Analysis on Consumption Behavior of Zhejiang Province's Farmers from the Perspective of Their Income Increase

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Abstract With rapid development of industrialization in Zhejiang Province, surplus rural labor forces move to the secondary and tertiary industries. Farmers of Zhejiang Province are no exception. They turn to industrial workers and their income source has great changes. Wage income becomes their major source of income. Accordingly, farmers' consumption behavior has great changes. Apart from satisfying basic production and living demands, farmers start to pursue living quality and their life style tends to urbanization. Nevertheless, under the influence of rural physical environment, policies and systems, the existing consumption environment fails to follow farmers' urban lifestyle any more. In line with how to optimize rural consumption environment, improve farmers' consuming capacity, continue to expand farmers' consumption and promote urbanization development of rural areas, this paper presents pertinent countermeasures and recommendations.

Key words Farmers' income, Farmers' consumption, Behavior change, Zhejiang Province

Zhejiang Province is an economically developed province in China. Surplus rural labor forces move to secondary and tertiary industries. Wage income becomes major source of farmers' income. Per capita net income of farmers in Zhejiang Province ranks the first among all provinces for 27 consecutive years. Farmers gradually become industrial workers. Apart from satisfying basic production and living demands, farmers start to pursue quality. More and more farmers buy cars, and cultural tour continuously grows. However, due to limitation of consumption environment, laws and policies, consumption demand of farmers for urban lifestyle is not improved along with income increase.

1 Main sources of farmers' income

1.1 Basic situation of farmers' income The Statistic Bulletin of Zhejiang Province in 2011 indicates that per capita net income of rural residents of Zhejiang Province is 13 071 yuan, 6 101 higher than the average national level, 1 768 yuan more than that in 2010, having an increase of 15.6%, and the actual growth of 9.5% excluding price factor[1]. Since 2003, income of farmers in Zhejiang Province has been coming from wage income, household management, property income and transfer income. In 2010, per capita net income of Zhejiang Province's farmers was 11 303 yuan, wage income accounts for 52.64% (5 950 yuan), household management income accounts for 37.07% (4 190 yuan); property income accounts for 4.96% (561 yuan); transfer income accounts for 5.33% (602 yuan).

1.2 Wage income being the major source of household income The wage income of 2011 accounts for 52.64% of the total household income. Wage income mainly comes from offering labor services. Statistical data shows that per capita income from local labor is 4 736 yuan in 2010, accounting for 79.6% of total amount of wage income (5 950 yuan); per capita income from working outside is 771 yuan, accounting for 12.96% of total amount of wage income (5 950 yuan).

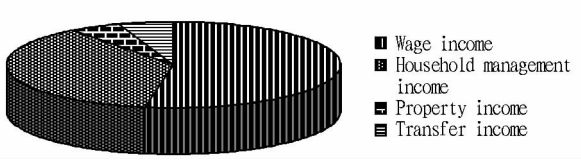

Fig. 1 Composition of per capita net income of farmers

1.3 Household management income mainly coming from the primary industry In 2011, the per capita household management income was 4 190 yuan, accounting for 37.07% of the per capita net income. The primary industry is still major direction of household management, accounting for 44.96% of the per capita household income (1 884 yuan). In the management of primary industry, agricultural management takes the leading position, per capita agricultural income was 974 yuan; management income from the secondary industry (industry + construction industry) was 1 023 yuan, accounting for 24.42% of per capita household income; management income from the tertiary industry was 901 yuan, accounting for 21.5% of per capita household income.

