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China's Accession to WTO

----Its Impact on Chinese Agriculture and Rural Economy

Dr. Funing Zhong

Abstract

The accession commitments make Chinese agriculture vulnerable to potential imports in both the short-run and the long-run. It is estimated that the imports of bulk commodities during the transitional period require additional 5% adjustment in the structure of Chinese agriculture. As Chinese farmers have been struggling in re-structuring their production since 1996, such pressures are likely to have significant impact on farmers' income, especially in the less-developed areas.

However, the long-run impact on Chinese agriculture may be even more serious. The small-scale production in Chinese agriculture implies co-existence of low income per worker and high labor cost per unit of product. The government may allocate more public budget to agricultural research and extension, as well as on infrastructures in order to help farmers and the agricultural sector. On top of that, opening up the agricultural market inevitably requires large scale transfers of laborers from the farm to non-farm sectors if social stability and economic growth are to be maintained.

Key words: Chinese agriculture, Structural adjustment, Non-farm employment

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China's Accession to WTO ----Its Impact on Chinese Agriculture and Rural Economy

Dr. Funing Zhong*

I. Introduction

China has recently joined the World Trade Organization (WTO). Unlike most developing countries expecting to obtain access to agricultural markets in developed countries, China is facing serious challenge to her agriculture and rural economy. Currently many domestic farm prices are already above those prevailed at the world market, making the farm sector very vulnerable to potential increases in imports. As a large portion of the population relies on agricultural production, any significant increase in imports will have adverse effects not only on their living, but also on the stability of the rural society and the growth of the whole economy. This situation might be worsening in the future if domestic costs continue to rise while world prices decline, and alternative policy measures must be carefully examined.

After 50 years of industrialization, the rural population in China still accounts for about 70% of the national total, and agricultural laborers account for 47% of the total, though agricultural GDP has fallen down to less than 18% of the total. The welfare of 70% of the total population, or more than 870 million people, is a big political issue in its self. The sharp contrast between the shares of agricultural labor force and agricultural GDP in the national total re-emphasizes the disadvantageous position of farmers in the society, and hence the importance and emergence to improve the situation.

The Chinese farmers' disadvantageous position is clearly related to the small scale of Chinese farms of 0.4 hectare and the high labor/land ratio of 3 workers per hectare on average, resulted in co-existence of low income per worker and high labor cost per unit of product. Such situation is an outcome of the past development strategy which put the rapid growth of the heavy industry as the top priority of national policy. At the same time, domestic markets, including agricultural one, have been more or less separated from the rest of the world, in fact providing protection for farmers and the agricultural sector to some extent, though unintended.

The immediate impacts of accession to the WTO include tariff reduction, implementing tariff-rate-quota (TRQ) system, market access, and reform of domestic policies. Those impacts put heavy pressures on domestic production, as well as on the welfare of the rural society, both having already been trapped in difficulties recently. As the TRQs put limits to imports of bulk commodities and may actually provide some degree of protection to producers, the long-run impacts on Chinese agriculture might be even more severe if domestic market should be opened completely.

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This paper tries to illustrate what might be the impacts of accession to the WTO on Chinese agriculture and rural economy, in both the short-run and long-run, and to discuss what might be the appropriate policy measures to deal with the existing and emerging issues.

II. Short Term Impact on Chinese Agriculture

There are likely to be three major factors influencing Chinese agriculture upon accession to the WTO: tariff cuts, application of tariff-rate-quota system, and challenges to domestic agricultural policies.

2.1 Tariff Reduction

On average, tariff on imported agricultural products will be reduced from 22% to 17%. As bulk commodities such as grain, cotton and oil seeds are subject to TRQs, the tariff cuts mainly influence imports of fruits, meats, dairy products, wine, and the like. Some examples of tariff reduction are listed in Table 1.

