

A Study on Income-Distribution Regulatory Effect of Financial Support in Agriculture

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Abstract

This thesis carries out a quantitative inspection about marginal scale effect and structural effect that both size and structure of expenditures for financial support in agriculture have on income gap between urban and rural residents. According to analyses, it is found that both absolute amount and relative amount of size of financial support in agriculture have widening effect on income gap between urban and rural residents; agricultural infrastructure, three items of agricultural science and rural relief have gap-reducing effect; support for agricultural production and operating expenses of departments do not have significant effect, which may have widening effect in combination with reality factors; and unreasonable structure is a key factor leading to the situation that regulatory effect of financial support in agriculture on unfair income distribution is minor. Thus, to improve income-distribution regulatory effect of financial support in agriculture, it is essential to increase scale of expenditures, form a long-term mechanism, enhance degree of capital integration, optimize expenditure structure and perfect mechanisms of governmental performance examination.

Key words: Income gap between urban and rural residents; Financial support in agriculture; Income-distribution effect

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1. PROPOSING PROBLEMS AND PRESENTING LITERATURE REVIEW

Economic growth and income distribution are two eternal themes for economics, i.e., the problem about 'efficiency' and 'fairness'. With establishment of New China, especially at the beginning of Reform and Opening-up, pursuit for macroeconomic 'efficiency' becomes a strategic focus of the Party and the country. Strategic policies like 'giving priority to the development of heavy industry', 'giving priority to efficiency and taking count of equity simultaneously' and 'taking economic construction as the central task' explain the degree to which Chinese development attaches to 'efficiency' well. From 1978 to 2011, total GDP of China was RMB 47,000 billion, China surpassed Japan successfully and became the second economic entity in the world, and annual average economic growth reached up to 9%. Thus, it is clear that 'efficiency' of economic development obtained amazing achievements in China. However, with rapid macroeconomic development, some underlying problems begin to appear and become obstacles hindering continuous and healthy development of social economy. As marketization deepens constantly, achievements of economic growth are not shared by all people fairly, which causes more and more serious income inequality (Wang, 2012) and enlarges gaps among regions and between cities and countryside gradually. Per capital income rate of urban and rural residents was improved from 2.57 in 1978 to 3.13 in 2011, and it also shows an increasingly widened trend. If medical security, medical security, difference in educational input and invisible welfare that urban and

rural residents can enjoy are counted, the gap may be 6:1 at most (Zhang, 2003). Thus, it is shown that inequity of income distribution has become a major obstacle affecting overall situation of social harmonious development. As the Reform enters 'an abyssal region', the most severe and the most urgent problem that we face with lies in how to promote equitable distribution of incomes and shorten income gap among residents, especially between urban and rural residents.

Researches on income gap have had a long history. In the 'inverted-U hypothesis' proposed by Kuznets an American economist (1955), income gap implements 'inverted-U' curvilinear motion that it expands and then shrinks with level of a country's economic growth, and the income gap shows different states as stages of a country's economic development vary. However, according to experience, it seems that the income gap in China does not have such a relationship with economic growth. The reason for this is that market economy of China has not been perfect or element resources cannot flow freely. Even if economic development level has reached some degree, the situation that 'industry re-feeds agriculture and cities support countryside' will not appear automatically unless the government takes compulsory administrative measures to intervene. In addition, existence of a series of institutional factors will not only hinder free flow of resources themselves but also make the mechanism 'voting by foot' (Tiebout, 1956) have difficulty in exerting its effect in China. Since the whole market economic system is not sound, it is difficult for resources to flow freely to realize optimal allocation. Thus, it is not realistic to rely on 'invisible hand' to solve the urban-rural income gap that is widened constantly at present. Besides, governmental actions play an important role in the process in which urban-rural gap forms in China. Thus, development of rural economy, improvement in farmers' income and reduction in urban-rural income gap need the government to play a leading role eventually. The most effective way that the government uses to promote optimal allocation of resources and adjust residents' income distribution is financial policies. Among such policies, financial expenditure policy acts as the most controllable and the most flexible method of the government.

