduction mechanism of FDI to affect income distribution

(1) Impact income distribution by affecting industrial structure

The constitutive incline of FDI introduction enlarged deviation of China’s industrial structure: FDI is mainly used in the second industry; the proportion of FDI in the primary industry is too small, the investment proportion in the third industry is also somewhat low, and mainly concentrates in real estate industry with low connection effect. At the same time, it also caused China’s industry consumable to be relatively surplus and massive idles productivity, and caused domestic enterprise with massive technologies and economic potentiality to fall into difficult position, expanded disparity between the industry and the first, third industry, which has affected income difference.

(2) Impact income distribution by affecting employment

Foreign investment hasn’t already brought direct employment, but also the indirect effects of employment. Next, the foreign merchant sets up joint venture, Cooperative enterprise and purchases domestic enterprise, which causes domestic enterprise's labor force to flow into the Foreign invested company. Thirdly, the Foreign-funded enterprises have competitive relations with the domestic enterprises, which caused the domestic enterprise to cut back production, or withdraw from the market, the staffs were unemployed, which has squeezed out original employment of the domestic enterprise. Therefore, the influence of foreign direct investment to employment is multi-dimensional and complex.

(3) Impact income distribution by promoting trade
The introduction of foreign capital is a great impetus to China's foreign trade, and in varying degrees, trade expanded China's urban-rural income inequality of east, central and western regions. In the process of China to integrate into the world economy, it caused some of the original employment to face the risk of unemployment and outside intensifying competition, whether it is funded enterprises or foreign-funded enterprises, they will suppress wages for workers, substitute labor with capital and technology and other means to increase productivity, which lead to income inequality of both employers and employees.

4 Empirical Analysis of the impacts of FDI on China’s urban-rural income inequality

4.1 Model and data

Paper used multiple regression models to analyze possible factors of impacting urban and rural income inequality; adopted a panel data model to establish regression equation as follows:

\[ Y_{it} = \alpha + \beta_0 \cdot FDI_{it} + \lambda \cdot FDI_{it} \cdot X_{it} + \sum_{j=1}^{J} \beta_j \cdot C_{j\mu} + U_{it} \]  \hspace{1cm} (1)

In (1), 'i' expresses 30 provinces, the municipality and the autonomous region; ‘t’ represents 1989 to 2005; \( U_{it} \) is the stochastic disturbing term; \( Y_{it} \) represents the income gap between urban and rural areas of the ‘i’th provinces in the year of t, which is expressed by the ratio of urban per capita disposable income to rural per capita net income; \( FDI_{it} \) donates the actual value of FDI; \( C_{j\mu} \) represents other controlled variables, \( \beta \) is coefficient of each controlled variable. The author has selected the following controlled variables: Cap expresses the fixed assets investment of each province; Edu expresses the number of students enrolled in colleges and universities, representing the human capital of all regions; Pgdp is per capita GDP in various areas, represents various provinces’ economic development condition; Flr expresses labor productivity of the primary industry; Rnl expresses the proportion of rural floating population. The author has also added alternation items of FDI and China industrial structure, the structure of employment and the import-export trade (\( FDI \cdot X \)); Srz (proportion of the added value of second industrial) displays the change of industrial structure, Tra (foreign trade dependency degree) represent opening degree, Mar (proportion of state-owned and collective economy jobholders) attribute the change of employment structure. In order to prevent variance, variables above take logarithm form, the data originates from national Development and Planning Commission, the State Statistical Bureau, the country message center and so on.

