ANNEX A

Labour Mobility and Rural Poverty in China[1]

As discussed in Chapter 1, a precondition for closing a large rural-urban income gap in China is a large outflow of labour from agriculture to other sectors of the economy. Moreover, mobile labour is an important factor contributing to China's welfare gains from multilateral liberalisation. This annex discusses the impact of labour market reforms on rural incomes and poverty.

Rural poverty

Some 99% of China's poor live in rural areas, mostly in the western provinces (Chapter 1 and Table A.1) which are generally characterised by poor infrastructure, underdeveloped social services, fragile natural environments, and a heavy reliance on agriculture. Such areas are the least likely to benefit from either domestic economic growth or increased international trade.

Based on China's official reference measure (USD 0.2 per day at current exchange rate, but USD 0.6-0.7 per day at PPP), rural poverty declined significantly from 250 million to 32 million persons over the 1978-2000 period. However, many rural households have incomes just marginally above the poverty line such that any income reduction from market conditions, natural disasters or illness would push them into poverty again. Using the World Bank measure of poverty (USD 1 per day at PPP), the number of rural poor was estimated to be much higher, at about 88 million at the beginning of the 2000s.

Not surprisingly, studies have shown that poor households have more dependents, a greater reliance on agriculture (especially crop production), less off-farm employment, and lower levels of education. These households not only have limited capacity to improve current incomes, but are also unable to invest sufficiently in their children's development

Table A.1. **Rural poverty rates by region, China, 2002**

Poverty rate	Regions
< 1%	Shanghai, Beijing, Tianjin, Zhejiang, Jiangsu, Shandong, Guangdong, Fujian
1%-5%	Hebei, Liaoling, Jilin, Hubei, Heilongjiang, Hunan, Anhui, Jiangxi, Henan, Guangxi, Hainan, Chongqing, Sichuan
5%-10%	Shanxi, Shaanxi, Gansu, Ningxia, Yunnan, Xinjiang
> 10%	Inner Mongolia, Tibet, Guizhou, Qinghai

Source: China Rural Poverty Monitoring Report, 2001; *www.sannong.com*, 2003.

so that the next generation can participate in China's economic growth, and thereby break the cycle of poverty.

In the early 1980s, the Chinese government introduced a number of agriculture policies that helped alleviate rural poverty. These included the household production responsibility system, raising state procurement prices, extension of advanced technologies, and provision of manufactured farm inputs. Initially, this approach proved effective but less so by the early 1990s with the slowing of growth in domestic demand for farm produce.

As rural poverty became increasingly a regional phenomenon in disadvantaged areas, the government revised its poverty alleviation strategy to focus more on capacity building, funding many regional development projects designed for improving rural infrastructure, production and marketing facilities, technical services and education, subsidised loans for rural households and work for food programmes. For some of the most environmentally fragile areas, there were limited attempts at promoting out-migration. Although the poverty reduction programmes have not proved to be very effective, rural poverty alleviation remains a government priority.

The role of agriculture

Although the importance of off-farm work as a source of income for rural households has increased substantially during the last two decades, agriculture continues to represent a major component of total income of rural households (Chapter 1). As Table A.2 shows, farm income in 2000 represented 76% of the total income of poor rural households. For non-poor farmers the share drops to 56%, while the share imputable to wages doubles from 13% for poor farmers to 24% for non-poor farmers. This suggests that agricultural labour productivity growth is important to both increasing the average labour productivity in rural areas and the labour productivity of farm households.[2] Yet, a broad-based increase in agricultural labour productivity cannot take place without a major out-migration from agriculture towards non-farm jobs.

Since agriculture is the main source of income for poor rural households, poverty rates are closely linked to the performance of the sector. In regions where agriculture growth lagged behind other sectors, poverty reduction was slow. Where there was diversification and rapid growth, farm employment and wage rates increased and rates of rural poverty declined (World Bank, 2000).

Table A.2. **Comparison of income structure in rural areas, 2000**

Income	Poor households		Other farm households	
	Yuan per person	%	Yuan per person	%
Net income	707	100.0	2 536	100.0
Cash income	359	50.8	1 886	74.4
Total gross income	1 203	100.0	3 485	100.0
Wage income	152	12.7	841	24.1
Income from farming	917	76.2	1 939	55.6
Income from non-farm business	91	7.6	491	14.1
Property income	7	0.6	50	1.4
Transfer income	34	2.9	163	4.7

Source: China Rural Poverty Monitoring Report, 2001.

A number of studies (Zhu and Jiang, 1995; Park and Wang, 2001; Kang, 1998; Rozelle, Zhang and Huang, 2000; Fan, Zhang and Zhang, 2002) examined the various poverty reduction schemes and found that government expenditures on rural poverty alleviation had little or no effect. Such programmes often exclude significant groups of the poor population, such as the rural poor who live outside the target area. Instead, these studies conclude that economic growth, especially in the agricultural sector, played a central role in rural poverty reduction, especially in the 1980s when China faced a general shortage of agricultural products.

Quantitative analysis by Tian, Wang and Ke (2003) provides additional insight. Two econometric models regress rural poverty rates on the real growth rates of three economic sectors (primary, secondary, tertiary) with time series observations and on regional agricultural productivity along with other variables using pooled time series and cross-section data. Agricultural GDP growth and agricultural productivity were significant factors in poverty reduction, in close conformity with Rozelle, Zhang and Huang (2000).

While the growth of non-agricultural sectors had little impact, the analysis did reveal that the shift of rural labour to non-agricultural sectors makes a significant contribution to poverty alleviation. This suggests that growth in the non-agricultural sector did not always create additional employment opportunities for rural labour. The modelling results also show that natural disasters lead to a wide occurrence of rural poverty, underlining the fact that rural households are still vulnerable to adverse natural conditions.

These results have some clear policy implications for poverty alleviation. Given the fact that the rate of agricultural growth is expected to decline over time due to growing marginal costs and stagnated demand, further reduction of rural poverty will become increasingly difficult if promotion of agricultural production is used as the only approach. This is especially true considering that the majority of rural poor are located in areas isolated from external markets due to remoteness and/or poor infrastructure.

A better approach to rural poverty reduction would appear to be to facilitate the transfer of rural labour to off-farm jobs through improving basic education, skill training and labour market developments. In some rural areas a complementary option could be the production of high-value "organic" food products, taking advantage of the unpolluted environment.

The role of rural non-farm development

Up to the mid-1990s, a major feature of the transfer of rural labour to off-farm jobs was the rapid development of Township and Village Enterprises (TVEs). Prior to the mid-1980s, all TVEs were owned by rural collectives and received subsidies through preferential financial and taxation arrangements, while TVE workers were primarily members of farm collectives. Since then, TVEs have developed into a diversified system of dominantly private enterprises. Between 1985 and 1995, total employment by TVEs rose rapidly (Box A.1).

In view of their local nature, TVEs allowed many rural workers to find employment out of agriculture without migrating to other areas. The expansion of the TVEs has therefore contributed to relieving partly the low productivity of labour in agriculture. Overall, these changes allowed increasing rural employment opportunities, thereby raising rural incomes while maintaining stable food supplies and food prices in the urban sector.

Box A.1. **The role of rural industries**

Township and village enterprises (TVEs) are rural non-agricultural enterprises, and in addition to collective enterprises include both single owner and other private firms. They are small and medium-size enterprises that specialise in labour intensive products and, along with foreign funded enterprises, produce most of China's exports. Exemptions from central planning restrictions, backing from local governments, business relations with state-owned enterprises (SOEs), greater exposure to market discipline compared to SOEs, and access to cheap rural labour led TVEs to flourish from the mid-1980s. They were the largest contributor to growth in aggregate GDP and employment from the mid-1980s through the mid-1990s, and by 1996 employed 135 million workers, or 20% of the national workforce (Table A.3). The development of TVEs in turn has transformed rural income generation, with almost 50% of rural incomes now coming from non-agricultural activities.

Table A.3. **TVEs in China's economy, 1990-2002**

Year	Number million	Employment million	Share of national employment %	Share of national GDP %	Share of national exports %
1990	18.5	93.0	14.0	13.5	12.0
1995	22.0	129.0	19.0	25.0	28.0
1996	23.4	135.0	20.0	26.0	34.0
1997	20.2	131.0	19.0	27.9	36.0
1998	20.0	125.0	18.0	28.3	35.0
1999	20.7	127.0	18.0	30.3	38.0
2000	20.8	128.0	18.0	30.4	34.0
2001	21.2	131.0	18.0	30.2	36.0
2002	21.3	133.0	18.0	30.9	34.0

Source: *China Statistical Yearbook*, 2003.

The momentum to aggregate growth from TVEs diminished in the second half of 1990s. Between 1996 and 1998, the performance of TVEs deteriorated sharply, and employment fell by about 10 million. This could be partly explained by the 1997 Asian crisis, but mostly by fundamental structural problems. China's TVEs suffered from financial troubles and operating inefficiencies nearly as severe as those afflicting the SOE sector. The exemption from central planning restrictions and sponsorship by local government, which gave TVEs an advantage in the past, became less important as constraints on SOEs were partly relaxed. The disadvantages of TVEs, in terms of distance from infrastructure and other facilities that benefit business in urban areas and which limit the scale of operations of TVEs can achieve, have become more prominent. The degree to which these disadvantages are offset by access to lower cost, but also lower skilled labour, is unclear. In recent years, the performance of TVEs has improved but yearly job creation is about 2 million, compared to 7 million in the first half of the 1990s.

Source: OECD (2002b).

However, TVEs are also plagued by low labour productivity and low competitiveness *vis-à-vis* their urban-based competitors and are unlikely to generate significant increases in rural household income in the future. With stricter pollution controls and the increasing demand for quality by urban consumers, it became harder for TVEs to compete with urban-based firms and enterprises. In the 1990s, it became evident that raising the

competitiveness of TVEs required improvements that limited their traditional function of absorbing rural surplus labourers. Rural labourers are increasingly employed by firms established with non-agricultural capital. Many of them are FDI-driven, labour intensive, processing-type and export-oriented in the coastal regions who employ cheap labourers from inland provinces.

As employment opportunities through TVEs declined, an increasing number of rural labourers began searching for off-farm jobs away from their hometown. However, the limitations imposed on the registration of migrants in urban areas perpetuated the labour productivity gap between urban and rural areas.

Restricting migration – the *hukou* system

China's recent experience in migration policy has been one of uncoordinated efforts and of imposition of substantial restrictions. Changes to the present institutional mechanisms regulating migration and the functioning of land markets might facilitate the adjustment of China's agricultural sector.

The main issue is legal restrictions that prevent labour and land markets from adjusting in ways that would raise agricultural labour productivity. Migration and land policies have served as complements in China's strategy of supporting industrial growth. As the share of agriculture as a source of employment and GDP has now declined substantially, it is natural to ask in which direction institutional reforms affecting labour and land circulation will move in the near future.

The enactment of a household registration system (*hukou*) dates back to the mid-1950s when the strategic priority was to transfer resources from the agricultural to the industrial sector. With limited land resources and with scarce capital to be invested in land improvements, the governments organised labour into collectives as means to intensify crop production and raise land productivity. Nearly all surplus farm products were acquired by the government at the low prices set by the government. Thus, increases in agricultural output were obtained at the cost of maintaining labour productivity in agriculture artificially low. The pace of urbanisation was therefore very low when compared to the experience of other developing countries (Tian and Zhang, 2003). The introduction of the household production responsibility system in the 1980s led to increasing use of commercial inputs in farm production and a rapid increase in labour productivity. Since then, the government has gradually relaxed restrictions on the transfer of rural labourers to non-agricultural industries, while the urbanisation process has accelerated notably.

Although China's urbanisation process has accelerated, barriers continue to exist for rural people wishing to enter cities and become urban residents. Under current policies, rural people can change their residency status through a limited number of ways, such as finding employment after graduation from universities or after leaving the army, obtaining urban residency due to confiscation of cultivated land, and purchasing houses in cities on the commercial market.

While rural labourers can go to urban areas for jobs, they are required to pay city governments various fees, such as a temporary residency fee, a family planning fee and an urban size expansion fee (Bai and Song, 2002). Without urban residency, this migrant population is not entitled access to most of the social services provided by city governments or by employers, such as child education, socialised health services and

housing. Such sharp differences between rural migrants and urban residents became major causes for conflicts in urban areas.

In 1997, the Chinese government began experimenting with different types of policy reforms of the urban residency system. These experiments concerned 382 counties that were allowed to use small cities and towns to accommodate rural migrants (MOA, *China Agricultural Development Report*, 2002). Under the scheme, rural people who have a residence and a stable income-earning job in such cities or towns can apply for registered permanent residence while still allowed to either retain their contracted lands for their own operation or lease it so as to avoid the land becoming idle.

According to the MOA (2002), by 2001 only 1.3 million rural residents had changed their residency status. In the meantime, some metropolitan areas began to relax restrictions on the granting of residency although the system still favours those migrants endowed with human capital and financial resources. Thus, most prospective rural migrants still face major obstacles in obtaining urban residency.

There are signs that the Chinese government will change the development strategy toward a co-ordinated development of urban and rural sectors. Recently, it has declared building "a well-off society in an all-round way by 2020" as a strategic goal (Jiang, 2002; Zhu, R., 2003).

With regard to the transfer of rural labourers, two basic policies are proposed. The first is to encourage the rural labour force to find work locally, including the development of profitable and labour intensive agriculture alongside non-agricultural industries in rural areas. The second is to guide the rural labour force to find employment in other areas by strengthening information networks, starting employment agency services, offering pre-transfer training to rural workers and organising an orderly flow of the rural labour force. Establishment of a unified and standardised labour market and the household registration system are also considered. As a result of this policy reorientation, it is expected that China's urbanisation process will be accelerated in the years to come.

Due to regional variations in socio-economic conditions, different regions often take different approaches towards rural labour migration. In those economically developed regions where a market-oriented economic system is usually well established, enterprises, especially private firms, tend to employ workers as cheaply as possible. Therefore, most unskilled positions are filled by rural migrant labourers, especially those coming from underdeveloped inland regions.

In such provinces (*e.g.* Guangdong), immigration of rural labourers from other regions is allowed to take place rather freely. However, like other regions, few of the migrants are granted permanent local residency. Consequently, migrant labourers move regularly between those areas that receive migrant workers and their hometowns, giving rise to what is known as a "floating population." Many city governments face pressure to reduce local unemployment and to maintain adequate incomes of urban residents. Ensuring the sustainability of these schemes often generates among local authorities a negative perception of immigration.

Other constraints to migration – land policy and tenure security

A second important institutional factor influencing the incentive to migrate on a more or less permanent basis is the ability of households to exit agriculture without facing a

substantial loss in terms of their asset endowments and/or entitlements. As land is the most important asset of farm households, a key question is the extent to which land use rights can be transferred to other farmers without incurring the risk of an entitlement loss. As recently argued by Deininger and Jin (2002), there is evidence of a large demand for land for agricultural production that remains unattended through the land rental market. This reflects a divergence at the margin between the willingness to pay and the willingness to accept a given payment for an additional unit of land rented. Such a divergence might be attributed to the existence of insecurity of tenure which would act as a transaction cost.