Since Richard Musgrave a financial expert (1959) systematically put forward fiscal theory, researches on income distribution from the perspective of financial system have been driven. Chinese scholars have also carried out a number of helpful studies on income gap between urban and rural residents, which is widened gradually, from the financial perspective. Some scholars have developed studies in the aspect of financial system: Wang Yongqin et al. (2007) combined with political organizational form and financial system to implement logical analyses of current situations about unfair distribution of income, and they deemed that separation of powers of finance and economy under concentration of political power

provided optimal motivation for local government to develop local economy and drove marketization and privatization of local economy, while the relative performance evaluation that was born in the motivation structure caused continuous expansion for income gap between cities and countryside and among regions. Under the check-up system that uses performance about economic growth (GDP is supreme) as work performance of local officials for promotion, local governments tend to take 'yardstick competition' while they bear pressure resulted from governmental performance examination and promotion (Zhou Li'an, 2004; Fu Yong and Zhang Yan, 2007), which drives local governments to input limited financial resources into 'city-favorable' industry with short cycles and rapid effect (Li Xuesong, 2013) so that they even occupy and embezzle financial resources which should have been used to support agriculture. As a result, structure of financial expenditure is distorted seriously. More literatures have carried out quantitative inspections on income-distribution effect of financial expenditure and its structure in the aspect of experience: based on panel data of 270 prefecture-level cities in the whole country from 1994 to 2003, Tao Ran and Liu Mingxing (2007) inspected impacts of local governments' financial expenditures on income gap between urban and rural incomes and found that overall financial system of China had serious urban bias, and the situation that financial income right tended to center on the central government and local government's financial autonomy not only reduced local governments' agricultural input but also weakened effect of fund use and restricted effect of fair income distribution of local governments' financial expenditure; under the background of fiscal decentralization, Chen Anping (2009, 2010) performed a series of researches on financial expenditures and income gap between urban and rural residents, deemed that fiscal decentralization could encourage local governments to promote and solve growth indeed but local governments' distorted structure of financial expenditures neither gave enough support to the countryside nor restrained expansion of urban-rural income gap effectively, and suggested that the increasingly widened urban-rural income gap could be improved only when expenditure ratio of projects like agricultural expenditure as well as science and technology was increased; and Wang Yiming and Cai Xiang (2010) focused on studying structure of financial expenditure, finding that different expenditure items had different impacts on income gap between urban and rural residents and degree of impacts had significant spatial difference. Nevertheless, Li Xuesong and Ran Guanghe (2013) thought that fiscal decentralization would be helpful for us to shorten income gap between urban and rural residents. Yu Ling (2012) studied contribution of financial funds for assisting agriculture to agricultural development based on data of Hubei Province and found that capital usage efficiency was low and proper effect

was not exerted really because structure of expenditure for supporting agriculture was unreasonable.

To sum up, researches on income gap between urban and rural residents from the financial perspective not only considered the relationship between the two in the aspect of experimental data specifically and rigorously but also carried out profound logic analyses in an institutional aspect. However, because of differences in variable selection, measurement model, time span and samples, drawn conclusions are different as well. We find that most of researches utilized financial gross of the whole country as a research object. Although some scholars carried out studies based on financial support in agriculture, their sample range was too narrow and universality of such studies was not enough. In addition, few researches related to scale with structure to do analyses. For this, our study starts with financial expenditure for supporting agriculture and combines with theories and real evidence to analyze income-distribution regulatory effect of financial branch systematically, which has the most direct influence on income gap between urban and rural residents. Besides, we relate scale of financial support in agriculture to its scale and analyze their marginal scale effect and structural effect on income gap between urban and rural residents comprehensively. Based on empirical conclusions, we analyze and evaluate efficiency of financial support in agriculture after the Reform and opening-up and propose policy suggestions for improvement in the efficiency of financial support in agriculture.

