

Determinants of Rural Household Income in Jiangxi, China

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Abstract: Both rural poverty and the huge urban-rural gap are serious problems in China. It needs to pay more attention to the rural society, the farmer, and the agriculture. This paper focused on the determinants of rural household's income, and attempts to find out the factors which heavily impact on their income. This study showed that agricultural incomes only shares 22% of the household income averagely, while non-agricultural income takes another 78% among the sampled rural households. The labor wage income accounted for 71% of household income. The Gini coefficient of the household agricultural income per capita was 45.57%, and that of household non-agricultural income per capita was 37.79%, and both of them are higher than the Gini coefficient of household income per capita (28.91%). This was due to the household growing more crops (more agricultural income) than others who earned less income from non-agricultural sectors. The variance of the total household income per capita was smaller than that of both agricultural and non-agricultural income per capita. The study also find out that the Main Income Earner (MIE) worked inside the county, MIE's education attainment, MIE's non-agricultural skill attainment, the skill source from school education, job searching information from advertisement and Consumer-Producer ratio (CP ratio) were the main determinants which impact on household net income per capita significantly. In order to increase farmer households' income and to alleviate the rural poverty, it is necessary to help farmers to attain more education, to give farmers useful off-farm skill training, and to supply more recruitment information service. Besides, it also needs to encourage those farmers in enhancing their ability to go to urban areas to find some jobs, including skill-training.

Keywords: Determinant; rural household, income per capita; agriculture sector

1. Introduction

Poverty is multidimensional; it encompasses not only what is called income poverty, i.e. deprivation of income/consumption such as the satisfaction of minimum level of food and other basic needs, but also limited access to health, nutrition, and education services, which aggravates the impact of income poverty, resulting in child mortality, short life

expectancy, and illiteracy. In addition, the poor are vulnerable to shocks and risks and lack ability to cope with or overcome shocks. These individuals suffer not merely from transient decline in income consumption and well-being but also sink into deeper long-term endemic poverty.

Different aspects of poverty reinforce one another. In a wider sense, poverty

basically connotes a lack of choice and opportunities on the part of individuals to achieve an optimum exploitation or use of their potentials or capabilities; it implies lack of empowerment on their part to participate in or influence the decision-making process affecting their livelihoods and well-being (Islam, 2006). These indicate that poverty is a complex social phenomenon that cannot be seen by one view point meaning many factors associated with poverty itself, not only internal factor such as household human resource and production factors ownership (say agricultural land for the poor smallholders for instance), but also more importantly the impact of external factors such as access to social services and information availability in the community across developing countries (Arsyad and Kawamura, 2009). Besides, several previous studies show a causal relationship between infrastructures and poverty.

A number of studies pointed out a significant impact of infrastructure on poverty reduction through economic growth (Ranamagar, 2013), including a limitation of public expenditure become a serious issue in decentralization era (Nixia and Arsyad, 2013). All this cannot be, however, separated from the weak role and inter-agency coordination creating ego-sector, horizontal and vertical conflicts among institutions, indicating the weak of smallholders institutional (Arsyad *et al.*, 2013) including agricultural extension service. In line with Ekasari *et al.* findings (2013) that social learning-based extension should be developed as a potential way to sustain an important role of extension in agricultural and rural development in

poverty reduction. Therefore, it is necessary to have a development plan in encouraging employment creation and demand for labor (Darma and Arsyad, 2010).

Chinese government advanced that our country will get an all-side and well-off society up until the year of 2020 (Zemin, 2002) but by the end of 2007, China's rural poverty population was still 28.41 million and it accounted for 3.1% of the total rural population. In addition, according to the national statistic data the rural poverty population accounted for 90% of the China total poverty population (National Bureau of Statistics of China, 2007). In order to achieve the all-side and well-off society, it is necessary to pay more attention to the farmer and especially to the determinants of the farmer household's income.

This paper attempts to find out the main determinants which impact on household income of the farmer, and we consider the internal factor (internal determinant) and external factor (external determinant). The internal factor only considers the labor quantity and labor quality at the household level. For the labor quantity, we adopted the variables of "the number of labor force", and "consumer-producer ratio" (here after, CP ratio) (Chayanov, 1966). For the quality of the labor we adopted the variables such as the "age", "health condition", education attainment", "non-agricultural skill attainment" of the Main Income Earner (MIE) of the farmer households. The external factor in this paper includes the ability of accessing to the hard environment such as the "irrigation system", "road condition" "working location of the MIE" and

other facilities. Some soft environments (Kawamura, 2007) are also considered, such as “job searching information”, “financial service”, “non-agricultural skill training service”, “marketing”, and “medical care service” and so on.

We also found out the main determinants which impact on rural household income like the following exceptional cases: Firstly, internal factors: 1) CP Ratio, the burden ratio of the labor force in some households is very high (higher than 3.0); 2) Education attainment of the MIE impact on the household income positively, and it is quite understandable. Since most of the household income (71%) is from labor wage incomes, and education is the main factor of human capital; 3) Non-agricultural skill attainment of the MIE is very important to a rural household's income, because skilled worker can get much higher salary than unskilled workers when the rural labors earn income by selling their labors.

Secondly: external factors: 1) MIE worked inside the county earn less income than the other MIEs who worked out of the county. 2) A labor learned the job recruitment information from advertisement can find a better job than others who get the information from relatives, friends, or government. Lack of the job recruitment information also caused some farm surplus laborers gave up their migrant plan, and missed some chances for working in urban cities. 3) Non-agricultural skill source of the MIE of one household is very important to the household's income, and most of the MIEs who learned some skill from school (formal education) earned higher income

than other MIEs who did not learn skill from school.

2. Materials and Methods

The data used in this paper were mostly based on our field works, and they were collected in Yongxiu and Xingzi counties in Jiangxi province through observations, interviews and household surveys. We visited two villages and chose 120 households by systematic and stratified random sampling. In addition, we also used some secondary data to support the first-hand data, such as government statistic year books and public documents. It was found that the income of the farmer households mostly got from non-agricultural sectors, and the agricultural incomes only shared 22%, while non-agricultural incomes shared another 78%. In addition, only 20 households out of 120 sampled households whose agricultural incomes are more than their non-agricultural incomes. The research employed Lorenz Curve (Gini Coefficient) and Regression Analysis to get the objectives.

3. Results and Discussion

3.1 Household Income and Its Structure

Household income is one of the most important indicators of socio-economic status. The index is most frequently adopted in the sociology and economics research. In this paper, the definition of “household income” is the same as the one household gross income. According to the different sources of the incomes, we divided the household income into two parts, namely, agricultural income and non-agricultural income (Table 1). In this paper, the agricultural income includes

“food crop income”, “cash crop income”, “fishery income”, and “livestock income”, while, non-agricultural income includes “household business operation income”, “labor wage income”, “capital gain” and “transfer payment from the government”.

