

## Study on Influencing Factors of the Changing of Rural Residents Income Structure in Heilongjiang Province

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### Abstract

Base on analysis of the structure change of rural residents income in Heilongjiang province, Studying on main affective factors of the structure change of rural residents on income. The results showed that: a) To further strengthen the agricultural foundation status, create conditions for rural residents increase household business income. b) Adjust the rural industry and product structure, promote industrial upgrading. c) Correctly guide the rural surplus labor transfer, develop the third industry. d) To develop the education, strengthen the hand in hand with the development of rural education and skills training. e) According to distribution of elements as the main body, variety of modes of distribution coexist, improve the rural economy and financial market environment. f. Increase spending on national finance in rural areas.

**Key words:** Farmers' income; Revenue structure; Influencing factors

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### INTRODUCTION

Document NO.1 of the Central Government clearly put forward again that rural residents' income is an important aspect of the agricultural and rural economic work. To promote rural residents' income, firstly, Sources of

income and the structure of rural residents are necessary to study in-depth, but the current income of rural residents has changed greatly, sources of income and factors influencing income have become more diverse. Heilongjiang Province is one of China's commodity grain bases, playing an important role in guaranteeing grain security, the growth problem of rural residents' income is widespread concerned. Now, analysis of income structural change and influencing factors of Heilongjiang Province, which contributes to increase the income of rural residents in Heilongjiang to guarantee the effective supply of country food.

### 1. LITERATURE SUMMARY

Domestic and international scholars have done a lot of research about structural change on income of rural residents, existing research shows that the development of technology makes agricultural production trends mechanization, labor is no longer a prerequisite, and extra labor will be absorbed by other industrial. In this case, family income and income structure will produce a corresponding change (Martins & Marques, 2006; Bationo, 2007). Income of rural residents more reflected in structural change associated with the rural industrial structure change, not the changes in the labor allocation among industries on (Li, 1995). But the transfer of labor is household income, In particular, is the source of wage income growth (Barham & Boucher, 1998; Leone & Feldman, 1998; Gautam, 1996; Zhai, 2010). In china, currently, the main component of the income of rural residents is still operating income families, but the proportion of the total income of rural residents in decline; and non-agricultural income growth has become a major aspect of rural residents' income growth, the wage share of income was upward trend (Sun, 2004; Li, 201; Zhang & Wang, 2004). In terms of the impact on consumption because of changing in income of rural

residents comparing difference between different regional, the impact of wage income and operating income of the household on consumption of rural residents are significant in any region, influence of wage income of rural residents' consumption is more important ,especially in the western region, and the impact on operating income of rural residents' consumption is relatively little in the three regions; Effect of transfer income and property income have differences in different regional, transfer income has caused significantly consumption in central and western regions, and the propensity to consume of property income is more significantly in eastern (Liu, 2014; Hu, Cheng, & Xu, 2012; Wen, Tian, & Wang, 2013). Factors that affect the income of rural residents is multifaceted, for example, the impact of financial development (Mina, 2008), Educational degrees, the level of regional economic development, and so on, existing researches become the basis for this study.

## 2. EVOLUTION AND CHARACTERISTICS OF RURAL RESIDENT'S INCOME IN HEILONGJIANG PROVINCE

### 2.1 The Status Quo of Variance of Income Structure of Rural Residents

#### 2.1.1 Changes in the Total Income of Rural Residents

Economic developed, annual average per capita income has been improved in Heilongjiang Province, Table 1 shows, from 1990-2013, annual average per capita income presented the rising trend, per capita income of rural residents in Heilongjiang is 760.31 yuan in 1990, has doubled to 1766.27 yuan in 1995, this figure had increased to 9634.1 yuan in 2013. in terms of growth rate, the fluctuation is greater before 2000, there become negative growth from 1998 to 2000, Although, in recent years, the growth rate is fluctuated , overall showing the upward trend, Since 2006, most of the growth rate of income maintain more than 10%, The growth rate in 2011 and even more than 20% to 22%. Income of rural residents rose sharply related to china's economic development and national support for agriculture, besides, which are closely linked to changes in the structure of rural income.