2. THEORETICAL ANALYTICAL FRAMEWORK

Agriculture is lifeblood for a country's development. Regardless of the strategic role that agriculture plays in the country and proportion of agricultural population, China is worthy of the name 'agricultural power'. Historically, urban-rural dualism and city-favorable policy causes increasing enlargement of urban-rural gap. The most important task on the road where the Reform is deepened lies in how to shorten urban-rural gap (especially income gap among residents). Since 2003, 'No. 1 Central Document' has focused on 'issues of agriculture, farmer and rural area' all the time. Hence, it is obvious that developing modern agriculture, cultivating new subjects of agricultural production and operation, increasing farmers' income from property and shortening income gap between urban and rural residents have become key points for a new round of reforms. Financial policy is an effective way to adjust equitable distribution of income. In detail, financial expenditure policy is the most effective and the most flexible regulating method. Financial support in agriculture is an important branch in national financial expenditures, which benefits rural areas. In China where urban-rural gap is so large, it is

quite significant to exert role of financial support in agriculture well. Financial expenditure for supporting agriculture acts as important fund support to push rural economic development, improve farmers' income and develop rural social undertaking. Financial expenditure for supporting agriculture has 'dual' effect in adjustment of income distribution, i.e., gross and structure. Thus, changes in quantity of the country's financial expenditure for supporting agriculture and structural adjustment of expenditures will have impacts on income gap between urban and rural residents.

Neoclassical growth theory deems that labor and capital investments are basic elements of industrial development, science and technology are motive power of industrial development and there is no exception for agriculture. Agricultural input contains private productive input (productive expenditure) and agricultural expenditure of national finance. Specifically, financial expenditure mainly refers to expenditures for related agricultural public services like agricultural infrastructure and remodeling of irrigation and water conservancy, and has scale effect. Since Reform and Opening-up, China's financial support in agriculture was increased from RMB 15.066 billion in 1978 to RMB 989.028 billion in 2011. Agricultural infrastructure, rural market and rural appearance have been improved largely, which drives development of rural economy effectively and provides huge funding support for increase in farmers' income. From this prospective, it can be found that financial expenditure for supporting agriculture has restraining effect on income gap between urban and rural residents. However, traditional theory also thinks that agriculture is not a capital intensive industry, excessive agricultural input wastes scarce resources, excessive financial agricultural input will disturb optimal allocation of overall social resources and reduction in financial agricultural input is effective 'Pareto efficiency' and can improve overall benefit level of the society effectively. If we give consideration only from the perspective of accounting input and income, yield rate of agricultural input is lower than that of capital investments in industry and commerce indeed. With the addition of 'dual pressure' of local officials under central concentration of political power, i.e., governmental performance examination and political promotion (Zhou, 2004), an optimal choice of the government's financial expenditure is to input many financial resources into urban industrial departments with rapid effect and short cycles, which causes structural distortion in the aspects of cognition and policies about the country's financial expenditure. Growth of financial support in agriculture is lower than that of overall financial income and expenditure, relative share of financial expenditure for supporting agriculture reduced from 13.43% in 1978 to 6.8% in 2007, and it has been improved a little in recent years. Ratio of financial support in agriculture is much lower than proportion of agricultural

population and contribution rate of value of agricultural production (proportion of the primary industry). Thus, it can be said that the existing scale of financial support in agriculture does not satisfy real demands of agricultural input largely but restricts exertion of scale effect of financial agricultural funds and damages the restricting effect of financial support in agriculture on income gap between urban and rural residents. Long-term ignorance about agricultural input enlarges gaps between agriculture and industry and commerce and urban-rural income gap. As a result, environment of agricultural production is not improved substantially. Instead, the dilemma slash-and-burn cultivation and depending on Heaven for food' still exists, which restrains efficiency of agricultural efficiency. Analyses find that gross effect of financial support in agriculture is divided into absolute amount effect and relative amount effect. The two are different expressions showing effect of financial support in agriculture on income gap between urban and rural residents. Then, whether financial support in agriculture has exerted proper reducing effect on income gap between urban and rural residents still need be inspected by empirical tests.

