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Plight and Path in Agricultural Modernization Promotion through Endogenous Increase of Farmers' Income

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Abstract From analysis on the plight of promotion of agricultural modernization through endogenous increase of farmers' income, it is believed that the fundamental obstacle lies in inherent weakness of agriculture, lagging of farmers' quality, as well as defectiveness of agricultural external system. On this basis, an available path, namely energetically developing the industrialized, market-oriented and knowledge-based agriculture is put forward.

Key words Agricultural modernization, Endogenous increase of income, Fundamental plight, Path, China

Promotion of agricultural modernization, and further development of industrialization and urbanization at the same time, is a significant task in the Twelfth Five-Year Plan period. It is required to steadfastly make issues concerning agriculture, rural areas, and farmers the top priority of the government's work, which is the primary mission of promoting the building of new socialist countryside proposed at the Fifth Plenary Session of the 17th CPC Central Committee^[1]. Accelerating the development of modern agriculture is of strategic significance in raising the agricultural comprehensive production capacity, improving overall benefits and competitive power of agriculture, promoting increase of farmers' income, as well as laying the industrial foundation for building new socialist countryside.

1 Endogenous increase of farmers' income is the foundation and guarantee for agricultural modernization

Modern agriculture is the advanced stage of agriculture, in

which industrial auxiliary energy such as machinery, fertilizer, fuel, electric power are input to agriculture, modern science and technology are used to arm agriculture, and modern management theory and method are applied to agricultural operation, so as to realize high production efficiency. Corresponding to traditional agriculture, the modern agriculture is historic and dynamic. It is a market-oriented, benefit-centered multi-functional agricultural industrial system, taking the industrialization as a link, integrating the supply and sale, and combining the trade, industry and agriculture. Endogenous increase of farmers' income mainly refers to increase of income from agriculture itself, which is a channel for rural areas, agriculture and farmers to grasp, dominate and consciously use. Chinese government has strengthened the building of new socialist countryside in the form of No. 1 document for several consecutive years. This promotes vigorous development of modern agriculture. " Issues concerning Chinese rural areas, agriculture and farmers" have been effectively alleviated, and farmers' income has been increased to a certain degree.

Table 1 Household income of rural residents in 2005 –2008

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| Year | Net income of rural households | Income of wages and salaries | Income from household business | Property income | Income from transfers |
|------|--------------------------------|------------------------------|--------------------------------|-----------------|-----------------------|
| 2009 | 5 153.17 | 2 061.25 | 2 526.78 | 167.20 | 397.95 |
| 2008 | 4 760.62 | 1 853.73 | 2 435.56 | 148.08 | 323.24 |
| 2007 | 4 140.36 | 1 596.22 | 2 193.67 | 128.22 | 222.25 |
| 2006 | 3 587.04 | 1 374.80 | 1 930.96 | 100.50 | 180.78 |
| 2005 | 3 254.43 | 1 174.53 | 1 844.53 | 88.45 | 147.42 |

Note: Data selected is from *China Statistical Yearbook*.

Under the influence of Adam Smith's economic law of " Invisible Hand" , the industrialization and urbanization will certainly cause the " three elements" (land, labor and capital) greatly to flow out of " agriculture, rural areas and farmers".

There is no economic field which cannot not perish under the condition that " three elements" of productivity keep flowing out for a long term^[2]. From the data analysis in Table 1, farmers' income mainly comes from wages and salaries, household business, property income and income from transfers. Income from wages, salaries and household business account for 90% of farmers' annual net income, while the farmers' endogenous

