China’s WTO Entry and the Reform of Grain Circulation System

Qiao Yan and Leif Söderlund

1) Institute of Policy and Management, CAS, Beijing 100080, China, yqiao@casipm.ac.cn
2) MTT Agrifood Research Finland, Environmental Research, FIN-31600 Jokioinen, Finland, leif.soderlund@mtt.fi

Abstract
There are several severe problems in China’s grain circulation system. In this report grain refers to cereal crops (rice, wheat and corn), soybeans and tubers. For example, the government cannot bear the heavy financial burden caused by grain procurement, and on the other hand, there are cost savings of the farmers’ lack of protection. Reform of the system began in 1998 and it still continues. The goals of the reform are to ensure the security of China’s food supplies and to increase farmers’ income. After China’s entry into the WTO, the reform was faced with new opportunities and challenges. On the basis of a series of analyses, some policy suggestions were put forward in this paper: (1) to reduce the appropriation of financial funds for grain procurement gradually and offer farmers direct subsidies in a suitable way as soon as possible; (2) to define properly the functions and scale of the central grain storage in order to avoid distortion of the grain market and increasing of the fiscal burden; (3) to optimize the allocation of domestic support funds, and make full use of the “green box” policies; (4) to accelerate the reform of state-owned grain enterprises and strengthen their competitiveness in the market; (5) to strengthen farmers’ cooperation, promote the farmers’ rural cooperatives and enhance their market-bargaining ability. In the long run, in order to ensure the national food security, China must protect the overall grain production capability fundamentally, including strengthening the protection of arable land and water resources and enhancing the S&T ability in rural areas.

Key words: China, grain circulation, WTO, food security, farmers’ income
Introduction

China, having undergone more than two decades of the Reform and Opening-Up policy, has transformed its once planned economy into a market-oriented one. But obviously, the market-oriented process of the grain circulation system lags far behind that of other industries due to its extreme significance and sensitivity. Since the middle period of 1980s, through a series of reforms such as raising grain purchase price, changing from ordering purchase into contract purchase and freeing grain retailing, the phenomenon has basically changed that the grain retailing price was lower than the state purchasing price, and to some extent, the market mechanism has been introduced. However, there still exists the government’s fixed prices and dual-tier prices (dual-price-track) system, so the function of the market mechanism cannot be performed sufficiently. Furthermore, while the total amount of grain supply and demand keeps balance, it still brings about various problems: even with the increased grain production, farmers’ income has not been improved; the grain enterprises suffer a great loss; the financial burden in the major grain growing regions is overweighed; the government cannot bear the heavy financial burden caused by grain procurement, and so on.

On 11 December 2001, China became a formal member of the WTO. The entry brings not only enormous opportunities but also severe challenges to China’s agriculture. These challenges mainly stem from two aspects: First, the WTO "Agreement on Agriculture" restraints such stipulations as the market access, reducing domestic support and export subsidies, etc.; Second, China must fulfill the commitments of entering the WTO, such as reducing the import duties gradually, removing the non-tariff trade barriers, opening the grain market and so on. Therefore, the WTO entry will cause enormous impact and influence on the grain growing and management of China; especially in the major grain growing regions it will affect many aspects such as the balance between grain supply and demand, the grain price, the grain’s market mechanism and the grain enterprises, etc.

Since the market-oriented reform in the Chinese grain circulation system has already been the trend of the times, it is urgent to make further adjustment and reform on the deficiency of current system and policies and to solve some profound contradictions in China’s grain circulation system.

Grain supply and demand in China

China is the largest producer of rice and wheat and the second largest producer of corn. Bumper harvests of grains in China between 1996 and 1999 have left China an oversupply and a large grain stock. Since 2000, grain acreage and production in China had kept dropping for five years. Grain
Acreage went down from 113.8 million hectares in 1998 to 99.4 million hectares in 2003 (Fig. 1).