**Table 1 Examples of tariff reductions in China's market access offer:
*non-TRQ commodities*¹**

Product	1998 MFN rate (in %)	Rate after adjustment (in %)	
		US-China protocol	EU-China protocol ²
Crops			
Soybeans	114	3	
Soybean meal	25	Less than 5	
Rapeseed oil	85		9
Barley	91.2	9	
Pasta		25	15
Wine	65	20	14
Citrus	40	12	
Grapes	40	13	
Apples	30	10	
Almonds	30	10	
Olives	25		10
Livestock			
Beef	45	12	
Pork	20	12	
Poultry	20	10	
Cheese	50	12	
Ice cream	45	19	
Butter	50		10
Milk powder	25		10
Average tariff	31	17	10.9

Sources: USTR (1999), Inside US Trade (1999), EC Delegation in China.

Adopted from Schmidhuber: "Changes in China's agricultural trade policy regime: Impacts on agricultural production, consumption, prices, and trade", in China's Agriculture in the International Trading System, Paris: OECD, 2001.

¹ Adopted from Josef Schmidhuber: "Changes in China's agricultural trade policy regime: Impacts on agricultural production, consumption, prices, and Trade", and Hunter Colby et al.: "China's WTO accession: Conflicts with domestic agricultural policies and institutions", in China's Agriculture in the International Trading System, Paris: OECD, 2001.

² <http://www.ecd.org.cn/WTO/ts.htm>

Tariff reduction may not have significant impact on Chinese agriculture as a whole. As smuggled fruits and local-produced foreign varieties have been sold everywhere for quite a long time, the tariff cut might be simply resulted in replacement of legal imports for smuggled goods, and more introduction of foreign varieties. Due to the large differences in prices, imported beef may continue to occupy its segmented high-quality market with slow growth of the market. As a matter of fact, China has exported pork for years, and is likely to continue such export in the near future. The low-quality parts of poultry will be the commodity that has shown strong growth in imports, but its share in total agriculture is quite small.

2.2 Tariff-Rate-Quota System

The short-term impact of accession to the WTO on bulk commodity production could be estimated by the quantities specified in articles regarding TRQs in bilateral and multilateral agreements that are listed in Table 2. China is currently a net exporter of rice, and is likely to continue in the near future, so the impact of TRQs might be that from wheat, corn and oilseed imports.

Table 2 TRQs for cereals and soybean oil and their allocation to private and state importers³

Product	Year	TRQ quantity (mmt)	1997/99 imports (mmt)	Non-state TRQs ⁴ (%)	Preferential tariff rate (%)	TRQ tariff rate (ad valorem) (%)
Wheat	2000	7.3	1.47	10	114.00	1.00
	2005	9.3		10		
Maize	2000	4.5	0.28	25	114.00	1.00
	2005	7.2		40		
Rice ⁵	2000	2.6	0.29	50	114.00	1.00
	2005	5.3		50		
Soybean oil	2000	1.7	3.68	50	121.60	n.a.
	2005	3.3		90		

Source: USTR, 1999. Imports from PS&D.

If the quantities of TRQs are fully fulfilled for wheat and corn, the total imports of the two cereals will be 11.8 mmt immediately upon accession to the WTO and 16.3 mmt at the end of the phased-in period in 2005, accounted for about 2.4% to 3.3% of total domestic consumption, including seed and all other non-human uses. Such imports may not have significant impact on Chinese agriculture as a whole, or on food security. As a matter of fact, China historically imported more than 15 mmt of grain, most being wheat, every year during the 1980s, despite experiencing great success in the agricultural sector resulted from economic reform during that time period.

2.3 Domestic Policy Reform

It is well recognized that the Chinese domestic agricultural policies may be challenged after accession to the WTO. China may have to change some of her domestic policies under pressures from major trading partners, and resulted in more significant impact on agricultural trade. One of the estimations is presented below.

³ Adopted from Josef Schmidhuber: "Changes in China's agricultural trade policy regime: Impacts on agricultural production, consumption, prices, and trade", in *China's Agriculture in the International Trading System*, Paris: OECD, 2001.

⁴ Private traders will also have access to unused STE proportions later in the calendar year.