There are at least three reasons for which the risk of losing an entitlement to land might deter a migrant from moving permanently to urban areas. On the one hand, land is a key income generating asset. Although farm income has declined substantially as a source of total income for the average rural household, it is still an important source of livelihood. Second, as shown recently by Burgess (2004), in a setting characterised by imperfect factor markets, access to land reduces the shadow price of food and contributes to maintain a higher consumption of calories. Thus, the value of an entitlement to use land exceeds its market rental value whenever imperfect property rights might exacerbate the risk of losing that entitlement as a result of a decision to migrate.

Finally, an entitlement to the use of land might act as the best insurance policy that a farm household can pursue when some of its members migrate to urban areas. The inability to access the social programmes otherwise available to urban residents as a means to weathering shocks to the urban labour market, turn the option of migrating back to the farm into a valuable insurance policy. The latter point can be further reinforced as land policy has traditionally been regarded as complementary to the *hukou*. Limiting access to social welfare programmes by rural migrants and leaving the latter exposed to labour market fluctuations has implicitly reinforced the insurance role of agricultural land. Thus, restrictions concerning the right to transfer land have been regarded as justified by the principle of maintaining social stability in rural areas.

Land policy in China has traditionally imposed severe restrictions on land transactions due to social security and stability concerns. Uprisings by farmers who had lost their land and found no opportunities of being re-employed in other sectors have been recurrent throughout China's history. These concerns have eased somewhat in recent decades as the rural economy underwent important changes. Limitations on land rights transfers have been reduced substantially with the reform in 2002 of the Law for Rural Land Contracts which provides the legal basis for protecting the interests of land users and for voluntary transfer of land use rights. As land cannot be individually owned and can only be leased, protection of rights emerging from leasing arrangements might not be enough to affect the perception by those who are entitled to the original right of use from losing that entitlement should they relinquish possession over an extended period of time. Uncertainties related to fluctuations in urban labour markets and off-farm incomes might further increase the perception of risk attached to a complete exiting from farming (Carter and Yao, 2003).

These considerations suggest that reforming the *hukou* system, in the sense of extending the right to benefit from existing social welfare programmes to migrants in urban areas, might have an important second order effect in terms of further stimulating land rental markets in rural areas. As Deininger and Jin (2002) have shown, present land transactions already serve the purpose of moving land use from farmers with low

agricultural ability to more productive farmers. As a result, and in view of the thread that connects land and migration policies, it might be expected that a further opening of the *hukou* system would reinforce pressures to further liberalise land markets.

Migration and the rural/urban income gap

The rural-urban income gap represents a serious structural imbalance affecting China's social development. As described in Chapter 1, a key factor behind the rural/urban gap is the extremely low productivity of labour employed in agriculture, reinforced by the differential treatment of urban and rural areas in the provision of social services (*e.g.* education and health) and in the structure of fiscal incentives.

Migrants from rural areas tend to be younger and better educated than those left back (Taylor *et al.*, 2003). One would expect that better education would reap higher benefits from migration into urban areas and that this would in turn be reflected in more remittances sent to the household. Yet, while out-migration from rural areas has been substantial during the past decades, its impact on the rural/urban income gap has been limited for a number of reasons.

Rural migrants usually lack bargaining power when entering work contracts with employers due to acute competition for jobs among rural job-seekers. Therefore, employers tend to depress wages to the lowest level possible. The *hukou* system reinforces this state of affairs. Inferior working and living conditions, default in the provision of labour insurance as required by relevant government regulations or even in wage payment, and the lack of legal protection of their rights as workers substantially weaken the bargaining power of rural migrants in the urban labour market. This often results in undue dismissal of employees and inhuman treatment of workers.

In addition, migrant labourers are usually unable to protect their own interests through lawful means due to their lack of legal knowledge and ability to enter lawsuits with employers. Thus, to the extent that part of the income earned in urban areas is remitted to the household of origin by the migrant, the *hukou* system will limit the gain that rural households may achieve from migration. Taylor *et al.* (2003) have shown that remittances alleviate the credit constraints that rural households face, thereby allowing them to purchase commercial inputs and raise farm productivity.

In addition, Zhang *et al.* (2003) provide evidence (Tables A.4 and A.5) that the amount of remittances increases with the duration of the migration spell, a fact only partly explained by the increase in income associated with the duration of the spell. Thus, insofar as the *hukou* system increases the incidence of circular versus permanent migration; it limits the long-term benefits rural households may achieve through migration.

Access to land also plays a key role in this respect. As mentioned above, even those households whose major family labourers work away from hometowns still hold their contracted lands given the great uncertainty in off-farm jobs and incomes. In this sense, the contracted land is used as a means for rural households to ensure family food security (Burgess, 2004) as well as to manage the unemployment risk faced by household members in rural areas (Carter and Yao, 1999). However, this leads to an inefficient utilisation of China's scarce land resource and contributes to maintaining low labour productivity in agriculture as a result of scarce incentives to invest in land improvement and machinery.

Table A.4. **Migrants and remittances**

	Migrants who do not remit	Migrants who remit
Number of observations	218	267
Age (years)	23.6	22.8
Trained (%)	30.7	31.5
Male (%)	53.9	54.9
Years of schooling	8.4	8.3
Labour earnings by off-farm job (CNY)	4 236.5	5 906.1
Duration of migration (month)	25.6	32.1
Remittances to household (CNY)	0.0	2 253.5
Remittances to migrants (CNY)	177.4	138.7
Net remittances (CNY)	–177.4	2 099.4

Source: Reproduced from Zhang *et al.* (2003).

Table A.5. **Duration of migration and remittances**

	Number of observations	% of observations	Remittances (yuan/year)	Disremittances (yuan/year)	Net remittances (yuan/year)	Earnings by off-farm employment (yuan/year)
< 1 year	138	28.5	620.4	226.2	394.2	3 171.0
1-2 years	70	14.4	845.7	65.3	780.4	5 626.4
2-3 years	109	22.5	1 592.8	113.3	1 479.5	5 719.1
3-4 years	45	9.3	1 698.7	160.7	1 538.0	5 592.2
> 4 years	123	25.4	1 681.3	165.4	1 482.6	6 455.3

Source: Reproduced from Zhang *et al.* (2003).

In addition to the institutional constraints mentioned above, other factors prevent the income gap from closing further as a result of rural out-migration. For instance, since rural migrants are in general better educated than those who stay home, migration means an export of human capital from rural to urban sector, or from poorer regions to richer regions. On the other hand, although migrant labourers are better educated than those who stay home to farm, their knowledge and ability is often inadequate to find and hold skilled jobs in towns and cities. In fact, most migrant labourers are engaged in low-paid jobs.

Finally, China lacks an efficient job information system. Therefore, migrants move sometimes blindly, leading to substantial loss of time and money. What is more problematic is that some "blind-movers" may resort to illegal means to get money in order to maintain their life while away from home.[3]

The *hukou* system imposes high transaction costs to permanent migration to urban areas. Whether a substantial reform of the *hukou* will help reduce the income gap between urban and rural areas via labour market adjustment depends to a great extent on the pattern of out-migration from rural areas. A major overhaul of the *hukou* is expected to contribute through three main channels. First, by relocating surplus labour from farming and off-farm jobs in rural areas where the marginal productivity of labour is low, the average productivity of labour would be expected to increase (Tian *et al.*, 2003).

Second, migrants are likely to send substantial remittances to their families of origin. There is now enough evidence (*e.g.* Zhang *et al.*, 2003) showing that remittances are an important source of income for those rural households that have experienced the

migration of some of their members. Even in those instances in which migration is not permanent, returning migrants contribute substantially to total household income with the savings accumulated during their absence. Thus, expanding the opportunities for migrants from rural areas in urban labour markets will improve incomes of households in source communities.

Third, an increase in the outflow of labour from rural areas is likely to generate dynamic gains that would materialise through higher labour productivity and increased investments in farming activities and TVEs. For example, if households that have a comparative advantage in off-farm employment relative to farming were allowed to relocate to urban areas and transfer their contracted land to households with better farming skills, average labour productivity in agriculture would increase. In turn, farmers expanding their operations would find an incentive, provided their newly acquired land rights were adequately protected, to invest in land improvements, raising the productivity of land as well.

This effect might be reinforced by the inflow of remittances received by households having some of their members working in urban areas. A similar process might also affect the productivity of labour employed in TVEs and, by making the latter more competitive, the incentives to invest and expand their scale of operations. Inflow of remittances might ultimately prove to be a factor contributing to an increase in the number of TVEs.

Rural out-migration and the supply response of agriculture

A final issue concerns whether the removal of the *hukou* will affect the ability of the agricultural sector to meet the growing market demand for food as a result of the urbanisation process, further accelerated by the removal of the *hukou* itself. The main issue in this respect is not how to increase the overall volume of food production, but rather how to meet growing market demand for food that to date has been satisfied largely by own production for on-farm consumption. Some evidence suggests that China's agriculture could in fact meet the challenge. In their recent paper, Taylor *et al.* (2003) closely examine the issue of how remittances influence the composition of farm household income and crop yields using data from two provinces near Beijing.

Their hypothesis is that imperfections in credit, land, and labour markets constrain farm households from allocating their labour resources across various activities (*i.e.* farming, self-employment, and wage employment) in an optimal way. Migration from farm households is therefore an optimal response to such a difficult institutional environment as it allows farm households to obtain cash with which they can purchase commercial inputs or assets for crop production or for production in household-based small scale enterprises. The difficulty is that migration subtracts labour resources and is therefore expected to have a partial negative impact on household income.

The total net effect is a matter of empirical measurement. Taylor *et al.* (2003) find that while migration reduces crop income it provides a positive impact through remittances. The net effect is one of reducing crop income but at the same time increasing per capita household income and crop yields. Farmers substitute migrated labour with commercial inputs purchased with the remittances received. Cash expenses on commercial inputs decrease net income from crops, while the use of the same inputs allows increasing yields. Total per capita household income increases.

De Brauw *et al.* (2000) examine the impact of market liberalisation on China's agricultural sector using the concepts of flexibility and responsiveness. Flexibility concerns the speed with which quasi-fixed factors of production (labour and land) adjust to changes in the exogenous constraints affecting the sector, such as irrigation, legislation, and prices. Responsiveness refers to the ability by farmers to adjust their mix of inputs and outputs as relative prices change. Flexibility is typically measured by the amount of time that farmers would need to fully adjust to external changes, responsiveness by own and cross price elasticities.

The results in Taylor *et al.* (2003) and De Brauw *et al.* (2000) jointly suggest that China's agricultural economy has displayed increasing flexibility during the period that runs from the late seventies to the mid-nineties, a period during which TVEs offered substantial scope for labour to reallocate permanently to off-farm activities. As a reference, the estimated degree of flexibility compares very well with similar computations for the United States.

During the same period, producers became more sensitive to wage and fertiliser price changes, thereby manifesting more responsiveness to changes in relative prices. As the potential of TVEs to absorb more labour is very limited, further improvements in the flexibility of farm labour depend very much on the conditions regulating rural to urban migration. These results suggest that should the rate of urbanisation increase substantially and real wages also increase, China's agricultural sector would be able to adjust by raising land productivity and real output.

Clearly, the final impact on yields and agricultural output will be reinforced to the extent that more productive farmers will be able to adjust not only by substituting labour with commercial inputs but also by expanding the size of their operations through the land markets. As argued above, while there is evidence of an active land market from the demand side, the supply side of the market is still relatively weak leaving, on balance, the land market rather thin.

While more research is needed in order to extend the analysis to other areas of rural China, the initial evidence suggests that a significant reform of the *hukou* system coupled with further reforms in land policy would provide scope for reducing the rural-urban income gap without jeopardising China's food security.

Policy conclusions

Although China achieved remarkable success in alleviating rural poverty over the past two decades, further progress is both difficult and costly since many of the remaining rural poor are located in environmentally fragile areas with limited access to external markets and new technologies. Furthermore, they lack the appropriate physical and human capital to adapt to competitive market conditions. While further growth of agricultural production may improve household food security of the poor, it cannot reproduce the same effect on rural poverty reduction as that in the 1980s.

Restrictions on labour and land markets have resulted in a significant misallocation of resources and contributed to the large disparity between urban and rural incomes. This suggests that the administrative barriers to rural/urban migration, permanent residence, land markets, and tenure security should be removed or at least relaxed.

The issue is not whether to allow rural people to migrate to cities, but how to manage the process properly so as to avoid undesirable consequences. Urban areas would benefit from increases in GDP as would government fiscal revenues, although urban workers would be exposed to acute competition in labour markets with downward pressure on wage rates. The transfer of rural labour to non-agricultural employment would create favourable conditions for the structural adjustment of agriculture, such as farm land consolidation and intensification of farm production.

In general, the gradual transfer of rural people to towns and cities is a necessary step in achieving co-ordinated rural/urban development, which in turn increases China's long-term social stability. This requires fundamental reforms of the policy making process, laws and social institutions as well as the empowerment of rural people through improvement of rural education and vocational training.

The transfer of rural labour depends on both regional socioeconomic conditions and household attributes. The real poor in remote regions are less likely to migrate because of high costs and risks and they are also less likely to succeed in the competitive labour market if they do migrate. Given the current state of development, migration may not significantly alleviate rates of rural poverty, although it would raise average rural income. Thus, complementary measures, such as the establishment of income safety nets, should be considered along with the transfer of rural labour.

At present, the Chinese government places a high priority on improvement of rural income and the alleviation of rural poverty to strengthen social stability. While these objectives are regarded as positive externalities of agricultural growth, the appropriate way to achieve such goals needs to be considered carefully. The FAO Roles of Agriculture study for China argues that promotion of agricultural production, especially increases in conventional grain crops, may not be the most desirable approach. Future growth of agricultural production will most likely be achieved by improving technical efficiency, rationalising output structure and facilitating marketing. This requires substantial innovation in research and extension systems combined with deregulation that allow markets to operate more freely.

Notes

1. This Annex was prepared by the FAO based on its study of China conducted as part of the Roles of Agriculture Project (ROA) carried out by the FAO in 2001-2003. It draws heavily from the "*National Report*" on China by Tian, W. as well as two background reports: "*Social Viability Roles of the Agricultural Sector in China*" by Tian, W., Liu, X., and Kang, X., and "*The Poverty Alleviation Role of Agriculture in China*" by Tian W., Wang, X. and Ke, F.
2. This is especially important in those inland areas and for poorer rural households.
3. More critically in the longer term, rural people, including those migrant labourers, are unable to participate in the political process and express their own interests.

ANNEX B

Agricultural Policies and Support for Individual Commodities

This annex consists of eight sections, one for each major commodity grouping discussed in Section 2.4 of Chapter 2. Each section comprises an overview of domestic support policies for the commodity group, border measures, and trends in producer support estimates. For tea and tobacco, the overview is limited to domestic support policies and border measures as these commodities are not covered by producer support estimates.

Cereals

Domestic policy

As a result of good harvests in 1989 and 1990, China's grain supply was relatively abundant and farmers found it difficult to sell grains profitably. To protect farmers' interests, the special grain reserves scheme, which included a price support policy component, was introduced in 1990 (State Council, 1990a). The government promised to purchase all grains offered for sale by farmers – after the fulfilment of procurement quota obligations – at rates no lower than the announced support prices. While the national government set the reference prices for different types of cereals, sub-national governments were allowed to offer higher prices if they wished to do so (State Council, 1990b). Although this new arrangement was intended to help farmers maintain their incomes, the State Grain Enterprises (SGEs) often did not make timely payments for grains delivered under this policy initiative. At the same time, the government was faced with problems generated by the policy, namely the overstocking of low quality grains and the huge financial burden this imposed.