income mainly refers to the income from household business. The data shows that the income from household business is increasing, but its proportion in the farmers' annual net income is dropping year by year from 2005. The proportion is respectively 56.67%, 53.83%, 52.98%, 51.16% and 49.01%, while the income from wages and salaries as well as its proportion is rising year by year. Farmers' income increase is indeed a good phenomenon, but endogenous increase shall not be neglected just for income increase, otherwise there will be numerous difficulties in promotion of agricultural modernization. If farmers are more concerned about economic benefits brought by exogenous increase of income, there will be more farmers choosing to work out of home, leading to loss of rural laborers and land going out of cultivation. Besides, the function of capitals will not be brought into a full play. Therefore, only through focusing on and solving the problem of endogenous increase of farmers' income, can China's food security be safeguarded, agricultural science and technology innovation be greatly pushed on, and integration of agricultural technology, mechanization of labor process, informatization of production and management be promoted. Then, it is able to improve the modern agricultural industrial system, adjust the structure, optimize the layout, build the agricultural industrial zone, and energetically develop secondary and tertiary industries, so as to realize value-added effect of agriculture.

2 The plight of promotion of agricultural modernization through endogenous increase of farmers' income

2.1 Inherent weakness of agriculture

2.1.1 Limited resources. Basic situations of the country and current situation of cultivated land seriously restrict the improvement of agricultural scale merit, and affect the process of China's modern agricultural construction. China is large in population but limited in land resource, and the pressure of land carrying population is high. Currently, China's arable land per capita is only 920 m², only 40% of the world average level, about 1/3 provinces' arable land per capita is less than 667 m², 666 counties' arable land per capita is even lower than 533 m² warning line determined by the UN, and 463 counties' value is lower than danger line of 334 m²[3]. As for how to improve farmers' living standards, the first thing is to ensure rational and efficient use of arable land and raise agricultural product output. The issue concerning arable land (agricultural product output and farmers' income) is the key to achieving agricultural modernization. Only when arable land issue in rural areas is solved, can effective operation of new socialist countryside construction be fundamentally guaranteed. At the present stage, China's urban means of production and subsistence (industrial raw materials and food) depends greatly on supply of rural land, so the arable land issue is not just a problem of farmers' income, but also closely related to long-term stability and sustainable development of the whole country. The social effect of food security and material supply derived from arable land is far greater than its economic effect. Therefore, if the land has difficulty in carrying survival function, it will be impos-

sible to effectively apply its production function. Such resource situation of "too little gruel for too many monks" in combination with traditional and backward mode of operation can hardly bring considerable income for farmers.

2.1.2 Low quality and efficiency. Agriculture is limited by natural and market factors, while its natural risk comes from natural disaster factors related to agricultural production. The agricultural production has a long production cycle, and its production is achieved in the physiological action of animal and plant and the natural photosynthesis, limited by "hard restriction" of natural conditions, and vulnerable to natural disasters. Such disasters as flood, storm, frost, drought, disease and insect pests will damage the agricultural production, from slightly reduction of output to severely no grain reaped at all, consequently forming natural risks of agricultural production. Market risks of agriculture come from imbalance between supply and demand and fluctuation of price in the market. Under the condition of market economy, all agricultural activities are directly in the market relations, while the function of market mechanism can not guarantee a consistent balance between the supply and demand of agricultural products. Agricultural products have a long production cycle, lagged in response to market information, slow in adjustment and low in substitutability. In addition, natural factors affect the supply stability of agricultural products. All these aggravate market risks of agricultural products^[4]. As a general rule, the supply elasticity of agricultural products is high while the demand elasticity is low, and farmers have great difficulties in grasp the market in a large price fluctuation. As a result, selling at a low price is common, consequently leading to the situation of "farmers suffering from low price of grain".

2.1.3 Broken industrial chain. Agricultural internal reproduction is artificially separated. In economics, people gain revenues from working in a certain industry, and the revenue level depends on not only labor quality and effect, but also situation of industrial chain (internal and external economic and environmental conditions). In the entire process of production, further processing and sales of agricultural products, links of internal reproduction of agriculture are artificially separated due to risks and variability of market and policies, so that agricultural production hardly obtains the average profit, much agricultural profit suffers from "extracorporeal circulation", and agriculture's comparative benefits are becoming lower and lower.