⁵ 50% for short and medium corn rice, 50% for long corn rice.

According to Schmidhuber, the impact of reforming domestic policies may increase wheat import by additional 2 mmt, coarse grain by more than 6 mmt and oil seeds by almost 5 mmt. If this is the case, it will bring China's total grain imports to 25 mmt by the year 2005, about 5% of the total domestic production and consumption at current levels.

Table 3 Summary of the results of various liberalisation scenarios

	Unit	Baseline projections to 2005	I: Implementing the US schedule	II: Implementing the EU schedule	III: Combined trade and domestic policy reforms
<i>Changes vis-à-vis baseline results for 2005</i>					
Grains					
Wheat imports by China	mmt	6.4	1.4	1.3	3.3
Wheat price, international	USD/t	161.6	2.3	2.5	11.3
Coarse grain imports by China	mmt	8.04	0.68	0.71	7.0
Coarse grain (maize) price, international	USD/t	129.3	1.4	1.5	9.5
Oilseed complex					
Oilseed imports by China	mmt	7.67	0.295	0.202	5.1
Oilseed price, international	USD/t	264	7.5	8.45	40
Oilmeal imports by China	mmt	3.06	-0.093	0.470	0.740
Oilmeal price, international	USD/t	171	-6.5	-6.4	6.5
Vegetable oil imports by China	mmt	6.2	2.0	2.5	3.0
Vegetable oil price, international	USD/t	616	84	98	191
Livestock products					
Meat					
Imports of poultry meat	1000 t	1 089	207	201	302
Rural beef consumption	1000 t	2 217	-72	-72	-100
Urban beef consumption	1000 t	5 656	81	81	85
Dairy					
Rural milk consumption	1000 t	3 685	-86	-88	-551
Urban milk consumption	1000 t	9 310	788	790	702

Source: Josef Schmidhuber. "Changes in China's agricultural trade policy regime: Impacts on agricultural production, consumption, prices, and trade", in China's Agriculture in the International Trading System, Paris: OECD, 2001.

It might be concluded from the above discussion that, the short-run impacts of joining the WTO on the Chinese agricultural sector would be significant in bulk commodities, but not in other products. Actually, some of livestock and aquatic products might even benefit from low-cost imported feed grain and ingredients. However, even as to the bulk commodities, especially grain crops, the quantities of TRQs would not exceed the amount actually imported during the 1980s. The pressure on Chinese farmers is mostly from the changing demand-supply balance in domestic market, with additional one coming from imports. Chinese farmers are now struggling in finding markets for their products and restructuring their production to

accommodate the changing demand. Implementation of TRQs implies that they have to further adjust their crop production by additional 5% as a whole. This may not be an easy task in major producing areas for the commodities concerned, as the required adjustment must be much greater in those areas.

III. Potential Impact on Chinese Agriculture in the Long Run

Following economic growth, per capita income continues to increase and the share of expenditures on food continues to decrease. At the same time, an increasing share of food expenditures is paid to processing and marketing industries. As a result, farmers' per capita income tends to decline, if their number does not decrease at the same speed, and this is the case in China. In the last five decades, the share of agricultural GDP has declined from about 70% to less than 18%, but the share of labor force employed in the agricultural sector has only declined from 75% to 47%. As the GDP generated by each agricultural worker roughly accounts for only one third of the national average, his/her income is likely to be much lower than the national average. As a matter of fact, the per capita income gap between the rural and urban residents had been narrowed down to 1:1.86 by 1985, but was widened again to 1:2.65 in 1999, despite significant growth in the agricultural sector and increasing income from off-farm employment and non-farm activities in the rural areas.

However, even the rural income growth was lagged behind, even the per capita income level in the rural area was still as low as 2200 yuans, or 280 US dollars, a year in 2000, the labor cost per hectare increased very quickly. It increased from 750 yuans, or 90 US dollars, in 1989 to over 2400 yuans, or 300 US dollars, in 1999 for rice production. During the same time period, labor costs per hectare increased from 500 yuans to 1650 yuans, or from 60 US dollars to 200 dollars, for wheat production, and from 1500 yuans to 5000 yuans for cotton production. The labor costs for all those bulk commodities were more than tripled in 10 years, much higher than the inflation rate combined with yield growth⁶. Therefore, labor cost per unit of major farm product has been increased in real terms as a result.