'Structure' draws more and more attention in the field of economic researches. Whether financial expenditure for supporting agriculture can exert its maximum effect is still restricted by its structure, i.e., structural effect of income distribution of financial support in agriculture. According to approaches of use, financial support in agriculture can be divided into support for agricultural production, operating expenses of departments, expenditure for infrastructure, three items of agricultural science-technology funds and rural relief. Since use approaches and mechanisms about expenditure of every sub-project have differences, there are significance differences in economic benefit, income duration and income object of each sub-project. Take support for agricultural production and operating expenses of departments for example. Expenditures of this item stably hold about 70% of financial expenditure for supporting agriculture, including agricultural productive expenditure and operating non-productive expenditure. According to statistics, operating non-productive expenditure in this kind of expenditure exceeds 70% (Chen, 2005), which implies that about 50% of financial support in agriculture is used for non-productive expenditure. 50% of financial support in agriculture serves as operating expenses of administrative institutions in the countryside, which suggests that financial support in agriculture is featured by 'mouth-feeding finance' distinctly, and most of people enjoying financial support of these expenditures have urban background. Thus, nearly 50% of financial expenditure for supporting agriculture flows back to cities and towns. In addition, 'mouth-feeding finance' occupies productive input partially. As a result, the financial expenditure for supporting agriculture, which is limited originally,

suffers 'one disaster from another'. In addition, fiscal funds for assisting agriculture are allocated 'from top to bottom and layer on layer', the ratio at which funds are applied to agricultural product practically is reduced to different degree after they have been 'slimmed' by each layer of departments. Hence, we may find that effect of this kind of expenditure will be weakened largely even if it plays a role in driving rural economy and improving farmers' income. Then, this kind of expenditure will have widening effect on income gap between urban and rural residents. The academic circle has been disputing effect of infrastructure expenditure all the time. One opinion holds that infrastructure construction serves agricultural production and obvious reducing effect on income gap between urban and rural residents can be obtained by improving ability of agriculture to resist risks, accelerating transportation of agricultural products, driving rural marketization and accelerating resource flow between cities and towns. Another opinion thinks that agricultural infrastructure construction can drive rural economic development indeed but spillover effect of this kind of expenditure is more obviously; good infrastructure reduces cost resulted from the situation that industry and commerce at cities purchase raw materials from rural areas and input finished products into the countryside, infrastructure construction cannot be separated from steel, cement and machinery of cities and this is also one of the large markets for industrial development at cities, so the direction in which this kind of expenditure generates effect still need be examined by empirical tests. Three items of agricultural science-technology funds and rural relief are considered to be effective methods by which income gap between urban and rural residents can be shortened. Income period of the effect generated by three items of agricultural science-technology funds is long and the time when income lasts is long, but time limit when rural relief has effect is short and its income duration is also short. Effect of the former on income gap is indirect, while that of the latter is direct. In accordance with our analyses, structure of financial support in agriculture is one of the factors deciding its regulatory effect gap income, and advantages and disadvantages of its structure decides financial support in usage efficiency of fiscal funds for assisting agriculture. At the stage when adjustment of income gap relates to success of reform, the most realistic and the most effective policy choice for the government lies in how to adjust and optimize structure of financial support in agriculture and exert regulatory effect of limited fiscal funds for assisting agriculture on income gap as much as possible under the background of rigid financial expenditure. Therefore, based on empirical studies, verification and evaluation on structural effect of previous financial support in agriculture can provide beneficial empirical evidence for the government's adjustment about structure of support for agriculture.

3. EMPIRICAL ANALYSIS

3.1 Model Construction and Variable Selection

This thesis mainly directs at analyzing direction and degree of the effect of scale and structure of financial expenditure for supporting agriculture on income gap between urban and rural residents, so the following two multiple regression models are built:

$$gapin_t = \alpha_0 + \alpha_i X_t + \alpha_j Y_t + \varepsilon_t$$

(i:1-2; j:3-6; t:1978-2011) (1)

$$gapin_t = \beta_0 + \beta_h Z_t + \phi W_t + \delta_t$$

(h:1-4; t:1978-2006) (2)