We can see that there are only 20 households below the line of the function $Y=X$ from Figure 1. Therefore, only the 20 households earned more agricultural income

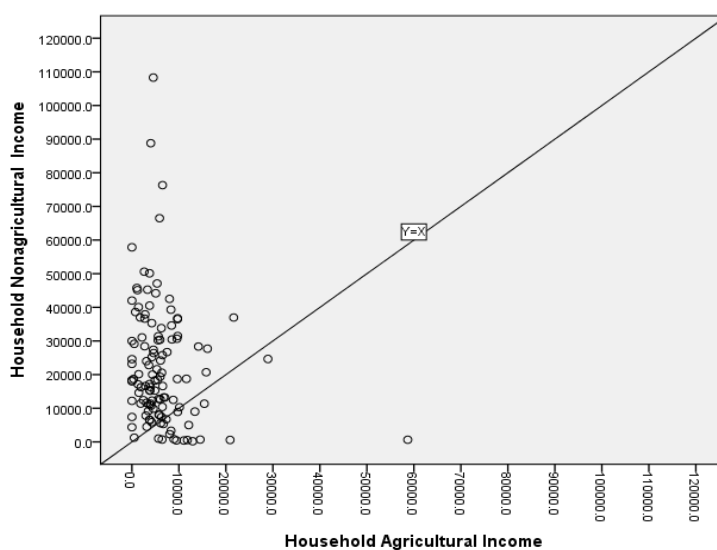
than their non-agricultural income among the 120 households.

Because of the difference of the family member’s working location, we divided farmers into two groups, the first group is farmers who living and working in the villages, while the second group is those farmers who migrate to other urban areas. The purpose of this division is that we want to find out the differences of their

Table 1. Average Household Income

Income Sources	Income	Percent (%)
Agricultural Income	6,282.46	22
Food Crops	2,593.08	9
Cash Crops	2,334.78	8
Livestock	1,277.59	5
Fishery	115.00	0
Non-Agricultural Income	22,241.53	78
Household Business Operation	1,237.50	4
Labor Wage	20,120.08	71
Capital Gain	22.17	0
Transfer Payment (from government)	861.78	3
Total	28,523.98	100

Unit: CNY (CNY: Chinese Yuan, the unit of Chinese currency and 100 US dollar equal to 683.10 CNY at nominal medial rate on October 9th, 2009 (data from The People’s Bank of China). n=120



Unit=CNY, n=120

Figure 1. Distribution of Household Agricultural Income and Household Non-Agricultural Income

income level. In research villages, there is no forestry industry, because these villages are located in Poyang Lake District (in Jiujiang municipality), and in order to protect the environment of the lake, farmers are living in these villages were prohibited from cutting any trees from the mountains. Therefore, farmers in these villages have not any forestry income. We divided the crop income into the two followings: food crop income and cash crop income since most food crops are consumed by the farmers themselves, but most of the cash crops are for sale. In research areas, the food crops mostly are paddy and corn, while the cash crops are primary cotton, peanut, edible vegetable oil and a small number of vegetables, such as cabbage, fresh soybean, hot pepper and others.

Since most of these households are part-time farmers (household level part-time farmer, including part-time farmer 1 and part-time farmer 2), and they may not be able to self-sufficient, some of them need purchase complement from market, while some of them have some surplus for sale. When we calculate the household agricultural income, we sum up the part consumed by themselves and the part sold on the market, and by using the same price (the price sold on the market), then we can easily get one crop total income within one year.

We calculated the same way for the other crops; at last add up all kinds of agricultural products income together. Since farmers cannot exactly remember the volume of they sold or consumed for them, and they cannot exactly remember the price they sold every time, so the income data cannot assure 100% correct. But on the whole process of

our research we tried our best to make the data as reliable as possible.

3.2 *Food Crops and Cash Crops*

As the data showed in the Table 1 above, the food crop income is slightly higher than that of cash crop, and they have 9% and 8% shares of the household income. The average paddy price in research areas is 90 CNY per 50kg in 2008. Then, we can calculate the volume of the paddy they grew in 2008 per household. It is equal to 1,440.6 kg $[(2,593.08/90)*50=1,440.6 \text{ kg}]$, and the total amount of staple food produced by the sampled households is 172,872.0 kg $(1,440.6*120=172,872.0 \text{ kg})$. Then the amount of the staple food per person among the 558 population is 309.8kg, and it is less than our national average's 397 kg (Web, 2009).

In the study villages, there is no big difference from other rural communities. The common features in the two villages were summed up as below: Firstly, most of the households still cultivate their own contracted responsibility land, this kind of households can produce enough staple food for themselves unless encounter natural disaster. For example, just during our field research time, Xingzi County has had lack of rainfall had a long time, and most of the paddy land lack irrigation water. Many farmers told us that the yield of the paddy will much less than common years or no any harvest at all if the drought weather went on. Secondly, a fraction of farmers migrated to other urban cities with their families and subleased their land to their relatives or neighbors freely, while some tenant gave some paddy to the landowner (who got the use right of the land

from government) as land rent after harvest. Also, some land is desolated, mostly because the land locates remote valley areas, or even the land is convenient for farming but the land is not so fertile.

Finally, since some farmers leased their land to others, so there are some large-scale cultivation households. These households rent large pieces land from others and most of them have agricultural machinery. We met two farmers of this kind, and they told us that each year they cultivate more than 50 mu of land, and it can harvest two times. After selling the paddy harvest from the land they can earn more incomes than their counterpart who migrated to urban area. Even farmers knew that the large-scale farming households can earn more incomes, but seldom farmers did this. There are two main reasons, one is the land in Jiangxi is very limited, and farmers are very difficult to rent so large size of land. Second, suppose some farmers can rent land, but they still need other inputs to cultivate the land, such as large number of fertilizer, pesticide and labors or agricultural machinery. In the rural areas, there are not so many farmers who can afford the huge investment.

3.3 *Livestocks*

The livestock in the study villages are mostly pig, chicken, duck and a small number of cattle. There are only two households engaged in professional poultry breed among the sampled households; namely, one household feed 15 pigs, and another household feed 9,000 ducks in 2008. Compare with these two households, the others are very small-scale sideline poultry breeders. Mostly every household grow one

or two pigs, several chickens and ducks, and some households feed chicken for egg, while most of the small-scale breed is for their own consuming. During the Chinese Lunar New Year or other festivals every household should prepare lots of meat, such as pork, duck, chicken and fish. Some of the farmers also sold part of their poultry besides own consuming, while some of them need to purchase these food from market or other farmers.

