CSCanada
International Business and Management
Vol. 14, No. 1, 2017, pp. 33-39
DOI:10.3968/9321

ISSN 1923-841X [Print]
ISSN 1923-8428 [Online]
www.cscanada.net
www.cscanada.org

Non-Farm Income and Income Inequality: An Empirical Study Based on the Income Distribution of Farmers in Liaoning and Jilin Provinces

SUN Lei[a],*

[a]Business School, Qingdao Binhai College, Qingdao, China.
*Corresponding author.

Supported by 2016 the Project of Zhejiang Social Science Planning (16NDJC132YB).

Received 18 December 2016; accepted 2 February 2017
Published online 26 February 2017

Abstract

Non-farm activities play a more and more important role in the household income of rural areas. Whether the non-agricultural activities can help to reduce the income inequality? Research and measurement of 816 samples of farmer income in Liaoning, Jilin Province based on the distribution of non-agricultural income in rural areas to find out the family income, according to the inspection to explore, to promote rural non-agricultural income contribution income inequality. Considering the substitution relationship between agricultural income and non-agricultural income, the non-agricultural income is taken as an alternative income of agricultural income, and is involved in the decision-making of farmers. The results show that compared with the rich families, nonfarm income can increase the income level of the poor families, so as to reduce the degree of income inequality in rural areas. Improving the rural infrastructure, strengthening vocational and technical education, strengthening the skills training, and improving the level of public services, to improve the ability of poor farmers to participate in non-agricultural activities has an important role. At the same time, it is also helpful to improve the contribution of non-agricultural activities in the economic development of poor rural areas.

Key words: Non-farm activities; Income distribution; Income inequality; Empirical study; Economic development of poor rural areas

Sun, L. (2017). Non-Farm Income and Income Inequality: An Empirical Study Based on the Income Distribution of Farmers in Liaoning and Jilin Provinces. *International Business and Management, 14*(1), 33-39. Available from: http://www.cscanada.net/index.php/ibm/article/view/9321
DOI: http://dx.doi.org/10.3968/9321

INTRODUCTION

Nonagricultural economic activities play a more and more important role in reducing the poverty of rural households and the sustainable development of rural areas (Adams, 1994, 1999). Literature research shows that non-farm activities not only have an important role in the poverty alleviation in rural areas, but also have an important impact on the income distribution in rural areas (Banister & Taylor, 1990; Janvry & Sadoulet, 2001). The non-agricultural income of non agricultural activities including wage income, property income and transfer income based on the actual survey from Liaoning and Jilin two provinces, the wage income is the main part of non-agricultural income (Escobal, 2001). On non-agricultural income effect on rural income inequality form two different opinions, some scholars believe that although the non-agricultural income can increase the total rural income, but compared with the agricultural income, non-agricultural income distribution is very uneven, so the non-agricultural income is a more unequal distribution of income will further increase the degree of inequality in rural incomes (Hussain, Lanjouw, & Stern, 1994; Reardon & Taylor, 1996; Leones & Feldman, 1998; Braham, & Boucher, 1998; Yao, 1999); and other scholars believe that the total income distribution will gradually become uniform with the rising share of non-agricultural income proportion in total agricultural income, so as to reduce the degree of inequality of income in rural areas, to a certain extent, in particular, if the poor farmers than rich farmers in the wage income of non-agricultural activities represented a higher degree of participation, then the non-

agricultural income can significantly reduce the degree of income inequality in rural areas (Zhu & Jiang, 1993; Lanjouw, 1999; Wiggins & Hazell, 2011; Bezu & Barrett, 2012) of the surplus rural labor force, the relatively limited arable land, agricultural production technology, traditional, lead to lower agricultural productivity and low income level, the reform of rural land China occurred in the late 1970s, not only improve the agricultural productivity, and leave the land to provide the system safeguard, engaged in non-agricultural activities for the surplus rural labor force since then, non-agricultural industries in absorbing rural surplus labor and rural poverty reduction play a significant role (Zhu & Luo, 2006).