Since there is serious multi-collinearity between scale and structure of financial expenditure for supporting agriculture and structure is born in scale, a single regression equation cannot solve problems related to collinearity and endophytism. Thus, this thesis constructs a scale model and a structure model to solve the problem, respectively. Model (1) is used to test scale effect of financial support in agriculture by the sale equation, and time span of its samples is from 1978 to 2011. Being the same as most researches, it selects *gapin* the income ratio of urban and rural residents as an explained variable. The larger the value of the variable is, the larger the income gap between urban and rural residents is. X_t is a scale index of financial expenditure for supporting agriculture, and acts as an explanatory variable of this thesis. Being different from previous researches, scale indexes selected by this thesis include two variables, i.e., *total*, the absolute amount of financial support in agriculture (flow of the country's financial support in agriculture over years) and *pro*, the relative amount (proportion of financial expenditure for supporting agriculture to total financial expenditures of the country). Although the two variables are scale indexes of financial support in agriculture, the direction in which they have effect on income gap between urban and rural residents and channels of their effect are different. If only one variable is used to test scale effect, it will be impossible to estimate scale effect of financial expenditure for supporting agriculture comprehensively. Scale effect of income distribution of financial support in agriculture can be evaluated correctly only when the absolute amount and the relative amount of scale is combined. Factors affecting income gap between urban and rural residents are multidimensional, so this thesis chooses the following indexes as the important control variable Y_t : *agdp*, per capital GDP (reflecting overall economic level of the country), *pexp*, the proportion of the country's financial expenditure to GDP (inspecting the degree to which the government takes part in economic activities), *stru*, the ratio of agricultural GDP to total GDP (investigating adjustment of industrial structure) and *labor*, the proportion of employed agricultural population to total employed population (studying changes in employment structure).

Model (2) is used by the structural equation to test structural effect of financial expenditure for supporting agriculture on income gap between urban and rural residents. In 2006, statistical caliber of finance was changed largely. Especially, sub-project statistics of finance do not take previous classification caliber any more, which results in superimposition of previous and current data and no comparability. In view of this, this thesis selects structural data from 1978 to 2006 to investigate structural effect. Since rigid budge constraint of financial expenditure, the tested structural effect also has good explanatory ability for current expenditure structure. *gapin*, the income ratio of urban and rural residents is used as an explained variable, and Z_t is a structural index including *agri*, *buil*, *tech*, and *welf*, which indicates shares of support for agricultural production, operating expenses of departments, expenditure for infrastructure, three items of agricultural science-technology funds and rural relief in financial expenditure for supporting agriculture, respectively, and reflect structure of financial expenditure for supporting agriculture comprehensively. The tax-sharing system reform in 1994 is of strategic significance in financial system of China. A number of studies deem that tax-sharing system is significant in both financial revenue and expenditure and financial structure. Thus, we add a dummy variable W_t (it is 0 before 1994 and 1 after 1994) to the structural model to investigate impacts of tax-sharing system on structural effect of financial expenditure for supporting agriculture.

Sample data used in this thesis mainly derive from *China Statistical Yearbook* and *Finance Yearbook of China* over the years and are calculated by the authors according to statistical data. Since time sequence has strong time trend, this thesis carries out logarithmic processing for all selected variables in order to avoid impacts of time trend factors on regression results. Meanwhile, models are also changed into double logarithmic model. Thus, each regression parameter becomes an elastic coefficient, i.e., marginal effect of scale and structure of financial support in agriculture on income gap between urban and residents. In addition, this thesis utilizes Eviews6.0 data analysis software.

3.2 Empirical Test

This thesis mainly utilizes time sequence at a national level to test scale and structure of income-distribution effect of financial support in agriculture. Homogeneity of the time sequence is quite important in quantitative analysis. Thus, in order to avoid spurious regression, it is necessary to carry out a unit root test on the time sequence. We utilize ADF method to do a stationary test on the sequence involved in this thesis. In accordance with AIC criterion and Scharz criterion, our test finds that all original sequences have unit roots and are non-stationary ones. After the first difference, sequences eliminate unit roots and become stationary time sequences at the confidence level 95%. Thus, it is found that time

sequences selected by this thesis are the first-order integration ones. Co-integration theory thinks that the same order non-stationary data may have long-term equilibrium relationship. After carrying out regression for the scale equation and the structure equation, this thesis uses E-G two-step method to test stationarity of random sequences of the two regression models. According to results, it is shown that stochastic terms of the two regression models are highly stationary, i.e., variables involved in the two regression equations are co-integrated

and model building accords with requirements of the quantitative inspection.

Scale effect: some researches show that income gap between urban and rural residents in China is featured by inertance and ‘self-enhancement’ to some extent (Yu Changlin, 2011). We also use *gapin* (-1) a hysteresis term of the explained variable as an explanatory variable in the regression to investigate such a characteristic. Specific rest results are shown in Table 1.