#### 2.1.2 The Evolution of the Income Structure of Rural Residents

In order to reflect changes in the structure of income of rural residents in Heilongjiang Province, the paper makes the division in detail of the net income and components of rural residents in Heilongjiang, Table 2 shows that.

**Table 1**  
The Annual Per Capita Net Income of Rural Residents and Growth Rate in Heilongjiang

Years	Net income	Growth rate of net income
1990	760.31	0.000
1991	764.74	0.006
1992	992.93	0.298
1993	1027.36	0.035
1994	1393.58	0.356
1995	1766.27	0.267
1996	2181.87	0.235
1997	2308.29	0.058
1998	2253.12	-0.024
1999	2165.93	-0.039
2000	2148.22	-0.008
2001	2280.28	0.061
2002	2405.25	0.055
2003	2508.94	0.043
2004	3005.18	0.198
2005	3221.27	0.072
2006	3552.44	0.103
2007	4132.3	0.163
2008	4855.6	0.175
2009	5206.76	0.072
2010	6210.73	0.193
2011	7590.68	0.222
2012	8601.11	0.133
2013	9634.1	0.120

Note. Source: the 1990-2014 year, "Heilongjiang Statistical Yearbook."

**Table 2**  
Net Income of Rural Residents and Its Components in Heilongjiang

Years	Net income	Wage income	Operating income	Transfer income	Property income
1990	760.31	77.06	674.59	8.21	0.45
1991	764.74	80	669.87	13.09	1.78
1992	992.93	89.18	883.13	17.84	2.78
1993	1027.36	64.48	942	17.03	3.85
1994	1393.58	81.11	1242.63	14.47	55.37
1995	1766.27	130.27	1534.15	21.4	80.45
1996	2181.87	171.37	1904.05	31.1	75.35
1997	2308.29	219.84	2033.79	37.06	17.60
1998	2253.12	235.35	1937.21	57.86	22.70

To be continued

Continued

Years	Net income	Wage income	Operating income	Transfer income	Property income
1999	2165.93	285.32	1803.2	57.19	20.22
2000	2148.22	337.97	1699.37	50.26	60.62
2001	2280.28	333.35	1802.69	47.35	96.89
2002	2405.25	376.55	1861.11	72.03	95.56
2003	2508.94	394.24	1950.17	25.46	139.07
2004	3005.18	413.14	2329.44	125.58	137.02
2005	3221.27	464.31	2363.92	162.41	230.63
2006	3552.44	654.86	2521.51	230.38	145.69
2007	4132.3	773.9	2848.93	313.41	196.06
2008	4855.6	916.76	3163.7	531.57	243.57
2009	5206.76	1019.61	3326.69	619.42	241.04
2010	6210.73	1241.59	3941.65	683.39	344.10
2011	7590.68	1496.51	4784.08	764.85	545.24
2012	8601.11	1816.84	5433.69	772.98	580.34
2013	9634.1	2218.32	5983.92	830.36	601.5

Note. Source: The 1990-2014 year, "Statistical Yearbook of Heilongjiang Province", "China Rural Household Survey Yearbook."

In Table 2, dividing the absolute income of rural residents in Heilongjiang, showing the following conclusions:

a) The total income of rural residents, wage income, operating income, transfer income and property income showed a growing trend, especially in recent years large growth rates.

b) The absolute amount of the operating income is far more than others, and is highly correlated with trends in net income, such as, from 1990 to 1997, showing rising trend, reaching a peak in 1997, both beginning to decline after 1997. Which proves family business income is still the main source of net income of rural residents, annual household contract system makes the family as a production unit, greatly improving the efficiency of production, with the contract system to continue to spread, operating income also increased, from 674.59 yuan to 1242.63 yuan just spending 3 years, in 2008, it breaks the 3,000 yuan, since then, the growth sustains.

c) The absolute value of wage income, property income, and transfer income decreased, and that began growing after 2003. Table 2 clearly shows that after 2003, three parties gradually rise, Larger growth appeared after 2005. The wage income from 77.06 yuan in 1990 to 394.24 yuan in 2003, in 2009, has reached 1019.61 yuan, and in 2012, the wage income 1816.84 yuan, The transfer income also grew by 8.21 yuan to 830.36. Beginning in 2004, a substantial increase in transfer income, reflecting the national support becoming more of three problems of countryside, agriculture and farmers, more and more attention to the development of agriculture in the country. property income began to enter hundred dollars before 2003, and rose sharply.

