



Review of China's agricultural and rural development: policy changes and current issues

China's
agriculture and
rural development

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Abstract

Purpose – Since the start of the twenty-first century China has stepped into a new stage of harmonious urban-rural development. Based on the brief review of policy changes since the new century, the purpose of this paper is to figure out the comprehensive policy framework, and analyze its background and reasons.

Design/methodology/approach – First, this paper offers a brief review of China's rural reform with focus on the policy framework and changes since the reform of rural tax and fee system in 2000. Next, the paper focuses on food security to discuss grain price increase and China's grain imports, then the current problems facing China's agricultural and rural development are discussed and countermeasures provided.

Findings – The paper finds that several policies have been implemented toward the coordination between urban and rural areas and toward the integration of urban and rural development. However, China's grain production is still facing big challenges, both from the increasing demand and the resource constraint. Therefore, food security should be given priority in future. China's current rural reform and development is also facing the problems such as slow growth of farmer's income, the impacts of migrant rural labourer on economy and society and the outflow of rural resources.

Originality/value – This paper reviews systematically major policies of China's agriculture and rural development, and analyzes the characteristics of and reasons for China's grain price increase. Meanwhile, the constraint of resources, especially land and water, is also studied in detail. The paper's analysis can provide important advice for future policy making.

Keywords China, Rural economies, Agriculture, Government policy

Paper type Literature review

1. Introduction

This year of 2008 marks the 30th anniversary of China's rural reform. China's agricultural and rural development policies have been changed substantially in the past three decades. Three major changes are the most important. First, the People's Commune System was reformed and replaced by the Household Responsibility System, which led China to start to set up the micro-mechanism of the socialist market economic system (SMES). Second, China reformed its marketing systems for agricultural commodities and input factors, which fostered the development of China's

JEL classification – Q18, Q11, Q17

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market mechanisms toward SMES. Third, China reformed the rural taxation system starting from 2000, which led China into a new stage of harmonious urban-rural development.

The first two changes have received a lot of attention in the last three decades. These two policy changes have contributed greatly to China's agricultural and rural development in the past three decades, as well as to China's overall economic growth and social development. The third policy change is a signal of China's new strategy to promote the integration of urban and rural development, which has not received comparable attention, and its impacts are under-estimated by quite a number of scholars. In this paper, we will focus on this issue. A review of this policy change is offered in Section 2. Food security and associated policy changes are provided in Section 3. Section 4 briefly describes the current problems facing China's agricultural and rural development and countermeasures.

2. China's rural policy: framework and changes

Since the start of the twenty-first century, China has stepped into a new stage of harmonious urban-rural development. The implementation of the reform of the rural tax and fee system in 2000 is a partial reform for the sake of national economics and the farmers' interests. We can find that the central government's basic strategy to solve problems about agriculture, rural areas and farmers is to adopt a policy of coordinating harmonious economic development of urban and rural areas at the stage of building an overall well-off society. From this point of view, more attention should be paid particularly to the continuously developing strategies and theories of the Communist Party of China (CPC) to solve problems concerning agriculture, rural areas and farmers after the 16th National Congress of Communist Party of China (16th NCCPC) held in November 2002.

The 16th NCCPC put forth a strategic goal of building an overall well-off society in an all-round way. This is because China has realized the first two steps of the "three-step" plan of modernization by 2000[1]. China achieved the target of quadrupling its national income from 1980 levels, and the national income per capita reached US\$800. Therefore, China is working hard to fulfill strategic objectives in the implementation of the third step of the modernization process in the new century. China is building an overall well-off society in an all-round way. What are the differences between an overall well-off society and a basic well-off society? Reports of the 16th NCCPC pointed out six differences between these two well-off societies. The most significant difference is that the basic well-off society only enables people to achieve average well-being, while the overall well-off society enables people who are able to work to make their family reach well-being. This is what reports of the 16th NCCPC put forward, i.e. an overall well-off society makes all Chinese people realize well-being.

From this perspective, the gap between urban and rural areas has undoubtedly hindered China from realizing a well-off society smoothly. Hence, particular attention should be paid to how to solve the problems concerning agriculture, rural areas, and farmers, during the time of building an overall well-off society in an all-round way. Reports of the 16th NCCPC specifically put forward the basic strategies to solve the problems of agriculture, rural areas and farmers, which is coordinating harmonious

economic development of urban and rural areas. It is the first time problems of agriculture, rural areas and farmers are being solved, in such a way, in CPC history.

The central rural work conference held in January 2003 stressed that in the process of building an overall well-off society in an all-round way, the most arduous task is in the rural area. Solving the problems of agriculture, rural areas and farmers must be the CPC's top priority in governing, which was emphasized by Chinese Premier, Jiabao Wen, as well during the 10th National People's Congress (NPC) on March 5, 2003. It is known to all that the third plenary session of the 11th CPC Central Committee is considered as a milestone in history because of two great contributions. One is re-abiding by the principle of seeking truth from facts. The other is shifting the focus of work to economic construction from class struggle. It is the great evolution of China's strategic thinking that the 16th NPC pledged to coordinate harmonious development of urban and rural areas, and the General Secretary and the Premier explicitly proposed that solving the problems of agriculture, rural areas and farmers must be the CPC's top priority in governing.