Table 1
Regression Results of the Scale Effect Model

Explained variable	Regression of absolute amount		Regression of relative amount	
	Coefficient	T value	Coefficient	T value
<i>gapin</i> (-1)	0.468249*** (0.071349)	6.562810	0.450764*** (0.073983)	6.092791
<i>total</i>	0.141332** (0.051738)	2.731667		
<i>pro</i>			0.140110** (0.050507)	2.774035
<i>agd</i>	-0.304395*** (0.076652)	-3.971149	-0.160972*** (0.055171)	-2.917703
<i>labor</i>	0.259124 (0.187965)	1.378575	0.250747 (0.186870)	1.341822
<i>stru</i>	-0.88793*** (0.134453)	-6.604056	-0.915590*** (0.136377)	-6.713657
<i>pexp</i>	-0.29114*** (0.068320)	-4.261500	-0.162216*** (0.046695)	-3.473925
Constant term	4.51332*** (1.549043)	2.913619	3.711908** (1.523741)	2.436050
R ²	0.978596		0.978744	
F test value	198.1229		199.5343	

Note: (1) what in the bracket is a standard deviation of coefficients; and (2) ** and *** represent coefficients are significant at the level of 5% and 1%, respectively.

In accordance with results of the test in Table 1, we may find that R² of both of the two regression equations is over 97%, and F test value is large, which indicates that model fitting is good and explanatory ability of the regression equations is good. Regardless of the situation that the absolute amount or the relative amount of scale of financial support in agriculture is used for regression, there are no changes in signs of other control variables. In addition, significance does not fluctuate largely as variables changes, and side response model is stable and accords with economic significance. Based on results, it is shown that both the absolute amount and the relative amount of financial support in agriculture change in the same direction as income gap between urban and rural residents. In another word, financial support in agriculture has had minor regulatory effect on fair distribution of income among residents since Reform and Opening-up but has enlarged income gap between urban and

rural residents to some extent. The possible reason for this phenomenon is shown as follows. Firstly, although national finance grows in the aspect of financial support in agriculture stably each year, its growth is lower than that of the national finance applied to urban departments with rapid effect and high income, which is reflected by continuously reduced share of financial support in agriculture. Secondly, ‘trickle-down effect’¹ of reduction in income gap does not work but reacts in China. For instance, institutional factors like price scissors between industrial and agricultural products, the dual household registration system and financial urban bias accumulate many resources at cities and incomes generated by agriculture are also absorbed by cities. Then, the result

¹ ‘Trickle-down effect’ is also called trickle-down theory, which means special treatment is not given to under-privileged people, vulnerable groups or poverty-stricken area in the process of economic development but groups or regions that have had preferential development benefit under-privileged people or regions by consumption and employment and drive them to develop and be rich in order to shorten effect of income effect.

of reverse ‘trickle’ of resources and incomes will be that income gap between urban and rural residents is enlarged day by day inevitably. Thirdly, the number of fund projects related to ‘issues of agriculture, farmer and rural area’, which are arranged by central finance is over 100 approximately, and the number of provincial ones is generally 100. The number of some provinces’ projects even reaches up to several hundred. Although total amount of financial support in agriculture increases, fiscal funds for assisting agriculture encounter multi-point decentralized management, different standards and requirements and inharmonious planning. This reduces scale effect of fiscal funds for assisting agriculture largely. Some places even lead to the situation that they increase fiscal funds for assisting agriculture falsely or occupy and embezzle such funds.

In control variables, improvement in economic development level as well as optimization and adjustment of industrial structure can shorten income gap between urban and rural residents obviously. It is worth noting that the degree to which the government takes part in economic activities can also restrain enlargement of income gap between urban and rural residents. The reason for this may be that governmental investment pulling plays an important role in economic growth from the perspective of financial input. Especially for relatively backward rural economy, farmers’ private investment is limited and most of funds used for agricultural production and all funds of supply of public goods in rural areas derive from governmental finance. The higher degree of the government’s participation in economy implies agricultural production and rural public service obtain more governmental support. The proportion of employed agricultural population to total employed population is not significant in changes in income gap between urban and rural residents, whose reason may be that the dual household registration system makes rural surplus

labor cannot obtain rights to own equal work chances or equal remuneration after migration. In addition, there is a gap for the labor transferred to cities in the aspects of techniques and educational level. As a result, transferred labor becomes a ‘sandwich layer’ whose income is higher that of people in rural areas but lower that that of people in cities. Even if employment structure is optimized and a great deal of employment structure is transferred, the effect on income gap between urban and rural residents, which enlarges gradually, is not obvious. In addition, regression results show that income gap between urban and rural residents is characterized by inertance and ‘self-enhancement’ significantly in China at present.