## 2.2 Evolution Characteristics of the Structure of Economic Income of Rural Residents

After the founding of New China, from the implementation of co-operatives to carry out the implementation of the household responsibility system, with open-door policy, especially the rural household contract responsibility system has been carried on vigorously, the enthusiasm of rural residents to produce are encouraged, rural resident labored freely, promoting the growth of income of rural residents. With the rapid development of urban economy, rural residents began to go out into the city to make a living and run agricultural together, in order to increase the income, they became seasonal or long-term migrant workers. the income structure of rural residents has undergone tremendous changes after the 13<sup>th</sup> Party Fourth Plenary Session: a) In Heilongjiang province, the annual per capita net income presents rising trend, the growth have an increase of 10 times from 1990 to 2013. b) Income structure of rural residents showing a wide range of patterns, the total income of rural residents, wage income, operating income, transfer income and property income showed a growth trend, especially in recent years, The absolute amount of operating income far more than others income, and is highly correlated with the trend of net income; the absolute value of wage income, property income and transfer income decrease slowly, and maintain growth after 2003. c) In terms of the account of the proportion of net income of rural residents, the family business income is still dominant, but its share declined, wage income in the net income of rural residents is second, and its share is rising trend, share of the transfer income and property income are small, but the proportion is rising, steadily and slowly.

## 3. EMPIRICAL ANALYSIS OF FACTORS INFLUENCING THE CHANGE IN THE STRUCTURE OF INCOME OF RURAL RESIDENTS IN HEILONGJIANG PROVINCE

### 3.1 Select Variable and Set the Metering Model

On the basis of the theory analysis before, The paper select the following independent variables: To test the influence of the independent variables to change revenue structure in Heilongjiang, this paper establishes the model between the independent variables and incomes including the wage income, the family business income, transfer income and the property income. Starting respectively unit root test and cointegration test, the data model is as follows:

The First model:

$$GZSR_t = JT_t + GT_t + ND_t + RQ_t + JY_t \quad (1)$$

The Second model:

$$JYSR_t = JT_t + GT_t + ND_t + RQ_t + JY_t \quad (2)$$

The Third model:

$$ZYSR_t = JT_t + GT_t + ND_t + RQ_t + JY_t \quad (3)$$

The Fourth model:

$$CCSR_t = JT_t + GT_t + ND_t + RQ_t + JY_t \quad (4)$$

JT indicates the rural per capital expenditure of transportation and communication in Heilongjiang, used to measure the ability to access information in Heilongjiang rural residents, to response the relationship between residents endowment and income transition..

GT indicates rural fixed assets investment in Heilongjiang, per capita rural fixed assets investment is equal to the proportion of the fixed asset investment in rural accounts to the rural population at the end.

ND indicates the per capital agricultural loans in Heilongjiang, reflecting the financial development, reacting the degree that the level of Rural Financial impact on the income in rural areas.

RQ indicates the cash as gift to friends and relatives in Heilongjiang household per head, measures the interpersonal networks in rural households, shows the influence of social capital change on the income of rural residents.

JY indicates junior high school and higher education level of the population proportion of the total rural population in Heilongjiang rural, reacts the influence of the level of education on the income of rural residents. The per capital net income of rural residents is made up of four major components containing family-run net income, wage income, property income and transfer income, the paper defines SR as the per capital net income, JYSR is in the name of per capita net income of the family business, GZSR stands for per capita wage income, CCSR

represents per capita property income, ZYSR expresses per capita transfer income.