The third plenary session of the 16th CPC Central Committee opened in October 2003. Participants of the plenum approved the draft decision of the CPC Central Committee on issues regarding the improvement of the SMES. This conference played an important role in the history of the Communist Party's development. The scientific outlook of development was proposed for the first time in Communist Party's documents. It is a thinking that seeks human-oriented, balanced and all-dimensional sustainable development. Specifically, it consists of five coordination initiatives:

- (1) Coordination in the development of urban and rural areas (greater priority to the development of rural areas and solving of problems concerning farmers).
- (2) Coordination in regional development (greater assistance to less developed areas).
- (3) Coordination between economic and social development (expansion of employment opportunities and enhancement of social security and public services such as medical care and education).
- (4) Coordination between economic development and the human and natural environment (greater emphasis on resource preservation and the protection of the natural environment).
- (5) Coordination between domestic development and the opening-up policy (acceleration of domestic market growth while keeping to the opening-up policy). The scientific outlook of development cannot be implemented unless the "five coordinations" were achieved. Undoubtedly, coordination in the development of urban and rural areas is most important. The other coordinations cannot be realized without it.

The document also mentioned seven major objectives of the reform to improve the SMES. The third one is about the reform of the urban-rural dual economics systems. China has entered a new stage of coordinating harmonious development between urban and rural areas.

The fourth plenary session of the 16th Central Committee held in September 2004 is about consolidating and improving the Communist Party's governing capacity. The General Secretary, Jintao Hu, pointed out two trends based on the history of

developed countries. The first is that industrial and urban development is supported by agriculture in the early stage of industrialization. The second is that policies are implemented to make industry support agriculture, and urban areas support rural areas when development reaches a certain stage. In a theoretical view, many agricultural economists proposed industrial support for agriculture in the mid-1980s. It is significant that the General Secretary put forward this policy almost 20 years later.

Why does the General Secretary emphasize industrial support for agriculture in a conference on how to improve the CPC's governing capacity? It will influence the consolidation of the CPC's ruling position and the enhancement of the governing capacity if understanding and solving the problems of agriculture, rural areas and farmers is still improper at the current stage of China's economic development, which is a serious political issue. In the central economic conference held in late November 2004, the General Secretary put forward that the two trends proposed in September 2004 suggested that it must be more active to adjust the distribution of the national income so as to solve the issues concerning agriculture, rural areas, and farmers since China has entered a stage at which industry supports agriculture and urban areas support rural areas.

The fifth plenary session of the 16th Central Committee held in 2005 proposed the 11th five-year plan and the mission of building a new socialist rural area. The mission of building a new socialist rural area is not a new concept in China's agricultural development. It has been raised repeatedly in CPC's history literatures. Although in the same words, the requirements are different. The building of a new socialist rural area was not given a detailed work schedule until the fifth plenary session of the 16th Central Committee. Before that, it was a long-term goal without any specific work schedule. The general requirements of building a new socialist rural area proposed in the fifth plenary session are production development, well-off life, rural civilization, clean appearance, and democratic administration. The 2006 *Number One Document* further clarified the requirements of building a new socialist rural area. They are: rural economic increment; political and cultural development; social development; and building of grass-roots-level party organizations.

Though proposed, building a new socialist rural area is a long-term process of comprehensive development, which has been discussed in a symposium specifically held in February 2006 by the central government. The meeting explicitly emphasized that the building of a new socialist rural area will be through the entire process of China's modernization. According to the "three-step" plan of China's reform and opening-up, the second step is to achieve a basic well-off society by 2000, while the third step is to realize preliminary modernization in the mid twenty-first century, when the 100th anniversary of People's Republic of China comes. The General Secretary clearly stressed that building a new socialist rural area should be through the entire process of modernization. Five requirements of building a new socialist rural area cannot be separated and simplified as construction of new villages. In the sixth plenary session of the 16th Central Committee held in April 2006, the central government put forward building a harmonious society and gradually achieving the equalization of the basic public services between rural and urban areas. Since the gap of the basic public services is even larger than the gap of income between urban and rural residents, it is quite difficult to develop the basic public services between rural and urban areas. From this point of view, the comprehensive improvement of the government's public service

basis is to place further emphasis on the importance of coordinating harmonious development of urban and rural areas.

China has experienced an extraordinary period over the past five years, when great and steady achievements were made in solving problems concerning agriculture, rural areas and farmers. Steady, healthy and fast development of the economic society helps China keep having new understanding about the solution to the problems concerning agriculture, rural areas and farmers. In last five years, national agricultural policies have also changed drastically. The first significant event performed by the CPC in the twenty-first century is the reform of the rural tax and fee system. Indeed, agricultural policies have been developed during these years based on the strategy of coordinating harmonious development of urban and rural areas proposed by the 16th NCCPC.