China’s production of wheat, corn, rice and other food grains declined from a record high of 512 million tons in 1998 to 431 million tons in 2003, which is a 10-year record low, and the nation's per capita grain reserve fell from 412.4 kg in 1998 to 334.3 kg in 2003, which is the lowest in 20 years. On the other hand, China’s grain consumption has been increasing mainly due to population increase, from 470.7 million tons in 1999 to 488.2 million tons in 2002 (Ding, 2004). The big gap between production and consumption in recent years was mainly compensated by grain stocks. From 1998 to 2001, the state grain stock was maintained above 240 million tons. Comparing with the amount of previous years, there is a surplus stock of 140 million tons, by coincidence, which equals the accumulative grain surplus of bumper years from 1996 to 1999 (Xie, 2004). Due to the large stockpiles, China's overall grain supplies still outstrip domestic demand. The policies used to focus more on grain quantity other than quality, which results in the surplus of low-quality grain along with the deficit of high-grade grain in China’s grain market. Due to the continuous grain surplus, the grain price had slid since 1996 and the trends continued till 2003 despite of the grain output declining from 1999 to 2003. From the third quarter of 2003, prices of grain and other staple agricultural products in China have been on remarkable rise for the first time in six years. Besides the grain shrinking production, the ongoing marketization reform and direct subsidy reform in main grain producing areas also play more important roles (Fig. 2).
Fig. 2. Total Output of Grain and Consumer Grain Price Index in China (1995-2003)
Note: The consumer grain price index of year 1995 equals 100. Indices of the following years are calculated based on year 1995.

Grain circulation system since the 1998 reform

1998’s reform

China’s Reform of the Grain Circulation System is one of the main elements of the agricultural reform toward a market economy. After experiencing "Unified Procurement" in 1978-1984 and "Dual-track price system" in 1985-1991, China’s grain marketing policy formally set marketization as its reform objective in 1992. In early 1993, the government abolished the grain compulsory quota system and the sale at low prices to consumers. The state distribution and procurement systems were substantially liberalized. However, since the corresponding controlling and stabilizing mechanism was not set, the free grain market policy failed when food price inflation reappeared in 1994. From 1994, grain marketing policy focused on the establishment of state macro adjustment and control mechanism, including reserve system, risk fund and procurement at protective price. A provincial governors’ grain responsibility system was introduced in 1994-1995 as well, aimed at encouraging greater grain self-sufficiency at the provincial level (Long, 1999; WU et al., 2003). But the policies were not fulfilled successfully by the state grain enterprises that were evolved under planned economy for a long period of time and hence lagged far behind in the reform.

Faced with rising fiscal burdens (due to higher levels of government grain stocks) and falling stable grain prices in the late 1990s (caused primarily by record levels of grain production in 1995 to 1997 and a decline in demand
growth), the central government decided to reform the existing grain marketing system in April 1998. The key elements of the new grain marketing policy consist of “three policies and one reform”, i.e., “open-ended procurement at protective price, reselling grain at a full-cost price, closed circulation of the procurement fund, and pushing the reform of the state-owned grain enterprises”. The main goals of the new reforms were: (1) to protect farmers from the prolonged low price; (2) to reduce the fiscal burden of the grain system. While the overall goals of the reform were not new, what was “new” was that monopoly had been selected as the measure to achieve the two goals simultaneously, though it was certainly in contradiction with the general reform mood.

As the sole supplier, the state agencies must take three commitments: to procure surplus grain from farmers at a protected price without any quantity limit; to re-sell grain at a price sufficient to cover procurement and marketing costs, or even gain some profit if possible; to ensure the quantity of procurement fund, and its circulation in a closed cycle without any misappropriation. To achieve the policy objective, the state grain enterprises must have sufficient facilities for stocks and procurement fund, and the supervisory ability to prohibit non-state enterprises and private trades from purchasing grain directly from farmers. However, as the rights to private trading were expanded in the early 1980s, grain-marketing channels have been greatly diversified and the market share of non-state grain agencies (individuals and private companies) in purchasing and selling farmers’ surplus grains increased substantially. As a result of the difficulty government authorities had to face with stopping private dealers trading directly with farmers. Meanwhile, market prices remained lower than state grain enterprises’ price and many state enterprises had to sell their grain at below-cost prices to cut down their stocks. In order to reduce their losses, many state enterprises had to decrease the quality of farmers' grains, which depresses the price. So farmers did not benefit from the policy either, actually the price they received was much lower than that set as the “protective” one. In the nationwide, the total subsidies for price and market interventions reached 40.3 billion RMB in 2000, which is about 4% of national fiscal budget, more than any other components of government expenditure in agricultural and rural area (Huang et al., 2002).