3.4 *Fishery*

Even these two villages are locate in the Poyang Lake district (the biggest fresh lake in China) but from Table 1 we know that the average fishery income only 115 CNY among the 120 households, and it is very small income compared with other income sources. Actually, even most of the 115 CNY fishery incomes were not from the lake, but from several fish ponds of some households. Since the fish in the Poyang Lake is a kind of public resource, and the ownership of public resource belong to local government. Under this circumstance, if someone wants to catch fish from the lake, he or she should ask admission from local government, and without the license from government anyone cannot catch fish in the lake, and the fisherman need pay the resource rent to the government for getting the license.

To most local farmers, payment of the fish resource rent to the government is not very difficult, but the main threshold is the admission from the government. Compare with the large number of applicants for the admission, fish resource is very limited, so it is very difficult to get the fish license. There is only one household got the license among

the sampled households.

3.5 Household Business Operation

Household business operation incomes in the rural villages are mostly from very small-scale businesses, such as general store, professional store and personal small restaurant. In the field research, we interviewed one general store owner. The household mainly depend on their store business, and they cultivate their own farm land as a sideline. In his general store, it supplies the daily consumer commodities to the village farmer households, such as spices, towel, fruits, vegetables, and other small wares. The owner also told us that the store can sell 180 CNY of commodities each day averagely. Fortunately, we also surveyed one professional store owner and this store only sells cement and steel.

The same as the general store household, this store owner also grew some agricultural products in their farm land. The owner told us that fewer farmers purchased cement and steel from his shop compared with two years ago, because at that time the New Village Construction Project was under construction, and he could sell a mass of cement and steel to the project. However, in 2008 the shop only sold 60 tons of cement and 20 tons of steel to the villagers who built houses.

We surveyed one small restaurant owner, and the household has operating the restaurant several years. We learned that during the New Village Construction Project years, there were many construction worker had lunch in his restaurant but now the project already completed and they only supply breakfast and snack since the number

of eater become fewer and fewer. The owner also told us that he will move to urban areas and to search another career in the coming year.

3.6 Labor Wage

Labor wage income in this paper means the labor employed by others and gain wage by selling labor. In order to find out where the income from, we divided the labor income into two sub-source; namely, one is the labor earned their wage inside of the counties (local labor wage income), and another is the labor who worked out of their own counties (migrant labor wage income). Base on our data, each household earned 10,611.53 CNY from local labor employ averagely in 2008; and each household earned 11,630.00 CNY through labor migrant. Hence, we can argue that local labor income as important as the migrant labor income, and both of them are the main sources of the household income.

We also tried to compare the output per labor between local labor and migrant labor. Firstly, we need calculate out the total output of the local labor, which is equal to “agricultural income” plus “household business operation income” and plus “local labor wage income” times 120 (the number of household). Since there are 209 labors lived inside the county, we need to divide by 209, and then the formula for calculating the output per labor who worked inside the counties is: $Y_l = (6,282.46 + 1,237.50 + 10,611.53) * 120 / 209 = 10,410.42$ CNY. By using the same way we can work out the migrant labor output per capita (Y_m) in 2008 is 13,042.99 CNY ($Y_m = 11,630.00 * 120 / 107$). For this compare, we can conclude that the labors migrated to urban areas produced

more output ($13,042.99 - 10,410.42 = 2,632.57$ CNY) than their counterpart who worked within the county. As we already know, 49 farmers are excluded out of the number of local labor, since they are older than 60. Actually, most of them still work and some of them were the MIE (main income earner) of their families. So, if we count the 49 farmers into the number of local labor, then the Y_1 is much less than Y_m .

3.7 *Capital Gain*

Capital gain in the rural villages mainly means the land rent and savings interest. Since some farmer families move to urban cities, and they rent their land to others, as mentioned previous, some lesser got a certain amount of paddy or cash from the land lessee as land rent. To farmers, another source of the capital gain is the interest of their savings in banking. But very few of the farmers in the villages have savings. The data can verify this very well, and Table 1 showed the capital gain per household in 2008 only 22.17 CNY.

3.8 *Transfer Payment*

Transfer payment from government in the study villages are mostly the following four sources, namely, the agriculture subsidy, subsidies of restoring the reclaimed land to forest or wetland, health insurance subsidy and poverty relief alms. More specially, the agriculture subsidy is used as a stimulation instrument. The government uses the subsidy to encourage farmers to farm more areas and cultivate more products. How much the farmer households can get the subsidy from the government is depend on how much land the family cultivated and how many times

the paddy harvest yearly. For example, in 2008, if one household grew paddy one time, then the household will get 80 CNY per mu, and if grew paddy two times on the same land, they will receive 100 CNY at the end of the year.

As we mentioned many times in this thesis, the research villages locate in the Poyang Lake district. On the history, especially during 1950s and 1980s, large areas of paddy land were reclaimed from the lake wetland. Unfortunately, the government recognized that the environment of the lake was heavily damaged in 1990s, and we must start to protect the lake. Then, there are many projects for restoring the reclaimed land to wetland or forest, and the government gave a certain amount of subsidy to the farmers who returned their cultivated land to wetland or forest.

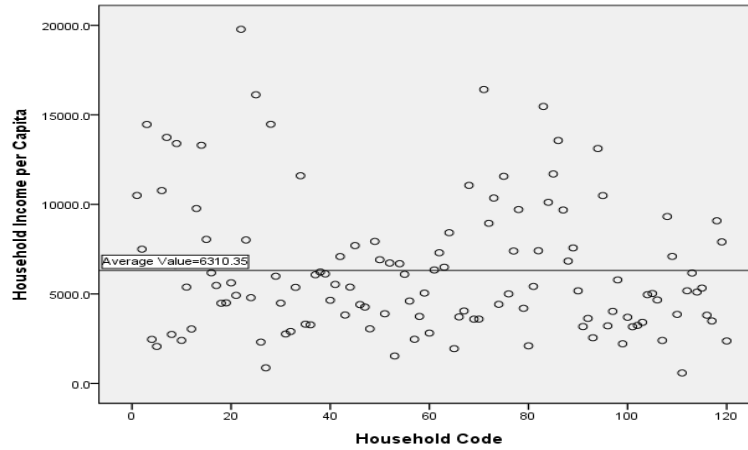
Concerning the health insurance subsidy, we have the Rural Cooperative Medical Care System in every village, and the system is the only health insurance which most farmers have. Poverty relief alms are a government fund for rural poverty reduction. Compare with other subsidies from government, the poverty relief alms are only given to farmers whose income under the national poverty line and the old farmers who without offspring or the offspring have no ability to feed them.