First, the uniform tax and fee system of urban and rural areas was established. Two points need clarifying. One is that the reform of the rural tax and fee system in 2000 is different from the later abolishment of agricultural tax systems. Three key words of rural tax and fee reform in 2000 are reduction, stabilization, and standardization. Reduction refers to the reduction of burdens on farmers. Statistics indicate that national tax and fees on farmers were RMB125 billion in 1999 (in which the tax was only RMB48 billion, according to relevant laws enacted by the NPC and policies issued by the central government, including agriculture tax, local agri-product tax, livestock farming tax, additional tax for education and hog slaughtering tax) (Su, 2008). It shows that farmers' burden was mainly from fees rather than tax. The rural tax and fee reform in 2000 is targeted to reduce the burden on farmers. The detailed contents of this reform include:

- Abolishment of the five kinds of charges by township governments. They are charges for education, one-child policy, militia training, road construction and bridge construction. Meanwhile, the central government raises the tax rate from 3 to 7 percent. Therefore, multiple kinds of fees and tax are changed to only agriculture tax.
- Cancellation of the three kinds of charges by village. They are village accumulation fund, public welfare fund and expenditure on village administration. After the reform, the burden on farmers decreased from RMB125 billion to RMB65-70 billion. Stabilization means that the burden on farmers will be kept on this level for a long time. Standardization means that this tax policy will be implemented as a long-term standard agriculture tax system (Zhao, 2008).

However, the central government started to cancel agriculture tax gradually in 2003. The tax-free policy trial was conducted in Ji Lin and Hei Loingjiang provinces. For other provinces, the agriculture tax rate was reduced from 7 to 5 percent while additional tax was reduced from 1.4 to 1 percent. Therefore, the overall burden on farmers was reduced from 8.4 to 6 percent in 2004. In addition, the premier, Jiabao Wen, explicitly proposed that agriculture tax would be canceled in five years in the second session of the 10th NPC. In fact, it only took three years to cancel it. At the end of 2005, the Standing Committee of National Congress officially proposed to cancel agriculture tax, local agri-product tax, and livestock farming tax in 2006. The political influence of this reform is much more significant than that on economics. The income of farmers

increased by RMB125 billion nationwide, which indicates that average increment of income per farmer, whose population is around 900 million in China, is about RMB150.

The other is that some misunderstanding exists about the new rural tax and fee system. It does not mean that farmers do not pay any taxes at all. Only taxes on agriculture were abolished. In fact, farmers still should pay all other taxes, they need pay as participants in the market and citizens of the country, including value added tax, income tax, deposit tax, as well as vehicle and vessel usage tax. All citizens are taxed fairly.

Second, subsidy policy is implemented on direct production of farmers. After the 16th NCCPC, not only were agricultural taxes abolished but farmers also were subsidized for agricultural production. The subsidy policy was put forward in the 2004 *Number One Document*. Initially, there were only three kinds of subsidies: grain direct subsidy, grain seed subsidies and machinery subsidies in some particular areas. With the increase in global energy prices, the central government also provided agricultural production material subsidies. At the beginning of summer 2007, the government started to subsidize the production of hogs, dairy cattle, and edible oil owing to the great price increases of meat, eggs and milk. The budget of the Ministry of Finance shows that the total subsidies surpassed RMB80 billion. Based on the supply and demand of major agricultural products, another ten policies were implemented to stimulate agricultural production. These policies allowed farmers to receive RMB21 billion directly, and another RMB4 billion was used for rural basic infrastructure construction. Therefore, farmers received more than RMB100 billion in the total subsidy in 2008 (Xie, 2008). The policy of agriculture subsidies starting in 2004 has never been implemented in China's history. Agriculture subsidies will be kept as a standard system to ensure the continuous development of agriculture.

Third, the focus of infrastructure construction and social development was changed to rural areas. The construction is still in progress. The rural basic infrastructure construction has been greatly improved, especially in rural highways, electric and water utilities, and biogas supply:

- *Construction of rural electric utilities.* Construction and improvement of rural electric utilities started in 1998. By 2007, China had totally invested over RMB270 billion in the construction of rural electric utilities. As a result, not only are there much more rural electric utilities than before, but the electricity price has decreased greatly. The price is kept below RMB0.6 per kilowatt hour for most areas after the electric utility improvement (the price is RMB0.57-0.58 set by government).
- *Rural highway construction.* Great achievements have been made in rural highway construction after a several years of effort. The rural highways cover about 95 percent of townships and 87 percent of administrative villages. The next task is to consolidate the surface of highways in the central and western regions and improve the roads between the natural and administrative villages (Wen, 2008).
- *Construction of rural drinking water utilities.* The previous problem of drinking water supply in rural areas was that water sources were far from the rural residents. This problem has been basically solved by construction. The major problem confronting rural residents now is unsafe drinking water, because

drinking water in some rural areas has a high density of mineral and heavy metals. About 320 million people in China drank unsafe water at the end of the 15th five-year plan (2001-2005).