1.4 Continuous increase of property income and transfer income The property income refers to the income obtained by owner of financial assets or tangible non-production assets from providing other organizations with funds or other non-production assets for their disposal as return. The transfer income refers to goods, services, funds or asset ownership obtained by rural residents or household members without the need of providing any corresponding thing, excluding funds freely provided for fixed assets. Generally, transfer income means all income of rural households obtained in secondary allocation. In recent years, farmers' ideas

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change rapidly, and investment and money management and self-protection ability constantly rises. More farmers actively participate in investment, and they are aware of proper allocation of assets. They will turn the idle funds or assets into financial assets to obtain interests, dividends, and bonus after reserving living and production funds. In 2010, the per capita property income was 561 yuan, 8.09% higher than 519 yuan in 2009, 18.86% higher than 472 in 2008, and 65% higher than 340 in 2006. Besides, with rural economic development, farmers' transfer income obtained from the secondary allocation continuously increases, from 319 yuan in 2006, 420 yuan in 2008, and 506 yuan in 2009 to 602 yuan in 2010.

2 Analysis on changes in consumption behavior of farmers in Zhejiang Province

2.1 Basic characteristics of changes in consumption behavior of farmers With continuous increase of farmers' income, their production condition and living quality are also gradually improved. Their consumption behavior has great changes, and they start to pursue life quality. From the statistical data, it can be known that total consumption amount of farmers continuously increases, consumption structure has significant change, growth rate of consumption is basically consistent with the income growth rate, and all expenses have increase along with the income increase. Since 2003, living consumption expenditure of Zhejiang Province's farmers has been constantly increasing. The per capita living consumption expenditure in 2010 reached 8 390 yuan, 4.28% higher than 7 375 yuan in 2009, and 60.88% higher than 5 215 yuan in 2005. The changes in farmers' income and living consumption expenditure since 2000 are listed in Table 1.

Zhejiang Province has relatively developed manufacturing industry, which attracts more and more rural labor forces to move to Zhejiang Province, consequently influencing farmers' household management mode and farmers' consumption behavior. Accordingly, the consumption structure is also unique. In provinces depending mainly on agricultural management, the household management expenditure accounts for nearly 50% (for example, Heilongjiang Province), while household management expenditure of Zhejiang Province takes up only 20% of the total household expenditure. Living consumption expenditure always takes up a larger portion (up to 70%) in the total household expenditure. Farmers' income source (shown in Fig. 1) also fully reflects this characteristic: 52.64% of farmers' income comes from wage income, and 37.07% comes from household management income.

Table 1 Changes in per capita net income and living consumption expenditure of farmers in Zhejiang Province during 2000 – 2010

	Net income // Yuan	Increase of net income over the last year // %	Living consumption expenditure // Yuan	Increase in living consumption expenditure over the last year // %	Percentage of living consumption expenditure into net income
2000	4 254	–	3 231	–	75.95
2005	6 660	56.55	5 215	61.41	78.30
2006	7 335	10.14	5 762	10.49	78.55
2007	8 265	12.68	6 442	11.8	77.94
2008	9 258	10.8	7 072	9.78	76.39
2009	10 007	8.09	7 375	4.28	73.7
2010	11 303	12.95	8 390	13.76	74.23

Table 2 Proportion of per capita household expenditure into total expenditure of farmers in Zhejiang Province during 2005 – 2010

	Household management expenditure // Yuan	Percentage of household management expenditure into total expenditure // %	Living consumption expenditure // Yuan	Proportion of living consumption expenditure into total expenditure // %	Total expenditure of the whole year // Yuan
2005	1525	20.24	5215	69.21	7534
2006	1429	17.6	5762	70.95	81211
2007	1708	18.83	6442	71.01	9071
2008	2059	20.09	7072	69.02	10246
2009	2192	20.36	7375	68.53	10762
2010	2678	21.66	8390	67.87	12361