To cope with the situation, the government decided in 1991 to carry out an ambitious programme of reform of the grain marketing system aimed at gradually liberalising the market. In April 1991, the national government decided to raise the retail sales price of grains for the first time since the establishment of the centrally planned grain distribution system in the mid-1950s (State Council, 1991).[1] Retail prices were raised again in April 1992.[2] Many provincial governments implemented their own reform programmes to liberalise grain marketing either partially or completely during 1992-1993.

State procurement adjustments were also made at this time. In late 1992, the government initiated price premiums for mid- and late-season indica rice and excluded early-season rice from purchase under the special reserve scheme, due to its generally

poorer quality. This adjustment was intended to encourage farmers to adjust their output to increase the yield, quality and profitability of grain production (State Council, 1992).

The national government decided in October 1993 that from 1994 the state would only procure a fixed amount of grains and that grain prices would be determined by market forces. In order to stabilise grain markets, grain risk funds were established at both the national and provincial levels. The grain deficit provinces were required to hold grain stocks sufficient for six months consumption.

However, the domestic grain market became volatile in late 1993. Market prices rose quickly and panic buying and hoarding occurred. Under these circumstances, the proposed measures were not put into practice in 1994. Instead, the government turned its attention to market stabilisation, insisting that 70-80% of marketed grains should be controlled by the SGEs. In order to induce farmers to produce and sell more grains, the government raised state procurement prices sharply (Table B.1) by 43% in 1994, by 23% in 1995, and by 22% in 1996. In urban markets, the national government imposed price ceilings for food grains in 1994 and rationing of grains was restored in many cities as an emergency measure.

Commencing in 1994, the national government began to construct commercial grain (and cotton) production bases in 650 counties where conditions were most suitable. A total of CNY 6.5 billion of preferential loans (loans with lower than normal interest rates) were provided for the programme over five years. This programme was extended in 1996 with the decision to establish twenty large-scale commercial grain production bases at the prefecture level, with additional investment of CNY 2.13 billion from both national and sub-national governments (*People's Daily*, November 1996). As discussed previously in Chapter 2, a range of policy measures were instigated to assist the dissemination of functional technology, control conversion of cultivated land to non-agricultural uses, support farm input industries, and improve agricultural infrastructure.

The "governor's grain-bag responsibility system" (GGBRS) was formally instituted in early 1995 (Chapters 1 and 2), imposing a responsibility on provincial governments to

Table B.1. **Changes in grain prices (CNY/kg in current price)**

Year	Rice		Wheat		Corn	
	State-set/ Protective	Negotiated purchase	State-set/ Protective	Negotiated purchase	State-set/ Protective	Negotiated purchase
1990	0.51	0.82	0.51	0.85	0.38	0.63
1991	0.51	0.73	0.51	0.77	0.38	0.55
1992	0.55	0.65	0.59	0.73	0.42	0.55
1993	0.62	0.74	0.66	0.75	0.46	0.64
1994	0.89	1.14	0.89	1.04	0.69	0.90
1995	1.09	1.72	1.08	1.53	0.86	1.38
1996	1.33	1.71	1.31	1.65	1.06	1.39
1997	1.48	1.45	1.46	1.43	1.23	1.10
1998	1.46	1.34	1.44	1.30	1.23	1.17
1999	1.33	1.23	1.31	1.22	1.14	1.05
2000	1.13	. .	1.14	. .	0.96	. .
2001	1.11	. .	1.09	. .	0.94	. .

Note: State-set prices were applied until 1997 and protective prices between 1998 and 2001. For definitions of state-set, protective and negotiated prices, see Section 2.2 in Chapter 2.

Source: MOA, *China Agricultural Development Report*, various issues.

ensure adequate local grain supply and market stability, especially for grain-deficit regions.[3] One of the immediate consequences of this system was that inter-provincial grain trade declined; as provincial governors erected trade barriers as a means of ensuring local grain availability was not diminished.

These measures collectively helped to boost China's grain production. Cereal output reached a new record of over 450 million tonnes in 1996 and remained high for the following three years (Chapters 1 and 3). In 1997, however, Chinese domestic grain prices started to decline under the influence of both abundant domestic supply and falling world market prices (Figure 2.2 in Chapter 2).

In response to falling domestic prices, and in the belief that the decline in world prices would be short-lived, the national government reinstalled guaranteed state purchase of grains at state-set floor prices in late 1997 with the aim of raising farmers' incomes and maintaining grain production capacity. SGEs were ordered to buy whatever quantities farmers wanted to sell. The government committed to subsidise SGEs storage costs for overstocked grains and also agreed to subsidise interest payments made by the SGEs on loans required to fund the additional grain purchases.[4] These subsidies were paid from the grain risk funds established in the early 1990s, of which 60% came from sub-national governments' contributions.

These measures were developed into a new grain policy package issued in June 1998 (State Council, 1998a). The new package consisted of three policy measures:

- In place of the state procurement quota, SGEs were given a monopoly to purchase all grains that producers wished to sell at the state-set or protective price floor.
- SGEs are to sell purchased grains at prices that cover all operating costs.
- All SGE financial transactions must go through appropriate accounts at the Agricultural Development Bank of China (ADBC).

According to the ADBC's "method for managing grain procurements and sales", the ADBC provides loans only if an SGE actually makes procurements, and the amount of the loans is linked to quantities and prices paid by the SGE. The ADBC also keeps records of grain stocks at all storehouses. When an SGE sells grains, it should report to the ADBC information on buyers, volume of grains sold and prices, and the storehouses from which grains were sold. The loan officers of the ADBC are expected conduct regular inspection of SGEs and the storehouses for which they are responsible.

The new policy package also proposed to deepen reforms of SGEs by separating their policy activities from their commercial operations. In essence, this measure simply forces SGEs to maintain separate accounting systems for policy and commercial operations. In addition, SGEs were given VAT exemption for policy-related operations, commencing in August 1999.

However, the implementation of the new grains policy package met similar problems to those that occurred in the early 1990s. Farmers delivered large amounts of low quality grains to SGEs. With slower growth in demand in the domestic market and declining world prices, it became increasingly difficult for SGEs to sell the grains in stock without incurring losses. Overstocking of grains imposed a heavy burden on the budgets of all levels of government, particularly in the grain surplus regions. In order to avoid financial losses, SGEs employed various excuses to depress procurement prices, obviously a deviation from the aim of the policy they were implementing. As a result of the SGEs being swamped with

low quality grains, they had reduced capacity to undertake commercial grain operations. Contrary to the expectations of policy makers, the SGEs could not become commercially viable businesses. It is reported that the SGEs incurred huge financial losses.

As the low grain prices persisted, the national government began to alter policies in order to cope with the problems in SGEs due to overstocking, poor grain quality of government stocks, and the continuing threat to farmers' incomes. Protective prices were reduced gradually (Table B.1) and coverage of the scheme was narrowed. For instance, spring wheat, wheat produced in southern provinces and indica rice were phased out, starting from the 2000 harvest, and corn produced in southern China was phased out in February 2002. Also, some non-SGE grain users (*e.g.* grain processors, feed manufacturers etc.) were allowed to purchase grain directly from producers.

The government actively encouraged farmers to increase plantings of superior quality grain types. The national standards for grains were revised to better take into account quality attributes. According to official statistics, during 1998-2002 the area planted to high quality varieties rose from 22.7 million hectares to 38.7 million hectares for early indica rice, from 16.0 million hectares to 72.7 million hectares for wheat, and from 19.3 million hectares to 59.3 million hectares for corn (MOA, *China Agricultural Development Report*, 2003). The successful dissemination of improved quality wheat varieties resulted in China being able to substitute domestically produced wheat for some imported wheat, contributing to China becoming a net exporter of wheat in 2002 and 2003.

With an abundant supply of grains in the latter part of the 1990s, the government took measures to reduce pressure on the environment. Starting from 1998, the government began to implement a "grain for green" programme under which some marginal lands were retired from grain production and converted to pasture or forest. While this programme led to a reduction of grain output in the short term, it is envisaged that it will contribute to maintaining long-run production capacity (see Chapter 2).

China became a WTO member in late 2001 and deregulation of grain marketing was once again on the agenda. In 2001, eight grain-deficit provinces (Beijing, Tianjin, Shanghai, Jiangsu, Zhejiang, Fujian, Guangdong, and Hainan) were allowed to liberalise their regional grain markets. This involved the abolition of compulsory state purchasing (farmers no longer obliged to sell to the State) and the end of state "protective" price setting for grains – government purchases in these provinces are made on the open market at market prices. In 2002, some other provincial governments decided to liberalise their own markets either as a province-wide initiative, or in major grain deficit areas within the province. For instance, Shandong liberalised grain marketing in Qingdao, Yantai and Weihai in April 2002. Further reforms involving more provinces were conducted in 2003; however, no clear national liberalisation policy was enunciated during 2003.

In 2004, following a number of years of declining grain production and a corresponding decline in grain stocks (Chapter 2), the national government initiated new measures intended to restore grain production levels. These were to provide direct payments to grain producers, to subsidise the purchase of higher quality grain seeds, and to subsidise the purchase of farm machinery. In addition, minimum prices for japonica rice and early indica rice were announced in early 2004 in an attempt to assure farmers that their income levels would be maintained. Funding of CNY 10 billion was appropriated from the state grain risk fund to fund these measures to support farmers in the 13 main grain producing provinces and autonomous regions. The Ministry of Finance allocates the funds to special provincial

accounts at the Agricultural Development Bank of China and the provincial governments then disperse the money to county-level accounts based on production levels and land use rates, determined at the provincial level. While each province can determine the method of allocation of the direct producer subsidies, most provinces appear to be making payments of CNY 10 per *mu* for area planted to grain (Gale *et al*., 2005). In an attempt to ensure that farmers benefit from government subsidies, sub-national governments are required to publicise all details about the use of the grain risk fund monies and penalties are in place to dissuade inappropriate use of those funds. The Ministry of Finance reports (Jing, 2004) that during the first five months of 2004, twenty-nine provinces and autonomous regions released an estimated CNY 11.3 billion for direct subsidies for grain growers, and CNY 1.24 billion to subsidise the purchase of improved seeds of rice, wheat, and corn (and soybeans).

In June 2004, the national government issued a new regulation on grain marketing (Chapter 2). The new regulation has, in principle, liberalised grain marketing by allowing qualified non-state firms to buy and sell grains on the open market. Private firms which meet certain criteria are also permitted to engage in grain processing and storing activities. If this new regulation is fully implemented, the monopolistic position of the SGEs will be effectively ended. Coupled with the earlier reforms which appear to be putting an end to the state procurement system, the Chinese government seems to be withdrawing most of its direct interventions in the grain markets. However, the governors' grain-bag responsibility system is, in principle, retained under the new regulations. Although how that responsibility is to be discharged in the newly liberalised market is not yet public.

To some extent, the package of new measures is a response to the perceived insecurity of grain supply. However, it also strengthens a new policy direction to support farmers' incomes. It results in a fundamental change in the approach to supporting the grain sector. In the past, the Chinese government's grain subsidies were paid mainly to the procurement and distributing sectors, and grain growers appear to have received only a reduced benefit from government aid programmes.

While the new, direct subsidies are symbolically important as noted above, examination of the subsidies' role in increasing farm incomes shows only a minor impact. Gale *et al*. (2005) note that the subsidies equate to 1-2% of the average 2003 rural household income; and, of a 6.8% rise in rural incomes in 2004, direct subsidies accounted for only around 5% of the increase – 49% of the increase was attributed to increased product sales and 43% was attributed to non-farm income sources.

Border measures

Throughout the period 1990-2004, trading of grains was subject to state controls. At the beginning of this period the central government planned volumes of imports and exports of grains according to the expected domestic supply situation. Import quotas were allocated according to planned requirements. Grains were imported by state entities in years when a domestic shortage was expected, and exported by the state in years when a domestic surplus was forecast. Imports and exports occurred according to policy directives rather than in accordance with market price signals. In the event of an expected surplus in the Chinese harvest, for example, the relevant state trading company would be directed to purchase a particular quantity of grains, at the Chinese support or negotiation procurement price, in order to export at the going international price. In situations of the

sale price being lower than the purchase price, trading losses were borne by the government. Similarly for imports, if a grain deficit province required imports through the state trading system, which cost more than the regulated domestic price of grains, the difference was subsidised by the central government.

In 1993, the arrangement whereby the central government subsidised the provincial government for trading losses was abandoned. The State Planning Commission's central allocation of import and export quotas according to planned requirements was replaced by the agent system for many agricultural commodities. Under this system, sub-national governments became responsible for their own trading results. Trade was controlled centrally according to plans developed in conjunction with sub-national levels of government.

Provincial governors, the central government and relevant Ministries remained responsible for determining distribution plans for grains. Based on these plans, the Ministry of Foreign Trade and Economic Co-operation (MOFTEC) would direct the China National Cereals, Oils and Foodstuffs Import and Export Corporation (COFCO) to undertake import and export activities. For example, if a province was unable to obtain adequate supplies of grain domestically, the provincial governor would send a request to obtain imported grain to the State Administration of Grain Reserves (SAGR) which would either approve or deny the application. If approved, MOFTEC would direct COFCO to arrange imports to be delivered to nominated ports for delivery to the relevant provincial grain bureau. The provincial grain bureau would obtain bank loans and contact COFCO to negotiate the purchase contract (ERS, 1999).

The arrangement for exports was similar. When the annual distribution plan called for exports, MOFTEC would arrange for provincial grain bureaus to purchase grain for export at the Government Fixed Exported Grain Transfer Price. Upon State Council approval, the SAGR allocates export quotas to provincial grain bureaus, and MOFTEC directs COFCO to negotiate purchase contracts with foreign buyers. The provincial grain bureaus then deliver grains to ports for shipment (ERS, 1999).

Thus, China's foreign trade in grains was tightly controlled, with annually determined quotas and state trading companies maintaining a monopoly position in executing trade plans.

Despite the strict government control of and heavy government involvement in grain imports, in 1996 China established import tariff rate quotas (TRQs) for grains (Table 2.10 in Chapter 2). The major grains (wheat, rice and corn) had in-quota tariff rates of 1-3% and above-quota tariff rates of 91-114%.

In December 2001, China acceded to the WTO under an agreement with existing members of the WTO which stipulated particular rules for China's trade activity. Under the Protocol of Accession, China must abide by the general WTO rules of not discriminating against particular trading partners and not supporting exporters with export subsidies. Particular rules were also negotiated to govern China's trade in particular commodities.

Under the terms of its WTO accession, China was permitted to maintain the state trading regime for grains. Under this regime, COFCO remains the nominated STE for grain imports (mainly wheat) and COFCO and the Jilin Grain Import and Export Company are the nominated STEs for exports of corn and rice. Under the WTO modified version of China's state trading regime agreed proportions of the in-quota volume are reserved for the STE(s) for that commodity. If part of the STE allocation for the year remains unused at

15 September, that part of the allocation must be returned to the National Development and Reform Commission (NDRC) for reallocation to private firms.