- *Construction of biogas supply utilities.* The central government invests about RMB2.5 billion in developing the biogas utilities every year. In addition, the annual investment of local governments is around RMB4-5 billion. As a result, about 330,000 hectare of biogas can be developed annually. Owing to the construction of biogas utilities, farmers can use clean recycled resources at present, which is good for the ecological environment. At least 6.67 million hectare of biogas can be developed nationwide because of 252 million rural households. However, present construction can only realize less than 3.33 million hectare of biogas. Further construction is needed.

Social development in rural areas can be categorized into four aspects: education, health, culture, and social security:

- (1) *Education.* The central government has established the security mechanism for rural compulsory education. Fees are reduced or free, and free textbooks are provided to low-income family students. Specifically, tuition and fees has been completely canceled in rural areas since 2006. Rural compulsory education with free textbooks has been offered to some rural areas since 2007. Furthermore, about eight million students from low-income families are given a stipend by the government. Though many problems exist in rural education, the situation has been improved greatly.
- (2) *Rural cooperative medical services.* Rural cooperative medical system started in 2003. At first, the farmer, the central and local governments paid RMB10, respectively, for farmer's medical expenses in some rural areas annually. By now nationwide rural areas all implement this policy, and the subsidy increased twice. In 2005, the figure increased to RMB50. The central and local governments paid RMB20, respectively, while the farmers still paid RMB10. In 2007, it increased to RMB100, in which RMB20 was paid by the farmers and the remaining RMB80 was split equally by the central and local governments (Shao and Pang, 2008).
- (3) *Culture development.* Television and radio service is broadcasted to every village, and at least eight to ten channels are required according to the central government. At the same time, at least one movie is shown per month in every village.
- (4) *Social security system.* The 2007 *Number One Document* put forward that the minimum living guarantee system is required to be established in all the rural areas. About RMB13 billion was spent by the central and local governments to establish this system in 2007. Over 34 million farmers, whose incomes are lower than the minimum living expenses measured and published by the central and local governments, joined the system at the end of 2007. Hence, they could get RMB30 monthly as their basic living allowance. In 2008, the central government raised the fund from RMB30 to 90 billion, so that the basic living allowance farmers can receive RMB50 per month (Xie, 2008).

Fourth, more policies on farmer-turned workers were established. The 2006 *Number Five Document* put forward the law on protecting rights and interests of in-city migrant rural labors, such as employment (wages, working conditions, etc.), social security, medical care and education. The *Number Five Document* explicitly proposed establishing the migrant rural laborers coordination group within 31 provinces and cities. Each province or city must establish relevant institutes to solve problems of in-city migrant rural labors.

To sum up, the past five years are an important period for China's changing agricultural policy. In this period, not only have the subsidies in every aspect of rural areas increased, but the policy direction has changed. The new policies aim to realize integration of urban and rural areas based on the requirement of coordinating harmonious development of urban and rural areas.

3. Food security and associated policy changes

3.1 *Reasons for increasing price of major agricultural products*

Much public attention is paid to agricultural product prices owing to the increase of the pork price around early May 2007. The international background of domestic price increases is complicated.

One feature of agricultural product price increase in China's domestic market is that prices of edible oil and animal products, like meat, eggs and milk increase dramatically. Some may even double. The other feature is that prices of grain products such as rice, wheat flour and maize do not increase much. China's grain prices increased only by 4 percent or less by the end of the first quarter of 2008. It is worth considering the reasons why prices of animal products largely increased while grain prices barely increased.

Attention should be paid to several issues. First of all, prices of China's major agricultural products hardly increased from 1996 to 2006 and some of them even decreased. The basis of the price increase of agricultural products is that the price was too low to keep up with larger consumption capacity of residents and higher input costs. Comparing May 2006 with May 1996, prices of many products went down rather than up, which harmed the interest of farmers for almost ten years. Therefore, the dramatic price increase did have some reasonable and important background. Second, the increase of energy prices directly resulted in an input cost increase of agricultural products. It is reasonable that the higher input cost partly imputed to consumers rather than fully landed on farmers. Third, production periods also contributed to the price increase. Production in the hog industry was in a slump at the beginning of 2006 owing to epidemics such as the blue-ear and other diseases. As a result, pork price increased because of higher risks of pig-raising.