The above data is processed into a logarithm. and excluding the effects of inflation. The data comes from DRCNET, 1991-2014 Year “in Heilongjiang Province Statistical Yearbook” and 1991-2014 “China Rural Household Survey Yearbook.” In this paper, a statistical description of the selected variables are shown in Table 3.

**Table 3**  
**Descriptive Statistics About Variables**

Variable	Max	Min	Mean	Variance	Standard deviation
gzsr	4.03	3.87	3.97	0.002	0.040
jysr	8.47	6.51	7.53	0.274	0.524
zysr	6.64	2.10	4.25	2.003	1.415
ccsr	6.30	-0.79	3.89	3.518	1.875
jt	6.36	2.12	4.38	1.982	1.407
gt	8.03	4.75	6.31	1.069	1.034
nd	8.21	5.27	6.57	0.808	0.899
rq	3.65	6.34	5.15	0.775	0.880

### 3.2 Measurement Results and Related Interpretation

#### 3.2.1 The Unit Root Test

To examine the long-term relationship between the various sources of income and the rural per capital net income, before proceeding Cointegration test, beginning with The Unit Root Test about wage income of rural residents, per capita net income, net income, family-run net income and metastatic property income, the test results are shown in Table 4.

**Table 4**  
**Unit Root Test results**

Sequence	ADF values	5% critical value	Lag intervals for endogenous	P values	In conclusion
Gzsr (level)	0.265	-3.000	0	0.976	Nonstationary
Jysr (level)	-0.776	-3.000	0	0.826	Nonstationary
Zysr (leve)	-0.559	-3.000	0	0.880	Nonstationary
Ccsr (leve)	-1.588	-3.000	0	0.775	Nonstationary
Jt (level)	-0.709	-3.000	0	0.844	Nonstationary
gt (level)	-0.143	-3.000	0	0.945	Nonstationary
nd (level)	0.685	-3.000	0	0.985	Nonstationary
rq (level)	-1.590	-3.000	0	0.489	Nonstationary
jy( level )	-1.101	-3.000	0	0.566	Nonstationary
Dgzsr (the first difference)	-3.132	-3.000	1	0.024	Stationary
Djysr (the first difference)	-3.119	-3.000	1	0.025	Stationary
Dzysr (the first difference)	-6.627	-3.000	1	0.000	Stationary
Dccsr (the first difference)	-4.237	-3.000	1	0.000	Stationary
Djt (the first difference)	-5.140	-3.000	1	0.000	Stationary
Dgt (the first difference)	-4.584	-3.000	1	0.000	Stationary
Dnd (the first difference)	-3.842	-3.000	1	0.002	Stationary
Drq (the first difference)	-4.048	-3.000	1	0.001	Stationary
Djy (the first difference)	-3.058	-3.000	1	0.029	Stationary

### 3.2.2 The Cointegration Test

The level value of above variables is non-stationary, If analysis directly on these non-stationary time series, the results can cause deviations, to avoid the deviation, the paper establish cointegration relationship. In this paper, using the Johansen Cointegration test methods, test respectively four data models, the test results in Model 1 are shown in Table 5

**Table 5**  
**The Results of Johansen Conintegration Test in Model 1**

Hypothesis of the number of co-integration equation	Trace statistics	The critical value
nothing	160.39	94.15
At most one	95.28	68.52
At most two	60.01	47.21
At most three	35.03	29.68
At most four	16.74	15.41
At most five	0.04*	3.76

Note. \* indicates the 5% significance level by testing.

From Table 5, we can draw the conclusion in Heilongjinag, there exist a long-term cointegration between the wage income of rural residents and factors including the ability to obtain information, per capital investment in fixed assets in rural, rural financial level, human contacts, the level of education.

The result of testing the cointegration relationship in Model 2 are shown in Table 6.

**Table 6**  
**The Results of Johansen Conintegration Test in Model 2**

Hypothesis of the number o co-integration equation	Trace statistics	The critical value
nothing	177.48	94.15
At most one	82.15	68.52
At most two	51.97	47.21
At most three	28.54*	29.68

Note. \* indicates the 5% significance level by testing.