2.2 Lagging of farmers' quality

2.2.1 Slightly lower quality. Statistics show that the proportion of labor force with junior high school or lower educational level reaches 90% in China's rural population, where those with primary school educational background account for 61.2% and the literate and semiliterate account for 2.1%. All rural talents with certain educational level and skills are flowing into non-agricultural industries, leading to the situation that those engaged in agricultural production are mostly "old, weak, sick or disabled". They have great difficulties in reading scientific and technical books, they are slow in reacting to new technology, new achievement and market information, and they are unwilling to change and do not dare to change. A dramatic contrast forms between the slightly lower cultural quality of farmers and

rapid development of agricultural science and technology. This leads to low efficient income increase activities, such as "increase of output without increase of income", "cutting down when in excess and catching up when in shortage", etc.

2.2.2 Loss of organization. The production operation is often achieved in the form of individual family, leading to inferior position during transactions. China adheres to the two-tier management system that focuses on combination of centralization and decentralization on the basis of household contract management in the countryside. Great success has been achieved in this way; nevertheless, its disadvantages are also increasingly exposed. The major concern is powerlessness and weakness of individual farmers. Their market penetration capacity is low. In addition, they often operate separately. As a result, there is no effective organization and centralized guidance in decentralized production and ever-changing huge market. Then, farmers will be weak during transactions. On one hand, as the buyer, farmers will suffer from monopoly of professional merchants and sellers of enterprises and manufacturers; on the other hand, as the seller, farmers will also suffer from monopoly of professional merchants and purchasers of manufacturers. In this non-counterbalance system, decentralized farmers fail to know and enter the market, and cannot evade market risks.

2.3 Defectiveness of agricultural external system

2.3.1 Barriers between urban and rural areas. Mutual isolation, internal self-reliance and forbidding farmers to go to cities are salient characteristics of the urban and rural dual structure, also the crux of issues concerning rural areas and one of the greatest obstacles to increase of farmers' income. Some scholars summarize this as a new kind of "one country two systems", that is "division of urban and rural areas, one country two policies". It is mainly manifested by scissors gap between industry and agriculture resulted from "controlling agriculture and supporting industry"^[5]. In the past, the State implemented the policy of tilting agriculture towards industry and tilting rural areas towards urban areas, to ensure necessary capitals for industrial development. Then, original capitals for industrial development are taken from agriculture in a hidden way. The scissors gap resulted from such exchange of unequal values brings heavy burden to both agriculture and farmers. Another characteristic is the household registration system with distinct urban and rural boundary. Many cities fail to revise the household registration system that has been established since a long time, but rather establish a lot of unreasonable household registration systems. These systems erect a heavy wall between urban and rural areas, which limits normal flow of rural surplus labor into cities, making increasingly inflated labor stay in their land and hardly obtain income from other industries than the agriculture.

2.3.2 Loss of grass-roots units. From actual practice of grass-roots units after reform, the name of old system has disappeared but the mechanism still exists. On one hand, the township mechanism is overstaffed, expenses are high, administrative intervention affects the production; on the other hand, the rural organization system forms a diversified pattern of economic and social benefits. The village committee is merely a spokesperson for township government, "commission and

agency" crisis rapidly emerges in countryside, and farmers' interests can not be easily guaranteed. Moreover, the current financial and taxation integration system not only results in excessive centralization of finance and taxation, reduction of local finance input to agriculture, but also leads to increasing aggravation of non-agricultural conversion of agricultural capitals. Consequently, the capitals for agricultural development are in great scarcity. As a result, essential services for rural areas have no supply, treatment to be enjoyed by farmers fails to be implemented, and capitals urgently required for agricultural development have no source. Practice has proved that the existing reform of grass-roots units mechanism is not complete, and can not guide farmers to increase their income and become rich.