The small price increase of grain products compared to the dramatic price rise of edible oil and animal products is closely related to the structure of China's agricultural production. First, China's overall cropping structure is limited by various restrictions owing to the arable land. According to the recent announcement of Ministry of Land and Resources, there were 121.73 million hectares of arable land at the end of 2007. Only 667,000 hectares were reduced compared to the figure at the end of 2006. The year 2007 has the least reduction in arable land in the last few years. The figure was first published in 1996 and there used to be 130 million hectares of arable land. In 2006, the arable land was reduced to 121.8 million hectare (Yu, 2008), which indicated that 8.27 million hectare

of arable land was changed to non-cropping land in ten years. There are only six of 31 provinces/autonomic zones in China where arable land areas are more than 6.67 million hectares. Heilongjiang province has about 11.33 million hectares and the other five have less than eight million hectares. The reduced arable land in the last ten years is equivalent to the total arable land in Shandong, Hebei or Henan province. The actual sown area in 2007 was 157 million hectares. It included over 106 million hectares for grain production, 17.33 million hectares for oil crops, 5.33 million hectares for cotton, 1.8 million hectares for sugar and 18 million hectares for vegetables. These four items summed up to about 146.67 million hectares. Other crops such as herbaceous fruits, flowers, nurseries and tea were more than 6.67 million hectares. In short, the production of grains and vegetables is guaranteed by nearly 106.67 million hectares and 18 million hectares of sown areas, respectively, (National Bureau of Statistics of China (NBS, 2007)). As a result, the supply and price of grain products in China will not suffer from large fluctuation if there is not any particular reason.

There are three major grain products in China. They are rice, wheat and maize. The sown area of rice is kept, on average, at 110 million hectares and the rice output is normally over 180 million metric tons per year. Annual wheat output is about 100 million metric tons and annual maize output is around 150 million metric tons (NBS, 2007). A balance can be reached considering the present demand. There might be some surplus for wheat and a little deficit in rice. Normally, the supply of maize is adequate because it is mainly used for processing industries.

In summary, the most important reason for China's domestic grain price increases being much less than that of the international market is the structure of China's agricultural production, which guarantees the supply of grain products.

3.2 China's grain imports

However, not all the grains Chinese people need can be self-supplied sufficiently because the sown area is limited. There are two major weaknesses in China's agricultural production structure: one is soybean, the other is vegetable oil.

China's soybean output in 2007 was 14.9 million metric tons, while the soybean import was 30.83 million metric tons (NBS, 2007). The import amount surpassed double the amount of domestic output. In a soybean-demand perspective, over two-thirds of soybeans need importing. The primary purpose of imported soybean is oil press, while 60 percent of China's domestic soybean output is processed for edible soybean food, such as soy milk, etc. The soybean oil yield of high-oil soybeans can reach from 18 to 20 percent. Accordingly, 30 million metric tons of soybeans could produce nearly 6 million metric tons of oil. Soybean cake is a by-product from the processing of soybean oil. It is an important feed for livestock and poultry. Therefore, when the imported soybean price doubled in 2007, the domestic prices of soybean oil, soybean cake and feed all went up. Because over two-thirds of soybeans used are imported and the price of imported soybean is determined by the international market, the government could not maintain domestic price controls on soybeans in 2007. That is why soybeans are a big weakness.

The second weakness is edible oil, mainly soybean oil and vegetable oil. The normal growing area of oil crops in China is about 14-15.33 million hectares in recent years, which can produce less than 40 million metric tons of oil crops. All these oil crops can press 10 million metric tons edible oil. However, the edible oil supply gap is still huge

in China. The edible oil demand in 2008 is around 24.5 million metric tons, but the edible oil supply is only 16 million metric tons, of which 10 million metric tons of edible oil are obtained by processing domestic oil crops and the other 6 million metric tons of edible oil are obtained by pressing the imported soybean. China's custom statistics indicate that the edible oil import was 8.38 million metric tons in 2007 (MOA, 2008). All these data show that the self-supply rate of edible oil is only 40 percent in China, and about 60 percent of the edible oil is imported from the international market. Hence, domestic prices of edible oil will rise if the international price increases, which is a serious problem. Since agricultural resources in China cannot meet the domestic demand to a great extent at present, China's agricultural products import dependence is rising in some aspects. This is a challenge China was confronted with in the past and will be confronted with in the future. Before the twenty-first century, the situation was not so serious, but now it is becoming increasingly severe. It is a very complicated problem that nearly 70 percent of soybean and 60 percent of edible oil are imported from and priced by the international market. This is the underlying reason for some weird instances such as non-staple foodstuff prices soaring while rice and flour prices rose slowly. From the above discussion, we can conclude that this round of price fluctuation of agricultural products is directly related to price changes of the international market. Since China's future agricultural product markets and prices will be more influenced by the international market, it is a must for us to understand the international market price fluctuations.

After the Iraq war in March 2003, the oil price was raised sharply from \$20 per barrel to over \$120 per barrel. When the oil price was between \$70 and 80 per barrel, the US Government began to encourage the domestic development of the bioenergy industry. It especially encourages using maize as the main bioenergy crop and also provides subsidies for the bioenergy industry to stimulate production. As a result, the bioenergy demand for maize grows as the oil price goes up, and subsequently, the maize price rises. The consequence of maize being used as a bioenergy crop is that the grain price is affected by the oil price. Under the advanced technology, 1 metric ton of oil can be extracted from 3 metric tons of maize. Owing to such a high return, the maize demand is increasing sharply in the international energy market.

