Does the Investment-Oriented Informal Finance Narrow the Income Gap among Rural Residents? An Empirical Analysis Based on Interprovincial Panel Data

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Abstract: In this paper, investment-oriented informal finance in rural areas is divided into two distinct parts: household investment-oriented informal finance (INFH) and non-household investment-oriented informal finance (INFNH) in accordance with financing entity. At the same time, the interprovincial panel data is utilized so as to respectively discuss the impacts on income disparity among rural residents brought by above two factors. The study demonstrates that INFH widens the income gap while INFNH narrows the gap. The sub-regional regression analysis shed light on the fact that INFH closes the income gap in rural areas in the eastern region as opposed to the western and central regions; INFNH enlarges income gap in rural areas in the eastern region as opposed to the central and western areas. The robustness test proves that the conclusion of this paper is reliable.

Key words: Investment-oriented informal finance, income gap among rural residents, household investment-oriented informal finance

1. INTRODUCTION

The high thresholds of the formal financial institutions represented by banks exclude the rural households and rural small and medium enterprises (SMEs) from getting financial support. Meanwhile, various forms of informal finance are widely existed in the rural areas, such as Private Lending, Rotating Savings and Credit Association, Rural Fund Mutual Cooperatives and Underground Banks, its characteristics built on the rural local social network that takes advantages of information collection, dissemination and guarantee (Kuang Hua ect, 2011), which significantly advances the possibilities of capital transactions for both buyers and suppliers. Informal finance is becoming the vital channel to raise funds for the rural households and rural small and medium enterprises under the inadequate supply of formal finance. The survey on farmers’ participation rate of informal finance by scholars and professors, such as Xiaoyan Zhang (2007), Shuitu Qian (2008), Ning Zhang (2012) and Naiyi Ma (2014), demonstrates that 60% to 90% of the rural households get financial support through informal financial channels, and Shihua Hu (2010) and Outao (2013) find that respectively 35% and 34% of enterprises in Chongqing and Hunan raise funds via informal finance channel respectively. To provide convenient financial services for the rural households and rural small and medium enterprises, informal finance in rural areas boosts the rapid growth of rural economy and raises farmers’ income (Guanghe Ran, Fanghua Tang 2012). And with the rapid development of the economy, the income gaps among rural residents have been increasingly widened (Xueyi Lu, 2012). An obvious question is whether the rural informal financial service has a lower threshold compared with formal one? What enormous impacts will the rural informal financial development have on income gap among rural residents? And whether such huge influences vary from region to region?

Plenty of authors have instructive discussions with their counterparts about the huge influences on income inequality brought by financial development in their existing literatures. Some scholars and professors, like Rui Li and Xi Zhu (2007), Binkai Chen and Justin Yifu Lin (2012), Johansson and Wang (2014), Tao Wen and so on (2016), conclude that unequitable financial opportunities caused by financial repression have a direct effect on rural poverty. Others hold the belief that credit rationing in rural areas has mainly targeted to the low-income farmers, which refrains the income increase of farmers and widens the rural income gap (Yingjun Liu ect, 2011; Ning Zhang, Bing Zhang, 2012).

At the same time, it is rare to study on income gap among rural residents influenced by the informal finance in academia. The authors, like Jing Su etc. (2012) have found out that the development of the informal finance has brought more rewards to the low-income farmers, and then narrowed income gap among rural residents. Ning Zhang, Bing Zhang (2013, 2015) using Micro-survey data, have found out that the informal financial development has a stronger impact on the low-income farmers so that it narrows the rural income gap. Zongyi Hu ect. (2014) find that the role of revenue increases the income of rural informal finance is gradually weakened with the increase of the income of rural residents, thus the informal finance in rural areas can narrow the income gap among rural residents. Contrary to the above studies, Zongyi Hu (2012), after taking empirical
analysis of the data from the rural observation points,demonstrates that the rural informal finance can help to increase peasants income, but remarkably enlarge the inequality of peasants income distribution. Yukui Sun, Qian Feng (2014) measure the scale of informal finance, finding which doesn’t have much effect on the rural Gini Coefficient. JingSu ect.(2013) has found out that the rural informal finance generates more obvious poverty reduction in the east and relatively developed areas.