In short, the 1998 reform retained many characteristics of the centrally planned economy: government intervention and administrative methods were still the common practices in regulating the grain marketing, and the transaction costs of the new policies were very high.

**2001’s reform**

In March 2001, China re-opened its grain market first in the Zhejiang Province and then in several other provinces. In August 2001, the national grain working conference was held to define the general principle for grain circula-
tion system reform. On the basis of the reform principle in 1998 basically unchanged, certain adjustment was made in some areas. The government allowed grain prices in major grain marketing areas, including Zhejiang, Shanghai, Fujian, Guangdong, Hainan, Jiangsu, Beijing and Tianjin, to fluctuate in line with market supply and demand, aiming at restructuring the agriculture sector in those areas and helping grain prices to rise in the grain growing regions. In several major grain-producing regions where grain trade was still regulated by guaranteed prices, local instead of central government made decisions on guaranteed prices. Even in these regions, however, market forces mainly determined prices.

This is an important development of current grain marketing policy implemented since 1998, indicating that China’s grain marketing policy is walking into a new period. Different regions could adjust their production structure in light of their regional advantages and complement each other in farm producing. The populous eastern regions enjoy the benefits of the relatively developed economy and higher income than the national average, but having a limited per-capita possession of the land resources reduced their own grain production and it was needed to import grain from the central and western areas. This brought more income for farmers in central and west China and boosted their local economies.

Under the situation of temporary grain surplus, it was an opportunity to adjust the agricultural production structure on the principle of optimal resource allocation. The reform helped farmers operate according to regional comparative advantages, accelerated the agricultural structure adjustment as well, and furthermore, improved the agricultural benefits and farmers' income. We can say, the marketization reform of major grain marketing areas in 2001, which was a great breakthrough on China's road to grain marketization, had effectively accelerated the agricultural structure adjustment and had fully proved the effectiveness of market mechanism on the resource distribution as well. The reform cleared away barriers that to some extent had blocked the free circulation of grain. After all, this was a partial marketization reform. In the main grain growing areas, there is still a long way to go to a full market reform. That was because, at present, the problems of grain mainly existed in the main grain growing areas, and they could not be solved simply by reforming of the circulation system. To solve the grain problems we must make an overall consideration combining the grain circulation with its production and trade.

Recent policies

On 25 February 2004, a standing meeting of the State Council presided over by Premier Wen Jiabao planned the reform of the grain circulation system. According to the conference, the state treasury is responsible for direct grain subsidies to major grain-producing areas, while provincial-level governments
directly subsidize grain-growing farmers. The system of direct subsidies to grain growers has been implemented in 29 provinces nationwide, and the total amount reaches 11.6 billion Yuan which benefits 600 million farmers. Among them, 10.1 billion Yuan is assigned to 13 major grain producing provinces, accounting for 88.6% (LIU, 2004).

On 3 June 2004, the State Council, China’s cabinet, released new Regulations on Grain Circulation Management, ordaining to let the market decide the grain prices and encourage fair competition between SOEs and private grain companies. Long plagued by the great losses of state-owned grain enterprises, China began to liberalize its strictly controlled and inefficient grain system to break SOEs' long-held monopoly over the grain market.

After the grain market was set free, the government encouraged market main body with diversified ownerships to run grain business. However, a liberalized market, without strengthened market management and control, tends to be inordinate. Therefore, this reform stresses that the government should tighten the management in the grain market, and to achieve a market "liberal but not in muss, flexible yet in order". To achieve it, "Regulation" has an explicit stipulation on the grain purchasing, selling, storage, transportation, processing etc. It also clarifies the obligation of grain business runners and legal responsibilities upon violation. Meanwhile, the grain authorities tighten management on grain wholesaling and retailing. When there is price rise abnormally, local authorities can control the rate of difference between purchase and sales and that between wholesale and retail to stabilize the price.