Based on the systematic study of a large number of literatures, two important findings are obtained: (a) All of the above studies are based on the statistical data, which are based on the average value of the gross agricultural product and the per capita income of farmers. However, Chinese rural non-agricultural activities are largely a spontaneous action of the farmers, which belong to the typical behavior of the individual, so the non-agricultural income is actually a micro level, and from the micro perspective of rural income inequality literature rare. (b) Most of the research is to non-agricultural income as an independent variable in addition to agricultural income and non-agricultural income as an extra income, measured at the independent superposition of household income, non-agricultural income and examined effects of agricultural income of rural income distribution. However, this method ignores the relationship between agricultural income and non-agricultural income, there must be a certain degree of substitution relationship between non-agricultural and agricultural activity, therefore, agricultural income and non-agricultural income will fluctuate on each other.

Based on the deficiency of the existing literature research, this paper makes a further study of the influence of non-agricultural activities on rural income inequality and its mechanism from the micro level. The farmers in two provinces of Liaoning and Jilin were selected as the research sample, trying to verify whether the non-agricultural activities will reduce the degree of inequality and its transmission mechanism. In order to ascertain the robustness test, study the non-agricultural income as an alternative to agricultural income, consider the interaction between the two, to explore the mechanism and effect of non-agricultural activities on the income distribution effect.

1. DATA SOURCES AND SAMPLE CHARACTERISTICS

The main sources of data in Liaoning Province, Jilin province with the questionnaire survey, participant observation, on-the-spot investigation, typical households visits, expert interviews, visited the agricultural society and government departments etc.. The survey in July 2014 (Jilin province) and August 2014 (Liaoning province), the survey questionnaire for a household questionnaire, does not produce household overlap, widely distributed according to the principle of random sampling, a total of 1,000 questionnaires were issued, the final 816 valid questionnaires, the response rate was 81.6%. 816 rural households from two provinces, 51 villages in 24 townships, although the sample size is limited, but the use of sampling technique standardization, basic behavior and family income can represent two rural households.

Farmers' income consists of two main parts[1]: agricultural income and non-agricultural income, agricultural income mainly includes agricultural planting, animal husbandry, forestry, fishery, non agricultural income including the agricultural activities of all other rural economic activities, mainly in wages (employment) and self employment (Entrepreneurship) for non-agricultural the main activities of income form. 816 farmers in a sample of 234 households, only 526 farmers and agricultural income, agricultural income and non-agricultural income, only 45 households in 11 households in the non-agricultural income, agricultural income of farmers income is nothing but neither. Our study is focused on agricultural income and non-agricultural income, excluding the non agricultural income of 45 samples and 11 samples without agricultural income also only agricultural income, the final form of the 760 valid samples (sample distribution and characteristics are shown in Table 1).

Table 1
Distribution and Characteristics of Samples

Project	All farmers	Non-farm income (NO)	Non-farm income (Yes)
Peasant household income (yuan)			
Per capita household income (yuan / person)	6,949	6,354	7,088
Agricultural income (yuan / person)	3,365	5,322	3,527
Non-farm income (yuan / person)	2,798	-	2,674
Other (yuan / person)	786.7	1,032	
Peasant household characteristics			
Family size (person)	3.68	2.94	4.35
Education years (year / person)	5.74	4.36	7.14

To be continued

[1] Other non-specific income other than non farm income and agricultural income, such as rent, interest, incidental income, etc..

Continued

Project	All farmers	(NO) Non-farm income	(Yes) Non-farm income
Percentage of technical training (%)	9.7	4.2	12.4
Skilled labour ratio (%)	12.0	4.9	10.5
Labor burden coefficient	1.22	1.46	0.87
Farmland area (mu / person)	2.86	3.72	1.85
Distance (km) from the town	3.72	4.17	3.59
The nearest distance from railway station (km)	51.62	49.47	34.64
The nearest distance from the bus station (km)	0.72	0.88	0.67
Total sample	760	234	526

Source: Sample questionnaire statistics, October 2014.

2. RESEARCH METHODS AND DATA ANALYSIS

Based on the data sources, we put the non-agricultural income as an agricultural income "alternative income", considering the interaction between the two, the two links into the analysis framework, and then those families without family income of non-agricultural income and the observed income were compared, how to examine non-agricultural activities the influence of income distribution, and verify that the test results are robust (Elbers & Lanjouw, 2001).