In conclusion, owing to the different methods and data, scholars have not reached a consilient conclusion on how rural informal finance influences the rural income gap. There are three different aspects of this thesis compared with the previous studies: Firstly, this paper pays attention to the influence of the investment-oriented informal finance on the rural income inequality. The existing literature concludes that the main function of the informal finance is to solve market entity’s problems of lacking floating capital or filling the gap of temporary daily expenditure. However, the research concerning the influence of the investment-oriented informal finance on the income distribution is very little. Remarkably, the income growth and income distribution differ a lot in the long term investment expenditure, short-term consumption expenditure and floating capital. Second, according to the different financing sectors, this paper divides the folk financing into the peasants non-government finance and the non-agricultural informal finance, and discuss their effects on the rural residents’ income distribution. Third, this thesis also analyzes the influence of the urban investment-oriented informal finance on the disparities of peasants income. The left contents of this thesis is arranged as follows: the second part is theory analysis and research hypothesis; the third part is variables and model specification; the fourth part is Empirical Analysis, the last part is briefly the research conclusion and policy suggestions.

2. THE INFLUENCE OF THE INVESTMENT-ORIENTED INFORMAL FINANCE ON THE RURAL RESIDENTS’ INCOME GAP: THE THEORETICAL ANALYSIS AND RESEARCH HYPOTHESIS

2.1. The Growth Effect and The Entrepreneurial Effect of The Investment-Oriented Informal Finance

Taking advantage of information and guarantee, the investment-oriented informal finance will increase the physical capital stock in rural areas and improve the allocative efficiency of the social capital, human capital and material capital, boosting the economy through production scale expansion and technology progress. First, the extended production scale accelerates labor division and professionalized process, thereout bring high division efficiency. The bargaining power of the enterprises also improves in the raw material and products markets with the extended production scale, promoting cost savings and income augmentation. Second, the improvement of the technology brings more efficient production, less labor input and cost savings. The village economy growth can rely on “Trickle down effects” to improve the income distribution for the low-income peasants(James, 2011; Jing Su 2013).

The activities of the investment-oriented informal finance give the entrepreneurs’ instincts full play. Facing the farmer and small and micro enterprises, formal financial institutions lack matched financial technologies for project screening and risk evaluation, thus hard to provide the innovative entrepreneurs with financial support, twisting the allocation of entrepreneur endowment and capital, which on the one hand put off market entrance time of the entrepreneurs who possess less wealth, on the other hand delay the withdrawal period of the under-performed but wealthier ones, therefore worsen the income distribution(Beck et al., 2007; Demirgüç–Kunt and Levine, 2009; Buera et al., 2011). Conversely, the informal financial sectors take advantage of local social network to filter and evaluate innovative enterprises and projects, achieving rational distribution of physical capital and entrepreneurs, fully playing the entrepreneurs gifts and promoting activities of innovations and entrepreneurship, so as to improve income distribution.

2.2. The Household Investment-Oriented Informal Finance and Income Distribution: Self-Employment Effects

As basic production and business units, the farmers obtain funds through informal financial channels to invest in fixed assets, enlarging the scale of household-based production and upgrading the technology. So as to fulfill the effective combination of capital and the rural household initial endowment, widening production-possibility frontier of the farmers, enhancing the income level of the labors through self-employment. However, different primary endowed households can have diverse effects on the widening of production-possibility frontiers through the investment-oriented informal financial activities, which further influence the Cost Curve and Yield Curve, thus influence the income distribution in rural areas(Burgess and Pande, 2005; JingSu, 2013).

Besides, the original investment-oriented informal financing have broadened the production and operation scale of the farmers and lifted their income level. The accumulation effect has contributed to the households reaching the “formal financial threshold” within less time, and raise the chances of getting formal financial service, thus improve the income distribution of rural residents.