Besides the liberalization of grain market and the grant of direct subsidies to grain-cultivating farmers, there are some other measures taken in the reform are: (1) to set government procurement prices for key commodities in grain-surplus provinces in China’s central and north-eastern regions; (2) to accelerate the reform of state-owned grain enterprises; (3) to practice market access system especially qualification system.

The new policies have many characteristics that different from the early grain marketing reform. It is too early to empirically evaluate the impacts of this new reform program. However, bumper summer harvest and increased income of grain growers in 2004 indicate that the policies have taken effect to some extent. What is conformed is that the reform relies mainly on market methods to macro-control the grain market, and makes a stride forward in marketization.
Implications of WTO accession on China’s grain circulation system

According to the WTO basic terms, the commitments in agricultural sector can be generally classified into 3 major categories: market access, domestic support, and export subsidies.

Market access: As in many developing countries with large rural populations and a large share of the national economy drawn from agriculture, China’s agricultural protection policies are concentrated on limiting market access. Under the Uruguay Round Agreement on Agriculture, China commits to implement a series of tariff cuts on all agricultural products, to establish TRQs (tariff rate quotas) for a number of bulk commodities, to allow private enterprises to participate in trade activities, and to eliminate non-tariff barriers by 2004. Tariffs on all agricultural products drop from an average of 22% to 17% by January 2004 and tariffs on U.S. agricultural products with high-export priorities (such as animal products, fruits, and dairy products) drop to 14.5%. For goods subject to TRQs, a specified quantity of imports (i.e., quota) will enter at a low tariff rate, and additional imports (i.e., over the quota) will enter at a higher tariff. The quantities allowed at the low tariff (with TRQs) were set to increase annually from 2000 through 2004 (Hsu et al., 2001). China commits to allow foreign companies to have full trading rights and distribution rights, including rights in retailing, wholesaling, warehouse, and transportation. The extension of trading rights to private sector entities will add transparency and competition to China’s agricultural trade by phasing out the monopolistic power of state trading enterprises. The government encourages private sector participation and competition in trade by setting shares of in-quota imports.

Domestic support: The WTO puts strict controls on the types and amounts of certain investments. In particular, domestic support to agriculture is divided into “Green Box” and “Amber Box” ones. As is the case with the other WTO members, China faces no limitations in the amount that the nation can invest into those activities classified as Green Box, but face carefully circumscribed rules regarding the amount that can be invested into those activities listed as Amber Box policy. Despite of being a developing country clearly, China’s de minimis exemption for product-specific support is equivalent to only 8.5% of the total value of production of a basic agricultural product (compared with 10% for other developing countries). Moreover, some measures, such as investment subsidies for all farmers and input subsidies for the poor and other resource-scarce farmers, that are generally available for policy makers to use in developing countries, are not allowed in China (i.e., China must include any such support as part of its aggregate measurement of support which should be less than 8.5% of agricultural output values) (Huang et al., 2002). Actually, in the past two decades, the level of subsidy was almost
negligent or even negative when various fees and levies imposed on farmers were taken into consideration.

**Export subsidies:** In the area of export subsidies, the WTO members commit to ban the use of these subsidies unless they fall within one of four categories of exceptions, the principal one of which allows export subsidies subject to certain reduction commitments. However, like many other WTO members, China agreed to eliminate all export subsidies upon its accession to the WTO and did not take any exceptions.

China’s entry to the WTO brings to the country not only various benefits but also negative impacts.

**Aggravate the domestic contradiction between the grain producing and selling:** In the past two decades, China’s grain policies sought to increase quantity of grain produced without regard to quality. However, with the rising incomes, the per capita demand for stable food grains, such as wheat and rice, is not increasing likewise and even falling as consumers substitute higher value foods for some staple food grains. The contradiction of low-quality grain surplus and high-grade grain insufficiency is serious. Furthermore, the cost of China’s agricultural products is relatively high because of small farm scale and unadvanced production method. Therefore, the domestic grain market will inevitably be impacted negatively by imported high quality grain.