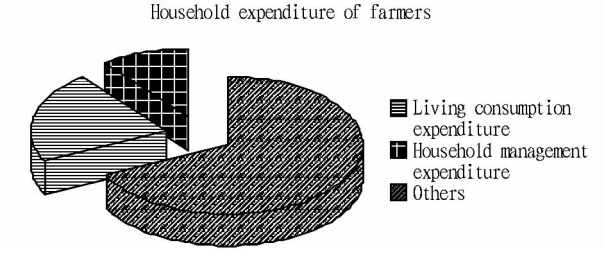

Fig. 2 Household expenditure of Zhejiang Province's farmers in 2010

2.2 Changes in consumption behavior

2.2.1 Gradual urbanization of life style. With rapid development of agricultural modernization, agricultural labor productivity also rises rapidly. This saves much production time of farmers. Migrant workers take urban life style back to rural areas. Then, farmers start to care about living quality. They are willing to be relieved from heavy production and home matters, and relax themselves, to work and live in a better way. In 2010, the Engel coefficient of rural resident households was 37.6%, conforming to the criteria of dividing poverty and richness (0.30 – 0.40) by the

United Nations.

Since 2003, farmers have dinner outside more frequently and spend more. In 2010, per capita expenditure amount of households reached 456 yuan, 17.83% higher than 387 in 2008, and 2.35 times the 194 yuan in 2003. With permission of time and money, farmers are willing to go travelling. In 2010, farmers' expenditure on travelling reached the highest amount (106 yuan) in recent years, 56% higher than 68 yuan in 2008 and 8.15 times the 13 yuan in 2003. With economic development, farmers' family property will be abundant, so their expenditure on outside dining and traveling will be higher.

2.2.2 Modernized family material and equipment. Better life and more family accumulation of farmers stimulate them to ask higher and higher material living demands. Zhejiang Province rural living conditions and material and equipment become basically the same as cities. In 2010, per capita living area of rural households reached 58.53 m^2, 12.1 m^2 over 46.42 m^2 in 2000. Farmers with more than two bed-roomed house accounts for 91.43%. By 2010, reinforced concrete houses have taken up 41.76% of rural houses. The number of refrigerator and air conditioner ownership soars. In 2010, the number of refrigerator ownership in 100 households reached 89.4 sets, 9.2 more than 80.2 sets in 2008, having an increase of 11.47%, and 1.68 times 53.1 sets in 2003.

2.2.3 Network influencing farmers' production and living. With coverage of optical network, farmers' living is gradually realizing informationization. In 2010, every 100 rural households owned 189.1 mobile phones, with an average of 1.89 sets in each family, 29.4 sets more than 159.7 sets in 2008, and 2.57 times 73.5 sets in 2003. Besides, Internet starts to enter rural areas and influence farmers' production and living. In 2010, every 100 rural households owned 35.6 sets of computer, 7 sets more than 28.6 sets in 2009, and 5.93 times the 6 sets in 2003, indicating the rapid growth of computer ownership in rural areas. Through network, farmers can know latest changes in the world and latest agricultural information, and can sell their products.

3 Linear analysis on influence of income on farmers' consumption behavior

The coefficient of correlation was used to study the influence of farmers' income on their consumption behavior. We selected 10 households at random as research samples (as listed in Table 3), and carried out linear analysis on the influence of income on farmer' consumption behavior with the aid of Excel.

Table 3 Sample survey of farmers' income and consumption expenditure in 2007 – 2010 Yuan

No.	2007		2008		2009		2010	
	Per capita net income	Per capita total household expenditure	Per capita net income	Per capita total household expenditure	Per capita net income	Per capita total household expenditure	Per capita net income	Per capita total household expenditure
1	17 717	11 533	9 017	7 500	8 382	3 506	10 800	11 883
2	7 277	6 533	7 610	6 433	8 716	3 026	14 510	5 875
3	27 383	9 920	18 400	7 483	12 480	15 300	22 716	12 103
4	10 530	7 050	10 050	8 100	8 820	7 740	12 850	11 500
5	8 830	7 704	8 240	6 446	9 220	6 938	21 870	11 770
6	5 550	5 837	8 400	4 353	23 633	25 293	20 467	10 477
7	21 666	9 732	16 052	12 237	16 928	14 536	40 080	32 778
8	19 710	7 416	18 550	13 037	18 009	11 537	25 864	13 024
9	4 033	2 650	4 037	2 877	4471	1 435	4 237	3 275
10	58 070	54 133	58 420	30 131	23 190	12 195	32 159	24 463

Note: the above data is selected from rural fixed observation points in Zhejiang Province.