The WTO accession agreements also stipulated TRQs. These are detailed in Table B.2. The clear trend is for maintenance of strong control over the commodity most likely to be imported (wheat) and lessening of state control over those grains more likely to be exported. High above-quota tariffs are in place to discourage excessive imports – although the quota fill-rates in 2003 were 5% for wheat, 6% for rice, and there were no imports of corn. The quotas also rose in volume during the WTO transition period (2002-2004 inclusive). The Foreign Agricultural Service of the United States Department of Agriculture reports that quota fill-rates for 2004 are significantly higher for wheat (75% of quota), and rice (14% of aggregate quota, 28% of long grain quota), but the fill-rate for corn remained at 0%.

WTO accession also meant an end to export subsidies for China. As noted in Chapter 2, China subsidised corn and rice exports from the late 1990s until the end of 2001.

Table B.2. **China's WTO grain trade commitments**

		2002	2003	2004	2005
Wheat	In-quota tariff[1]	1%	1%	1%	1%
	Over-quota tariff	71%	68%	65%	65%
	STE share of quota	90%	90%	90%	90%
	Quota (million tonnes)	8.5	9.1	9.6	9.6
Corn	In-quota tariff[2]	1%	1%	1%	1%
	Over-quota tariff	71%	68%	65%	65%
	STE share of quota	68%	64%	60%	60%
	Quota (million tonnes)	5.9	6.5	7.2	7.2
Rice	In-quota tariff[3]	1%	1%	1%	1%
	Over-quota tariff	71%	68%	65%	65%
	STE share of quota	50%	50%	50%	50%
	Quota (million tonnes)	4.0	4.6	5.3	5.3

Note: The tariffs noted in the table are those of the tariff lines most likely to be imported for food use.
1. Simple average in-quota tariff for all wheat tariff lines is 4.7%.
2. Simple average in-quota tariff for all corn tariff lines is 6%.
3. The simple average in-quota tariff for all rice tariff lines is 3.3%.

Sources: WTO; NDRC (cited by USDA).

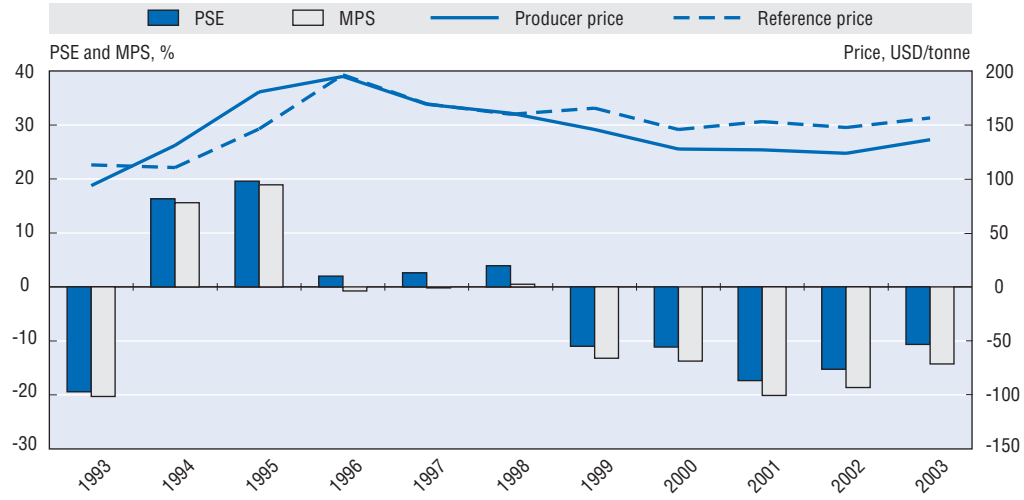
Producer support trends

Basic trends in the level of cereal producers' support were presented in Section 2.4 of Chapter 2 and can be summarised as follows:

- As the level of budgetary support for cereal producers is low, the level of support is driven by the price gap between producer prices and reference prices adjusted to the farm gate level.
- Trends in producer and reference prices were for most of the analysed period aligned: sharply growing between 1993 and 1996; sharply falling in 1997 and 1998; stabilising between 1999 and 2002; but then diverging in 2003 with domestic prices growing more than reference prices, in particular for maize and rice (Figures B.1, B.2 and B.3).
- Delays in adjustments in domestic prices resulted in some fluctuations in the level of support, in particular until 1997.

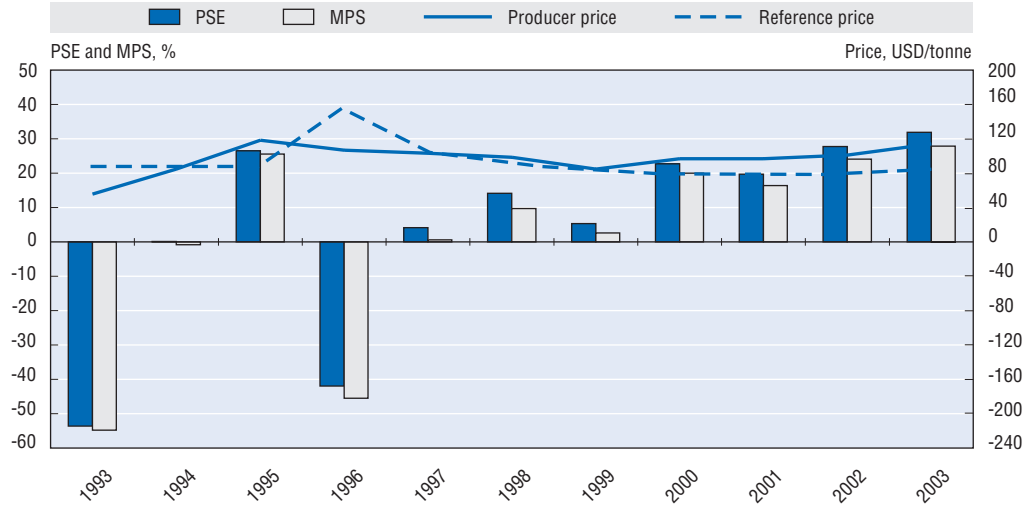
- High level of border protection in the 1990s was not transmitted to domestic prices and the impact of tariffs was superseded by other more direct regulations such as state trading, grain quota system and state-fixed prices for grains.
- Since 1998, the level of support for grains has tended to increase with the striking difference that wheat producers are implicitly taxed, and rice and maize producers are implicitly supported (Figures B.1, B.2 and B.3).
- Most likely, the differences in the level of support across different types of grains in the 2000s are due to export-import decisions still made by the government and driven by the level of strategic stocks and expected production trends of various grains rather than by prospects of profits based on price differentials.

Figure B.1. **Percentage PSEs, producer and reference prices for wheat, 1993-2003**



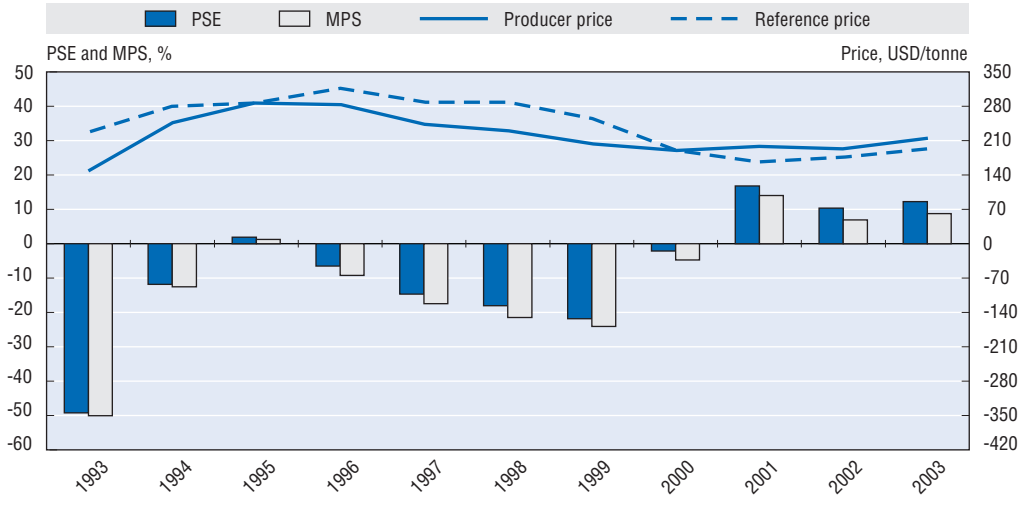
Source: OECD Secretariat.

Figure B.2. **Percentage PSEs, producer and reference prices for maize, 1993-2003**



Source: OECD Secretariat.

Figure B.3. **Percentage PSEs, producer and reference prices for rice, 1993-2003**



Source: OECD Secretariat.

Oilseeds

Domestic policy

China is one of the largest producers of oilseed crops in the world. Soybean, peanut and rapeseed are the major oilseed crops in China. Similar to the situation with grains, oilseeds were subject to state procurement and state-set pricing until the early 1990s.

As a result of reforms of the grain and oilseed marketing system in the early 1990s, oilseeds and vegetable oils were generally removed from the national quota procurement and pricing regime. The exception was soybean production and marketing. In the main soybean production areas, such as in Heilongjiang province, soybeans remained subject to state controls similar to those applied to the production and marketing of cereal grains. At the beginning of the 1990s, the "three links scheme" (Chapter 2) also applied to soybean production to ensure availability of product for state procurement.

In the mid-1990s, China switched from being a net exporter to a net importer of soybeans, and the volume of soybean imports rose rapidly, growing from 52 000 tonnes in 1994 to 2.9 million tonnes in 1997. In response to this situation, in 1998, the central government launched a programme to improve soybean productivity. Measures included the dissemination of improved seed varieties and production technologies in major producing regions, especially in Heilongjiang. Also in 1998, the state procurement price for soybeans became a protective price (Figure 2.2 in Chapter 2) under the changes detailed in China's new grain (and soybean) policy package (State Council, 1998a). While the national protective price was issued until 1999, some provincial governments issued "guidance" prices for local major oil crops and vegetable oil products until 2000-2001.

Since WTO accession, the national government has changed support for soybean development. The Soybean Revitalisation Plan was launched in 2002; a project intended to raise both soybean yield and oil content, through large-scale demonstration projects in the northeast provinces and Inner Mongolia. Under the project, the government provides seed subsidies to farmers adopting high oil content varieties and assists the extension of advanced technologies to soybean producers, harvesters and processors. Funding for the

project was initially set at CNY 100 million. The programme also encourages contract production practices. The programme is expected to result in around 5% of China's soybean planted area, or 0.67 million hectares, being planted with high yielding varieties by 2007.

Driven by a growing demand for vegetable oils, many modern soybean crushing factories were established in China in the period 1990-2003. The new crushing capacity is heavily concentrated in southern China. However, the southern provinces produce only around one quarter of China's soybean crop. Therefore, along with a general increase in demand for oilseeds nationwide, there is a strong demand for soybean imports in southern China as inputs to the processing sector.

Border measures

Early in the 1990s China's trade was heavily controlled and subject to state planning. Following the relaxation of state planning in 1992, tariffs were established for oilseed imports; however, the state actually retained control of imports and exports by restrictive state trading and annual quota arrangements, similar to the trade arrangements for grains.

In 1995, to encourage the development of the domestic intensive livestock industries, China exempted soy meal imports from the 13% VAT. This led to an influx of soy meal which depressed the price at which domestic soy crushers could sell Chinese soy meal. Owing to the fact that soy oil and soy meal are joint products derived from soybeans, the declining price of soy meal impacted negatively on the domestic crushing industry, which cut-back production. As a consequence, soy oil, which was not freely importable, became relatively scarce and the price rose dramatically. In 1999, the soy meal VAT exemption was removed.

China established TRQs for soybeans and rapeseed in 1996, replacing the tariffs which had previously applied. Upon accession to the WTO, China abandoned the TRQ arrangement for soybeans and rapeseed, maintaining only a 3% import tariff for soybeans and a 9% tariff for rapeseed. Tariff arrangements for cottonseed and groundnuts were not changed, with the tariff for both commodities remaining at 15%.

Additionally, China's accession protocol does not allow for specific state trading arrangements for imports of raw seeds. While state trading companies may engage in imports of oilseeds, they have no particular regulated advantages over private firms. Conversely, exports of soybeans are subject to state trading.

Although imports of raw oilseeds are not discouraged by trade barriers, imports of vegetable oils are subject to TRQs and state trading arrangements. These arrangements provide protection to China's domestic oilseed crushing industry.

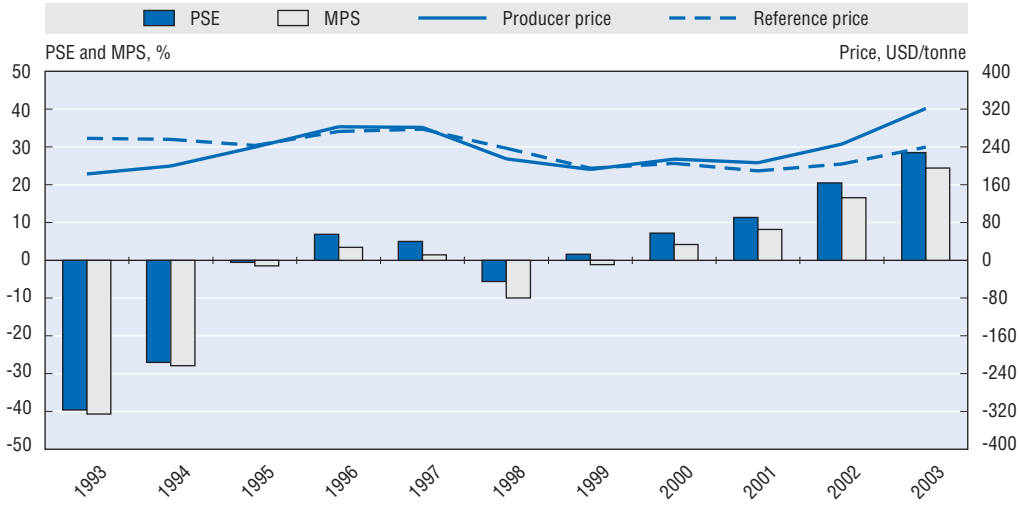
Producer support trends

As for grains, the direction of changes of China's domestic prices for oilseeds followed changes in border reference prices. However, while for importable soybeans and rapeseeds domestic prices remained above the border prices for most of the period, those for exportable peanuts were almost constantly below border prices and then fully aligned with them in 2002 and 2003.[5] In addition, while in recent years the price gap for rapeseed is close to zero, the gap for soybeans remained large and in 2003 even increased as domestic prices increased much more than border prices (Figures B.4, B.5 and B.6). As a result, the level of support for rapeseeds and peanuts is low in the 2000s, but remains high for soybeans. In fact, the average level of support for soybeans at 17% on average between 2000 and 2003, is

one of the highest among all product covered by the PSE calculations for China (Figure 2.17 in Chapter 2).