The income distribution in order to compare the actual survey of income distribution and agricultural activities only family simulation, must be taken into account for the interaction between non-agricultural and agricultural activity, if the actual investigation of the Gini coefficient income Gini coefficient is less than the only agricultural income, while non-agricultural activities can reduce income inequality, and non-agricultural activities increased inequality of income. In order to make the interaction between non-agricultural and agricultural activity into the analysis framework, we through three steps of inspection of non-agricultural income, household income inequality in family income equation first, construction of non-agricultural and agricultural activity in the second simulation in family and agricultural activities under the only reference income, Gene coefficient and Gene coefficient at the end of the simulation of the actual income of the observed only agricultural income comparison (Zhao, 1999).

2.1 Income Equation Design

The expected income that farmers participate in some productive activities depends on the probability of participating in the productive activities and net income of participating in the case. Probit model is used to estimate the probability, explained variable in the model as dummy variables, if the family to participate in the activity value of 1, and whereas a value of 0.

$$P_i^* = \alpha Z_i + \varepsilon_i,$$
$$P_i = 1 \Leftrightarrow P_i^* > 0,$$
$$P_i = 0 \Leftrightarrow P_i^* \le 0. \quad (1)$$

In the model, P_i* is an invisible variable, and P_i is an observable two variable. If farmers participate in non-agricultural activities, P_i = 1, whereas P_i = 0; Z_i is the explanatory variable of the participation equation.

Due to non farm activities are not evenly distributed in our choice of samples, some farmers to participate in non-agricultural activities may have some correlation with income level features, some features can be observed through the survey (such as family size, education etc.), some are not observed or cannot be measured (such as labor quality, the cultural character, etc.). The characteristics that can not be observed will lead to the deviation of the sample selection, which leads to the deviation of the income level estimation (StataCorp, 2003). Sample selection bias corrected by Heckman two stage method, the estimated income of farmers in the equation only engaged in agricultural activities, according to the two stage Heckman method, the inverse Mills ratio into the income equation to correct the sample selection bias, in order to solve the problem of heteroskedasticity, our dependent variable log processing, get the following Equation (2).

$$\log y_i = \beta X_i + \gamma \lambda_i + \mu_i \quad (P_i = 0). \quad (2)$$

Y_i for the family per capita income, X_i as explanatory variables of income equation, λ_i is the inverse Mills ratio (if only households participate in agricultural activities, then $\lambda_i = -\phi(\hat{\alpha} Z_i)/[1-\Phi(\hat{\alpha} Z_i)]$, if farmers also participate in non-agricultural activities, $\lambda_i = \phi(\hat{\alpha} Z_i)/\Phi(\hat{\alpha} Z_i)$, the equation is defined as the income of farmers to participate in agricultural activities only, Equation (2) as unbiased estimation gives farmers do not participate in the income equation of non agricultural activities under the deviation caused by the sample selection has been modified by the inverse Mills ratio, so it can be regarded as income type equations of all families in only participate in agricultural activities.

2.2 Household Income Simulation

After completing the above equation, we can estimate the level of income of farmers in the case of agricultural activities, For all households, we can make use of the above (2) formula to estimate the income of all farmers

when they are not involved in non farm activities $\hat{y}_i^f$, and get the following Equation (3):

$$\log \hat{y}_i^f = \hat{\beta} X_i + \hat{\gamma} \lambda_i \quad \text{(All farmers)} . \qquad (3)$$