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1 The rural household may also employ labor forces, this paper regard it too small scaled compared with the production of non-household and thus ignore it.
In the literature of informal finance in rural areas, it is generally believed that the borrowers are the low-income families. After having distinguished the concept of consumptive loans and the productive loans, we know most of the former families are the low-income households while the latter are less probable to be low-income ones. The research of Ning Zhang (2015) and other scholars show that the proportion of consumptive loans flows to the low-income households is 79.69% while the proportion of productive loans only occupies 31.72%. It is thus clear that in respect to formal finance, sunk cost only relatively lowered the threshold of the informal financing. The influence of the investment-oriented informal finance on the income gap among rural residents depends on the farmer’s initial wealth. Hence this paper makes the following hypotheses:

Hypothesis 1: If the per capita income is relatively high, with higher wealth levels, most of the farmers can reach the threshold of the investment-oriented informal finance, then it will narrow the income gap among rural residents through the self-employment channel. Otherwise, if the per capita is relatively low, when only scarce rural households can reach the financing threshold, this time the household investment-oriented informal finance will widen the income gap.

2.3. The Non-Household Investment-Oriented Informal Finance and The Income Distribution: The Employment Effects

The non-household investment-oriented informal finance scales up the rural enterprises production and upgrades the technology level, which transform the structure and scale of the employed labor force, leading to the alteration of the rural income distribution. If the technology level remains the same, non-household investment-oriented informal finance will provide financial support for the rural enterprises to invest in fixed assets, thus broadening the scale of production and operation of enterprises, which also creates more employment opportunities for the ordinary rural labs. Because the ordinary labs belong to the medium low income group, thus the employment burst narrows the rural income gap. Suppose the production scale remains steady, non-household investment-oriented informal finance supplies fund for the investment of fixed-assets in rural areas, which improves the enterprise labor productivity, creating more jobs for the high-skill rural labs who already belong to the high-income groups, therefore the increase of employment will enlarge the income gap in the rural areas. Obviously, the impact of the non-household investment-oriented informal finance on rural residents’ income gap depends on the level of regional productivity and the skill level of the employed labor forces thus determined. So the paper has the hypothesis below:

Hypothesis 2: If the regional productivity is relatively high, the non-household investment-oriented informal finance will create more jobs for the skilled labor forces, so that broadening the rural income gap; on the contrary, if the regional productivity is relatively low, then the non-household investment-oriented informal finance will create more jobs for the common labor forces thus narrowing the income gap among rural residents.

3. MODEL SET, VARIABLE SELECTION AND DATA SOURCES

According to the framework theory of Thorsten Beck et al. (2007), the paper has supposed the econometric model as below:

\[ \text{GINI}_{i,t} = \alpha + \beta \text{FD}_{i,t} + \gamma \text{INFH}_{i,t} + \epsilon_{i,t} \]  

In formula (1), \( i, t \) respectively stands for different provinces and years, \( \text{GINI}_{i,t} \) represents the Gini Coefficient which manifests the income inequality of the rural residents. \( \text{FD}_{i,t} \) stands for the related variables of the financial development scale, which is also a key variable in this paper, including index \( \text{INFH}_{i,t} \), reflecting peasant household’s investment-oriented informal financial development scale, index \( \text{INFNH}_{i,t} \), reflecting non-household investment-oriented informal financial development scale, index \( \text{FFORM}_{i,t} \), reflecting rural investment-oriented formal financial development scale, index \( \text{INFUR}_{i,t} \), reflecting urban investment-oriented informal financial development scale; \( X_{i,t} \) stands for other control variables, including urbanization level index \( \text{EMP}_{i,t} \), rural labor forces educational level index \( \text{EDU}_{i,t} \), the index of government expenditure on agriculture \( \text{GOV}_{i,t} \), and rural per capita net income index \( \text{INCOME}_{i,t} \).