The similar growth rates suggest that the income growth following economic development might be the main reason responsible for the increase, and is likely to continue push the labor cost further in the future unless rural labor is released from farming in a large scale. Contrary to experiences in many other countries, the scale of farms in terms of arable land per rural worker did not increase during the past 50 years, and even declined in some areas recently, so the labor cost per unit of farm product is very high and increasing in China.

At the same time, Chinese farmers have to pay agricultural tax and a variety of fees and levies to finance rural administration, education, some social security programs, and even development projects and building of infrastructure facilities. The magnitude of those financial burdens on each individual farm is directly related to the scale of the arable land and the number of laborers of the farmer household, so the burdens are consisted a part of the production cost. From 1989 to 1999, agricultural

⁶ The price index was roughly doubled in the 10 years, while yield increased from 5% to 20% depending on crops.

tax per hectare increased from about 100 yuans to 300 yuans for rice and cotton, from about 70 yuans to 200 yuans for wheat, similar to the growth rates of labor costs. However, other burdens, i.e., fees and levies, increased much faster: from around 100 yuans to 700 yuans for rice, from 50 yuans to 500 yuans for wheat, and from 100 yuans to more than 800 yuans for cotton. As a result, the share of such burdens in total costs increased from around 3% to over 7% or even 10% in 10 years. As those burdens tend to increase over time, combined with increasing labor cost following economic growth, they are inevitably resulted in increasing costs for field crops.

It is obvious that Chinese farmers have been squeezed between increasing costs and declining domestic demand, in relative terms, for a long time. This situation not only results in low farm income, but also leads to declining comparative advantage in Chinese agriculture. For example, most Chinese farm products, except oilseeds, enjoyed price advantage in the world market in the early 1990s, but probably only a few are still in the position at time being. As this trend is likely to continue in the near future, the accession to the WTO might be a big problem facing Chinese already troubled agriculture and rural economy. Large and increasing imports of low-price farm products will take their shares and push down prices in China's domestic market, jeopardize farmers' income and domestic production further and challenge China's national security objectives.

One of the most important solutions in the long run is to free labor market, allowing more and more agricultural laborers to find employment outside agriculture. It requires the government to encourage adopting and developing more labor-intensive technology, and to encourage further structural adjustment in the whole economy. In addition to technology innovation in this direction, the development of tertiary sector, as well as non-government sectors, may create more employment opportunities for rural residents who are willing to move out of the sector, and therefore beneficial to improve Chinese agriculture.

IV. Policy Alternatives

In the short run, the Chinese government may reform some of the existing institutions obstacle to labor movement and regional immigration, and to improve infrastructures, facilitating large scale adjustment in the agricultural and rural sector. The restructuring may lead to production concentration in relatively low-cost regions, improving efficiency in resource allocation, increasing farmers' income, and improving comparative advantage of Chinese agriculture in the international market. The government may reform rural fiscal system with a unified income tax scheme, reducing the burdens on farmers especially bulk commodity producers by financing rural public administration and education with budget transfers.

In the long run, the government may increase its budget expenditure on agricultural research and extension. Such public expenditure may reduce private production cost in two ways: 1) unit cost reduction resulted from yield growth; and 2) possible substitution of public investment for private cost to a certain extent holding yield constant. Facing the existing demand and supply conditions in domestic market, especially foreign competitions after the accession to the WTO, reducing production

costs is much more important than purely boosting production. However, the most important measure in the long run will be large-scale labor re-habitant that will enable Chinese agriculture to compete efficiently in the international market.