3.1 Linear relationship of income influencing consumption

Suppose the variable income is X, average income is $\overline{X}$, the consumption expenditure is Y, average consumption is $\overline{Y}$, and $n = 4$. By the sample covariance formula:

$$r = \frac{cov(X, Y)}{S_X S_Y}$$

where

$$cov(X, Y) = \frac{\sum_{i=1}^{n}(X_i - \overline{X})(Y_i - \overline{Y})}{n-1}$$

$$S_X = \sqrt{\frac{\sum_{i=1}^{n}(X_i - \overline{X})^2}{n-1}}$$

$$S_X = \sqrt{\frac{\sum_{i=1}^{n}(Y_i - \overline{Y})^2}{n-1}}$$

Then, in 2007, $r = 0.82$; in 2008, $r = 0.96$; in 2009, $r = 1$; in 2010, $r = 0.69$.

The calculation results show that the linear relationship between total household expenditure and per capita net income of farmer households in 2007 – 2010 takes on direct correlation, and especially in 2009, the coefficient of correlation even reached 1. Zhejiang Province's farmers have stable income, thus their consumption behavior is increasingly urban. In the expenditure on living consumption, expenditure on durable goods changes from electric appliance to modern means of transportation. Data indicates that the expenditure on durable goods in 2010 had an increase of 793.53% over the last year. Through further survey, we found the answer is that farmers bought cars. Modern traffic tools expand farmers' living space, improve their life style, and increase their expenditure on outside dining, communication and travelling, and

their clothing also become more fashionable.

Table 4 Average data of major living consumption expenditure of sample farmers in 2009 – 2010 Yuan

Item	2009	2010	Growth rate//%
Durable goods	1 365	12 196.7	793.53
Non-staple food	8 676.9	10 397.4	19.82
Dining outside	1 657.1	2 862.5	72.74
Clothing	1 703.8	3 228.6	89.49
Tuition and incidental expenses	5 966.67	4 183.33	-29.89
Traffic and communication expenses	2 232.3	3 229	44.65
Gifts for rural relatives	6 333.33	4 025	-36.45

3.2 Regression analysis on influence of income on consumption Take the income as independent variable X, and consumption as dependent variable Y, then the regress mode of linear relationship between income and consumption:

$$Y = A + BX$$

where A is intercept of sample Y, and B is slope of the sample. Calculation formula is as follows:

$$A = \frac{\sum Y}{N} \quad B = \frac{N\sum XY - \sum X \sum Y}{N\sum X^2 - (\sum X)^2}$$

Calculation results:

In 2007, $A = 12\ 250.8$, $B = 0.86$, and regression equation $Y = 12\ 250.8 + 0.86X$; in 2008, $A = 9\ 859.7$, $B = 0.48$, and regression equation $Y = 9\ 859.7 + 0.48X$; in 2009, $A = 10\ 150.6$, $B = 0.90$, and regression equation $Y = 10\ 150.6 + 0.90X$; in 2010, $A = 13\ 714.8$, $B = 0.73$, and regression equation $Y = 13\ 714.8 + 0.73X$. Through calculation, per capita income of farmers has an increase of 1 yuan, the per capita consumption expenditure will have an increase of 0.86, 0.48, 0.9 and 0.73 in 2007, 2008, 2009 and 2010 respectively.

The above analysis indicates that farmers' consumption behavior has large fluctuation, which is possibly related to lack of living environment, cultural education and social security infrastructure and failure to satisfy farmers' urban living demand. Farmers' centralized consumption is still prominent, mainly including marriage and funeral, house building, children's schooling. Due to lack of cultural and financial consumption places in rural areas, farmers do not have proper investment environment. Expenditure on ignorant consumption remains high all the time, such as tomb repair, temple construction, gambling and drug taking. These not only waste money, but also influence farmers' living quality, consequently limit expansion of reproduction and accumulation of household assets. The objective environment and self traditional awareness impede expansion of farmers' consumption, limit the demand of farmers' changing their status to industrial workers, and will harm rural urbanization and sustainable development of rural economy and society in the long run.