The source of the data and the calculation of the variables are as follows:

(a) The Rural Gini Coefficient (GINI). Using the grouped data of rural households per capita net income in provincial ‘Statistical Yearbook’ (Autonomous Regions, Municipalities), the rural Gini Coefficient can be calculated. The detailed methods can be referred to Yonghong Cheng (2006). Because of the statistical yearbook of some provinces having no grouped data of the rural per capita net income and the change of grouping methods in some provinces, this paper only collects and calculates some provinces’ rural Gini Coefficient.\(^2\)

\(^2\)The sample include 23 provinces including autonomous regions, and municipalities, the eastern region includes seven: Beijing, Hebei province, Liaoning province, Zhejiang province, Fujian province and Guangdong province; The middle region includes: Heilongjiang province, Anhui province, Shanxi province, Henan province, Hubei province and Jiangxi province;
(b) The Financial development Scale (FD). The data of financial development scale originates from 'China Statistical Yearbook of fixed assets' over the years. The 'China Statistical Yearbook of fixed assets', divides the rural fixed assets investment into household investment and non-household investment. According to the sources of investment funds, non-household investments contain State budgetary funds, domestic loans, foreign loans, and other capitals. The household investments are divided into domestic loans, self-financing, and other capitals. On the base of studies of Guanghe Ran, Fanghua Tang (2012), Jing Su (2013), this paper has taken the sum of state budgetary funds, domestic loans, foreign capital utilization and domestic loans in household investment as the scale of rural formal financial development; As for the rural non-household investment, take the sum of self-capitalizing and other capital as the scale of non-household investment-oriented informal financial development. In the household investment, take the sum of self-capitalizing and other capital as the scale of household investment-oriented informal financial development; and divide these three respectively by added value of agriculture, replaced with the Primary Industry added value, which respectively representing the rural formal financial development level (FFORM), the rural non-household investment-oriented informal financial development level (INFNH) and the rural household investment-oriented financial development level (INFH). Obviously, INFNH can reflect the relative level of rural enterprises’ investment-oriented informal finance, and INFH reflects the relative level of rural household’s investment-oriented informal finance. At the same time, the paper also divides the sum of the town enterprises’ self-capitalizing and other capitals by the industrial added value as the indicators of urban investment-oriented informal financial development scale (INFUR). With the change of Statistical Scope in 'China Statistical Yearbook' after 2010, and the statistical yearbook of the provinces doesn’t supply the grouped data of the per capita net income of rural households until 2005, so the samples span of the paper is from 2005 to 2010.