From Table 7, it can be concluded, in Heilongjiang, there exist a long-term co-integration between the Household Operating Income of rural residents and those factors, the ability rural residents access to information, per capital investment in fixed assets in rural, rural financial level, human contacts, education level.

**Table 7**  
**The Results of Johansen Conintegration Test in Model 3**

Hypothesis of the number of co-integration equation	Trace statistics	The critical value
nothing	166.95	94.15
At most one	107.09	68.52
At most two	58.29	47.21
At most three	28.83*	29.68

Co-integration test to Model 3, the results are shown in Table 7.

From Table 7, it can be concluded, in Heilongjiang, there exist a long-term co-integration between the Transfer Income of rural residents and those factors, the ability rural residents access to information, per capital investment in fixed assets in rural, rural financial level, human contacts, education level.

Co-integration test to Model 4, the results are shown in Table 8:

**Table 8**  
**The Results of Johansen Conintegration Test in Model 4**

Hypothesis of The number of co-integration equation	Trace statistics	The critical value
nothing	195.36	94.15
At most one	108.39	68.52
At most two	66.43	47.21
At most three	39.82	29.68
At most four	17.54	15.41
At most five	1.57*	3.76

From Table 8, it can be concluded, in Heilongjiang, there exist a long-term co-integration between the Property Income of rural residents and those factors, the ability rural residents access to information, per capital investment in fixed assets in rural, rural financial level, human contacts, education level.

### 3.2.3 Model Estimation Results and Analysis

Though these four models co-integration text, the results as shown in Table 9.

**Table 9**  
**The Results of Regression Analysis**

Variable	First model	Second model	Third model	Fourth model
JT	0.7934 (0.000)	0.3852 (0.000)	0.7382 (0.152)	-2.7797 (0.000)
GT	-1.4873 (0.263)	0.4632 (0.000)	-0.8936 (0.000)	1.7867 (0.000)
ND	-0.8293 (0.040)	0.4365 (0.000)	1.5038 (0.513)	4.3936 (0.000)
RQ	0.3746 (0.023)	-0.0227 (0.524)	1.4142 (0.204)	0.4676 (0.116)
JY	2.8369 (0.000)	1.7515 (0.000)	-4.6082 (0.000)	24.8258 (0.000)
C	4.5395	-3.3012	12.4891	-5.3833
Adjusted R <sup>2</sup>	0.9574	0.8422	0.8561	0.9067
F test	86.4198	24.4020	190.3826	12.2903
P value of F-test	0.0035	0.0035	0.0364	0.0000
P value of Hausman test	0.0645	0.0130	0.0325	0.0000



In second model, the co-integration equation:  
 $JYSR_t = -3.3012 + 0.3852JT_t + 0.4632GT_t + 0.4365ND_t - 0.0227RQ_t + 1.7515JY_t$ .

From the co-integration equation, The ability of rural residents to access information have a significant positive impact on the family business income of rural residents, Rural residents engage in the production is inseparable from pretty much information including production information, transportation information, sales information, thus developed information allows rural residents acquire the relevant product information at the real-time to adjust business strategies to increase the operating income. Fixed asset investment in rural areas of Heilongjiang province have a positive effect on family-run income of rural residents, the part of investment in fixed assets is invested in rural infrastructure, such as the renovation of rural canals, roads, improvement of the level of infrastructure on the one hand makes the production of agricultural products to increase, creating possibility for rural management, on the other hand, to facilitate the rural business products in circulation with the outside world. Increasing the amount of the rural financial institutions, expanding the scope of service, the rural residents can turn to rural financial institution for help, which ease the short-term shortage of funds in the process of the rural residents run. Increasing human exchange is not promoting the operating income to increase and does not pass the test of significance. The level of education has a significant positive impact on improving operating income of rural residents in Heilongjiang, indicates the level of education has a significant impact on improving the management level of rural residents.