The world's total output of maize was just more than 600 million metric tons in the 2007/2008 crop year, and 55 percent was produced by the USA. The USA demand for maize was 260 million metric tons, of which 55 million metric tons were used for producing gasoline and biogas. The high return of bioenergy caused the maize price to soar, and the maize output grew owing to increasing maize prices. The US maize output increased by 20 percent in 2007 for a variety of reasons. The major reason is that the maize sown area expanded by 18 percent. This resulted in reduced output of other crops, mainly the soybean output. For this reason, the soybean price rose in 2007. China has no advantage in soybean production and depends on imports. Global soybean exports are about 65 million metric tons annually in recent years and it is forecast to increase over 70 million metric tons in 2008 (MOA, 2008). China imports about 30 million metric tons every year, accounting for a large proportion of the global soybean exports. Therefore, China's agricultural products are influenced greatly by the international market.

Prices of major agricultural products are increasing all over the world nowadays. The wheat price increased by 80 percent in the international market in 2007.

The soybean and rice prices were raised by nearly 5 percent, and maize price increases were a little less than 5 percent. Under such a situation, will prices of these agricultural products increase in the future? The answer is yes. If grain prices keep going up for several years, those countries with abundant arable land will cultivate unused arable land for growing crops so as to increase grain output. However, prices of agricultural products are tending to rise around the world even if the supply increases. There are several reasons for this forecast. First, costs rise. Energy price increases caused all the input prices to go up. Second, demand increases. The emerging bioenergy demand for crops greatly increases the global grain demand. Third, the US dollar devaluates against almost all currencies. The US dollar has devaluated against the RMB by 8 percent since 2005. Fourth, transportation costs increase substantially. Grain transportation costs were \$96 per metric ton from the ports of New York, Seattle and New Orleans in the USA to the major ports in Asia at the beginning of 2008. Oil price was raised by 75 percent compared with the same period in 2007. Thus, the international grain market will increasingly affect China's grain market in the future.

Owing to the above mentioned, it is essential to study seriously the long-term supply and demand of China's agricultural products. China is encountering a serious challenge: China cannot feed its people well with its own agricultural resources. China's crop sown area is 156.67 million hectares, which is very difficult to increase. Under the current technology of China's farm production, an additional sown area of 1.67 million hectares is needed to produce the 30 million metric tons of soybeans China has imported in recent years. An additional sown area of 12 million hectares and at least 2.67 million hectares are also needed to produce oil crops for 835 metric tons of edible oil and 2.46 million metric tons of cotton China imports in 2008. To sum up, China depends greatly on the international agricultural product market, which cannot be solved in a short-term. Importing does work if the economic conditions satisfy and no threat is posed to the country's security and social stability. It is quite difficult for a resource-short country to import agricultural products, which can be equated with importing land and water. Dealing with grain import issues prudentially is vital for China to achieve stable and sustainable development.

All of us should understand the reasons for China's dependence on the international grain market. China's agricultural production continuously grew from 430.6 million metric tons in 2003 to 500 million metric tons in 2007, which has never taken place in the history of China. However, the grain output in 2007 was still 10.3 million metric tons lower than 1998 levels. Therefore, we must be vigilant regarding problems of the supply and demand of agricultural products to meet the China's food demands, a country with an increasingly growing population and decreased arable land. Decreased arable land was and is caused by industrialization and urbanization day by day. Though the arable land requisition is necessary in the process of industrialization and urbanization, there exist problems caused by unscientific development systems, such as land finance, and pursuing GDP growth at the expense of all other considerations.

All regions with fast economic development in China are where arable land and grain output decreases. They cannot be considered incorrect to develop local economics in such ways, because we have not figured out the most feasible methods for scientific development, which means a comprehensive, coordinated, and sustainable development of economy and society. There are many star cities (cities with fast

economic development) in Yangtze River Delta and the Pearl River Delta. Take a star city located in Yangtze River Delta for example. The economic development of this star city has been very fast in recent years, proved by its considerably growing GDP and fiscal revenue. However, its arable land decreased by 200,000 hectares in this process. The city could export about 1 million metric tons of grain at the beginning of reform and opening-up, while 2.5 million metric tons of grain needs importing at present. Evidently, its economic development cannot be considered unsuccessful. It is ok for us to have several cities like this under China's actual conditions, but we will get in trouble if 100 of China's cities follow this star city. Grain cannot be bought without difficulty, even by the rich, during the period of grain shortage. In cases in past years, the more developed areas are, the more the arable land and grain production decrease. As a result, China's grain growth can merely rely on the northern areas in recent years. In addition, the distribution of water and land resources is uneven in China. Regions with adequate land are short of water, while areas with plentiful water lack land. This situation has become more and more serious. The growing conditions of crops, such as water, soil, heat and light, are better along the developed coastal areas, which are mainly alluvial plains or river deltas. Agricultural development should be very rapid there. However, the economic development, industrialization, and urbanization of these areas are fastest in China, subsequently resulting in the great decrease of arable land and grain output. Therefore, the northern areas take the responsibility for China's grain growth at present. However, the northern areas are short of water and plentiful water is vital for some grain growing. For instance, 1 half kilogram of wheat production needs 500 kilograms of water in the major wheat production area – North China[2]. It is astonishing that wheat is such a high water-consuming agricultural product.