(c) Other control variables. In reference to the scholars’ existing literature, including Jing Su (2013); Yukui Sun, and Qian Feng (2014); and so on, the paper takes the rural urbanization level, the education level of rural labor forces, the level of government expenditure on agriculture and the income of rural residents as the control variables. Among them, take the percentage of the non-farm payroll employment as the measures for the rural urbanization level (EMP), take the rural labors average educational years to measure the rural labor forces educational level (EDU), and the formula is "the average education years of labor forces = College and above labors ratio ×16 + junior high labors ratio×9+primary school labors ratio×6". Take the Agricultural, Forestry, and Water expenditure divided by budgetary expenditure to measure the level of GOV. In order to make the data comparable, this paper has used the rural consumer price index to adjust the per capita net income of rural households. The data of rural employment population and non-farm payroll employment, the education proportion of the rural labor forces, and rural household net income are from recent years 'China Rural Statistical Yearbook', the data of GOV is from the provincial 'Statistical Yearbook', including the Autonomous Regions, Municipalities over the years. In order to decrease the possible existence of heteroscedasticity, the paper has logged all the explanatory variables. And the descriptive statistics of the explanatory variables are shown as Table 1.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Obs</th>
<th>Mean Nationwide</th>
<th>StdDev</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>GINI</td>
<td>138</td>
<td>0.3074</td>
<td>0.0416</td>
<td>0.1836</td>
<td>0.3931</td>
</tr>
<tr>
<td>INFH</td>
<td>138</td>
<td>-1.7075</td>
<td>0.3720</td>
<td>-2.6061</td>
<td>-0.7826</td>
</tr>
<tr>
<td>INFNH</td>
<td>138</td>
<td>-1.3785</td>
<td>1.2026</td>
<td>-4.3097</td>
<td>1.1454</td>
</tr>
<tr>
<td>FFORM</td>
<td>138</td>
<td>-2.7583</td>
<td>0.9755</td>
<td>-5.0486</td>
<td>-0.6673</td>
</tr>
<tr>
<td>INFUR</td>
<td>138</td>
<td>-0.1222</td>
<td>0.3827</td>
<td>-0.9342</td>
<td>0.7850</td>
</tr>
<tr>
<td>INCOME</td>
<td>138</td>
<td>8.2575</td>
<td>0.3958</td>
<td>7.5275</td>
<td>9.4258</td>
</tr>
<tr>
<td>EDU</td>
<td>138</td>
<td>2.0895</td>
<td>0.1084</td>
<td>1.7718</td>
<td>2.3650</td>
</tr>
<tr>
<td>EMP</td>
<td>138</td>
<td>-0.8739</td>
<td>0.3366</td>
<td>-1.9090</td>
<td>-0.1898</td>
</tr>
<tr>
<td>GOV</td>
<td>138</td>
<td>-2.4608</td>
<td>0.3175</td>
<td>-3.2116</td>
<td>-1.7778</td>
</tr>
</tbody>
</table>

4. THE EMPIRICAL ANALYSIS

The western region includes 10: inner-Mongolia, Shanxi province, Xinjiang province, Qinghai province, Ningxia province, Gansu province, Sichuan, Chongqing, Guizhou province and Guangxi province.)
4.1. Based on The Regression Analysis of The Whole Samples

As for the econometric model(1), the paper separately use the mixed effect model, fixed effect model, and random effect model to estimate, and respectively be analyzed by F test and hausman test, and the results show that the random effect model is better than fixed effect model and mixed effect model. In order to avoid the possible existence of heteroscedasticity of the provincial Panel data, the paper has adopted the method of Feasible Generalized Least Square (FGLS) to estimate. The results of regression analysis of the full samples can be seen in Table 2. To make it easier to compare, Table 2 has given the estimation results of the mixed effect model and the fixed effect model, respectively regarded as the column (4) and (5).

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>INFH</td>
<td>0.0110</td>
<td>0.0137</td>
<td>0.0171</td>
<td>0.0245***</td>
<td>0.0144</td>
</tr>
<tr>
<td>INFH</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INFH</td>
<td>-0.0119***</td>
<td>-0.0133***</td>
<td>-0.00753***</td>
<td>-0.00634</td>
<td>-0.00517</td>
</tr>
<tr>
<td>FFORM</td>
<td>0.00953***</td>
<td>0.0121***</td>
<td>0.00934***</td>
<td>0.0111***</td>
<td>0.00831***</td>
</tr>
<tr>
<td>INFUR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INFUR</td>
<td>-0.00910***</td>
<td>-0.0220***</td>
<td>-0.0314***</td>
<td>-0.0209***</td>
<td></td>
</tr>
<tr>
<td>GOV</td>
<td>0.0195</td>
<td>0.0196</td>
<td>0.0196</td>
<td>0.0185</td>
<td></td>
</tr>
<tr>
<td>INCOME</td>
<td>0.0515***</td>
<td>0.0590***</td>
<td>0.0485</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EMP</td>
<td>0.0661***</td>
<td>0.0788***</td>
<td>0.0713**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDU</td>
<td>0.157***</td>
<td>0.167***</td>
<td>0.162***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wald or F</td>
<td>7.63</td>
<td>12.86</td>
<td>63.95</td>
<td>0.44</td>
<td>20.17</td>
</tr>
<tr>
<td>Obs</td>
<td>138</td>
<td>138</td>
<td>138</td>
<td>138</td>
<td>138</td>
</tr>
</tbody>
</table>

Notes: This table has not shown the estimation results of the Constant terms; The values of t-test are in parentheses; *, **, and *** denote statistical significance at the 10%, 5% and 1% level, respectively.