It is worth noting that the estimated regression equation by income distribution is relatively uniform, the variance of natural small, if the observation value Y_i and $\hat{y}_i^f$ direct comparison, and the Gini coefficient is will be lower than the latter. In order to solve the comparability problem (Schncider & Gugerty, 2011), by using Y_i observations to estimate the total revenue equation:

$$\log y_i = \log \hat{y}_i^f + \mu_i \qquad (P_i = 0) , \qquad (4)$$

where, y_i and $\hat{y}_i^f$ represent the observed income and estimated income, μ_i for salvage, to the family participating in non-agricultural activities, we only know $\log \hat{y}_i^f$ that is partly explained by the exogenous variables, do not know the residual part (not observed part). Using the above Equation (4), to calculate the variance σ^2 (P_i=0) of the residual households only participate in agricultural activities, assumption σ^2 is a constant, and assuming the residual value μ_i has the same variance σ^2 in the two types farmers only participate in agricultural activities and also participate in non-agricultural activities, under these assumptions, use the following method for each farmer participating in non-agricultural activities to simulate a residual value (P_i=1):

$$\hat{\mu}_i = \sigma \ \Phi^{-1}(r) . \qquad (5)$$

Here r is a random number between 0 and 1, Φ^{-1} for the inverse function of the cumulative distribution function which presentthe the normal distribution, $\hat{\mu}_i$ obey the normal distribution of parameters (0, σ^2). So, we use the residual value instead of family income of non-agricultural activities, family income level which only to participate in agricultural activities is defined as follows:

$$\log y_i^* = \begin{cases} \log y_i = \hat{\beta} X_i + \hat{\gamma}\lambda_i + \mu_i & P_i = 0 \\ \log \hat{y}_i^f + \hat{\mu}_i = \hat{\beta} X_i + \hat{\gamma}\lambda_i + \hat{\mu}_i & P_i = 1 \end{cases} . \qquad (6)$$

The family income simulation process is shown in Figure 1

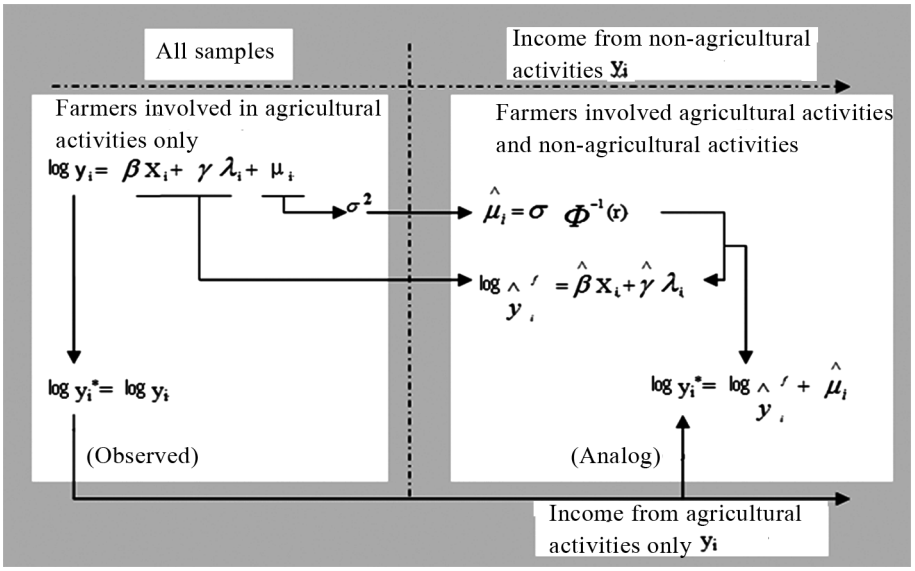

Figure 1
Schematic Diagram of Household Income Simulation

In order to study the influence on the rural income inequality, the Gini coefficient of the observed income $G(y_i)$ and the Gini coefficient of the simulation $G(y_i^*)$ only participating in agricultural activities is compared, if the Gini coefficient of $G(y_i)$ is less than the Gini coefficient of $G(y_i^*)$, then the non-agricultural activities will reduce the degree of income inequality, and vice versa.

3. RESULTS AND DISCUSSION

To relax the mutual independence between non agricultural activities and agricultural activities, the non-agricultural activities are as a potential substitute for agricultural activities. Wage income activities often involve space transformation, namely the farmers leave the land to go out looking for work; but non-agricultural activities of

the farmer who self employment type (entrepreneurship) often in the local, also need family members to participate in. Due to the limited labor time for everyone, whether it is employment based wage income, or entrepreneurship based self employment income, all two will undoubtedly reduce the labor input in agricultural activities.