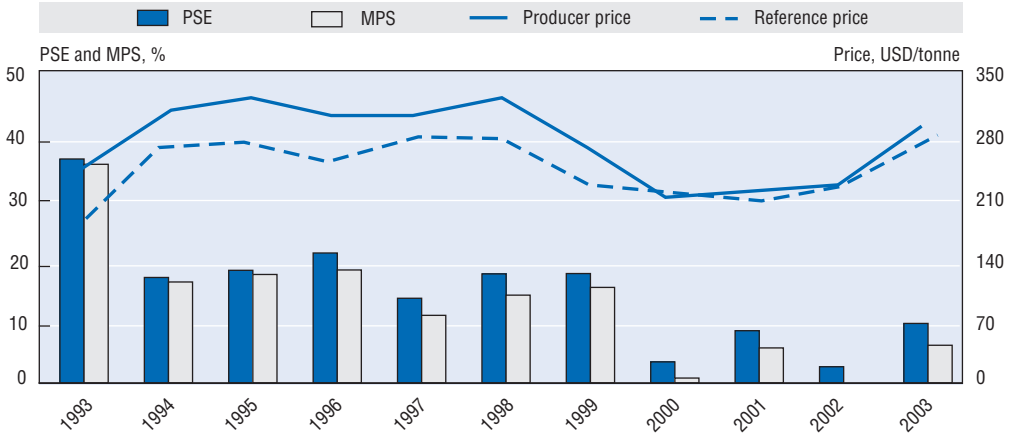
The large price gap for soybeans might be surprising taking into account China's huge imports of soybeans (almost 21 million tonnes in 2003) and a low official tariff applied on soybean imports (3%, see above). One explanation might be that as soybeans were one of the "strategic" commodities[6] covered by strict government control, it is likely that not all previous state trading arrangements for soybeans have effectively been dismantled to allow domestic prices align with those on world markets. It is also possible that the price gap is due to a differentiated market existing. If imported beans are used for oil extraction and meal, and domestic beans are largely used as a food product (not for oil), it is possible that a price premium exists for domestic beans.

Figure B.4. **Percentage PSEs, producer and reference prices for soybean, 1993-2003**



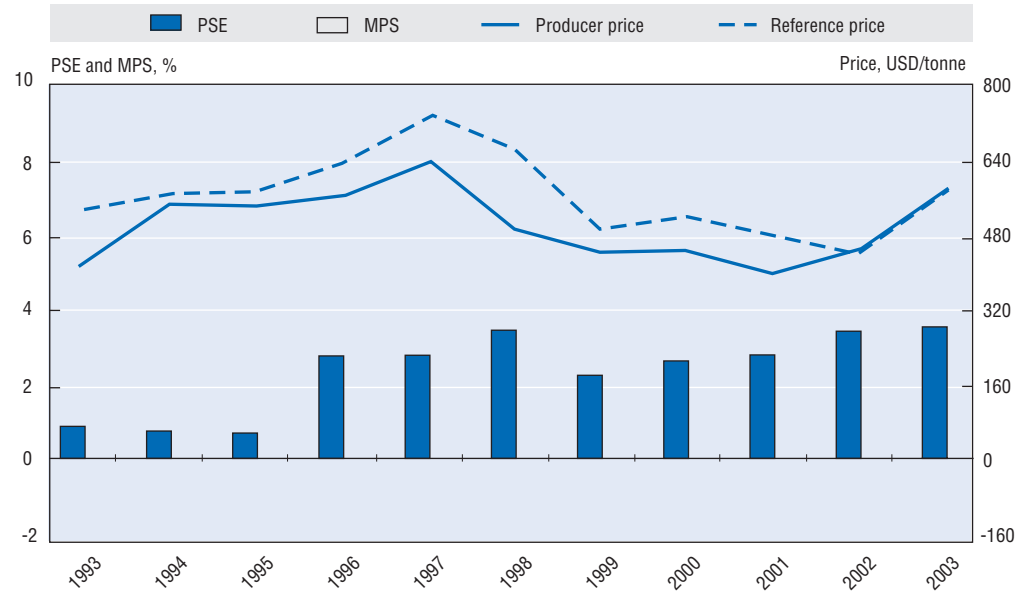
Source: OECD Secretariat.

Figure B.5. **Percentage PSEs, producer and reference prices for rapeseed, 1993-2003**



Source: OECD Secretariat.

Figure B.6. **Percentage PSEs, producer and reference prices for peanuts, 1993-2003**



Source: OECD Secretariat.

Sugar

Domestic policy

China produces sugar beet in northern China (mainly Inner Mongolia, Heilongjiang and Xinjiang) and sugar cane in southern China (mainly Guangxi, Guangdong and Yunnan), with the latter being the major source for sugar production. State control over production of sugar crops was relaxed in the late 1980s with reforms of the marketing system. However, while production controls were relaxed, state-owned sugar mills dominated the sugar industry and marketing of sugar was subject to planning control.

Entering the 1990s, the national government continued to issue guidance purchase prices for sugar beet and sugar cane and the provincial governments in production regions decided local purchase prices (reference prices) within the allowed range (guidance price ±10% in the mid-1990s). In principle, the reference prices were set taking into account production costs, competition with other crops and affordability for processing mills. In practice, however, this was not necessarily the case. On several occasions during the 1990s, the central government adjusted reference prices to better reflect the environment in which the prices were being set.

Processor sale prices for sugar were also subject to state intervention in the form of guidance prices, which were based on processors' costs and the market situation. The

Table B.3. **The state-set guidance prices for sugar beet and cane (CNY/tonne)**

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Sugar beet	155	155	155	155	190	280	310	304	280	255	220	250
Sugar cane	140	140	140	140	170	230	229	220	210	160	180	200

Sources: NDRC (to 1995); CAAS survey (from 1996).

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government also established a system of state sugar reserves at the national and provincial levels. This initiative was intended to stabilise the sugar market.

Throughout the period 1990-2004, the government provided assistance intended to improve sugar crop production in major producing regions (Guangxi, Yunnan, Guangdong, Xinjiang) under a comprehensive agricultural development project. The measures included extension of advanced production technologies, facilitating producer access to credit, and improving input supply. In addition, as part of the strategy to develop western China, sugar production bases are being established in Yunnan and Xinjiang.

In June 2002, the central government issued a regulation which encourages vertical integration in the sugar industry by means of contract production. It also stipulates that processors are obliged to make advanced payments and provide technical services to growers in the areas supplying their mills. The regulation encourages the adoption of a two-stage payment system, under which farmers receive two payments for their cane or beets – the initial payment is a base price payment, and the second payment is determined according to the sale price of sugar achieved by the processor.

Sub-national governments are responsible for supervising contracts between the growers and processors. Provincial governments can set either procurement prices or guidance prices through an appropriate public consultation process. The central government does not determine prices received by cane and beet producers.

Border measures

Trade policy in the sugar sector relates to raw or refined sugar, rather than to sugar cane or sugar beets. China perceives sugar as an important food and controls trade in that commodity.

Sugar imports are usually in the form of raw sugar and processed in China's sugar refineries, and then either exported or sold on the domestic market. A significant proportion of China's raw sugar imports are from Cuba, under the terms of a long-standing trade agreement.

Until 2001, China controlled sugar trade with a combination of state-trading and a quota-licence mechanism similar to that used for soybean and grain trade. Quotas were determined according to the calculated domestic supply and sugar reserves situation.

Under the terms of accession to the WTO, China was permitted to maintain the state-trading regime for sugar imports, but agreed to eliminate controls on exports.

The permitted controls on sugar imports are summarised in Table B.4. The quota fill rates for 2002 and 2003 were 67% and 42% respectively.

Table B.4. **China's WTO sugar trade commitments**

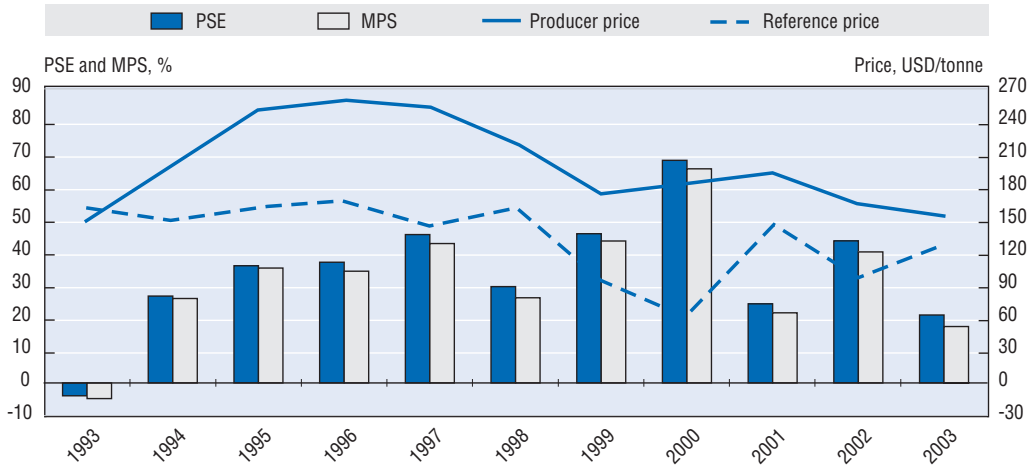
		2002	2003	2004	2005
Sugar	In-quota tariff	20%	20%	15%	15%
	Over-quota tariff	65.9%	58%	50%	50%
	STE share of quota	70%	70%	70%	70%
	Quota (mil. tonnes)	1.8	1.9	1.9	1.9

Sources: WTO; MOFCOM.

Producer support trends

The Chinese sugar sector benefits from considerable support with the %PSE average at almost 40% between 2000 and 2003, the highest among all commodities covered by the PSE calculations (Figure 2.17 in Chapter 2 and Figure B.7). In 2000, the level of support was at 68%, when reference prices decreased strongly and this fall was not transferred to domestic prices. Since then, the level of support strongly fluctuated but, in general, tended to fall and in 2003 was slightly above 20% (Figure B.7). The high level of support is provided mostly through border protection combining tariffs, TRQ and a high share of STE within quota (Table B.4).

Figure B.7. **Percentage PSEs, producer and reference prices for sugar, 1993-2003**



Source: OECD Secretariat.

Cotton

Domestic policy

Cotton is regarded as a "strategic" commodity in China. As a result, its production, marketing and consumption have been subject to state planning. Until 1998, the government issued state procurement prices and the Supply and Marketing Co-operatives (SMCs) were designated as the only buyers of cotton, making purchases on behalf of the State. In a control and planning regime similar to that which was in place for grains, the national government assigned production, purchasing and interregional allocation plans for both cotton producing regions and cotton textile producing regions. Prices at each marketing level were set annually, with a procurement price stipulated for SMC purchases from farmers and a set allocation price at which SMCs could sell to textile mills.

Under the cotton production system, there was no upper limit on the quantity of cotton which the State would purchase from producers, provided farmers also fulfilled their grain delivery obligations. From 1985 to 1998, cotton farmers where obligated under a production "contract" to supply the SMC with a certain quantity of cotton at the planned procurement price; they could also sell any above-quota quantity of cotton to the SMC.

Similar to the situation with grains, there was a surplus of cotton during the early 1990s. In response to the surplus, in 1992 the national government proposed a reform programme that was intended to significantly reduce state intervention in the cotton market by 1995. Trials were carried out in Shandong, Henan and Jiangsu provinces in 1993, and it was planned to extend such trials to other provinces in subsequent years (SPC, 1992). The proposal tested consisted of a number of elements: both the raw cotton purchase prices and processed cotton sale prices of the designated processing enterprises would be determined by market conditions, rather than stipulated by the State; raw cotton purchases would be based on contracts between cotton producers and purchasing/processing enterprises; enterprises other than the SMCs would be allowed to purchase cotton directly from producers; cotton trading centres would be established to facilitate transactions between regions; and, to ensure market stability, cotton reserves at both the national and provincial levels would be established.

However, cotton production levels in 1993 were very low due to an outbreak of cotton bollworm, the major insect pest associated with cotton production in northern China. As a result, the textile industry experienced a shortage of cotton. The de-regulation of the cotton processing sector increased competition for raw cotton and SMCs were unable to secure adequate supplies. The cotton market became chaotic, with reports of panic buying and industrial sabotage. The government abandoned the reform programme and re-instituted stringent administrative control in 1994 in an attempt to restore order to the cotton market. SMCs retained their monopolistic position in the primary cotton market until 1998.

A scheme for paying higher prices for the above-quota deliveries to the State was initiated in 1994. Under this scheme, farmers could be paid above the state-set procurement price, as a means of inducing an increased supply of cotton. Cotton was also covered by the provincial governor responsibility system, implemented in 1995.

The "three links scheme" was applied to cotton, as well as grains and oilseeds, in the early 1990s. Under this scheme, at the time of planting, farmers received an advance payment of 20% of the expected value of their cotton crop. They also received supplies of fertilisers and diesel oil. This scheme was intended to ensure that farmers had the means to produce the desired crop. During the 1990s, the government also established cotton production bases in selected counties.

The government also implemented measures to improve the efficiency of the cotton market, and to guide upgrading of the textile industry. Beginning in 1996, SMCs were allowed to trade cotton directly with local textile mills (partially replacing the state planned allocation of cotton to textile mills) and the national government organised the first national cotton trade fair in Zhengzhou (in central China's Henan province). At the fair, cotton users (textile processors in importing regions who were authorised to import) and sellers (cotton companies of the SMCs in regions where planned out-shipment quotas were assigned) could bid for raw cotton. While the buyers and sellers could choose with whom they would trade, the tradable quantities were still bound by assigned quotas for importing and exporting regions. The two parties to a trade were allowed to decide the terms of trade within a specified price range (state-set cotton allocation price ±4%). These new arrangements allowed the market mechanism to function to some extent.

During the 1990s, Xinjiang became China's largest cotton producing region. Xinjiang is, however, the most western of China's provinces and is far removed from the major cotton processing centres. As a consequence, transportation costs are a limiting factor for cotton production and sale. In response to this geographic difficulty, in 1997 the national government provided a special subsidy for transporting cotton from Xinjiang. The subsidy, of CNY 1.5 per kg of shipped cotton, was only available for the 1997 harvest.

In April 1998, the government changed the cotton purchase price from a government-set price to a guidance price for all newly harvested cotton. This action was intended to overcome the problem of surplus in the domestic cotton market. The guidance price was set at CNY 12.35 per kg (± 5%) and the government committed to purchasing all cotton that farmers wished to sell at that price (Table B.5).

In December 1998, a fundamental reform of cotton marketing system was undertaken (State Council, 1998b). Beginning in September 1999, cotton prices were determined by market forces, while the government issued a reference price late in each year to guide production in the next year. While cotton prices are generally liberalised, the guidance price is also a floor price for cotton for Xinjiang. Xinjiang continues to produce a large proportion of China's cotton crop, producing one third of China's cotton crop in 2003. Thus, government price intervention remains a potentially significant factor in China's cotton industry.

The SMCs' exclusive rights to purchase cotton from producers ceased in 1999. Instead, state farms and qualified textile mills were allowed to engage directly in cotton purchasing, processing and marketing. The government intended to use state reserves as a tool to stabilise the cotton market in conjunction with a state controlled international trading arrangement for cotton. Development and maintenance of national reserves is funded by special loans from the Agricultural Development Bank of China, with costs being borne exclusively by the central government. Provincial governments were permitted to decide whether to establish their own regional reserves or not. Further reforms of SMCs were also included in the decision – it is intended to transform the SMCs from state institutions to producer co-operatives. The reforms of the cotton marketing system introduced in late 1998 remain in place in China.

Implementation of the new policies led to a significant fall in regional variation in cotton prices within China. For instance, the purchase prices of one kilo of new raw cotton in September 2002 was CNY 8.6 in the Yangtze river area, CNY 9.0 in central China and CNY 7.4 in Xinjiang, a price diversity that better reflects regional variations in demand and supply.