Structural effect: the foregoing empirical results indicate that existing financial expenditure for supporting agriculture has little regulator effect on equitable distribution of income. Under rigid budget constraint of financial expenditure, it is not realistic to increase expenditure for supporting agriculture largely. Then, optimization of agriculture-supporting structure, improvement in efficiency of fiscal funds for assisting agriculture and adjustment of income distribution between urban and rural residents seem to be of great significance. Many researches suggest that the main reason why efficiency of financial support in agriculture at present is that its structure is not reasonable. A number of studies utilize absolute amount of sub-project expenditure as an explanatory variable and use data on stocks for analyses when they deal with the problem that impacts of infrastructure construction and agriculture science and technology have a long lag phase. This thesis adopts data on relative amount to do analyses. If it uses data on stocks, static structure will be damaged. Thus, this thesis only uses data in the current period to express structure and test the following equation:

$$gapin_t = \beta_0 + \beta_1 agri_t + \beta_2 buil_t + \beta_3 tech_t + \beta_4 welf_t + \phi W_t + \delta_t \quad (3)$$

Table 2
Structure of Financial Support in Agriculture and Income Gap Between Urban and Rural Residents

	β_0	β_1	β_2	β_3	β_4	ϕ
Regression value	4.807	-0.551	-0.356	-0.209	-0.307	0.099
Standard deviation	2.043	0.335	0.181	0.096	0.101	0.045
T test	2.352**	-1.644	-1.971*	-2.178**	-3.035***	2.167**

Note: *, ** and *** represent the confidence level of 90%, 95% and 99%, respectively.

According to statistical test, about 82% F test value of R^2 is much larger than critical value, the regression equations have good fitting and splendid explanatory ability and all estimation parameters except β_1 are significant. Rural infrastructure construction, three items of agricultural science and expenditure for rural relief have negative and significant correlation with income

gap between urban and rural residents, which shows that the three items of expenditures have positive effect on restraining income gap between urban and rural residents and their descending order in this aspect is infrastructure construction, rural relief and agricultural science successively. Since this thesis uses data in the current period for tests but income time of expenditure

for agricultural science is long, its share is too small and scale effect has difficulty in exertion, the marginal effect of expenditure for agricultural science in this thesis is relatively small. Compared with infrastructure and agricultural science, rural relief can increase farmers' income directly, the mechanism about its gap-reducing effect is simple and income interval is short. Coefficients of support for agricultural production and operating expenses of the department are negative but not significant, which implies that this item of expenditure does not hold obvious regulatory effect on income gap. The foregoing analyses suggest that about 70% of its share is used for non-productive operating expenses, occupying productive expenditure with obvious gap-reducing effect so that this item of expenditure does not have significant effect on regulating urban-rural income gap.

Test coefficients of dummy variables are not 0 obviously, which implies that tax-sharing system reform in 1994 has significant impacts on regulatory effect of financial support in agriculture on income gap between urban and rural residents. The situation that such coefficients are positive suggests that the tax-sharing system affects structure of financial expenditure for supporting agriculture and then shows the trend that it enlarges income gap between urban and rural residents. The reason for this may be that power of financial income (financial power) moves upward but power of financial expenditure (authority of office) moves downward after the tax-sharing system reform so that financial pressure on local government increases. With the addition of centralization-type GDP performance assessment and promotion mechanism (Zhou, 2004), local government will apply limited financial resources to urban departments with high income. Even if they face rigid financial support in agriculture, they will give priority of investment to hard departments which are 'visible and touchable' and have short income time gradually, such as water conservancy and large-scale infrastructure construction, and reduce investment into soft department that are 'not visible or touchable' but have long income time, such as agricultural science and education. In doing so, structure of financial support in agriculture is distorted and income gap between urban and rural residents is enlarged step by step.