Column (1), (2) and (3) give the results of the stepwise regression, the signs of regression coefficient are the same. From column (3), when the coefficient of INFF is positive and significant at 10% level, it illustrates that INFH can broaden the rural residents income gap; when the coefficient of INFH is negative and significant at 1% level, it indicates INFNH will restrain the rural residents income gap. Thus the opposing effects occur on the rural residents' income gap between INFH and INFNH. And the cause for this phenomenon might be: INFH has achieved the efficient combination of family capital and labor force, and raised the family business income by means of self-employment.

However, when it comes to family business, the rural household faces certain wealth threshold. Only getting a certain wealth level can the household carry out investment by informal financing. From the view of nationwide, most rural households belong to low-income groups, only a small number of the wealthy households carry out business using the informal finance. Therefore, countrywide, the INFH widens the rural income gap. On the other respect, INFH increase the income of the employed rural labor forces through employment effects. Across the nation, the productivity in rural areas is relatively low. As a result, the main addition of the INFH is jobs for the rural low-income ordinary labor, thus suppressing the rural income gap.

Besides, the coefficient of INFUR is negative and significant at 5% level, it indicates that the INFUR also narrows the rural income gap. And we regard the mechanism is that the main sectors of financing through INFUR are small and medium-sized enterprises, who broadens operation scale by means of INFUR, so as to create more jobs for the rural idle labor forces, thus narrowing the rural income gap. The coefficient of FFORM is positive, and significant at 5% level, it indicates the development of rural formal finance broadens the rural income gap, which is consistent with the literature of NingZhang and BingZhang(2015), TaoWen, and Xiaohua Wang(2016). The rural formal financial institutions has mainly lended money to the middle and high income people with widespread social network and rich household assets. Therefore the “elite captured effect “occurs and a large number of low-income households haven’t got the chances to enjoy the financing service of the formal financial departments.

The results of regression analysis of other control variants can be summarized as follows: The coefficient of GOV is positive, and significant at 10% level, it indicates that the government expenditure on agriculture
broadens the rural income gap, which is consistent with Zongyi Hu (2014). The coefficient of INCOME is positive, and significant at 1% level, it indicates that the increase of the rural income leads to the widening of the rural income gap. The coefficient of EMP is negative, and significant at 5% level, it indicates the rural urbanization level that is the proportion of non-agricultural employment widens the rural inner income gap. The coefficient of EDU is negative, and significant at 1% level, it indicates the increasing of the educational years of rural labor forces will extend the rural income gap. All the above conclusions are consistent with the research of Bing Zhang (2013), Yukui Sun and Qian Feng (2014).

4.2. The Comparative Analysis of The Eastern, Middle And Western Regions

In order to reveal the regional disparities of the rural investment-Oriented informal finance’s impact on the rural income gap from region to region, we divide the samples into eastern, middle and western parts and take them into regression analysis. The results can be seen in Table 3.

From Table 3, we can see the coefficient of INFH and INFNH vary a lot in different regions. The coefficient of INFH in the east is negative and significant at 10% level. It is positive and significant at 5% level in the middle and is positive but not significant in the west. However, the coefficient of INFH is negative in the eastern area and significant at 10% level, and it is positive in the middle and western regions, both significant at 10% level.