Table B.5. **The state-set prices of cotton**

Unit: CNY/kg of standard grade

Marketing year	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02
Planned	6.00	6.00	6.00	7.28	10.00	14.00	14.00	14.00				
Guidance									12.35	10.00	8.00	9.00
Actual price										7.62	10.34	7.20

Source: NDRC.

Border measures

Until 2001, China's trade in cotton was subject to tariffs and state-trading. Under the state-trading arrangement for cotton, initially only the China National Textiles Import and Export Company (Chinatex) had the right to engage in international cotton trade on behalf of China. At the beginning of the 2000s, the monopoly was broken with a number of other STEs being given the right to trade in cotton, but trade was still controlled by the State in terms of quantities imported and exported.

Despite the existence of state-trading, China established a tariff of 3% for cotton imports in the 1990s. In early 2001, a TRQ was implemented with an in-quota tariff of 3% and an over-quota tariff of 90%.

China agreed to reduce the in-quota and over-quota tariff rates upon accession to the WTO. China also agreed to reduce the over-quota protection and increase the quota volume in its WTO transition period and agreed that two-thirds of import activity could be undertaken by non-STEs (Table B.6).

Table B.6. **China's WTO cotton trade commitments**

		2002	2003	2004	2005
Cotton	In-quota tariff	1%	1%	1%	1%
	Over-quota tariff	54%	47%	40%	40%
	STE share of quota	33%	33%	33%	33%
	Quota (mil. tonnes)	0.82	0.86	0.89	0.89

Sources: WTO; NDRC (cited by USDA).

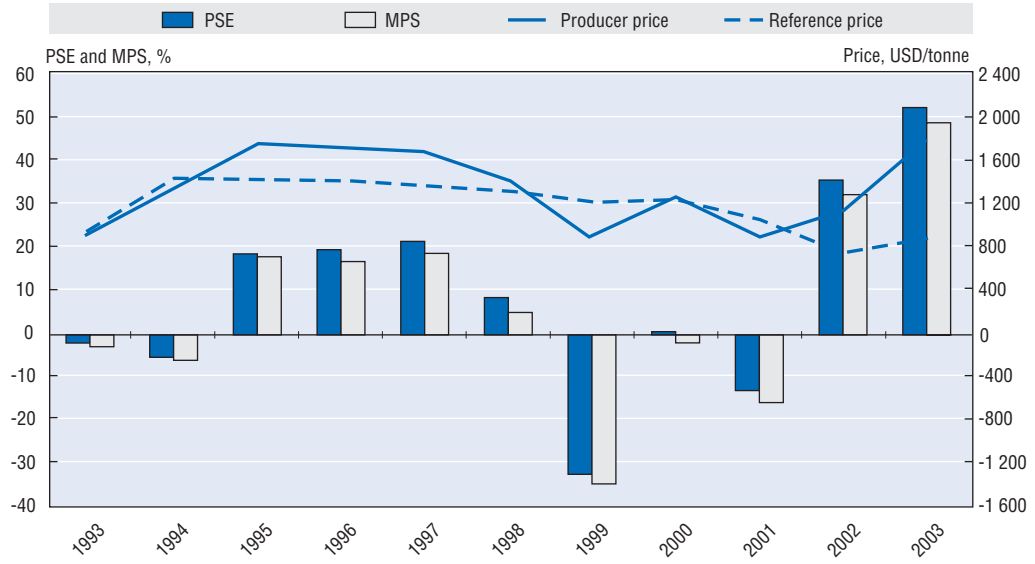
The importance of cotton as an input to China's industrial sector is highlighted by the TRQ fill rates. In 2002, cotton imports were only 22% of the available quota, while in 2003 the fill rate was 102% – a quantity greater than the quota was imported at the in-quota tariff rate. This appears to be a response to a domestic shortage of cotton in 2003 (Butterworth and Wu, 2004), and signals China's intention to allow market forces to maintain an equilibrium in the domestic cotton market.

In order to promote cotton exports, the government in 2002 decided to exempt these from VAT. Under this arrangement, VAT reimbursement can be claimed at the point of export. Cotton exports are also subject to state-trading. Exports of cotton are not expected to be significantly large, however, in the near future as a result of strong domestic demand and the limited capacity to increase domestic production (Butterworth and Wu, 2004).

Producer support trends

In the early period of implementation of the 1998 reforms, producer prices fell significantly, even below border reference prices. As a result, cotton producers were implicitly taxed in 1999 and again in 2001. Recently, the expanding apparel industry has stimulated demand for cotton and cotton imports increased quickly, reaching over the TRQ level in 2003. As cotton domestic prices are generally liberalised, they adjusted to the new market situation by doubling between 2001 and 2003 (Figure B.8). As a result, the %PSE increased strongly from –13% in 2001 to 53% in 2003.

Figure B.8. **Percentage PSEs, producer and reference prices for cotton, 1993-2003**



Source: OECD Secretariat.

Tea

Domestic policy

China is one of the world's major tea producers. While tea is an important commodity for both Chinese domestic consumption and exports, there are few specific domestic policies regarding tea. During the period 1990-2004, most government support was in the form of assisting research on production technologies. Distribution and sale of tea to some remote regions occurred under a state-pricing scheme until 2001.

In recent years, safety of tea products has become a public concern and government involvement with tea production has been focused on improving safety inspections of the commodity. In major producing areas, local governments have encouraged farmers to establish large-scaled production bases and to produce safer products. Organic tea products are promoted and there is encouragement for farmers to adopt production techniques that require reduced inputs of hazardous chemicals.

The main government intervention in this sector has been in the form of taxation. When the tax on special agricultural products was introduced in 1983, tea was one of the farm products subject to this tax, the rate being determined by provincial governments. In 1994, the national government revised the Special Agricultural Tax regulations and set a 16% tax rate for tea. In 1997, the rate was reduced to 12%. Since 2004, this no longer applies to tea.

Border measures

Tea is an important part of the Chinese diet and trade in tea has been controlled to ensure that an adequate domestic supply is maintained. Throughout the period 1990-2004, China exported significantly greater quantities of tea than it imported. According to FAO data, the ratio of volume of exports to volume of imports for 1990-2002 averaged around 17:1, and the ratio of value of exports to imports averaged approximately 25:1.

During this period, tea imports were subject to a tariff and to state-trading arrangements. The latter constituted a monopoly on tea trading, with trading rights given to the China National Native Products and Animal By-Products Import and Export Company.

The tariff on tea imports declined from 80% in 1992 to 27% immediately prior to China's WTO accession. Accession to the WTO led to China further reducing the tariff on tea imports. In 2002, the tariff was reduced to 21%, dropping to 18% in 2003, and 15% in 2004 (the final bound tariff).

Tea exports have remained subject to state-trading. According to MOFCOM's 2003 Catalogue of Commodities Subject to Export Licensing Controls, unfermented tea (green and oolong) trading is a state-trading monopoly. The WTO accession protocols list the China National Native Products and Animal By-Products Import and Export Company as the designated STE for tea.

While trade in unfermented tea is tightly controlled, black tea is not subject to state-trading. Most black tea is produced for export.

Tobacco

Domestic policy

The tobacco industry in China operates under a state monopoly, with rigid state control over tobacco processing, cigarette manufacturing, and sale of tobacco products.

During most of the 1990s, tobacco was subject to state pricing. The State Planning Commission and the National Tobacco Bureau jointly set the state purchase prices for medium grade tobacco and the National Tobacco Bureau then determined the purchase prices for different varieties and all grades.[7] Provincial governments were not allowed to adjust prices. However, in practice, they did provide production subsidies that effectively increased the state set prices. In 1999, the State Council issued an instruction requiring all provinces to remove local subsidies, while the state purchase price was raised from CNY 4.84 per kg in 1998 to CNY 7.0 per kg in 1999. The government continued to set purchase prices until 2001.

The Law of Monopolized Marketing of Tobacco was enacted in June 1991 and covered all tobacco-based products. It laid the basis for state management of production, marketing and trade of tobacco-based products.

In order to generate budgetary revenue as well as to dampen consumption, the government imposed high taxes on tobacco products. Tobacco was subject to a 31% tax rate under the Tax on Special Agricultural Products, the highest rate among all taxable agricultural products. This rate was reduced to 20% in 1999. From 2004, tobacco is the only product covered by this tax and the rate remained at 20% (Table 2.6 in Chapter 2). Moreover, production and marketing of tobacco-based products is subject to value-added tax at a rate of 17%. In addition, cigars and other tobacco products are subject to a consumption tax. Before 1999, the rate of consumption tax was 40% for all types of products. In 1999, a multi-rate consumption tax for tobacco products was introduced with rates ranging from 25% to 50%.

Border measures

Tobacco trade policy during 1990-2004 consisted of reducing tariff rates and maintaining the state monopoly on tobacco and tobacco products.

The State Tobacco Monopoly Administration has the monopoly right to market tobacco in China and controls imports and exports according to domestic marketing requirements. In addition to the domestic monopoly on tobacco, China applies a tariff to imports. The unmanufactured tobacco tariff fell from 50% in 1992 to 34% immediately prior to WTO accession. In 2002, the tariff was further reduced to 22%, declining to 16% in 2003, and 10% in 2004. Under the terms of China's WTO accession protocol, tobacco is agreed to be subject to state-trading arrangements.

As a result of the monopolistic nature of the tobacco processing and marketing sector in China, exports of tobacco are state-controlled.

Fruits and vegetables

Domestic policy

The market for vegetables and fruits was liberalised in the mid-1980s. Since then, the government has made very few interventions in the market. The "vegetable basket project", launched in 1988, included a component to promote vegetable production and thus improve supply of vegetables to urban markets. Under this project, the government invested in marketing facilities in both producing regions and urban areas, developed information networks, and established quality inspection stations. Shipment of vegetables has been given priority in the transport system to facilitate the distribution of these perishable foodstuffs.

During the late 1980s and early 1990s, relatively high returns to fruit production raised concerns that land previously sown to grain, may be withdrawn from grain production to be used for fruit growing. The introduction of the Tax on Special Agricultural Products in 1985 was intended to prevent such a consequence. The rate of this tax for oranges and apples was 15% in 1989 and 12% after 1994. From 2004, the Tax on Special Agricultural Products no longer applies to fruits and vegetables.

As a result of continuing concerns regarding the transfer of crop lands to other uses the State Council issued the Regulation on the Protection of Basic Farmland in 1998 and reinforced the terms in 2004. The Regulation forbids the transfer of land from grain production unless special approval from the Ministry of Land and Resources is obtained. This Regulation creates a barrier to the development of new orchards, ponds for aquaculture, commercial forests, and prohibits the use of arable land for development of intensive livestock enterprises.

In response to the growing awareness of food safety issues, the government has tightened regulations on the use of pesticides in fruit and vegetable production, and promotes and certifies "organic" products and "green food" products (produced using minimal inputs of hazardous chemicals).

The state has also been active in disseminating advanced production and product handling techniques.

Border measures

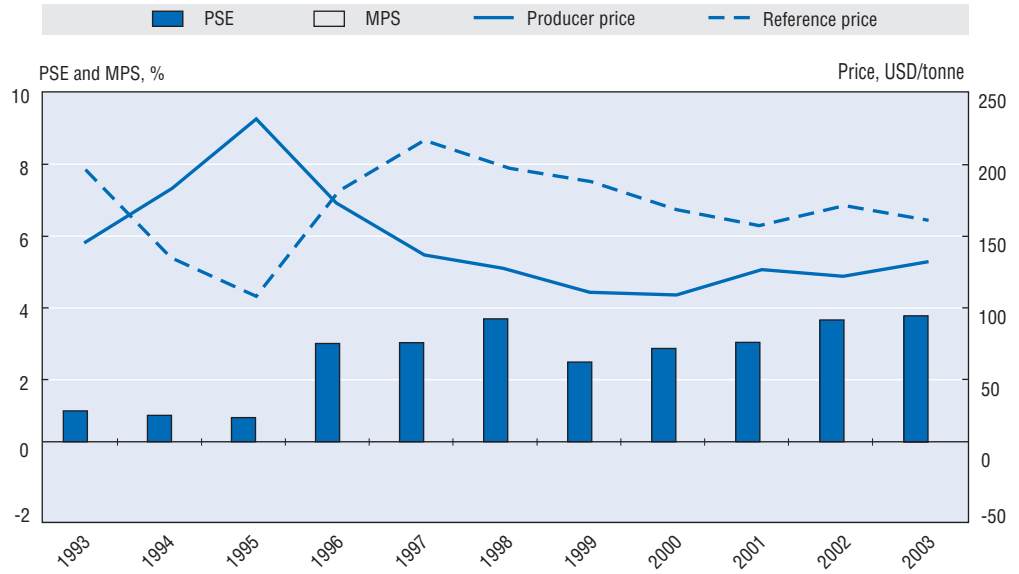
Trade policy for fruits and vegetables has varied only slightly during the period 1990-2004. Throughout the period, horticultural products have not been subject to state-trading or to product specific licensing arrangements, but exports have been subject to general trade business licensing (Chapter 2), and imports have been subject to tariffs.

Throughout the period 1990-2004, imports were subject only to an *ad valorem* tariff. Different tariffs applied to different products, but the trend has been for the level of tariffs to decline. In 1992, for example, fruits typically had a tariff of 80%, which declined to 30-40% in 2001, 13-20% in 2002, and 10-13% in 2004. Vegetables have followed the same trend, with the tariffs being 30-50% in 2001, 13-29% in 2002, and 10-15% in 2004. Clearly, WTO accession in 2001 coincided with an accelerated decline in the tariff rate.

Producer support trends

Apples are the only commodity among all fruits and vegetables for which a complete set of data has been collected to calculate the level of support (Figure B.9). This is an export-oriented product in which China has a comparative advantage. Reflecting lack of any particular market price support policies for apples, the price gap has been set at zero (Box 2.7 in Chapter 2). The measured level of support, with %PSE ranging between 1% and 4%, does not reflect any specific support for apple producers, but rather more general measures such as input subsidies provided to crop producers.

Figure B.9. **Percentage PSEs, producer and reference prices for apples, 1993-2003**



Source: OECD Secretariat.

Livestock products

Domestic policy

The livestock products markets were largely liberalised in 1985 and producers have since made decisions on production and sale of livestock products based on market conditions. During the late 1980s and early 1990s, the government still exercised some intervention on prices of pigs in rural markets, and on prices of pork, eggs and milk in urban markets, however, the effects of these interventions tended to weaken over time. There has been no formal policy announcement to withdraw these price interventions, but they have been redundant since 1997 as a result of the decline in food prices.

China has no tradition of designing policy programmes for specific livestock products. However, sub-national governments have tended to adopt measures to support development of certain livestock products, based on regional comparative advantages. Examples include the development of the dairy industry in Inner Mongolia and Heilongjiang, development of the beef cattle industry in Henan and Anhui, and development of the poultry sector in Shandong and Jilin. Assistance provided to these industries includes preferential access to loan funds, a government-secured supply of feed grains, and subsidies for purchasing equipment and breeding stock.

During the period 1990-2003, the government collected an Animal Slaughtering Tax when animals were sold. Sub-national governments determined the rate of this tax. In principle, this tax was to be paid by the buyers but deviations from that principle were widespread. It is reported that in some jurisdictions, Animal Slaughtering Tax obligations were calculated according to the land area contracted by a household, while in other jurisdictions, a government revenue target under this tax was simply allocated to all households, whether they raised livestock or not. As noted in Chapter 2, the Animal Slaughtering Tax ceased to be collected by 2004.