In current structure of financial support in agriculture, support for agricultural production and operating expenses of departments are still the largest one, accounting for about 70%. Empirical results show that this item of expenditure does not have obvious effect on income gap between urban and rural residents. In reality, efficiency may be lower because of other reasons. At last, this item of expenditure may enlarge income gap between urban and rural residents on the contrary. Thus, it is obvious that the key reason why financial expenditure for supporting agriculture fails to exert proper effect on reducing income gap between urban and rural residents

is that its structure is distorted. Under the background of rigid budget constraint of financial expenditure, the most effective way for the government is to adjust structure of expenditures actively.

4. CONCLUSION AND POLICY SUGGESTIONS

4.1 Research Conclusions

Based on time series data in the whole country, this thesis carries out multivariate regression analysis about scale and structure of financial support in agriculture and income gap between urban and rural residents, tries to investigate marginal effect of scale and structure of financial support in agriculture on income gap between urban and rural residents and evaluates current policies related to financial support in agriculture theoretically and empirically. Main conclusions involve the following aspects: (1) since Reform and Opening-up, the country's financial expenditure for supporting agriculture has minor regulatory effect on equitable distribution of income for urban and rural residents. From the perspective of both absolute scale and relative scale, financial support in agriculture has widening effect on income gap between urban and rural residents. Empirical tests show that absolute scale and relative scale of financial support in agriculture have significantly positive correlation with income gap between urban and rural residents, i.e., when absolute scale and relative share of financial support in agriculture increase by 1%, income gap between urban and rural residents will be widened by 0.141% and 14%, respectively. (2) Structural data verification in the current period indicate that expenditures of the three items including infrastructure construction, three items of agricultural science and rural relief have obvious and restraining effect on income gap between urban and rural residents, which enlarges day by day. Under the condition that income lag phase of each project's funds is not considered, the descending order of the three items in the aspect of marginal effect is infrastructure construction, rural relief and three items of agricultural science. However, effect of support for agricultural production and operating expenses of department is obvious. Considering payment channels of financial funds for agriculture in reality, this item of expenditure may widen income gap between urban and rural residents. (3) Scale of financial support in agriculture has widening effect on income gap between urban and rural residents. The key reason for this is that structure of its expenditure is unreasonable and too large proportion of non-productive expenditure affects capital usage efficiency of expenditure for supporting agriculture seriously. (4) The tax-sharing system reform causes non-equivalence between local governments' financial power and authority of office. Under dual pressure of increase in financial income and

political promotion, local governments have motivation to destroy structure of financial support in agriculture, which is reflected by work performance and nearsightedness of their behaviors in the aspect of financial support in agriculture.

4.2 Policy Suggestions

Income gap between urban and rural residents has become a main problem affecting overall situation of our economic and social development. Although the Party and the government have paid attention to adjusting unfairness of income distribution, effect is not obvious. Financial support in agriculture should be the most powerful method that the government shortens income gap by promoting agricultural development and increasing farmers' income. However, analyses in this thesis also find that financial support in agriculture does not exert its proper effect. According to studies in this thesis, the authors think that we may start with the following aspects: (1) enlarge scale of financial expenditure for supporting agriculture gradually, work hard to realize the basic requirement of *Agricultural Law*, i.e., growth of financial support in agriculture should be higher than that of recurring income of finance and its share should be improved to level of contribution rate of agricultural production value gradually, and form long-term mechanism about stable growth of financial support in agriculture; (2) enhance intensity used to arrange financial funds for assisting agriculture, and especially establish a uniform integration platform including three classifications (i.e., agricultural production, social development and poverty relief and development) and 77 items of funds; (3) under the situation of limited scale, adjustment about expenditure structure seems to be quite important, so it is necessary to reduce non-productive expenditures, for instance gradually, operating expenses of departments, and enlarge shares of expenditure items with strategic significant, such as agricultural science and education; and (4) add degree to which income is distributed fairly to the government's performance assessment mechanism, change the trend that local governments' financial expenditure walks towards urbanization, let rural residents share achievements of economic development and reduce income gap between urban and rural residents.

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