From the above analysis, the influence of the middle and western rural investment-oriented informal finance on rural income gap is basically in accordance with the whole sample regression. However, it is contrary for the eastern rural investment-oriented informal finance on the income gap, i.e. the eastern INFH suppress the rural income gap, and the eastern INFNH enlarge the rural income gap. The eastern INFH in the east and the INFH in the middle and west have different effects on the rural income gap, and the reason for the difference is the wealth disparity from west to east. Calculated according to the comparable prices in 2005, during the sample period from 2005 to 2010, the rural per capita net income of east, middle and west is respectively 6291RMB, 3767RMB and 2984RMB. The existence of the sunk cost demands that the investors must reach a certain wealth threshold before they can invest in fixed assets. As the eastern rural per capita net income is far above the middle and western regions, the low-income farmers in eastern regions can also invest in fixed assets through informal financing. However only the high income farmers in middle and western regions can invest in fixed-assets via informal financing. As a result, it is the eastern low-income farmers expanding their production scale together with the influence of self-employment that suppress the eastern rural income gap, which at last verify hypothesis 1.

### Table 3. The regression results in eastern, middle and western regions

<table>
<thead>
<tr>
<th>Variables</th>
<th>Eastern</th>
<th>Middle</th>
<th>Westen</th>
</tr>
</thead>
<tbody>
<tr>
<td>INFH</td>
<td>-0.0577** (2.19)</td>
<td>-0.0302* (1.67)</td>
<td>0.0444*** (2.98)</td>
</tr>
<tr>
<td>INFNH</td>
<td>0.0421*** (2.75)</td>
<td>0.0262 (1.94)</td>
<td>-0.0169 (2.66)</td>
</tr>
<tr>
<td>FFORM</td>
<td>-0.0106 (1.76)</td>
<td>-0.00568 (1.91)</td>
<td>0.000310 (0.03)</td>
</tr>
<tr>
<td>INFUR</td>
<td>-0.0327 (1.72)</td>
<td>-0.0164 (1.95)</td>
<td>-0.00870 (1.65)</td>
</tr>
<tr>
<td>GOV</td>
<td>0.0360 (1.53)</td>
<td>0.0523 (1.83)</td>
<td>0.00872 (0.49)</td>
</tr>
<tr>
<td>INCOME</td>
<td>0.0939** (2.27)</td>
<td>0.0350 (0.57)</td>
<td>0.0532** (2.24)</td>
</tr>
<tr>
<td>EMP</td>
<td>0.0458 (0.99)</td>
<td>0.0303 (0.31)</td>
<td>0.169 (4.41)</td>
</tr>
<tr>
<td>EDU</td>
<td>0.515 (4.22)</td>
<td>0.0217 (0.09)</td>
<td>0.143** (2.86)</td>
</tr>
<tr>
<td>Wald</td>
<td>9.64</td>
<td>55.27</td>
<td>23.33</td>
</tr>
<tr>
<td>N</td>
<td>42</td>
<td>42</td>
<td>36</td>
</tr>
</tbody>
</table>

Notes: This table has not shown the estimation results of the Constant terms; The values of t-test are in parentheses; *, **, and *** denote statistical significance at the 10%, 5% and 1% level, respectively.

In another aspect, the different influences of the INFNH on the rural income gap are lying in the variations of labor productivity of the different regions. From 2005 to 2010, the average investment in fixed assets in eastern China was 8.5 thousand, in the middle and western regions, respectively, by 2.9 thousand and 2.7

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thousand, which shows that the technology level in the eastern regions is much higher than that in the middle and Western Regions. Therefore the INFNH in eastern regions mainly creates jobs for the rural labor force with a certain level of technology, whose income level is above the ordinary labor force who possess no or less skills. So the INFNH in eastern regions enlarges the rural income gap through employment effects; On the contrary, the INFNH in middle and western regions creates jobs for the ordinary labor forces, thus suppressing the rural income gap relying on the employment effects. In a word, the above conclusions verify Hypothesis 2.