**Give certain negative impacts on grain producers’ interests:** As much of China’s wheat, corn, edible oil crops, and cotton are produced at costs above world market prices, Chinese agricultural product does not have the competitive advantages in the price aspect. Consequently, producers of the main crops will suffer declining income as imports rise with the implementation of China’s WTO promises (Huang et al., 2003). The rural households who resist and struggle on with grain cultivation alone may well find their position becoming increasingly untenable. In 2003 nearly half of the farmers’ net income per capita comes from the agricultural income while the percentage in depressed areas is up to 70% (NBSC, 2004). China will face a great challenge in protecting incomes of the huge number of farmers in the poorer central and western provinces that are still heavily dependent on agriculture.

**Strengthen difficulties in macro-control of grain market to the government:** Under the new TRQ system, the government will partially lose its ability to control imports, as quota will no longer be fully carried out by the state trading companies. Non-state trading companies and foreign companies can conduct part of the within quota trade as well as the above quota trade (under the high tariff rates). With the loss of government’s monopoly control over imports, the government’s agricultural policies, including pricing, marketing and distribution policies, will become much less effective.
Conclusions and Recommendations

Through the 20 years’ reform, China’s grain marketing system has been greatly liberalised and marketized. Increased income shifted the demand for grain from low quality to high quality food grain, which turned consumers from state owned retail stores to the grain market. Most of the grain is now sold at the market price. The market structure has changed and private business companies and individuals play an active role in the grain business, which promoted the competition and efficiency in the grain marketing sector. The WTO accession is really just another step of a more-than-twenty-year process of liberalization and opening up to the outside world. Facing the challenges of the WTO commitments, how China can sustain agricultural growth and achieve food security as well as increase farm incomes? It is no doubt that the magnitude and nature of the negative impacts posed by the WTO depends on how China’s policymakers succeed to manage the agricultural sector as the new trade regime takes effect. We consider that the government could implement the following measures:

Reduce the appropriation of financial funds, offer farmers direct subsidies as soon as possible: In China, price subsidy used to be the major form of support to the farmers. After the WTO entry, the Chinese Government changed the method of subsidizing agriculture by switching from distribution links to production links, and from indirect subsidies to direct subsidies. The principal goal of the policy should be to guarantee food security in China. Other goals, such as restructuring domestic agriculture, increasing farmers’ income, reducing the fiscal burden, should be in line with the main goal, and means of direct subsidies should conform to it. The grain price was comparatively low over recent years, however, the production cost increased, which made grain growing less attractive for farmers. Under such circumstances, the rational selection is to subsidize the farmers in major grain producing areas according to production area, production amount and quality. The sticking point of subsidy reform is that the government must reduce the appropriation of financial funds in order to offer farmers direct subsidies as soon as possible. To ensure the policy to be successful, the government has to devise feasible implementation procedures, whether through reducing agricultural taxes or directly giving income transfers to farmers.

Define properly the scale and functions of the central grain storage to avoid the distortion of grain market and the increment of fiscal burden: Reserve policy is a major measure that governments take to guarantee food security in respect of reducing the risk of food supply and price. China’s principle in grain storage is to guarantee grain security and to stabilize farmers’ income and the grain price. However, China’s grain reserve ratio is far more than the international experience ratio (He et al., 2003). The 1995 grain policy reform, known as the Governor’s Grain Bag policy, mandated a minimum reserve of 3 months of grain consumption for grain-surplus provinces.
and 6 months for grain-deficit provinces. These reserve targets are much higher than FAO’s recommendation of 1.5 months. As to the central grain reserve scale, China’s central grain reserve target is 75 million-ton for 50% of China's total amount of commercial grain. The excessive scale of grain reserve guarantees a higher level of the grain security but it damages the economic efficiency. It inevitably increases the fiscal burden and impairs the government’s macro-adjustment ability. Furthermore, subject to the reservation period of grain, the country will annually rotate 20 to 30% of its total central grain reserve based on domestic supply and demand, which accounts for approximately 20 to 30% of its total amount of commercial grain. This will pose a great negative impact on the supply-demand relation of grain (Xiao, 2003). What is more, after China’s accession to the WTO, with the loss of government’s monopoly control over imports, it is difficult to impact grain price through handling grain reservation. At the same time, to properly utilize international grain market, regulating the domestic balance between grain supply and demand is necessary. Therefore, under the post-WTO environment, the grain reserve kept by the central government is not used for macro-controlling the grain market, but ensuring food security. As a result, with the macro-control function weakened, the government should gradually reduce the central grain reserve scale to a proper level.