3.3 Stimulating grain production, guaranteeing food security

It is not safe for China to have its food security dependent upon the grain production in northern areas. This is not a problem that can be neglected. It is essential for us to pay attentions to the following four aspects.

First, more attention must be paid to arable land protection. It is important to ensure the maintenance of 120 million hectares of arable land in spite of additional land requirements of industrialization and urbanization. China has the most rigid legislation of land issues in the world. For instance, the 1998 Land Law states that only the State Council and provincial governments have the right to approve the occupation of arable land – not city, county and township governments. This is not common elsewhere in the world. Unfortunately, the law enforcement is not strict in China.

Second, uniquely in the world, China's criminal law particularly includes three punishments for land crime in the land legislative process. They are land crime, the crime of illegal arable land trading, and the crime of illegal arable land approval. No matter if it is farmers or government officials who violate land laws or regulations in these areas, they will be condemned. This is unique in the world from the legislation point of view. However, the rigor of law enforcement is still in doubt. Anyway, China has to protect 120 million hectares of arable land, no matter the cost, from now on. Otherwise, it will take high risks of the increasing grain demand from the international market.

China must rely on improvement of agricultural production conditions and advancement of agricultural technology to increase agricultural production output owing to limited resources, which means replacing “resources” by “inputs”. The national average grain output per hectare increased 87 percent from 2,520 kilograms per hectare in 1978 to 4,710 kilograms per hectare in 2007. In detail, rice output increased 75.8 percent from 3,840 kilograms to 6,750 kilograms per hectare. Wheat output increased 146.35 percent from 1,845 to 4,545 kilograms. Maize output increased 192.5 percent from 2,805 to 5,400 kilograms. The reasons for output increase per hectare are: first, agricultural production conditions have been improved by constructing and improving rural basic infrastructure. The land cultivation has been improved. Second, high-yield seeds were adopted. In short, it is important to realize changing the method for output increase in agriculture by raising “input”.

Third, it must be guaranteed that farmers can benefit from grain production so as to stimulate farmers to produce grain. Farmers have made a great contribution to stable domestic prices of grain products in recent years. They lost a lot of profit owing to lower domestic grain prices compared with international counterparts. However, it is not a long-term solution. Currently, the prices of wheat, maize and rice are almost half those of the international market. Therefore, China should enhance the coordination on agriculture as well as make the market mechanism more effective, which will truly stimulate the grain production.

Fourth, world vision and strategic thinking are required to solve China's agricultural problems. The demand for agricultural products goes up as living standards increase. However, China's agricultural resources are limited. Although advanced technologies will improve the output, it is still not enough. As a result, the supply of China's agricultural products needs to be put in a global context. Although protection on domestic products is necessary, research on locating and sustaining international resources is also important. Importing of agricultural products is critical to China. About 3.7 and 2.46 million metric tons of cotton were imported in 2006 and 2007. The imported sugar accounts for 15 percent. For crude wood, nearly 40 million cubic meters are imported currently while the domestic production is less than 4 million cubic meters. Imports reach 150 million cubic meters when imported furniture and flooring products are included, which satisfy 40 percent of the domestic demand. Moreover, the rubber demand is over 2.2 million metric tons for consumption and processing. The annual output of Yunnan province, the major rubber producing area in China, is only 500,000 metric tons. Annual rubber imports are about 1.4 million metric tons. As for wool, the high-quality wool produced in China is less than 100,000 metric tons. Most of cashmere is from pigs rather than from sheep in China. Consequently, over 80 percent of cashmere textiles rely on imports.

4. Issues in China's current rural reform and development

China's rural reform faces many problems at present. There are at least three issues that greatly restrict the rural reform and development.

First is the farmers' income growth. The growth of farmers' incomes is relatively higher now compared to what it used to be. The income increase surpasses RMB300 annually. Meanwhile, growth rate (deflated by CPI) is over 6 percent annually. Especially, the farmers' net income per capita reached RMB4,140 in 2007. The net income growth per capita is 9.5 percent (deflated by CPI), which is the highest since 1997.

However, the figure is still lower than that of urban residents. The disposable income per capita of urban residents was RMB13,786 and the growth rate (deflated by CPI) was 12.2 percent in 2007. The ratio of urban and rural income was 3.33:1, which was the greatest ever. The 2008 situation mostly depends on the new policies to increase farmers' income. The method of farmers' income increase has to change, which is a challenge in current rural reform.