2.3.3 Incomplete land property right. According to the theory construction of current land property right system, the land is owned by farmers and this system keeps unchanged for a long term. However, in reality, there is a separation between the land use right and ownership. Farmers only have the land use right, while the land ownership belongs to township government and village committee. In this situation, a conflict occurs. The base of household contracting operation is land, while the land is not dominated by farmers. This situation seriously retards increase of farmers' income. In the first place, township government and village committee often collect various "economic rent" in the name of land property owners. Secondly, land invisibly becomes a means of rural welfare, leading to hardly forming the scale land use and impossible to entry of market production factors. The existing land allocation results in the safeguarding function of land exceeding its production function to a certain degree, and land cannot flow properly according to market rules. However, farmers are also "economic men", when they find that the earnings are equal to or lower than costs through cost-benefit analysis, they will think about transferring their right of contracting land. Unfortunately, the existing land property right does not allow farmers to transfer their land, so they have no other way but to abandon their land. Once the land is desolate, farmers' income will naturally drop.

3 The path of promotion of agricultural modernization through endogenous increase of farmers' income

3.1 Industrialization path Agriculture industrialization is a large-scale agricultural production state, in which many separate and independent production processes are integrated into a total social production process as per the demand of modernization development, so as to bring into a full play the integral effect and scale effect. Agriculture industrialization can avoid huge production losses, improve mechanism of agricultural industry connecting with the market, optimize allocation of production factors, and make farmers share added value from sales of product processing.

3.1.1 Cultivate and develop leading enterprises, and integrate production, supply and sales. In a sense, without leading enterprises, there will be no industrialization. Thus, supporting leading enterprises is to support industrialization. It is required to take actions that suit local circumstances, cultivate

by categories, and develop larger and better leading enterprises with higher start point, complete industrial chain, having close relations with farmers, jointly assuming risks, and sharing benefits together. Consequently, it will not only push forward the transformation and upgrading of traditional industries, specialty industries, but also raise the overall quality and comprehensive benefits of agriculture, and increase farmers' income.

3.1.2 Improve organization procedure of industrialization, and strengthen the development of competitive industries and regional pillar industries. On the basis of complying with market laws, it is required to establish and develop a batch of large-scale professional economic organizations and intermediaries, such as various guilds, associations, *etc.* Besides, it is essential to energetically improve organization procedure of agricultural industrialization, so as to closely connect vast farmers together to jointly counter against market risks. With the aid of this, it is expected to reduce production and sales costs of agricultural products, clearly and accurately find out market information, enhance competitive industries, and finally form regional pillar industries.

3.1.3 Actively cultivate new farmer-turned-entrepreneurs. Farmer-turned-entrepreneurs are major promoters of the industrialization operation. During this process, farmer-turned-entrepreneurs greatly drive the full play of multi-function of agricultural industrialization, forming competitive industrial system. Therefore, it is required to vigorously create favorable environment for farmer-turned-entrepreneurs for their healthy growth on the basis of change of national economy and market demand, and as per professional, young and well educated demands. Besides, it is essential to change conventional practice of leaders of the Party and the government holding a concurrent post at enterprises. Meanwhile, it is required to open professional training courses that suit market rules, in the hope of letting farmer-turned-entrepreneurs guide vast farmers to increase their incomes.

3.2 Marketization path

3.2.1 Actively adjust structure of agricultural products, and vigorously develop high-quality and efficient agriculture. It is required to avoid the adaptability adjustment of production supply merely according to short-term changes of market, also avoid the strategic adjustment of original production, operation and sales mode without considering transformation of product structure. In this case, the principle of "adjustment for better, special, higher and stronger" should be adhered to on the basis of market. Furthermore, it is required to energetically adjust the planting structure within agriculture, encourage and guide farmers to produce less or not produce those products with inferior quality and lower price in the market, develop high yielding, high-quality and efficient agricultural products, quicken new technology development of agricultural product processing and storage, raise depth and added value of agricultural product processing, and open up new highlights for increase of farmers' income.

3.2.2 Reform the circulation mechanism of agricultural products and supply and demand, competition and price mechanisms. Firstly, we should explore new methods and approaches

for product circulation in grain production areas, actively and securely open the grain procurement, to realize diversification of grain procurement bodies, so as to ensure the grain procurement not only coordinated with market demand of key distribution area, but also can reduce the grain circulation links, as well as lowering production costs of farmers. Secondly, in the aspect of supply and demand, competition, and price mechanism, it is required to carry out structural adjustment with market research and forecasting as the guide, enhance the adjustment of price and market of agricultural products, and consequently ensure increase of both the yield and farmers' income.