4 Countermeasures for improving consumption ability of farmers in Zhejiang Province

4.1 Increasing farmers' income through many channels The precondition of increasing farmers' consumption is to ensure that farmers have abundant funds apart from normal household management. In fact, farmers' income is still limited and the increase in their income is still in the bottleneck period. To improve farmers' consumption ability, we must take many effective measures and channels to increase farmers' income. (1) It should speed up transformation of rural intensive production mode, increase agricultural productivity through mechanized production, stress labor transfer, and increase labor remuneration other than from agricultural production. (2) It should accelerate developing industries related to agricultural science and technology and deep processing of agricultural products. At the same time of increasing land output, it should also expand production quality and scale, and make farmers obtain added value brought by scientific and technological progress. (3) It should promote development of rural industries, to provide more jobs for farmers through establishing rural industrial enterprises. (4) It is recommended to propagate knowledge of investment and credit, to help farmers obtain more property and transfer income.

4.2 Strengthening infrastructure construction Zhejiang Province is still very backward in rural public cultural undertakings, and farmers do not have material conditions for consumption. The popularization rate is still low for cable TV, cultural activity room, library, sports field and the recreation room for the elderly. In 2010, the popularization rate of Internet was only 36.4%, and movie is even more difficult to see. Farmers' cultural life is very simple, but backward culture (such as gambling, feudalistic superstition, and mutual unrealistic comparison) propagates its belief on a large scale. Such unreasonable consumption expenditure restricts to some extent the development of agricultural production and increase of farmers' income. Therefore, it should speed up construction of rural public cultural products through taking effective measures of funds, organization, construction and services, to improve farmers' quality and promote socioeconomic development of rural areas.

4.3 Perfecting rural financial service It should perfect rural financial system and increase funds of farmer households. Specifically, it may encourage developing various miniature financial service organizations in accordance with rural characteristics, and introducing more credit funds and social capitals to flow to rural areas. Besides, it should make clear legal subject status of small sum credit institutions, provide more support in policies and strengthen supervision over them. It should accelerate construction of rural credit system, establish rural security system and rural insurance system, and carry out clear ownership and risk controllable rural mortgage loan and hypothecated loan. Furthermore, it is recommended to carry out law dissemination, improve the level of civilized villages and towns, star-level civilized households and credit villages and households, and make farmers understand high reputation helpful to application for loans. With rural financial consumption market gradually established, we can provide lectures on modern money management knowledge for farmer households,

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difference can be alleviated and eliminated fundamentally only by ensuring the sustained and stable economic development. Economic development can lay solid material foundation for equal income distribution and decreasing income difference.

(2) Reasonable macro-control policies should be implemented. Relevant political preference on supporting agriculture, increasing agricultural funds, improving basic education, supporting rural infrastructure construction and social undertakings, establishing scientific strategy for rural industrialization development and promoting rural industrialization as well as urbanization should be emphasized.

(3) Difference in education background is to be decreased to improve population qualities. It is proved that education has positive correlation with income. Therefore, government policies should be beneficial to equal education for more rural residents and children from poor families should be given special consideration. Besides, in regions with low income, farmers' income should be promoted and intellectual work as well as intellectual investment should be encouraged with macro-control at an attempt to increase the income of professional technicians as well as administrators, prevent outflow of talents and resources and ensure the development potential there. Furthermore, preferential policies should be provided to attract more labor force, technology as well as capital funds.

(4) Distribution principles should be standardized and illegal income be punished. Taxation system is to be adjusted. Income distribution system should be adjusted and perfected to protect reasonable income. Different supporting policies should be formulated and implemented in different areas to reduce farmers' burden.

(5) Opportunity equality of rural residents' income should be ensured. Government should make sure that each social member can enjoy a basic and equal starting point before entering the society. Every social member should have equal basic rights including equal right of existence, employment opportunity, education opportunity as well as migration opportunity.