Second is that the rural society is experiencing profound changes owing to industrialization and urbanization. About 200 million rural laborers are leaving rural areas, which greatly impacts the rural as well as the urban societies. The statistics of the NBS indicate that China's urbanization ratio is 44.9 percent in 2007. The population of rural residents is about 720 million. The statistics are based on the actual residence. The urban residents include the migrants from rural areas (those who are not living in rural areas for over half a year annually). However, the statistics based on registered permanent residence (legal residence) shows the rural population is 949 million in 2006. Therefore, about 230 million of rural laborers are working in urban areas at present. It is a necessary consequence of industrialization and urbanization. The issues in rights protection of migrant rural laborers cannot be ignored. On the one hand, migrant rural laborers cannot come to stay in cities if they have no legitimately registered permanent residency. On the other hand, if migrant rural laborers were registered as urban permanent residents, it would also have great impact on strategies for urban development, especially for big city resources, environmental sustainability and urban infrastructure management capability.

Third, the factors of production are running down in rural areas, owing to the huge economic gap between rural and urban areas. It is difficult for the rural areas to sustain prosperity and development. Although the labor export in rural areas is not necessarily negative, the migrant rural laborers are mainly young and strong laborers. Meanwhile, a lot of arable land is used for non-agricultural purposes, which also negatively influences the long-term rural development. Moreover, deposits from rural households are higher than loans for agricultural activities in most banks of rural areas. According to the current laws, arable land and rural houses cannot be used for mortgages. The risk for loan is high-without mortgage. This is another problem that needs considering and resolving in the future.

The issues discussed above are newly emerged. New strategies should be developed and applied to solve them, which include financial and land issues. Owing to the low efficiency of small-scale agriculture, China must enlarge the agriculture scale to achieve higher efficiency. However, larger agriculture scale means less employment in agriculture. The basis of agriculture scale enlargement is to transfer agriculture population to other industries. As for the land issue, two major concerns are transfer of right to use the land and rent of land. In China's 5,000-year history, one of the most popular concepts is land annexation. The boundary between large-scale agriculture and land annexation is critical to investigate. In addition, small-scale farming is not the consequence of land contract policy, but China's current situation. The farmers' population in China is over 900 million, so that it is impossible to develop large-scale agriculture. This is quite different from the USA, Australia and Canada.

In summary, China must investigate other methods for future agricultural development. Fully commercializing rural finance is difficult to achieve without monitoring from the government. As for the scale issues, the experiences of Japan,

South Korea, and Taiwan suggest that the solutions to the small-scale and decentralized agriculture are high cooperation, development of specialized co-operative organizations and establishment of an agricultural social service system under the protection mechanisms of the government. In relation to agricultural modernization, China should learn from the experiences of countries all over the world during their processes of urbanization and industrialization. Meanwhile, China should also summarize its own experience.

Notes

1. At the beginning of Chinese Reform and Opening up, central government made the long term development strategy, which is so-called three step plan of China's reform and opening-up. The first step is to achieve the target of quadrupling its national income from 1980 levels, and the national income per capita reached US\$800. The second is to quadruple national income from 1990 levels. The third step is that, to the middle of the twenty-first century, per capita GDP reached the level of moderately developed countries, people's lives are richer, and modernization is basically realized.
2. In North China, winter wheat is sown in mid and late October and harvested in next early June. Four times of irrigation are necessary (they are sowing, turning green, jointing and milk-filling). One mu, about 666 square meters, needs 100 cubic meters of water for one time wheat irrigation. Totally 400 cubic meters of water, approximately 400 metric tons, is required for one mu of winter wheat growing. The highest output of wheat is about 400 kilograms per mu, so 400 metric tons of water is for 400 kilograms of wheat.

References

- MOA (2008), *Agricultural Statistic Database*, Ministry of Agriculture of China, available at: www.agri.gov.cn/sjzl/index.htm (accessed April 12).
- NBS (2007), *China Statistic Yearbook 2007*, China Statistics Press, Beijing.
- Shao, Y. and Pang, Y. (2008), "Constraints of the new rural cooperative medical system of funding", *Chinese Health Economics*, No. 7, pp. 14-17.
- Su, N. (2008), "Retrospect and outlook of central government financial support policy on agriculture, rural areas and farmers", *Review of Economic Research*, No. 31, pp. 52-8.
- Wen, J. (2008), "Government's work report", *Xinhua Net*, Vol. 3.5.
- Xie, X. (2008), "Report on China's central and local budgets", available at: http://english.gov.cn/official/2008-03/20/content_925090.htm (accessed March 10).
- Yu, H. (2008), "Firmly holding 18 million mu of arable land", available at: www.mlr.gov.cn/zt/dqr/38/xgxw/200711/t20071120_92688.html (accessed April 10).
- Zhao, Y. (2008), "From farmers' burden to public finance", *Review of Economic Research*, No. 31, pp. 44-51.

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