In third model, the co-integration equation:

$ZYSR_t = 12.4891 + 0.7382JT_t - 0.8936GT_t + 1.5038ND_t + 1.4142RQ_t - 4.6082JY_t$ .

From the co-integration equation, The ability of rural residents to access information generates positive effects on metastatic income of rural residents in Heilongjiang province, but not significant. Rural fixed assets investment have a significant negative impact on transfer income of rural residents in Heilongjiang province, Rural residents per capita annual income of social security can be said to occupy the vast majority of transfer income residents, and thus transfer spending is closely related to the level of economic development, the lower of economic development, the higher of the local financial subsidies, the higher of the corresponding transfer payments. Affect the level of rural financial development and human contacts on transfer payments is not significant, the level of education has a significant reverse impact on the transfer income, which is due to the high level of education in rural areas where education levels relatively low, the higher of the level of development, the less of financial subsidies to get.

In fourth model, the co-integration equation:

$CCSR_t = -5.3833 - 2.7797JT_t + 1.7867GT_t + 4.3936ND_t + 0.4676RQ_t + 24.8258JY_t$ .

Different from the previous three models, the impact the ability of rural residents access to information on the property income of rural residents is negative. The impact of fixed asset investment in rural Heilongjiang on the property income is positive, the proportion of income from property in the traditional rural households is lower, single source, mainly from the rental income of land, and from the interest on deposits. Increasing the investment of fixed asset in rural areas, improve the rental possibilities and prices, fixed-asset investment in urban fringe is often greater than in rural areas away from the town of investment in fixed assets, while in the urban fringe houses, land rental income is far greater in remote rural areas, and occupy most of the property income. With the Rural finance developing, and expand the sources of property income of rural residents, except the traditional interest income of rural residents' deposits, revenues from other financial products is also growing.

## CONCLUSION

In this study, By making the qualitative and quantitative analysis of structure changes and impact factors in Heilongjiang Province, The following conclusions: a) the structure features of the income from rural residents are as follows: the wage income and family business income are most important, off-farm income and property income are supplemented, the general trend is rising, but slowly. b) In terms of the wage income of rural residents in Heilongjiang province, he rural residents ability to obtain information and education levels have a significant positive impact, per capital in fixed asset investment in rural areas and rural financial level have a negative impact, human contacts have a positive impact. c) For families operating income of rural residents in Heilongjiang province, the rural residents ability to access information and education levels have a significant positive impact, fixed asset investment and the level of rural finance in rural areas have a positive effect to promote, human contact does not pass the test of significance. d) For metastatic income of rural residents in Heilongjiang province, The ability of rural residents access to information have no significant positive impact, the level of education and the rural fixed asset investment have significant negative impact, The impact of the level of development of rural financial and human contacts are not significant. e) For Property income for rural residents in Heilongjiang, the ability of getting messages has a negative impact, rural fixed asset investment and the financial level have positive impact.

## POLICY RECOMMENDATIONS

On the basis of the above analysis, the papers propose the following suggestions: a) Continue to strengthen the

foundation of agriculture, to adjust the structure of rural industry and product, to promote industrial upgrading, creating conditions for rural residents to increase family operating income. b) Correctly guiding the transfer of rural surplus labor, vigorously developing the tertiary industry, accelerating the country's industrialization process, in-depth reforming of the employment system, improving the employment rate, increasing the wage income of rural residents, to develop the second industry and the third industry, to increase rural residents employment opportunities. c) Developing the education, strengthening the simultaneous development of the rural education and skills training, improve the overall educational level of rural residents, improve the fairness of employment opportunities. d) Distribution adhered to the body, a variety of modes of distribution coexisting, strengthen the construction of agricultural infrastructure, increase agricultural production capacity; improving the rural economy and financial environment, expanding investment channels residents, prompting residents' income can be converted into assets. e) Improving the effect of state funds to promote rural economic development, focusing on information technology conditions, occupational skills training, rural roads, rural water, rural communications and irrigation and other infrastructure.

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