References

[1] CHEN AP. Theoretical and empirical study of the relationship between economic growth and income gap of China[J]. Economic Issue, 2010(4): 4-8, 54. (in Chinese).

[2] XIE ZL. Effects of family background and human capital on individual income difference[J]. Modern Economics, 2010, 9(2): 63-65, 106. (in Chinese).

[3] ZENG ZY, ZHU WZ, LUO YP. Regional difference and countermeasures of farmers income in China[J]. China Economic & Trade Herald, 2010(10): 83. (in Chinese).

[4] CHEN ZS, YUN B. Income distribution in reform and development[M]. Beijing: Economic Science Press, 2002: 63-70. (in Chinese).

[5] DUAN JH, CHEN JB. Quantile regression analysis of urban-rural family income difference influencing factors[J]. Economist, 2009(21): 46-53. (in Chinese).

[6] TAO YH. Rural residents income regional difference and influencing factors [J]. Economic Issue, 2010(6): 71-72. (in Chinese).

[7] QIAN MZ. Effects of China distribution gap variation in open economy and effects on economic growth[M]. Beijing: Economic Science Press, 2006: 98-118. (in Chinese).

[8] CHEN AP. Experience of relationship bewteen China economic growth and income gap[J]. Economic Issue, 2010(4): 4-8, 54. (in Chinese).

[9] LIANG JS, KONG J. Difference of gene coefficient and variation coefficient on regional unbalance measurement[J]. Journal of Beijing Normal University: Nature Science Edition, 1998(3): 409-413. (in Chinese).

[10] LU M, CHEN Z. Urbanization tendency economic policy and urban-rural income gape[J]. Economic Research, 2004(6): 50-58. (in Chinese).

[11] WANG XL, FAN G. The trend of the gap of urban and rural residents income in China and an analysis of influential factors[J]. Economic Research, 2005(10): 24-36. (in Chinese).

[12] YUE LY. Theft coefficient analysis on income gap and inequality in China [J]. Journal of Yunnan University of Finance and Economics, 2008(1): 30-37. (in Chinese).

[13] CHEN Z. How to realize economic sustainable growth in balancing regional development[J]. Study and Exploration, 2008(3): 129-136. (in Chinese).

[14] MA CH. Residents income gap in China[J]. Economic Research Reference, 2002(27): 33-40. (in Chinese).

[15] YANG K. Causes for income gap and countermeasures in China[J]. Operation Manager, 2009(21): 207. (in Chinese).

[16] WANG QF. Study on regional economic difference and influencing factors—Empritical analysis and test with Jiangsu as Example[D]. Nanjing: Nanjing Agricultural University, 2003: 127-132. (in Chinese).

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to guide farmers to set up modern money management idea.

4.4 Improving farmers' quality and specialized technical ability Since Zhejiang Province's farmers are not simple farmers, it requires that they should have high personal overall quality and specialized technical ability to satisfy demands of jobs of industrial workers. Government should increase input into scientific, technological, and cultural training and education to improve farmers' labor skills. (1) Government may provide funds to encourage individuals to set up specialized training organizations or bring into play functions of vocational technical schools. Apart from arranging agricultural courses, it should set up corresponding technical courses according to characteristics of industrial clusters in Zhejiang Province, to satisfy talent demands of enterprises. (2) It is proposed to provide multi-channel, multi-level and multi-form training for farmers, such as sending training teachers to villages, media resources to villages, talent cultivation to villages, and town cadres to villages. (3) It should bring into full play functions of mass media (including television, radio, newspaper and network), propagate basic theory of market economy and successful cases of market competition, and make effort to cultivate farmers' idea of market economy, to stimulate their enthusiasm for participating in market competition and improving their market competitive ability.

References

[1] Zhejiang Statistic Bureau. Zhejiang statistic yearbook[M]. Beijing: China Statistics Press, 2011. (in Chinese).