3.2.3 Complete the market of rural land and capital factors. Firstly, we should complete the land market, take the newly issued *Real Right Law* and *Law on Land Contract in Rural Areas* as the opportunity, enhance law-enforcing supervision, rectify such illegal activities as changing the land contracting relations at will, arbitrarily amending land contracting agreement, forcing farmers to transfer lands, *etc.* On the basis of no change for 30 years, we should continue to deepen the reform, try to allow farmers to adopt method like mortgage and transference to promote the land circulation, so that farmers can enjoy the practical land market gains. We should strictly enforce new standard of land expropriation, fundamentally guarantee farmers' revenues. Secondly, we should perfect the capital factor market. We should draw on the experience of "free debit and credit" early days after the foundation of the People's Republic of China, to develop the informal financial market in rural areas.

3.3 Path of being knowledgeable

3.3.1 Continue to increase rural compulsory education expenditure. In the budget arrangement, it is required to guarantee the implementation of "three growths" of budget funds for education specified in *Compulsory Education Law*, that is, the increase of allocations for education by the central and local governments should be higher than the increase of regular revenue, the annual average education funds grow gradually, and gradual growth of teachers' salaries and public funds. On the basis of this, the excessive part of fiscal revenues should be put into education, to ensure stable growth of education expenditure. In the aspect of input, the central public finance should assume rural compulsory education expenditure and should take more responsibilities in the fund input. In addition, efforts should be made to solve compulsory education in less developed regions, vigorously raise level of rural teachers and treatment of their salaries and welfare, and actively use market resources to regulate and guide private schools to invest in rural compulsory education.

3.3.2 Strengthen reeducation for farmers. First, we should strengthen reeducation for farmers on science and technology and practical technique, especially strengthen culture foundation of reserve force in rural areas, speed up vocational training and "Green Certificate" training, and form comprehensive reeducation network in many ways. Second, we should guide farmers to grasp information knowledge and significantly boost farmers' collection and analysis and application capability for agriculture information. Furthermore, the basic rural policies

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should change the operation ideas of Chinese traditional banks; rightly identify the differences between small and medium-sized village banks and Chinese traditional banks; deeply understand that from long term perspective, displaying the private relationship lending is an important way of reducing costs, improving competitiveness and opening market, and then, innovate and reform bravely and develop private relationship lending vigorously.

4.2 Intensifying training and improving the quality of personnel involved village banks should employ experts to train credit officers and teach them the affiliated technology of private relationship lending so as to cultivate credit officers' capabilities in human communication and information screening, at the same time, improve the capabilities of decision-making staff in scientific decision making, analysis and judgment.

4.3 Strengthening supervision and preventing the default behaviors of personnel involved In order to prevent the illegal loans or relationship loans of personnel involved, in the first place, various education-based activities should be launched to improve the career moral of personnel involved. In the second place, the internal incentive mechanism should be designed to improve the opportunity costs of personnel involved who violate the laws and regulations. In the third place, the complete and multiple-level internal supervision system should be established to supervise the credit procedures.

4.4 Perfecting the private relationship lending of village banks by mirroring experiences The private relationship lending should be launched vigorously to provide tailored financial services for customers through emulating foreign experiences (for example, American village banks) and combining the human character of China.

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and regulations are also key points of farmers' education. It is required to not only let farmers understand basic rural policies and regulations, but also help them to defend their lawful rights and interests by using these policies and regulations.

3.3.3 Perfect the agro-technical popularization system. Presently, farmers' longing for agro-technical achievements is stronger than ever before. However, due to low income and limited capital accumulation, farmers are hard to obtain agro-technical achievements that are suitable for their demands. For this reason, it is required to enlarge the capital accumulation; insist on the farmer-oriented principle, closely unite farmers and agricultural research personnel, so as to make the scientific research achievements rapidly change into actual

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productivity, consequently provide technical support for increasing farmers' income.

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