Optimize the allocation of domestic support funds, and make full use of the “green box” policies: Government subsidies for China’s farmers are minimal now and both “amber box” (potentially price-distorting subsidies) and “green box” (infrastructure, education, and other subsidies not tied to prices) spending could rise considerably while staying within the China’s WTO commitments. The WTO places no limits on “green-box” subsidies, which include government-supported research, disease control, infrastructure, policy subsidies for certain grain marketing and promotion services, environmental and regional assistance programs and income-support payments made directly to farmers that help farmers restructure agriculture. The overall level of de minimis for China is set at 8.5%. The actual level of subsidy is almost negligible or even negative when various fees and levies imposed on farmers are taken into consideration. To respond to the challenges posed to China under the WTO regime, the government should carefully allocate its investment into non-distorting productivity-enhancing activities because of its fiscal constraint. China should make full use of the “green box” subsidies to further improve infrastructure and research, to develop and import new grain varieties and technologies, to address water shortages, to improve the environment of production and to adjust agricultural production structure. With the production condition improved and grain production costs reduced, agricultural producers will gain more benefits and interests from grain production.

Accelerate the reform of state-owned grain enterprises, and strengthen their competitiveness in the market: Under the post-WTO environment, the
extension of trading rights to private sector entities adds transparency and competition to China’s agricultural trade by phasing out the monopolistic power of state trading enterprises. As a result, the state grain enterprises face an increasingly competitive environment and have been forced to adopt hiring policies that enhance efficiency and reduce costs. The state grain enterprises should actually transform their management mechanism, become market-oriented and assume the sole responsibility for their own profits and losses. They also should make a greater effort to improve their management, reduce distribution costs and increase competitiveness in the market. Reform of state-owned grain enterprises requires separating the role of government administration from that of enterprise management, separating grain reserve from business operation, reducing the number of over-staffed employees and enhancing economic efficiency.

**Strengthen farmers’ cooperation, promote the farmers’ rural cooperatives and enhance their market-bargaining ability:** With the small scale of China’s farms, there are many increases in economic efficiency by the creation of effective rural organizations. Broadening and strengthening farmer organization to engage in market development, promotion and other marketing activities will further empower producers in the market place and improve agricultural income. Farmer organizations could also assist technology extension and provide marketing information, improve the planning and distribution of products, link production with efficient scale processing industries, and shift surplus rural labours into the off-farm sector. In the post-WTO environment, it is very difficult for millions of small farmers to compete in a market with globalization. In order to have a way to protect the interest of farmers, China needs farmer organizations, which have an incentive or ability to fight against the imposition of trade barriers on China’s agricultural exports, such as anti-dumping. In addition, promoting such farmer organizations supported by the government fall under WTO’s “Green Box” categorization and investments to create such groups will not be counted as part of the nation’s AMS measures.