Table 2
Regression Analysis of Non Farm-Activities Participation Equation

Dependent variable: Per capita household income	Model 1 non-farm activities	Model 2 self employment	Model 3 wage activity
Quantity of labor force	0.463***（6.67）	0.086（1.60）	0.512***（8.61）
Per schooling years (reference group 0-4 years)			
5-6 years	0.241（1.53）	0.301*（1.94）	-0.045（-0.29）
7-8 years	0.436***（2.74）	0.507***（3.31）	-0.018（-0.12）
More than 9 years	0.562***（2.94）	0.421**（2.41）	0.394**（2.31）
Family members receive technical training	1.031***（2.74）	0.576**（1.99）	0.419（1.41）
Skilled labor ratio of family members	0.876**（2.54）	0.466*（1.76）	0.478*（1.73）
Labor burden coefficient	0.059（0.96）	0.151***（2.87）	-0.112**（-2.06）
Farmland area (mu/person)	-0.031***（-4.21）	0.007（0.41）	-0.024***（-3.29）
Per farmland area（/100）	0.012*（1.81）	-0.042（-1.27）	0.014**（1.97）
Distance from town	-0.042*（-1.91）	0.023（1.19）	-0.027（-1.29）
Distance from the Nearest Train station	-0.002***（-2.59）	0.002（1.24）	-0.004***（-4.71）
Distance from the Nearest Bus station	-0.112**（-2.01）	-0.146***（-2.66）	-0.014（-0.24）
Constant	-0.311（-1.27）	-1.116***（-4.85）	-0.743***（-3.21）
Maximum likelihood function	-369.374	-471.158	-441.104
Pseudo R^2	0.654	0.551	0.744
Observed value	526	187	339

Note. t test value in brackets, * * * significant level of 1%, * * significant level of 5%, * significant level of 10%.

Table 2 shows that the number of family labor has a significant positive effect on the per capita income of households, and that more families are more likely to participate in non-agricultural activities. Due to the shortage of arable land, more family members engaged in agricultural activities and the labor productivity is very low, forcing members into non-agricultural industries; at the same time, the opportunity cost to go out to work of more family members is relatively small, the surplus labor can leave the land to work out.

"The average years of schooling of family members" has a positive effect on per capita income, the higher the degree of culture this positive effect is stronger, the rural labor force which received primary and secondary education are more likely to participate in self employment non-agricultural activities (Education 6-8 years), and the members which have higher education are more likely to engage in wage non-agricultural activities (education for more than 8 years). This shows that only from the education level, the higher barriers to entry in nonfarm payrolls, one of the important reasons is that better educated members are more likely to find a non-farm jobs.

"Family members receive technical training proportion" and "Skilled labor proportion of family members "have a positive impact on family income per capita, skills training can improve the competitiveness, promoting the family members participate in non agricultural activities which need certain production and management skills, higher proportion of family members to participate in the training, More likely participate in self employment type non-agricultural activities; the higher the proportion of skilled labor, the proportion of non-agricultural activities is also higher, in short, have more human capital families are more likely to participate in non-agricultural activities.

"Labor burden coefficient" has played a positive role in the origin of self employment income, but play a negative role in the wage earner, one possible reason is: not employees contribute to the local family entrepreneurial activity, but because they need some daily life care, in a certain extent prevent other members to leave for non-agricultural employment activities. It was a negative correlation between the farmland area per capita family and non-agricultural activities, the family of the lack of land resources, because of the surplus labor force, which has a strong participation in non-agricultural activities motivation; but family in lack of land did not participate in the self employment non-farm activities, which may be due to the need of more money to support this type non-agricultural activities, but the lack of land resources in the family often economic strength is relatively weak, and lack of ability to participate in the non-agricultural activities.