According to our understanding, the amount of the alms given to the needed people is different from village to village, it also differ from household to household. For these reasons, some farmers complained that they have not got any help from the government, and they strongly felt unfairly treated.

3.9 Distribution of Household Income

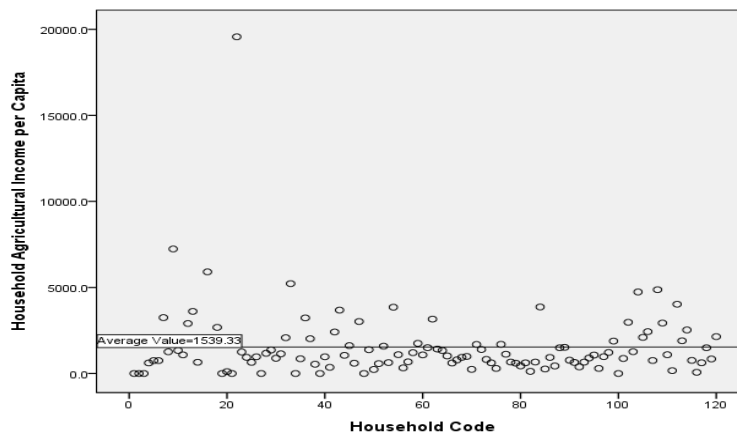
In this part, we adopt the concept of household income per capita, and it equals to household net income divided by the

number of the family member. Figures 2, 3 and 4 showed the distribution of household income per capita for agriculture and non-agriculture income per capita.



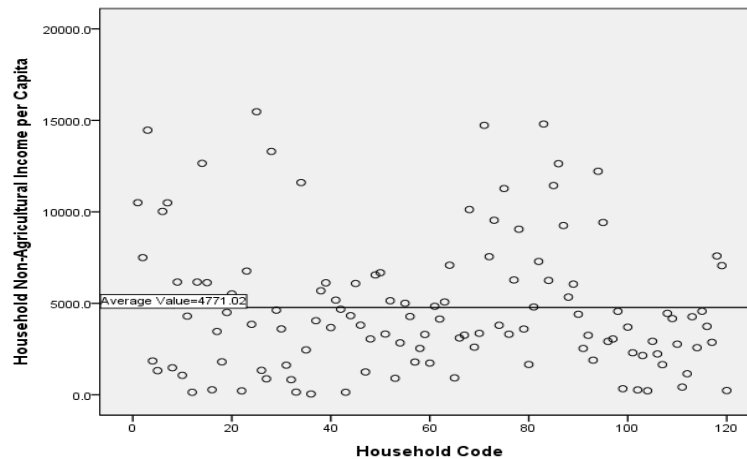
Unit: CNY, n=120

Figure 2. Distribution of Household Income per Capita



Unit: CNY, n=120

Figure 3. Distribution of Household Agricultural Income per Capita



Unit: CNY, n=120

Figure 4. Distribution of Household Non-Agricultural Income per Capita

Figure 5 shows that there is some gap of the household net income per capita among the households. In order to find out the exact gap among the households we made the Lorenz Curve. From Figure 5, we know that the poorest (household income per capita) 25% (30) households only shares 10.45% of the total net income, but the richest 25% (30) households share 46.34% (100-53.66) of the total 120 households' income. Gini Coefficient will be calculated

out from the Lorenz Curve, and we got the Gini Coefficient of 28.91% and it means the gap of the household income per capita among the sampled households is not so huge. In order to find out the difference of the household income between agricultural sectors and non-agricultural sectors, we also drew the Lorenz Curves calculated out the Gini Coefficients for household agricultural income and household non-agricultural income separately (Figures 6 and 7).

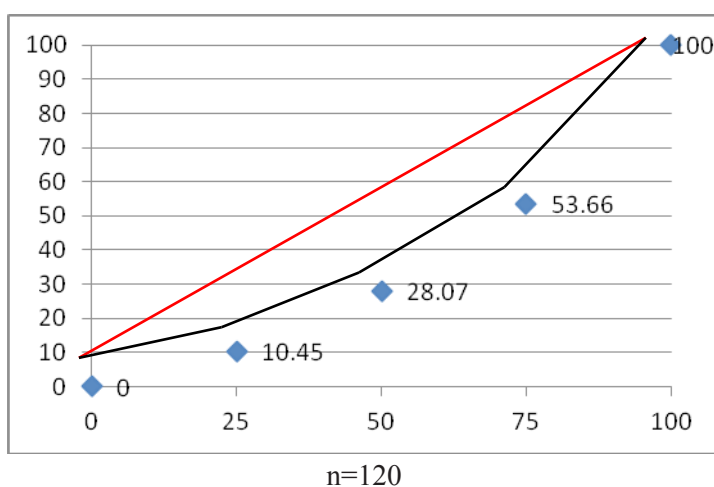


Figure 5. Lorenz Curve* of Household Income per Capita

* Horizontal axis is the cumulative percentage of total households (quartile), and the vertical axis is the cumulative percentage of total household income per capita (quartile).

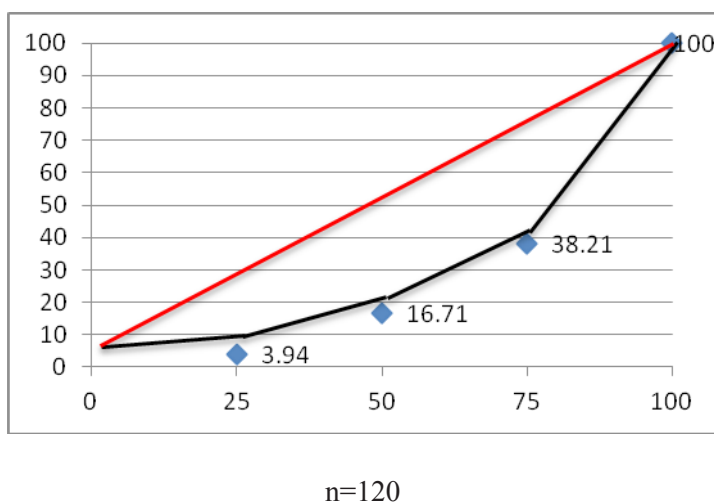


Figure 6. Lorenz Curve* of Household Agricultural Income per Capita

* Horizontal axis is the cumulative percentage of total households (quartile), and the vertical axis is the cumulative percentage of total household agricultural income per capita (quartile).