**Solutions in the long run**

Currently China is in food security, but it does not mean that China has a status of food security in the future. In consideration of factors such as continuous population growth, limited resource per capita and expanded grain consumption coupled with economic development, food security in China is still a crucial issue. To ensure the national food security and safety, China must protect overall grain production capability fundamentally. Besides, China must strengthen the protection of arable land and water resource, and enhance the S&T ability in rural area.
First of all, China must not only protect arable land and water resource to ensure national food security in future but also properly deal with the relationship between the protection and economic development. Land and water are key agricultural inputs that limit China’s agricultural production capacity. In deed, the current utilization of these inputs is not sustainable. The potential for expanding cultivated land in China is extremely limited. Urban industrial, commercial, and residential uses are competing with agriculture for China’s limited land resources while some fragile land are being taken out of consideration for environmental reasons, most of which are being reverted to wetlands, forests, or grasses. From 1996 to 2002, about 31 million mu (one hectare equals to 15 mu) of arable land were occupied for non-agricultural construction annually (Zhai, 2004). Lack of irrigation water is another major threat to China’s grain production, particularly on the North China plain, which includes the important wheat-producing provinces. Surface water supplies have dwindled in much of North China, and ground water is being depleted. Despite massive investments in water development and conservation over the reform period, water available for irrigation in 1993 is marginally less than that of 1980 (WB, 1999). Based on the above situation, the development of institution to manage and allocate scarce land and water resources will be crucial to expand China’s agricultural production capacity.

In the aspect of food security, S&T contributes to the improvement of food supply ability. In China, because per capita resource is in shortage, improving agricultural technology is the radical way to guarantee the long-term food security. Clearly, China’s producers do not have a comparative advantage in land-intensive crops, such as soybeans, so China should invest more in research especially on high-yield, high-quality, and technologically advanced seed varieties and water-saving irrigation technology, which are fit for the characteristic of scarce nature resource per capita. The contribution of S&T to agricultural production is only 35% in China and the yield of major grain per hectare in China is only half of that in high-yield countries. So there is still great potential in enlarging grain production with S&T (Cai et al., 2004). Furthermore, the government should make it easier for farmers to obtain technologies increasing the efficiency of agricultural production.

The market-oriented grain circulation reform helps farmers increase income. However, subsidies could not increasing farmer’s income in the long term. The other way round, it will increase farmers’ opportunity cost by transferring from on-farm work to off-farm jobs. To solve the problem we must make an overall consideration combining the grain circulation with agricultural structure adjustment and urbanization.

The rapid economic growth, urbanization and food market development have boosted the demand for meats, fruits, vegetables, and other high-value commodities. The per capita demand for staple food grains, such as wheat and
rice, however, does not increase likewise and many even be falling as consumers substitute higher value foods for staple food grains (Fig. 3).

As these changes in food consumption patterns are transmitted back to farmers in the form of price changes, agricultural production patterns should be shifted to cater the rising demand for meat, fruit, vegetables, and other high-value crops. The production of labour-intensive, high-value commodities such as fruits and vegetables (particularly greenhouse vegetables) uses land resources more efficiently than the production of grain crops does. Furthermore, it also provides higher incomes.

China has not reach scale economies for grain production or enhanced efficiency of post-harvest marketing operations. Although every farm household in China is endowed with land, the average farm size is small. It is improbable that long-term sustainable increases in agricultural income can be achieved without removing large numbers of agricultural labours from the sector and increasing the average land/labour ratio. According to China’s population census, only 36% of the population lived in cities and towns in 2000. This urbanization rate was 10% points below the world average and lower than the rate in many other countries at similar development levels. Being aware of this situation, Chinese authorities project a 50-percent urban population share by 2020 (Gale, 2002). In order to progressively transfer labour from the agricultural sector and reverse the diverging trend in rural/urban income ratios, the government should gradually remove migration constraints, provide corresponding support policies and social services that facilitate migration, and encourage the creation of labour-intensive off-farm jobs to accommodate more urban migrants (WB, 1999).
Acknowledgments

The study is funded by the SUSDEV-CHINA project of the EU INCO-DEV programme (project no. ICA4-CT-2002-10004). We would like to thank Wang Ruixiang and Shao Yan. This work could not be done without them. We also acknowledge the helpful comments and suggestions of Prof. Mu Rongping. A special thanks to the various participants at the SUSDEV-CHINA Symposium in Xi’an in August 2004 for their valuable comments.

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