4.1 Regional Comparative Advantage and Structural Adjustment

General speaking, Chinese comparative advantage in agriculture has been declining for a long time. However, measured by Domestic Resource Cost (DRC), China still has comparative advantage in some agricultural commodities. Even for those China does not have comparative advantage as a whole, some provinces may still grow them profitably due to big regional differences (See Table 4 for details.).

Table 4 DRCCs of main grain crops in China, by province

	J. Rice	E. Rice	M. Rice	L. Rice	Wheat	Corn	Soybean	Sorghum	Millet
National	0.71	0.90	0.77	0.85	1.00	0.94	0.95	0.76	0.82
Beijing	1.01	-	-	-	0.98	1.06	-	-	-
Tianjin	0.80	-	-	-	0.77	0.71	-	-	-
Hebei	0.78	-	-	-	0.76	0.68	0.73	1.61	0.67
Shanxi	0.62	-	-	-	0.78	0.88	1.03	0.67	0.65
Inner Mogolia	0.96	-	-	-	0.87	0.82	0.97	0.66	0.86
Liaoning	0.74	-	-	-	1.03	0.93	0.91	0.71	0.98
Jilin	0.61	-	-	-	1.08	1.07	0.71	0.96	0.42
Heilongjiang	0.79	-	-	-	0.91	0.89	0.87	0.75	-
Shanghai	0.70	-	-	-	0.90	-	-	-	-
Jiangsu	0.76	0.81	1.00	-	1.36	1.28	1.02	-	-
Zhejiang	0.81	1.01	-	0.81	1.19	-	-	-	-
Anhui	0.66	1.01	0.69	0.73	0.94	0.69	0.74	-	-
Fujian	-	0.96	0.93	0.99	1.39	-	1.27	-	-
Jiangxi	-	1.16	-	0.86	-	-	-	-	-
Shangdong	0.89	-	-	-	1.00	0.96	0.84	-	-
Henan	0.60	-	0.59	-	0.79	0.78	0.66	-	0.65
Hubei	1.00	1.07	0.92	1.07	1.74	1.35	1.29	-	-
Hunan	-	1.02	-	0.79	1.85	1.16	-	-	-
Guangdong	-	1.07	-	1.04	-	-	-	-	-
Guangxi	-	0.86	-	0.92	-	1.09	-	-	-
Hainan	-	0.74	-	0.95	-	-	-	-	-
Sichuan	-	-	0.66	-	1.21	1.02	-	-	-
Guizhou	0.58	-	0.56	-	1.02	0.86	1.10	-	-
Yunnan	0.61	0.56	0.58	-	0.89	0.78	0.95	-	-
Tibet	-	-	-	-	-	-	-	-	-
Shaanxi	-	-	0.61	-	0.95	1.04	1.12	-	0.84
Gansu	-	-	-	-	0.89	0.81	-	-	1.07
Qinghai	-	-	-	-	0.97	-	-	-	-
Ningxia	0.63	-	-	-	0.83	0.62	0.92	-	-
Xinjiang	0.65	-	-	-	0.77	0.69	-	-	-
Chongqing	-	-	0.69	-	1.43	1.21	-	-	-

Note: J. Rice = *Japonica* rice, E. Rice = early rice (*Indica*), M. Rice = middle rice (*Indica*), and L. Rice = late rice (*Indica*). All DRCC figures are 1996-98 averages.

Source: Calculated with data published in Compilation of National Cost-Benefit Data of Farm Products (Quanguo Nongchanping Chengben Shouyi Ziliao Huibian), 1997-99.

Such regional comparative advantage did not realize in the past due to the rigid central control on the agricultural sector especially on grain production and marketing, as well as the under-development in infrastructures. If agricultural production and inter-regional trade are put in a free-market environment as required by the accession to the WTO, and more public expenditures are allocated to construction of infrastructures, regional comparative advantage is likely to be realized in an ever-increasing manner.

A sharp comparison of regional differences in DRCC for major grain crops among some provinces is presented in Table 5. It can be found out that, the domestic resource costs in some provinces may be twice as high as that in some other provinces. Therefore, if specialization and concentration of production take place based on regional comparative advantage, the overall efficiency will be improved in Chinese agriculture, resulted in lower production costs and prices and higher comparative advantage and competitiveness in the world market. Then, the quantities of imports may not as high as projected by current research.