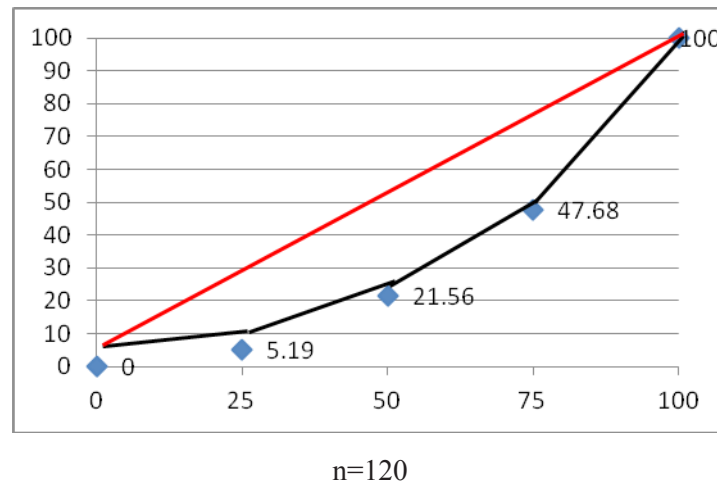


Figure 7. Lorenz Curve* of Household Non-Agricultural Income per Capita

* Horizontal axis is the cumulative percentage of total households (quartile), and the vertical axis is the cumulative percentage of total household non-agricultural income per capita (quartile).

We can easily calculate out the Gini coefficient of the household agricultural income per capita depends on its Lorenz Curve, and its value is 45.57% (Figure 6). By the same way, the Gini coefficient of the household non-agricultural income per capita among the 120 households is 37.79% (Figure 7).

When compare the three Gini coefficients of the 120 households, we can find that the coefficient of the household income per capita has the lowest ratio of 28.91%, and it is lower than that of household agricultural income per capita and household non-agricultural income per capita. The Gini coefficient of household agricultural income is the highest among the three Gini coefficients we calculated out above (But if we drop the household who has an extreme high agricultural income per capita out, then the Gini coefficient of the household agricultural income per capita is the lowest among the three.).

It is quite understandable, because there are many households belong to two extreme cases. Namely, the first extreme case is that

10 out of the 120 households who have no any agricultural income, and the second extreme case is that there is one household whose agricultural income is extremely high than common farmer household in the research village, we can identify this situation in Figure 3 also. The reality is that some farmer households start to rent large size of land from others to grow agricultural crops, and these large-scale agricultural farmer household can earn much more income from agriculture than common small-scale farmer household. The relation of the three Gini coefficients (Gini coefficient of household income per capita is less than either that of household agricultural income per capita and household non-agricultural income per capita) also told us that generally speaking, when a household earned more income from agricultural sectors than others while it earned less income from non-agricultural sectors simultaneously.

3.10 Household Income Generation Model

Household net income can more correctly reflect the reality of farmers'

economic welfare condition. In this paper, we adopted net income as the variable to assess the farmers' welfare, and the net income of the rural household is equal to the household income deduct by production cost, and to the farmer households, production cost mostly are agricultural production inputs, namely, seed chemical fertilizer, pesticide, weedicide, poultry feed, agricultural machinery depreciation and other costs.

The R^2 in Table 2 is the coefficient of determination. More concretely speaking, it is a Proportional Reduction in Error [PRE=

(error without decision rule - error with decision rule)/error without decision rule] for linear regression that expresses the amount of variation in the dependent variable explained or accounted for by the independent variables in a regression equation (Knoke et al., 2002). After the regression analysis, only 6 independent variables have significant level on 0.05 in the model, and the R^2 is 0.393. It means 39.3% of variation in the dependent variable (household net income per capita) can be explained by the six independent variables (Table 3).

Table 2. Model Summary and ANOVA*

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate
1	0.627	0.393	0.360	2985.21

ANOVA						
Model		Sum of Squares	df	Mean of Square	F	Sig.
1	Regression	6.35E8	6	1.06E8	11.88	.000
	Residual	9.80E8	110	8.91E7		
	Total	1.62E9	116			

Note: n=120

*Dependent Variable: Household Net Income per Capita

ANOVA: Analysis of Variance

Table 3. Significant Independent Variables under Regression Analysis

Model	Unstandardized Coefficient		Std. Coefficient	t	Sig.	
	B	Std. Error				
1			Beta (β)			
	Constant (α)	7216.11	1150.24		6.27	.000
	MIE Worked Inside the County (X_1)	-1524.90	614.23	-.192	-2.48	.015
	Job Searching Info from AD (X_2)	3999.42	1864.58	.170	2.15	.034
	MIE Learn Skill from School (X_3)	2342.85	1074.83	.184	2.18	.031
	CP Ratio (X_4)	-1477.73	352.05	-.319	-4.20	.000
	MIE's Education Attainment (X_5)	213.34	84.82	.202	2.52	.013
	MIE's Skill Attainment (X_6)	1652.70	598.28	.216	2.76	.007

Note: n=120

Dependent variable: Household Net Income per Capita

Significant Level: $p < 0.05$

In order to compare the impact strength of different variables in the model, in Table 3, we choose the Standard Coefficient Beta (β). From Tables 2 and 3, we can understand that this model significant at a 0.000 level, and all the independent variables in the model are significant less than 0.05 level ($p < 0.05$). Based on the Tables 2 and 3, and the causal model as the function below:

We replaced “ α ”, “ β ” and “ ξ ” by the real coefficients in the formula of Function 1:
 $Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n + \xi$,
 then the function like this;

Model function:

$$Y = -0.192X_1 + 0.170X_2 + 0.184X_3 - 0.319X_4 + 0.202X_5 + 0.216X_6$$

3.11 MIE Worked Inside the County (X_1)

MIE worked inside the county (X_1) impact on the household net income per capita (Y) at a negative direction and, with the strength of 0.192, under controlling other five independent variables. It means when one household’s MIE worked inside the county, then the household’s net income per capita

is 19.2% lower than other households whose MIE worked in other places out of their own county (explained in chapter four). We can also understand like this, namely, among the 120 households, if the number of MIEs who worked inside the county increase 100%, then the average of the 120 households’ net income per capita will decrease by 19.2%, under controlling other five independent variables. So, generally speaking, MIEs worked inside the county negatively impact upon the income of the households. The following test also can verify it.