"The distance from town, the nearest distance from the train station, bus station distance, the three variable distance measurement where the geographical location of the village, has an important influence to the family income per capita. In general, the township government is located in the rural market transaction and farmers for daily business places, the nearest bus station is located in the small city often exuberant consumer market, the

township and county city has a large number of non farm business opportunities, and the distance from family plays an important role for farmers to participate in self employment non-agricultural activities, the closer the more possibility of farmers' participation in self employment non-agricultural activities, as far away from the market not only increased the transport costs of the non-agricultural, and will reduce corporate profitability in local non-agricultural activities. Train station is usually traffic center of large and medium-sized city, the city and other big city as well as by train station links usually have a large number of employment opportunities, to the train station distance can reflect the employment of long-distance migration cost and convenience, and also reflects the degree of occlusion and information isolation in the residence and outside, the results show that the farther between the household and the train station, less likely for the family to participate in non-agricultural activities (especially wage non-agricultural activities).

Table 3
Regression Analysis of Income Equation

	Model 4 Family income from non-farm activities
Quantity of labor force	-0.031（-0.12）
Per schooling years (reference group 0-4 years)	
5-6 years	0.581**（2.06）
7-8 years	0.402（1.28）
More than 9 years	0.7121*（1.76）
Family members receive technical training	-0.504（-0.61）
Skilled labor ratio of family members	-0.781（-0.90）
Labor burden coefficient	0.144（1.31）
Farmland area (mu/person)	0.083***（4.74）
Per farmland area（/100）	-0.038***（-4.17）
The inverse ratio of mill	-0.258（-0.42）
Constant	6.731***（17.92）
R^2	0.319
Observed value	526

Note. *t* test value in brackets, * * * significant level of 1%, * * significant level of 5% , * significant level f 10% l.

Using the regression model as participation equation, we estimate the household income equation of non-farm activities. The results showed that the quantity of family labor has no significant effect on household income, this shows that in the Chinese rural areas, due to the inadequate supply of land, backward technology and other conditions constraints, the marginal productivity of labor is low. Education has a positive impact on the income of rural households, especially basic education (within 9 years) can significantly increase agricultural productivity. As mentioned above, education has a positive impact on non-agricultural activities, a good education background people only participate in agricultural activities with less likely, but even so, education still has a positive effect on household income growth in the agricultural activities involved only. In other words, education can increase the potential of a person to earn income, with a good educational background, not only has the ability to participate in non-agricultural activities, but also will be higher income families to participate in agricultural activities at the same time.

Table 4
Comparison of Gini Coefficient of Income Distribution Under Different Conditions

	Total household income	Per capita household income
Household income for non-farm activities (observed)	0.478	0.486
Household income (simulated value only) for agricultural activities	0.617	0.634

After simulating family income only participating in agricultural activities, to measureaccording the Gini coefficient of simulating income, and comparise the Gini coefficient of observed income. Table 4 shows that for all samples, regardless of family income or family per capita income, the Gini coefficient of simulating income was higher 30% than the Gini coefficient of observed income, in other words, non-farm participation reduces the rural income inequality.

CONCLUSION AND SUGGESTION

The results showed that non-agricultural activities involved reduce the rural income inequality, the household survey showed that poor households have a higher rate of participation in non-agricultural activities, compared to rural wealthy families, to a greater extent to improve family income per capita when poor families in rural participate in non-agricultural activities, therefore substantially non-agricultural activities in rural areas

reduce the degree of income inequality. In addition, the non-agricultural activities are more conducive to the rural poor families to expand the occupation choice, to expand the sources of income, capital accumulation, increase in agricultural production and human capital investment in rural areas, which will balance Chinese future income distribution pattern, reduce the degree of inequality of income distribution, promote the ability of sustainable development in rural areas.

Based on the above research, we believe that in the future the policy focus should be reflected in: (a) Improving rural infrastructure, starting seamless road construction in urban and rural areas, improve the rural power supply, communication and information network infrastructure construction, to provide basic hardware guarantee for non-agricultural activities in rural areas. (b) Build a multi-channel, multi-level and multi form farmer occupation skill training system, to provide technical support for the process of non agriculturalization, improve farmers' employment and entrepreneurship. (c) Perfect preferential policies to support the non-agricultural activities, to establish multiple financing mechanism of nonfarm activities in entrepreneurship, provide small loan guarantee for farmers, non-agricultural fields venture preferential land rationing, tax relief and other incentives. The effective implementation of these measures will greatly promote non-agricultural activities in rural area, and promote farmers' non-agricultural income growth, reduce the income gap in rural areas, promote rural economic and social harmonious development and sustainable development.