4.2 The estimated results and illumination

<table>
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<tr>
<th>Dependent variables</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
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<tr>
<td>Pgdp</td>
<td>-0.06626</td>
<td>-0.19873</td>
<td>-0.0535</td>
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<tr>
<td></td>
<td>(-3.28*)</td>
<td>(-0.41)</td>
<td>(-1.12)</td>
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<td>Fdi</td>
<td>0.03121</td>
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<td>-0.18423</td>
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<tr>
<td></td>
<td>(1.95**)</td>
<td>(-2.82*)</td>
<td>(-3.45*)</td>
<td>(-3.36*)</td>
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</tr>
<tr>
<td>Cap</td>
<td>0.275406</td>
<td>0.059083</td>
<td>0.065756</td>
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</tr>
<tr>
<td></td>
<td>(9.91*)</td>
<td>(1.84**)</td>
<td>(1.93***)</td>
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<tr>
<td>Edu</td>
<td>0.25783</td>
<td>0.16885</td>
<td>0.2231</td>
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<td></td>
<td>(7.86*)</td>
<td>(9.50*)</td>
<td>(7.33*)</td>
<td>(7.25*)</td>
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<tr>
<td>Srz*Fdi</td>
<td>0.024847</td>
<td>0.018117</td>
<td>0.027397</td>
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<tr>
<td></td>
<td>(6.56*)</td>
<td>(1.87***)</td>
<td>(2.8*)</td>
<td>(3.09***)</td>
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<tr>
<td>Tra*Fdi</td>
<td>0.007791</td>
<td>0.009186</td>
<td>0.00421</td>
<td>0.004844</td>
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<td></td>
<td>(4.57*)</td>
<td>(5.37*)</td>
<td>(2.49*)</td>
<td>(2.73*)</td>
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<tr>
<td>Mar*Fdi</td>
<td>-0.02554</td>
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<td></td>
<td>(-7.63*)</td>
<td>(2.11**)</td>
<td>(2.02**)</td>
<td>(1.53)</td>
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Using STATA10.0 to estimate the model (seeing Table 1). Synthesizing the regression equation, paper gives further explanation to each independent variable in model:

1. In model (1), the foreign direct investment has positive relation with urban-rural income inequality, that is; FDI increases by 1%, the income gap between urban and rural areas will increase by 0.03 percentage point, which explains that at present, introducing foreign capital to China hadn’t direct and notable influence to urban-rural income inequality.

2. In model (2), FDI expanded urban-rural income inequality through affecting China's industrial structure and the import-export trade condition, its coefficient estimated value was 0.0248, 0.0779 respectively, but influence of FDI to structure of employment's was increasing employment in state-owned and collective economy alleviated the urban-rural income inequality, coefficient estimated value was -0.026.

3. In the model (3), (4), (5), the estimated coefficient of FDI is significant at 1% level, that is, under direct and indirect impact, FDI increases by 1%, the income gap between urban and rural will decline by 0.15-0.18 percentage points. Therefore, introducing foreign capital actively is conducive to ease and narrow the urban-rural income inequality. At the same time, after adding the control variables, the coefficient of Mar*Fdi has also changed, the large scale introduction of foreign capital will greatly reduce the employment of state-owned and collective economies, and absorb some rural Labor, to a certain extent, which narrowed the income gap between urban and rural areas.

4. In Control variables, coefficient of the per capita GDP is negative, which shows that with economic growth, income levels of urban and rural residents increased, the income inequality would decline somewhat, and physical and human capital accumulation increased the urban-rural income inequality, this may be because the current material and human capital investment are in favor of the majority of urban, rural not fully enjoy its benefits. In addition, increasing labor productivity of the first industrial improved the income of rural residents and narrowed the income gap, and currently with the transfer of rural labor force, it has expanded this trend.

5 Conclusions and recommendations

5.1 Conclusions

1. For the direct influence, at present, the FDI introduction expanded China's urban-rural income inequality, but the influence is not big; for the indirect influence, FDI expanded urban-rural income inequality through affecting China's industrial structure, the structure of employment and the import-export trade condition. As for the whole, under factors’ interaction, the introduction of foreign capital is advantageous in alleviating and reducing urban-rural income inequality.

2. To a certain extent, growth of average per capita GDP is advantageous in reducing urban-rural income inequality, but material and human capital's accumulation expanded urban-rural income inequality. The primary industry productivity's enhancement has released the part of surplus rural labor force, alleviated urban-rural income inequality, but rural labor force flowing has not improved urban-rural income inequality.
5.2 The recommendations

(1) Handle the relations of foreign investment introduction, development of the regional economy and industries absorbing rural surplus labor, and further deepen trade liberalization, especially trade in agricultural products. Pay full attention to the economic interests and the spillover benefits of foreign direct investment, including personnel system and the capital market system, and change the concept to improve operational efficiency.

(2) Suitably adjust and guide the direction and scale of foreign investment, attract capital to the labor-intensive enterprises and the service sector needing more labors, and attention should be paid to transform traditional industries by high-tech and advanced practical technology, and further optimize the industrial structure.

(3) Focus on increasing rural physical and human capital investment; provide legal support and social security for the rational flow of rural labor force. Government should attach great importance to rural compulsory education and input of the rural development, pay close attention to skill training of farmers, implement “the rural talent engineering”, continuously increase the funds for compulsory education in rural areas and improve the quality and profession skills of rural laborers.

References