Table 4 shows that there are 82 out of 120 MIEs worked inside of their own counties in 2008, while another 38 MIEs migrated to other places, such as Yangtze River Delta cities. Table 4 also shows the “mean” of household net income per capita among the 82 households (5,205.25 CNY) is significant lower than that of another 38 households (7,125.05). (Since its p value (0.008) is smaller than our confidence level of 0.05). Table 4 only test for the “mean” of the household net income per capita between the

Table 4. T-Test of the MIE’s Working Location

Group Statistics					
MIE’s Working Location		N	Mean	Std. Deviation	Std. Deviation of Mean
Household	Inside the County	82	5205.25	3707.82	409.46
Net Income per Capita	Other Places (Out of the County)	38	7125.05	3488.14	565.85
Independent Samples Test					
T-test for Equality of Means					
Household Net Income per Capita	t	df	Sig. (2-tailed)	Mean Difference	Std. Equal Difference
	-2.69	118	.008	-1919.80	714.39

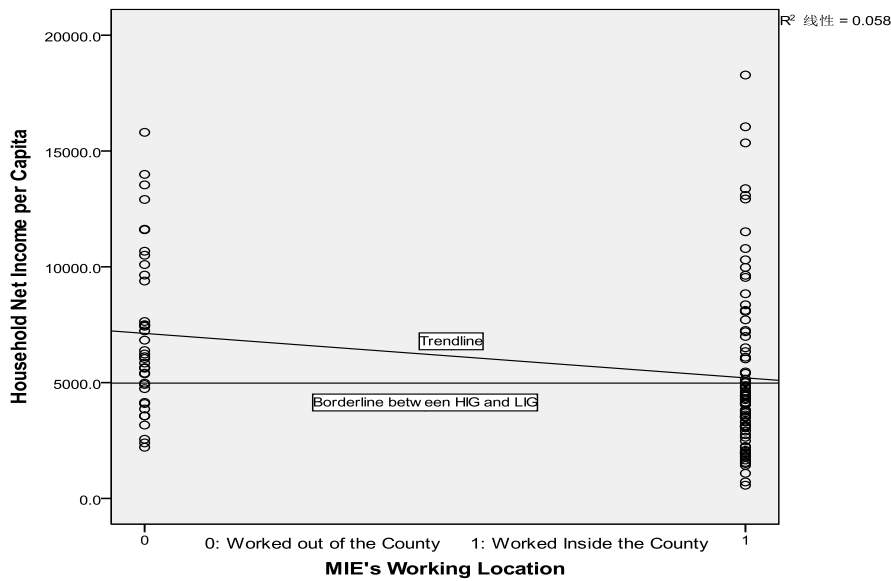
Note: n=120

*confidence level is 0.05 (2-tailed)

82 households whose MIE worked inside the counties and another 38 households whose MIE worked out of the county. However, we need to check more detail distribution of the household net income per capita among the 120 households.

Figure 8 shows that the trend line coincides with the regression coefficient. In addition, the figure also tells us that even the

“mean” of the 82 households is lower than another 38 households, but there still many households from the 82 households whose income per capita is much higher than the “mean” of the 38 households. Especially, the highest of the household net income per capita among the 120 households is from the 82, whose MIE did not work out of the county.



Unit: CNY, n=120

Figure 8. Household Net Income per Capita Distribution with MIE’s Working Location

After checked our primary data, we find out that the MIEs of the households who have the highest, the second highest, and the third highest household net income per capita from the 82 households worked as: 1) a self-employer of a duckery in Yangchun village; 2) a primary school teacher (formal worker) in Bohu village; 3) two carpenters (the house head and his son) worker in the same furniture factory in Xingzi County. These three households’ situation shows that the working location of the MIEs is important to the household’s income. However, MIE who worked inside of the county also can find

better job (higher salary paid job) than their counterpart who migrated to urban cities, if they have higher education or special skills. Some of them could have their own small business, like, small duckery, or stone processing factory in the community.

3.12 Job Searching Info from AD (X_2)

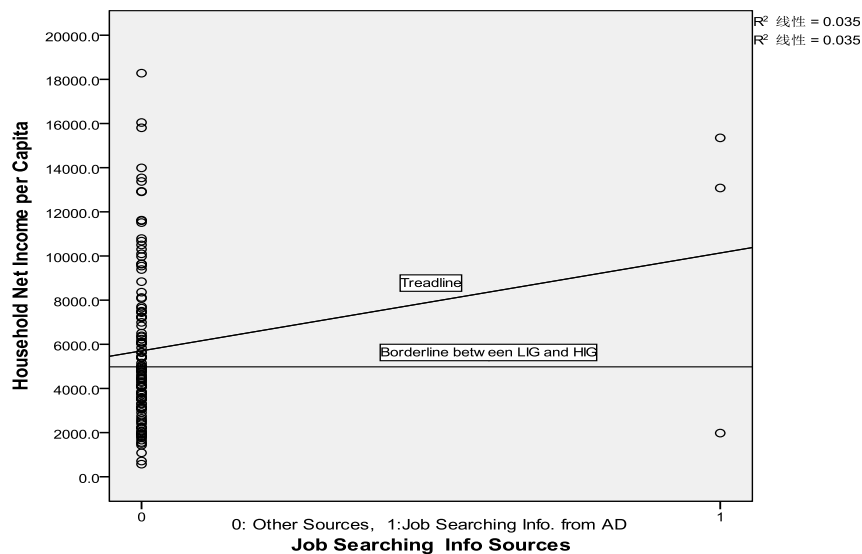
The regression coefficient between X_2 and Y is **positive** 0.170. It means that in the model, under controlling other five independent variables, if the MIE find the recruit information of off-farm job from advertisement, then the household’s net

income per capita is 17% higher than those MIE who get job information from other sources, such as relatives or friends, and government. Figure 9 shows that there are only three cases (three household' MIEs) finding off-farm job through advertisement information, and additionally, the household net income per capita of one from the three cases' is below the borderline between HIG and LIG (4,978.60 CNY household net income per capita in 2008). So it means one of them is from LIG.

The real stories behind the three cases are like this; one household who were sorted in LIG has five family members, the house head couple and their three daughters, but two of their daughters migrated to urban areas, since they are working and living in the urban areas, so two of them were not counted in the sampled population. Therefore, this household has only three family members. Their main income sources are agricultural and the house head's small

business of vending cotton. It is precise because the house head's small business and he got business information from television. Their second daughter lives with them in the rural community is a psychiatric patient, so the house head's wife must take care of the patient daughter at home, and had no time to do other jobs.