REFERENCES

Adams, R. H. J. (1994). Non-farm income and inequality in rural Pakistan: A decomposition analysis. *The Journal of Development Studies, 31*(1), 110-133.

Adams, R. H. J. (1999). Non-farm income, inequality and land in rural Egypt (p.2178). The World Bank: Policy Research Working Paper.

Banister, J., & Taylor, J. R. (1990). China: Surplus labour and migration. *Asia-Pacific Population Journal, 4*(4), 3-20.

Bezu, S., & Barrett, C. (2012). Employment dynamics in the rural non-farm sector in Ethiopia: Do the poor have time on their side? *The Journal of Development Studies, 48*(9), 1223-1240.

Braham, B., & Boucher, S. (1998). Migration, remittances, and inequality: Estimating the effects of migration on income distribution. *Journal of Development Econimics,* (55), 307-331.

Elbers, C., & Lanjouw, P. (2001). Intersectoral transfer, growth, and inequality in rural ecuador. *World Development, 29*(3), 481-496.

Escobal, J. (2001). The determinants of nonfarm income diversification in rural Peru. *World Development, 29*(3), 497-508.

Hussain, A., Lanjouw, P., & Stern, N. (1994). Income inequalities in China: Evidence from household survey data. *World Development, 22*(12),1947-1957.

Janvry, A., & Sadoulet, E. (2001). Income strategies among rural households in Mexico: The role of off-farm activities. *World Development, 29*(3), 467-480.

Lanjouw, P. (1999). *The rural non-farm sector: A note on policy options*. The World Bank: Non-Farm Workshop Background Paper.

Leones, J. P., & Feldman, S. (1998). Nonfarm activity and rural household income: Evidence from Philippine Microdata. *Economic Development and Cultural Change, 46*(4),789-806.

Luan, J., Chen, J. C., & Li, Q. (2014). High school education or secondary vocational education is more conducive to increase the non-agricultural income of rural labor in the western region?—Estimation of treatment effects based on heterogeneity. *China Rural Economy,* (9), 32-44.

Luo, F., & Huang, L. (2011). The impact of human capital on the level of non-agricultural income of the new generation of migrant workers—Empirical evidence from the Pearl River Delta. *Chinese Rural Observation,* (01), 10-19.

Reardon, T., & Taylor, J. E. (1996). Agroclimatic shock, income inequality and poverty: Evidence from Burkina Faco. *World Development, 24*(5), 901-914.

Schncider, K., & Gugerty, M. (2011). Agricultural productivity and poverty reduction: Linkage and pathways. *The Evans School Review, 1*(1), 56-74.

StataCorp. (2003). *Stata reference manual release8.0.* Texas: Stata Press.

Wiggins, S., & Hazell, P. (2011). *Access to rural non-farm employment and enterprise development*. Overseas Development Institute: Background Paper for the IFAD Rural Poverty Report.

Xiang, G. C., Ceng, X. M., & Han, S. F. (2013). An empirical analysis of rural household heterogeneity, transfer employment and income return based on matching estimator. *China Rural Economy,* (11), 46-56.

Yao, S. (1999). Economic growth, income inequality and poverty in China under economic reforms. *Journal of Development Studies, 35*(6), 103-130.

Zhang, D. H., & Ren, D. C. (2012). An analysis of the factors affecting farmers' non farm income and the decomposition of inequality: 1989-2006. *Fujian Forum (Humanities and Social Sciences Edition),* (02), 4-8.

Zhang, W. W., & Zhang, G. (2014). Research on microcosmic factors of non-agricultural income of rural labor force. *Henan Social Sciences,* (11), 58-63.

Zhao, Y. (1999). Labor migration and earnings differences: The case of rural China. *Economic Development and Cultural Change, 47*(4), 767-782.

Zhu, L., & Jiang, Z. (1993). From brigade to village community: The land tenure system and rural development in China. *Cambridge Journal of Economics,* (17), 441-461.

Zhu, N., & Luo, X. B. (2006). *Nonfarm activity and rural income inequality: A case study of two provinces in China.* World Bank Policy Research Working Paper.