Table 5 Regional Differences in DRCCs of main grain crops

Wheat		Corn		Soybean	
National	1.00	National	0.94	National	0.95
Lowest 5 provinces					
Hebei	0.76	Ningxia	0.62	Henan	0.66
Tianjin	0.77	Hebei	0.68	Jilin	0.71
Xinjiang	0.77	Anhui	0.69	Hebei	0.73
Shanxi	0.78	Xinjiang	0.69	Anhui	0.74
Henan	0.79	Tianjin	0.71		
Highest 5 provinces					
Jiangsu	1.36	Jilin	1.07	Shanxi	1.03
Fujian	1.39	Guangxi	1.09	Guizhou	1.10
Chongqing	1.43	Hunan	1.16	Shaanxi	1.12
Hubei	1.74	Jiangsu	1.28	Fujian	1.27
Hunan	1.85	Hubei	1.35	Hubei	1.29

Source: Adopted from Table 4.

4.2 Reform of Rural Fiscal System and Income Transfers

As the successors of the commune and production brigade, the current township (or town) government and village administration collect agricultural tax and a variety of levies and fees to finance their operation. Their fiscal expenditures cover purely governmental administration, all kinds of political activities and interventions, rural education, investment in infrastructure and production projects, and, to some extent, government-controlled marketing. As the role of the township government and village administration is likely to be narrowed down to purely governmental administration following further economic and political reforms, the number of personnel and the

cost of operation might be cut, and so does the burdens on Chinese farmers.

Financing rural education is by far the largest item in rural fiscal expenditure at township and village levels. Although the Constitution stipulates a nation-wide nine-year compulsory education scheme, the central government does not allocate budget expenditures to finance the program in the rural areas, and nor does the provincial government. Therefore, the less-developed areas are trapped into poverty in this regard. The poorer the areas are, the less could be spent on education and the less opportunity for development in those areas. Moreover, even the quality of education is poor in these areas, the costs of education are considered heavy burdens on farmers and a large share of the total cost in agricultural production, further damaging farmers' position in the market.

In most cases, the total burden on farmers is approximately 7% to 10% of their net annual income, including that earned from non-agricultural sectors and off-farm employment. In the areas where an experimental fiscal reform is carried out by replacing all levies and fees with a new agricultural tax, the nominal rate of the tax is set at roughly 7.2% of the expected value output on arable land. Such a tax explicitly puts all financial burdens on the cropping sector, and roughly accounts for 15% of the total costs in producing most bulk crops.

This new agricultural tax has no rational counterparts in other sectors, as farmers' income is below the minimum level for individual income tax, and as China virtually has not taxed state, collective, or private properties. If the Chinese government is willing to support agriculture and rural communities with budget transfers, it may further reform the rural fiscal system. It may finance rural education, and governmental administration with central budget to some extent, based on fairness and equality criteria. As a result, the costs of most bulk crops might be reduced by 10% or even more. This kind of budget transfer is not in contradiction to the WTO rules, but may greatly improve farmers' income, and the competitiveness of Chinese farm products in the international market. If the quality of rural education is improved by such a reform and budget transfers, agricultural production and farmers' income will be enhanced further.

4.3 Public Investment in Agricultural Research and Infrastructures

In the long run, the comparative advantage of Chinese farm products in the world market could be improved by increasing public investment in, and expenditures on, agricultural research and extension. It has been demonstrated by many empirical experiences that such public investment and expenditures may raise yield per unit of arable land to a great extent. If appropriate technology is developed and adopted, the increase in yield will exceed that in private production costs, resulting in lower total cost per unit of product. It could be also demonstrated that such public investment and expenditures could be substituted for private production costs if holding the output level is desired, and hence reducing unit private cost further.