Thesecondandthethirdcaseshasome common characteristics. First, both the two MIEs attained more education than average level, one of them got 9 years education, and another got 12 years education. The former MIE operate a general shop in the village, he earned 50,000 CNY from his shop in 2008, and the latter MIE worked in Yangtze River Delta, to get his monthly salary of 2,500 CNY. Secondly, the former MIE created his business and learned the information from television advertisement, the latter MIE who found job in Yangtze River Delta also based on the recruit information from television advertisement.



n=120

Figure 9. Household Net Income per Capita Distribution over Job Searching Information Source

The average of the three households' net income per capita is 10,135.87 CNY, while it is only 5,702.35 CNY of another 117 households. In brief, job searching information from advertisement is a better source than others, but people who can understand and use the information from television or newspaper need certain level of education, and there are only 3 out 120 MIEs who got job information from advertisement. The information from advertisement is very important, but the impact is not widespread among the rural households. On another hand, it tells us that in the rural area the public service of information is very limited, and we need to do more works on improving the information service in rural community, especially on the off-farm job requirement.

3.13 MIE Learn Skill from School (X_3)

From the model, we knew that the regression coefficient between X_3 and Y is positive 0.184. It means that the number of MIE who learned skill from school increase 100%, then the household net income per

capita among the sampled households will increase by 18.4%, under controlling other five independent variables. So generally speaking, the skill source from school (education) is better than other sources, such as, learn from master, and learn from working. The coefficient only tells us that X_3 impacts on Y at a certain (0.184) strength and positive direction, but it cannot exactly tell us how does the X_3 impacted on Y.

Table 5 shows that the "mean" of household net income per capita between the household whose MIE learn skill from school and another households whose MIE learn skill from other sources or no skill is significantly different ($p=.000$). However, only 11 of the total 120 households' MIE learned skill from school, and from Figure 10 we can understand that among the 11 households 2 households were classified in to LIG. The household whose MIE's skill learned from school is more likely to have higher income. More detail information about this variable will be discussed in next section.

Table 5. Test of the MIE's Non-Agricultural Skill Source*

Group Statistics					
Household Net Income per Capita	MIE's Non-Agricultural Skill Source		Std.	Std. Deviation	
		N	Mean	Deviation	of Mean
	Learn Skill from School	11	10137.44	4598.65	1386.55
Other Sources or No Skill	109	5376.79	3363.12	322.13	
Independent Samples Test					
T-test for Equality of Means					
Household Net Income per Capita			Sig.	Mean	Std. Equal
	t	df	(2-tailed)	Difference	Difference
	-4.32	118	.000	-4760.64	1102.47

Note: n=120

* confidence level is 0.05 (2-tailed)

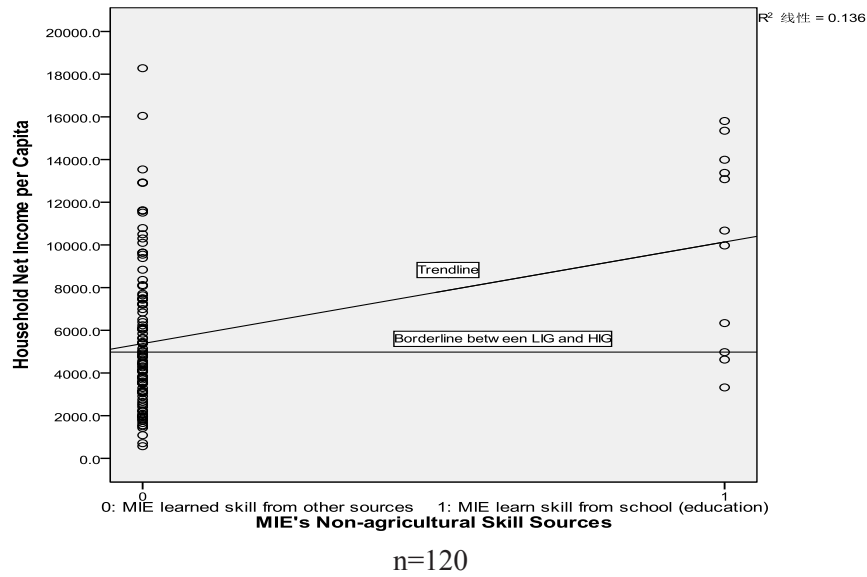


Figure 10. Household Net Income per Capita Distribution over MIE's Non-Agricultural Skill Source

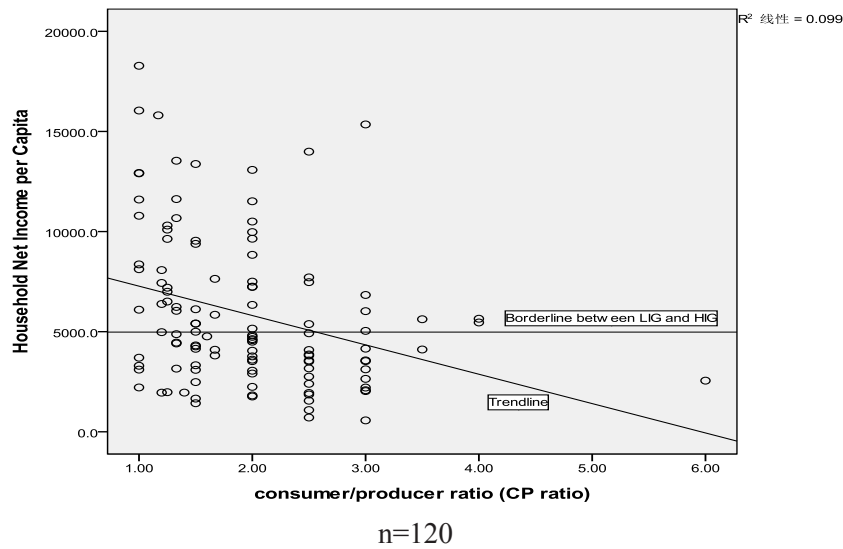


Figure 11 Household Net Income per Capita Distribution over CP Ratio

3.14 CP Ratio (X_4)

The full name of “CP Ratio” is Consumer-Producer Ratio, and it defined as: total family member divided by the number of labor force, which means that if the CP Ratio increases, then the burden of the labor force gets heavier. Model function shows the regression coefficient between CP Ratio (X_4) and Household Net Income per Capita (Y) is negative 0.319. It tells us that if the CP Ratio increased 100%, as a result, the Household Net Income per Capita will decrease by 31.9%, under controlling other

five independent variables in the model. The direction of the CP Ratio impact on the household net income per capita is negative. It is natural, because if the burden of labor forces getting heavier and heavier then the net income per capita is smaller and smaller. However, it is difficult to image such impact strength without any evidence, so we try to explain the strength by using the first-hand data. The distribution of the dependent variable (Y), varying with independent variable (X_4) is presented in the Figure 11 above.