In Table 3, the coefficient of \( FFORM \) also manifests the regional differences: It is positive in the eastern region and significant at 10% level; the coefficient is positive in both middle and western regions, not significant in the middle, but significant at 1% level in the west region, which demonstrates the rural formal financial development in the eastern region has remarkably narrowed the rural income gap, but enlarged the rural income gap in the western and middle regions. The enlarging effects of the rural formal financial development on the rural income gap are especially obvious in the western region. The reasons for the distinction are that the rural households have more wealthy and higher income in the eastern region, so a greater proportion of the eastern rural households reach the threshold and enjoy a wider coverage of formal financial services. In contrast, while the households in the middle and western regions get a lower income and possess less wealthy, a smaller proportion of them reach the threshold of the formal financial services, enjoying a narrower coverage of the formal financial services. It is thus clear that the eastern rural formal finance narrows the income gap through supplying financial service for more rural households while the middle and western formal finance only serve the high-income households so as to enlarge the rural income gap.

In Table 3, the coefficients of \( INFUR \) are negative and significant at least at the level of 10% in all columns, indicating the urban informal financial development works in suppressing the rural income gap in these three regions. The regression results of other control variables in Table 3 are consistent with the full samples regression, and will not be repeated here.

4.3. Robustness Checks\(^2\)

The robustness test in this paper is processed from two two aspects: the measurement of the explanatory variables and the lag of the control variables. We use income share of the 20% lowest income households to replace the Gini coefficient as the explanatory variables in model (1). The findings still show that the INFH narrows the income gap in rural areas while the INFNH expands income gap. The results of sub-regional regression are also in accordance with Table 3. Furthermore, to hede the reverse influence of the rural income gap to investment-oriented informal finance, we bring the lagged key variables and the lagged control variables into the model (1) to regression, and the results remain unchanged. Therefore the research conclusions are stable.

5. CONCLUSION AND POLICY RECOMMENDATIONS

In this paper, rural investment-oriented informal finance is divided into two parts: household investment-oriented informal finance (INFH) and non-household investment-oriented informal finance (INFNH) in accordance with financing entities. In the meanwhile, the author gives detailed theoretical analysis of their impacts on income gap among rural residents. Based on it, the interprovincial panel data is used to test the results of theoretical analysis. The results of regression analysis in full samples demonstrate that INFH widens income gap among rural residents while INFNH narrows it.

Further studies show that the impacts are significantly different among regions. First, INFH narrows the rural income gap in the eastern region which is contrary to the middle and west because rural per capita income in the eastern region is much higher and which make most of households reach the threshold of informal financial services. Therefore, INFH narrows the rural income gap in the eastern region. Second, INFNH in the eastern region widens income gap among rural residents in contrary to middle and western regions. The reason is that the production technology of rural enterprises in the eastern region is more advanced than that of middle and western regions, which lead to more skilled and higher-income labor force are employed in the east area. Thus, INFNH in the eastern region widens income gap among rural residents.

Based on the conclusion from theoretical and empirical analysis, this article gets the following policy recommendations:

First, to establish a new rural social network that gives full play to rural informal financial sector with advantages of project screening and risk assessment to reduce the threshold of rural informal financing so as to promote low-income farmers in the middle and western regions to expand the scale of production or raise the level of production technology, thus it can raise low-income households’ earning and narrow the rural income gap.

Second, through tax incentives and policy guidance, to promote INFNH in the orderly growth, give full play to its role in boosting economic growth and entrepreneurial innovation, through income redistribution and

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\(^2\) Owing to limited space, we haven’t given the results of robustness test, the interested readers can claim for it from the author.
trickle-down effects in order to reduce the income gap in rural areas. In addition, the use of financial subsidies provides skills training for low-income laborers to advance their professional skills, aimed to increase their income through the employment effect of INFNH.

Third, there are serious financing gaps in the investment expenditure of farmers and rural enterprises, especially the extreme inadequate supply of formal finance. In order to establish an inclusive financial service system promoting rural economic development in the long-term, to reduce the threshold of formal financial services for rural low-income groups and provide long-term financial support for SMEs, measures should be taken that is on the basis of the localization characteristics of rural informal finance, connective mechanism should be established between rural informal financial sectors and formal financial sectors, and take the advantage of capital scale of formal financial institutions and project screening and risk assessment of informal finance. Hence, to establish a rural financial service system with low-threshold and high efficiency which can promote financial and income equality in rural areas.

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