The primary objective of agricultural research and extension was targeted at maximizing yield and output of main crops such as grain and cotton in the past, often accompanied with over-utilization of marginal land, so the total and marginal costs exhibited growing trends. However, from the second half of the 1990s, domestic market prices have fallen by as much as 30% to 40% for most farm products, implying surplus in the market for the time being and possibly into the near future. Such situation will be re-enforced by the competition from foreign suppliers after China joining the WTO, strongly suggests that innovation of agricultural technology should aim at reducing unit production cost and improving comparative advantage of Chinese agriculture.

Similar to investment in research and extension, public expenditures on infrastructure facilities may help Chinese farmers reduce their production and marketing costs, or add values to their products sent to market. Chinese domestic market is still quite segmented for many farm products due to long time central planning in agricultural production and marketing under the self-sufficiency philosophy. The integration may not be as easy as just changing the policy-related institutions, it also requires large-scale and well-integrated transportation, storage, information, and other marketing infrastructures to facilitate all kinds of transactions. Obviously this is the responsibility of the government, and the public expenditures in this area are likely to benefit Chinese agriculture and Chinese farmers to a large extent without challenging WTO rules.

4.4 Development of Non-farm Sectors and Off-farm Employment

On top of all the above measures, in the long run, to what extent and at what speed the excessive agricultural laborers can be employed in other sectors will be crucial to the future of Chinese agriculture. Cost and price advantage is a dominant factor in an integrated world market, especially for bulk commodities. To a large country like China, production of bulk commodities is, and will continue to be, a major or dominant sub-sector in agriculture. If the current situation in terms of farm scale and labor/land ratio can not be changed significantly, Chinese agriculture will continue to suffer from high and increasing labor cost per unit of farm product. The market share for domestic produce will continue to shrink, and so do production and farmers' income.

It has been estimated by many researchers that at least a half of the existing agricultural laborers should be provided with employment opportunities in non-farm sectors. Of course this is a tremendously difficult task considering the magnitude of the agricultural labor force and the population growth rate in the rural areas. According to official Chinese statistics, rural population was 870 millions at the end of 1999, and the rural labor force and that employed in the agricultural sector were 496 millions and 329 millions, respectively⁷. A half of the existing agricultural laborers implies 165 million workers who need to find new jobs outside agriculture. Even such a transition

⁷ We have good reasons to believe that the number of rural labor force has been under-estimated, and so probably does the number of rural employment, too.

in employment takes 20 or 30 years, it still requires the creation of 5 to 8 million new jobs every year. If the population growth is taken into consideration, China needs to create new jobs in non-agricultural sectors by at least 20 millions every year.

Obviously expansion of the capital-intensive and/or technology-intensive industries could not provide such large number of new employment opportunities, and neither the imported high-tech could improve the situation. What the government should do is, parallel to development and introduction of modern high-tech, stressing the crucial importance of developing labor-intensive technology, which is not available elsewhere. The government may also try to boost the growth of the tertiary sector especially its labor-intensive sub-sectors, providing more and better opportunities for non-state sectors to grow faster, and to take all possible measures to increase employment.

V. Summary

The current problems in Chinese agriculture, such as the slow down in production and income growth, the increase in production costs and other burdens on farmers, and the changing supply-demand balance in domestic market are largely attributable to internal policies. However, as those problems are closely related to the farm scale and labor/land ratio, foreign competitions following the accession to the WTO will re-enforce the heavy pressures on Chinese farmers and the agricultural sector.

In the short run, the government may encourage and facilitate structural adjustment in the sector, in order to improve efficiency in resource allocation and to reduce production costs. It may also reform the rural fiscal system, if politically desirable, to help farmers and the sector with large budget transfers.

In the long run, the government may invest more in agricultural research and infrastructure, in order to increase production, and more importantly, to reduce farmers' production and marketing costs, as well as to raise the value of farm products sold on market. Finally, it may find out that large-scale re-allocation of labor force is the most crucial measure to improve comparative advantage of Chinese farm products in the world market, and to improve Chinese farmers' income.