Under the "vegetable basket project", launched in 1988, the government assisted development of the livestock sector through direct investment in supporting facilities (breeding centres, market facilities, veterinary services, etc.), provision of preferential loans to producers, extension of new technologies, and preferential tax rates for the feed industry. This project is still in place, currently funded at the provincial level. There is no publicly available information on expenditures under this project.

In the early 1990s, the national government was keen to establish large-scaled production units. Preferential access to loans, secured supply of feed grains, and priority in shipment of livestock products was available to large-scale livestock production units. However, this policy has been only partially successful as such units are relatively vulnerable to feed price increases, such as occurred in the mid-1990s. Despite the livestock industries' vulnerability to feed grain price fluctuations, a number of large firms have become successful, assuming the status of dragonhead firms. These include Yili and Mengniu (both in Inner Mongolia) which are leading firms in the production of dairy products, the Zhucheng Foreign Trade Co. (Shandong) and Deda Co. (Jilin) which have been successful in the poultry sector.

Faced with feed grain supply constraints, the government adopted a suggestion in 1992 to develop a straw-fed cattle production system and extend successful techniques across the grain producing regions. As a result, a treatment process which improves the digestibility of various types of straw and other non-grain feed materials has been made available, meaning grain field stubble can now be used for feed rather than burnt or ploughed under. This development has been concentrated in the crop regions of central China. To some extent, the extension of this technique has helped the formation of the "beef-belt" in Henan, Hebei, Shandong and Anhui.

In 2001, the Ministry of Agriculture made a proposal to accelerate development of the livestock sector. It highlights ideas on possible adjustments of production structures and regional distributions of livestock production, and makes suggestions on how best to increase government support to the livestock sector (MOA, 2001). The document is a statement of intent to develop the livestock industries, and no firm actions or detailed plans have been published.

In order to meet the food safety requirements of importing countries, set on the basis of the WTO SPS and TBT Agreements, as well as to improve food safety in the domestic market, the national government has recently begun to improve the regulation of livestock production practices, particularly the use of feed additives. In December 1997, the State Council issued a regulation on live pig slaughtering, requiring that all animals be slaughtered at designated slaughterhouses, to ensure quarantine inspection, and appropriate tax collection.

Beginning in 2001, the Ministry of Agriculture began to collaborate with provincial governments to establish disease-free areas in selected regions. Shandong, Liaoning, Sichuan, Jilin and Hainan provinces and Chongqing municipality (formerly part of Sichuan), were initially selected for demonstration projects. Measures being tested include controls on stock movement, livestock vaccinations, and the creation of isolation areas and buffer zones to prevent the transmission of diseases.

It is difficult to assess the impact of China's recent efforts to control animal diseases, with diseases of poultry in particular continuing to manifest in 2003 and 2004. China continues to rely on vaccinations to manage a wide range of animal diseases.

Border measures

Trade policy for livestock products has varied only slightly during the period 1990-2004. Throughout this period, livestock products were not subject to state-trading but imports were subject to tariffs. In addition to tariffs, imports were also subject to a range of sanitary measures designed to minimise the risk of livestock disease incursions.

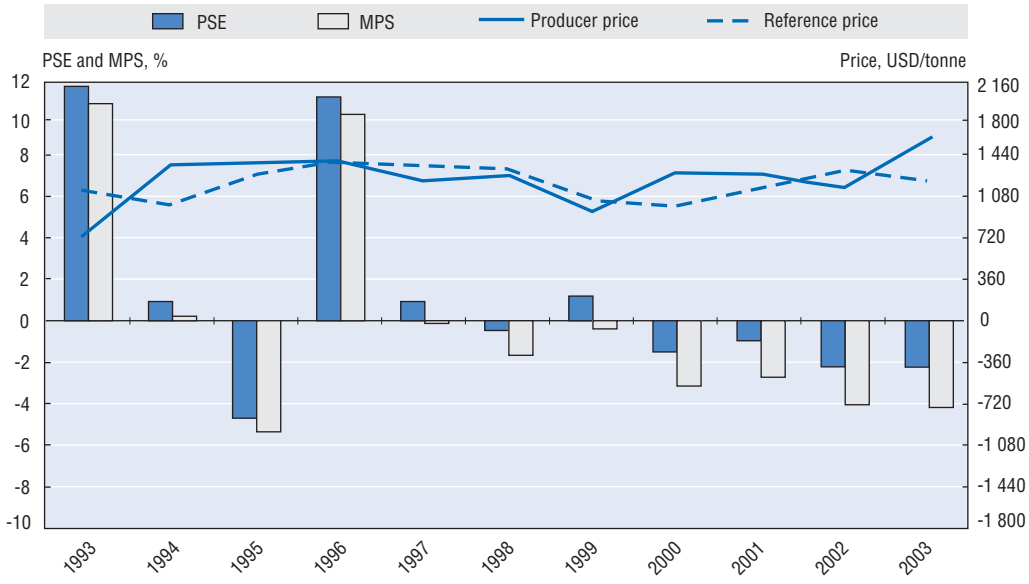
Imports were generally subject to *ad valorem* tariffs, although some poultry products have been subject to a specific tariff since 2000-2001. Different tariffs applied to different products, but the trend has been for the level of tariffs to decline. In 1992, for example, meats typically had a tariff of 50%, which in 2001 declined to 40% for beef, 22% for sheepmeat and 20% for pork and poultrymeat. In 2004, the tariffs ranged from 15% for sheepmeat to 20% for beef, pork and poultrymeat. Live animal imports have followed the same trend, with the tariffs being 20-40% in 1992, and 10% in 2002-2004. Dairy products and eggs have followed the same trend.

There have been no livestock specific export-related policies in place during the period 1990-2004; although exporters have been required to meet the minimum requirements stipulated for businesses engaged in foreign trade (Chapter 2).

Producer support trends

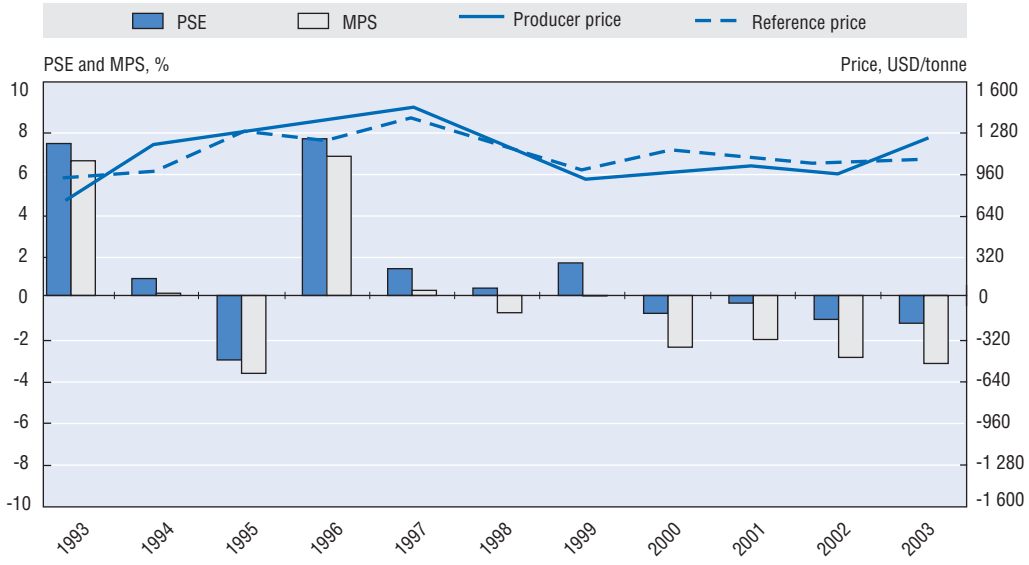
There is an important difference in support trends for exportable and importable livestock products. For exportables such as beef and veal, pigmeat, poultry and, to a smaller extent, eggs producer prices fluctuate around border prices reflecting time-lags in adjustments, but in a longer term both trends and levels of the two price series align (Figures B.10, B.11, B.13 and B.15). As for these products there are no identifiable market price policies and export subsidies are not applied, the price gap has been set at zero (Box 2.7 in Chapter 2). A taxing effect of feed adjustment, mainly due to higher producer prices for maize than border prices, results in a small negative %PSE for beef and veal and pigmeat, not compensated by limited budgetary support provided to livestock producers. %PSE for poultrymeat and eggs is marginally positive.

Figure B.10. **Percentage PSEs, producer and reference prices for beef and veal, 1993-2003**



Source: OECD Secretariat.

Figure B.11. **Percentage PSEs, producer and reference prices for pigmeat, 1993-2003**



Source: OECD Secretariat.

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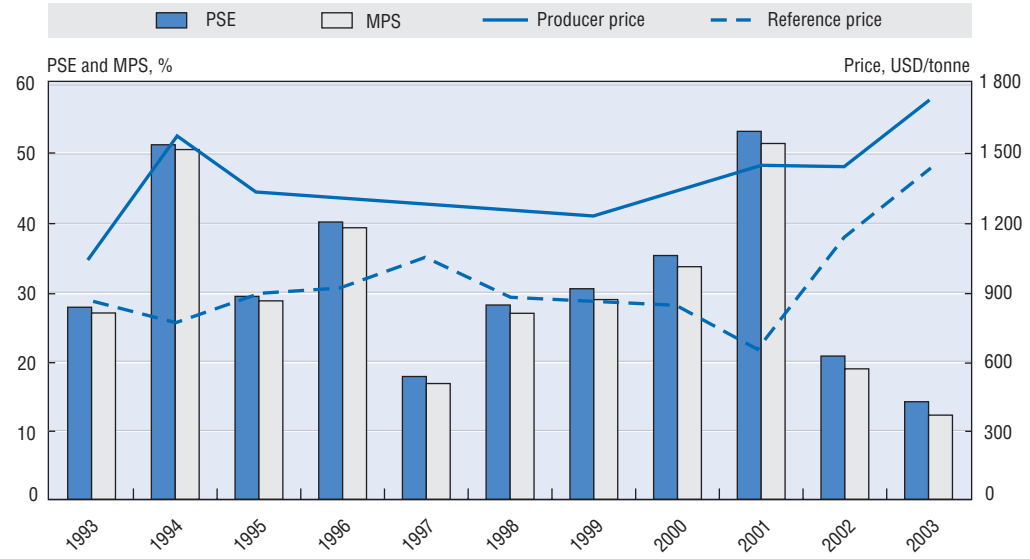
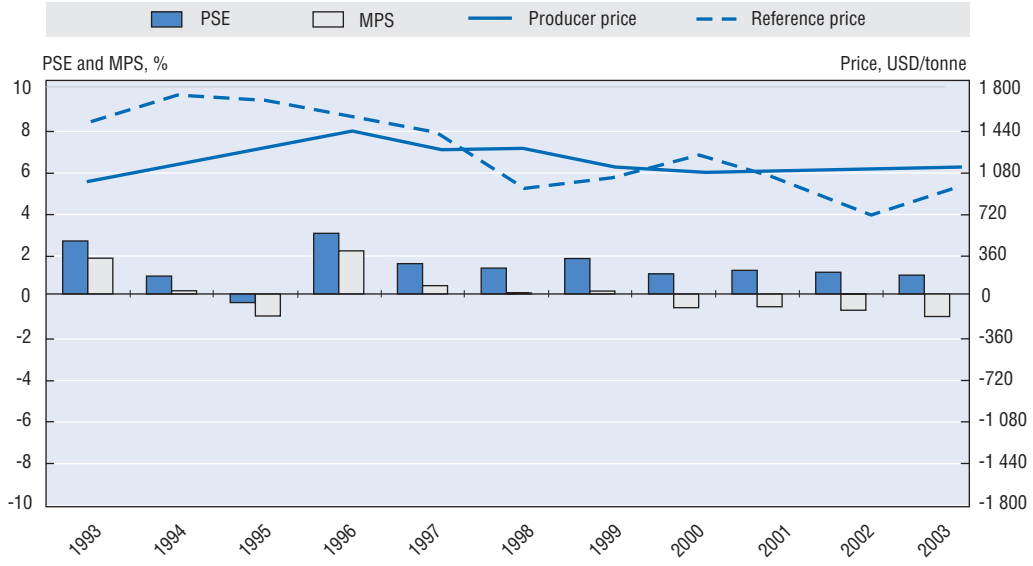
Figure B.12. **Percentage PSEs, producer and reference prices for sheepmeat, 1993-2003**



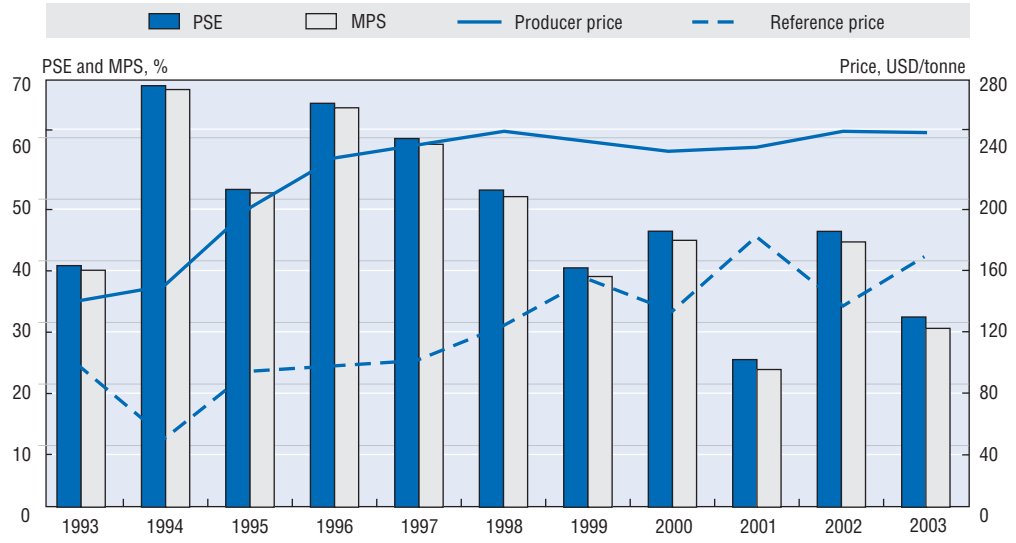
Source: OECD Secretariat.