From Figure 11, we understand the general trend of the household net income per capita is decreasing in accordance with the CP ratio increases. Also we can learn that most of the sampled households' CP ratio lies between 1.00 and 3.00.

3.15 MIE's Education Attainment (X_5)

A very important indicator of human resource is education attainment of the labor force, and in this paper we use the MIE's education attainment and skill attainment to evaluate the quality of the labors. As showed in the model function, the regression coefficient between the important variable of MIE's Education Attainment (X_5) and the dependent variable of household net income per capita (Y) is positive 0.202, and it is significant at 0.05, since its p value is 0.013. The coefficient means that if the number of MIE's education attainment increased 100%, then their household net income per capita will increase by 20.2%, after controlling other five independent variables in this model.

The coefficient is more easily understandable by comparing with the real stories in the research communities behind it. From Figure 12 below, we learn that even three out of five households whose MIE's did not have any education, but their household net income per capita is above the borderline between LIG and HIG. The reason is two of that three households' MIEs are older than 60 years old, and their son and daughter already married, so these two households have the same situation of the mere family member of the old couple. Even they are older than 60, but they still work and can earn more than 5,000 CNY per person. The third household is extreme case, but it is quite understandable, since the education is not the only factor impact on income.

Another point we can get from Figure 12 is that most of the households whose MIE's education attainment less or 4 years are below the borderline (4,978.60 CNY), while, on the other hand, majority of those households whose MIE's education attainment is more than 8 years are above

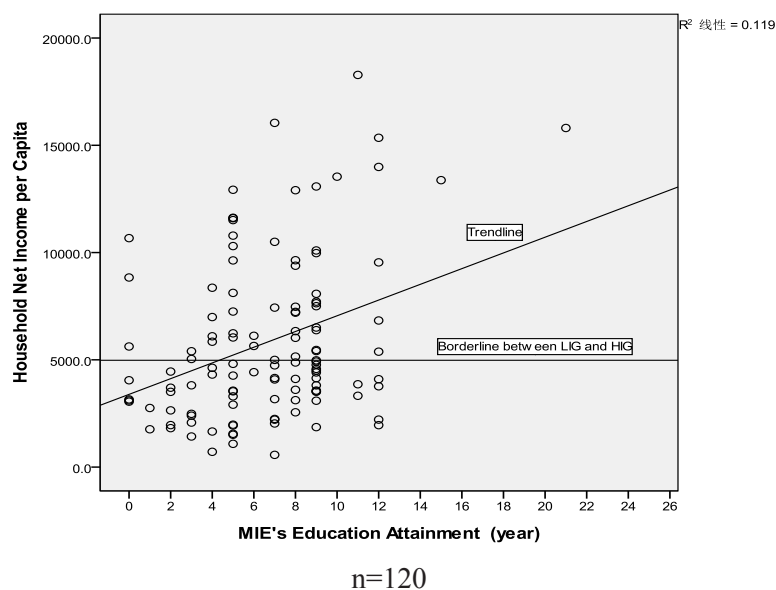
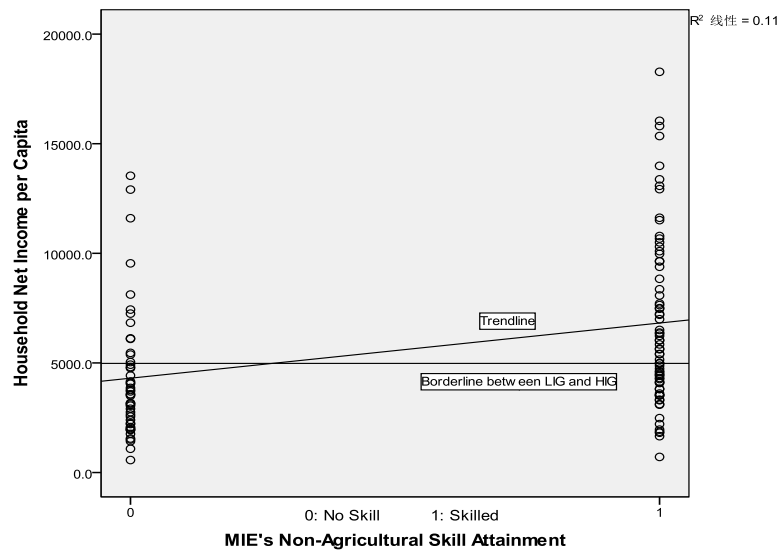


Figure 12. Household Net Income per Capita Distribution over the MIE's Education Attainment



n=120

Figure 13. Household Net Income per Capita Distribution over MIE’s Skill Attainment

the borderline. It matches the generally trend (regression line) of this distribution, i.e. when the year of the MIE’s education attainment increases, then the household net income per capita follows the same direction.

3.16 MIE’s Skill Attainment (X_6)

By the same way, model function shows that in the study villages the MIE’s skill attainment has positive 0.216 impacts on the household net income per capita (Figure 13). Generally speaking, the household, who’s MIE, had non-agricultural skill earned 21.6% higher income per capita than other household whose MIE had no any non-agricultural skill. Again, if the number of the skilled MIE increased 100%, then the mean of net income per capita among these households will increase by 21.6% under the case of controlling other five independent variables of this model.

Figure 13 shows that most of the households whose MIE has no skill, then their household net income per capita is

below the borderline, while other households whose MIE has skill have their household net income per capita above the borderline.

4. Conclusion

The Gini coefficients of the household income per capita (28.91%) shows that the household income among the farmer households are not so huge, while Gini coefficients of household agricultural income per capita (45.57%), and household non-agricultural income per capita (37.79%) show the larger gaps among the farmer households. There are 6 variables significant impact on household net income per capita among the total sampled households, and among the 6 variables, “CP Ratio (X_4)” has the strongest impact strength ($\beta=-0.319$) on household net income per capita, and the “Job Searching Info from AD (X_2)” has the weakest impact ($\beta=0.170$). In brief, in order to increase farmer households’ income and to alleviate the rural poverty, we need to help farmers to attain more education, to

give farmers useful off-farm skill training, and to supply more recruitment information service. It needs to encourage those farmers to enhance their ability to go to urban areas to find some jobs, including skill-training, supply of more suitable recruitment information, and other aids. On another hand, we need to improve the county and township level economic condition, to create more job opportunities for local agricultural surplus labors, especially for those farmers who have certain difficulty to find off-farm job in distant metropolis, such as Shanghai and other cities in Yangtze River Delta and Pearl River Delta. Besides, it also needs to improve existing social security system to help every people who need as perfect as possible

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