Figure B.13. **Percentage PSEs, producer and reference prices for poultry, 1993-2003**



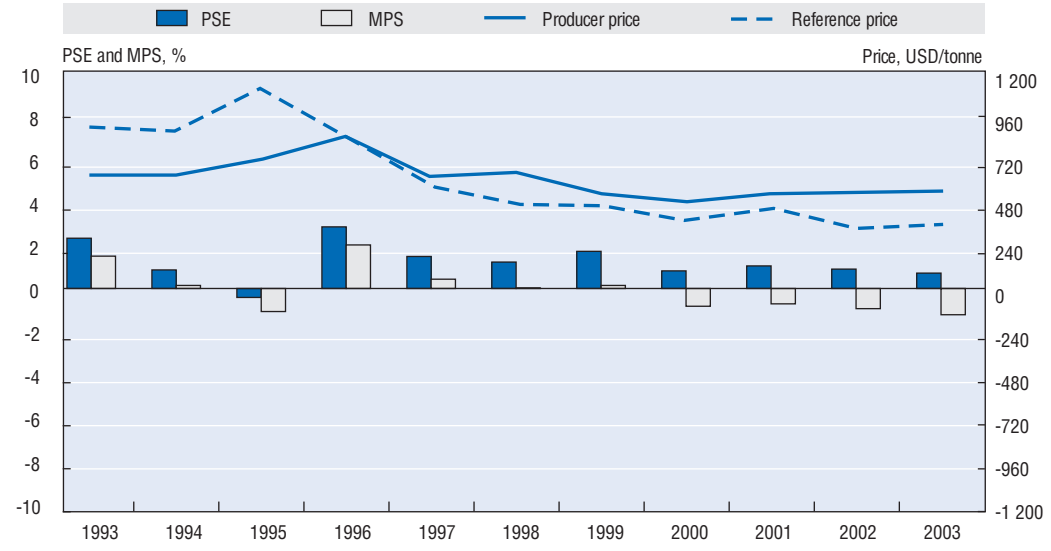
Source: OECD Secretariat.

Figure B.14. **Percentage PSEs, producer and reference prices for milk, 1993-2003**



Source: OECD Secretariat.

Figure B.15. **Percentage PSEs, producer and reference prices for eggs, 1993-2003**



Source: OECD Secretariat.

Importables such as sheepmeat and milk enjoy a relatively high level of support, almost exclusively through border protection measures. The average %PSE for milk was high at 36% and for sheepmeat at 31% between 2000 and 2003 (Figures B.12 and B.14).

Notes

1. China's urban consumers were entitled to purchase a ration of grains at state-set retail prices. Quantities in excess of the ration could be purchased at free market prices. The government also decided to provide urban consumers with a lump-sum subsidy as partial compensation for the price rise.

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2. The average price of wheat flour, rice and corn of medium grade was raised by CNY 0.2 per kg in 1991 and CNY 0.22 per kg in 1992. The prices of vegetable oils were also raised by an average CNY 2.7 per kg in 1991.
3. Those regions which did not produce adequate quantities of grain were prone to significant supply fluctuations.
4. The rate of operating cost subsidy for overstocked grains was set at CNY 120 per tonne in 1997.
5. While Figure B.7 reflects farm gate prices and border FOB prices for peanuts adjusted to the farm gate level, the price gap for peanuts has been set at zero as no export subsidies and no other market price support policy has been identified (see Box 2.7 in Chapter 2).
6. As explained in Chapter 2, in China, "strategic" agricultural commodities are: cereals, oilseeds and vegetable oils, sugar, cotton, tobacco, tea and silk.
7. Tobacco prices are set for 5 regions and over 40 grades.

ANNEX C

*China's Approach to Food Safety**

Introduction

China has traditionally been preoccupied with producing the maximum quantity of food possible to feed its large population. For example, high yield varieties of crops were favoured over high quality ones. Today, China has achieved basic self-sufficiency in food and the country has changed the emphasis from quantity to safety of food. This emphasis on safer food has been given a boost by China's membership in the World Trade Organisation (WTO). The changes required at the field level to produce safer food for export also benefit the domestic market. For example, skills acquired to allow a more targeted use of pesticides and animal medications to avoid unsafe residues in export foods can also be used to reduce residues in domestic food.

The domestic food safety system

Overview

Food standards exist at the national, local and enterprise levels. They are managed at the government level by a national commission on the management of standards, with the co-operation of the Ministries of Health, Agriculture and the National Administration for the Quality Supervision, Inspection and Quarantine (AQSIQ). Quite a few standards in China are below international levels. For example, maximum residue limits for pesticides are not always compatible with international standards. Further challenges arise from the fact that some important standards have not yet been formulated and some old standards need to be revised. China is making a significant effort to reform and upgrade its standard management systems and that its standards are based on good science. Special emphasis is being placed on developing tolerance levels for pesticides, animal medications, important organic contaminants, food additives, feed additives, and certain biological agents. However, there is still much to be done to reach compatibility with the international standards relevant to international trade. By the end of the Tenth Five Year Plan (2005), China hopes to establish a new standards system for the food industry designed to meet the requirement of imports and exports, and in conformity with the international food standards system. Specifically, it is planned that for agricultural

* This annex draws on "Study on China's National Food Safety Strategy", a Project Group of the Development Research Centre of the State Council, PRC, distributed at the Global Food Safety Forum, Beijing, 18-19 November 2004.

products 50% of Chinese standards will conform with international standards and for processed food products the rate will be 55% by the end of 2005 (DRC, 2004).

The mandate for food safety in the domestic food chain remains divided between ministries, which include, the Ministry of Agriculture for food production, the Ministry of Health for food safety, and the Ministry of Commerce for food distribution. This mandate is further split between these central government ministries and similar units at the provincial level. It should be noted that provincial staff are under the control of the provincial governments as they are hired and paid for by provincial authorities. This division of responsibilities has important implications for food safety. For example, suppose a food poisoning event occurs domestically at an event where a catering company has provided the food consumed and persons have been poisoned following the consumption of that food. Since people have suffered food poisoning, the Ministry of Health may be charged with the subsequent investigation. However, the causal factor may be contamination at the food production level of the food chain. To correct such a problem at the food production level the mandate falls within the responsibilities of the Ministry of Agriculture. Indeed, it may well be the provincial agriculture staff that has to take corrective action. Thus, corrective action could require co-ordination between the Ministry of Health, the Ministry of Agriculture and provincial agencies. Corrective action under such circumstances is arguably more difficult than if a single food inspection agency had both central and provincial control of food safety for both the domestic and international market.

A significant strength that China has as it works to improve its systems for ensuring food safety and quality is that all parties seem to accept the concept of "farm-to-table" food system. This concept suggests that ensuring food safety requires dealing with food production, transportation, storage, processing, and distribution as a single integrated system. For example, all parties seem to accept that a contaminant at the farm level can affect food safety at the consumption level. All seem to accept that safety cannot be "inspected" in the final stage of food production; safety has to be built in at each step of the food chain. This means that while the mandate for food inspection is divided, there is a general consensus that ministries and provinces must work in a co-ordinated way if food safety is to be ensured. In order to facilitate co-ordination, China has recently established a body to co-ordinate the actions of all government agencies involved in food safety. This new body is known as the State Food and Drug Administration (SFDA, see below).

Legislation

China has legislation affecting each major phase of the food chain from farm to table. Of key importance to food safety are the Food and Health Law, the Agriculture Law and the Standardisation Law which set out general food safety requirements. These laws were drafted at a time when the focus was on producing food in greater quantity and need to be amended if they are to meet current consumers' food safety needs. Problems also exist due to gaps and duplication in the legislation. The laws contain somewhat different requirements for food safety and health. As a result, those enforcing the laws have difficulty understanding exactly which requirements they should follow when implementing legislation. In addition, the penalty provisions for violation of the laws are, arguably, too low. These problems can be compounded by inconsistent application between the various government agencies.

The current body of legislation covers the following domains:

- *Food and Health Law*: Under the authority of the Food and Health Law are found central government regulations, local government regulations, food and health standards, and inspection procedures. Following China's entry into the WTO, the Ministry of Health undertook a revision of the food and health standards governed by this Act. This revision covered food safety, food additives, food containers, food packaging, and provisions affecting food-catering premises. It also clarified some mandate issues in relation to food safety inspection.
- *Agriculture Law*: The Agriculture Law has as its purpose the regulation and economic development of the agricultural sector, and the protection of farm workers.
- *Standardisation Law*: The Standardisation Law sets out standards for many sectors including food. It provides guidance on the formulation and implementation of standards.
- *Supporting Legislation*: The above pieces of legislation are supported by the Inspection of Imported and Exported Goods Law, the Prevention of Animal Epidemics Law, the Quarantine of Animals Crossing the Border Law, the Border Health and Quarantine Law, the Environmental Protection Law, and the Protection of the Consumers Rights and Interest Law.

The existence of this portfolio of legislation, and its associated problems, has led to discussion in China suggesting that the country would benefit from having a single Food Act. This could be designed to eliminate legal gaps and overlaps, as well as to provide some clarification of legal mandates between Ministries.

Certification

In order to meet the demand for safer food, China has instituted control programmes starting at the farm level. These include the programmes described hereunder:

- *Hazard-Free Agricultural Products Certification*: This system is sometimes known as "Non Public Hazard Food" and is basically of Chinese origin. It is designed to help ensure that foods are produced, for example, at the farm level in a manner that is not likely to present a hazard to consumers. In 2003, the Ministry of Agriculture listed the first set of products that had gained certification as "Hazard-Free Agricultural Products". This status was awarded to about 200 products from about 150 local production areas. These products are identified with a special logo authorised by the Ministry of Agriculture's product safety certification centre.
- *Green Food Certification*: While similar programmes exist in other countries, this system is, again, basically of Chinese design. The Green Food certification system was initiated in 1990. Its focus is on producing safe food in an environmentally friendly manner. The Chinese Green Food Development Center has responsibility for this programme and it operates through the delegation of programme implementation to institutions that it accredits. Several thousand products and food enterprises have been accredited to date.
- *Organic Food Certification*: This system, created in 1994, is based on international practice and its purpose is to ensure that organic food production techniques are used. Overall control of this programme is in the hands of the Ministry of Agriculture, which delegates certification authority to third party certification institutions. At present, a relatively small number of products and food enterprises have received certification.

- *Hazard Analysis, Critical Control Point (HACCP) Certification*: HACCP is internationally recognised. Increasingly, it is becoming required practice in national food safety systems. As its name suggests, it involves identifying the "hazard" to be controlled, and then focusing on ensuring safety at the "control points" that are "critical" to ensuring product safety. China's State Commission on Supervision of Certification issued regulations on HACCP certification for food manufactures in 2002. This provided China with a base from which to continue building its HACCP system. The Ministry of Agriculture has placed emphasis on making this system available to the aquaculture industry, given this sector's importance in China. Nevertheless, implementation of HACCP at the domestic market level has faced difficulties as the HACCP systems in place have, in some cases, not been tailored to Chinese conditions. Certification by some parties has been of questionable quality. In addition, in relation to the size of China's food system, few enterprises have implemented HACCP.

Other internationally recognised systems used to help improve product safety include Good Manufacturing Practice (GMP), Good Laboratory Practice (GLP), Total Quality Management (TQM), International Standards Organisation (ISO) 9 000 series, and ISO 14 000 series. These are being used to varying degrees in China. While these certification programmes have the capacity to improve food safety in China, they do face difficulties. There is a need for institutions that are designed to provide guidance and training to those wishing to obtain certification. Without good advice, it is difficult for food enterprises to gain certification, especially internationally recognised certification. Even when certification is received, its value can be diminished by lack of mutual recognition between institutions. Some food buyers will accept certain certificates, but not others. From a domestic point of view, these certification systems have mixed levels of public recognition and acceptance.

Institutions

In the central government, the management of food safety is jointly in the hands of the SFDA, the Ministry of Health, the Ministry of Agriculture, the AQSIQ, and the Ministry of Commerce. These departments are independent of each other. Mirror image organisations exist at the provincial, municipal and county levels.

- *State Food and Drug Administration (SFDA)*: Directly affiliated with the State Council, the State Food and Drug Administration is responsible for the oversight of the safety of food, drugs, health foods, and cosmetics. Given that China's food safety mandate is divided between several central government ministries and their provincial counterparts, this new body has been charged with the overall co-ordination of inspection activities within the food chain. In this role, it is responsible for organising the relevant agencies in order to co-ordinate the division-of-work in the food chain.
- Independent Provincial Food Inspection departments have corresponding units at the provincial, municipal and county levels. With the exception of AQSIQ, these departments are generally under the "line" control of the local governments and under the "functional" control of the central government. The local units are, for the most part, hired and financed locally. This can lead to differences in priorities between central and local officials.
- *Ministry of Health (MOH)*: The Ministry of Health is responsible for overall food safety and public health policies. This Ministry is responsible for formulating the overall regulations

and standards governing food safety and public health, and for monitoring food processing and food distribution. It is also charged with food contaminant monitoring and for monitoring outbreaks of food-borne diseases.

- *Ministry of Agriculture (MOA)*: The Ministry of Agriculture is responsible for domestic oversight of the quality and safety of agricultural products at the farm level. The Ministry launched a programme in 2001 to promote "Hazard-Free Agricultural Products" designed to improve the safety and quality of agricultural products. It is based on safety and quality standards, and on the implementation of acceptable testing, inspection, and certification practices. The Ministry of Agriculture is responsible for the testing and quarantine of domestic animals and plants. It is also responsible for monitoring agricultural inputs and the environment of agricultural food producing areas.
- *National Administration for Quality Supervision, Inspection and Quarantine (AQSIQ)*: AQSIQ is a ministerial level government agency responsible for the control of food safety in the production and processing of food destined for international trade. It has "line" control over its own staff, at both the central government and provincial levels. It is self-contained in that it has its own inspection staff and laboratories at all levels of the food chain.
- *Ministry of Commerce (MOFCOM)*: With a mandate in the domain of food transportation and distribution, the Ministry of Commerce is responsible for establishing and improving the inspection system for food safety. It is also responsible for monitoring the sanitation, safety and quality of food circulating in the market, and of agricultural products under transport for export. It has launched a campaign to create a green market, and has worked to standardise and improve food transportation and distribution. A market place inspection system, where product sampling is being conducted, is being established. This system will focus on large wholesale markets for agricultural products.
- Two Divisions under the department of WTO Affairs in the MOFCOM have responsibility for managing China's "Inquiry Point". These are the Division of Inquiry and Technical Support and Division of Review and Notification. Because of China's membership to the WTO is only recent, it is still in the "early days" in the development of this system. The usefulness of China's "inquiry points" is, however, facilitated by the existence of a single import/export agency, AQSIQ, at the operational level on which MOFCOM can contact for detailed information. For notification procedures, MOFCOM's Division of Notification has the lead.

Other related institutions include the State Administration for Industry and Commerce which is responsible for ensuring good business practices in commercial transactions. It is responsible for the supervision of business practices throughout the food chain. This organisation conducts an inspection and approval process before a health and safety permit is issued to a food-based business. The Ministry of Science and Technology has duties associated with scientific research. To help improve food safety, the Ministry established a programme known as Key Technologies in Food. Its purpose is to fund research projects that can help improve food safety. The Chinese Green Food Development Center has delegated authority to deliver its programme, at the field level, to a number of operational bodies. The system imposes standards on the food production environment and methods, and on product quality, packaging, and storage. In 2002, the National Center of Prevention and Control of the Diseases was established to help with public health emergencies.

Implementation and compliance

In 2000, China had about 171 800 enterprises producing food. Of these, about 60 085 were under AQSIQ inspection. About 95% were small enterprises with less than 100 workers, and about 80% of these had less than 10 people. The small scale of the industry and its geographically dispersed nature make supervision difficult. In addition, given the lack of an adequate highway network and appropriate infrastructure for cold storage and transportation, ensuring food safety is a major challenge for this industry.

From 2000 to 2002, China's Center for the Prevention and Control of Diseases conducted testing for contamination of raw meat, cooked meat, milk and dairy products, aquatic products and vegetables. The results demonstrated that microbiological contamination was the number one cause of food poisoning, followed by chemicals and toxins. China has been working hard to improve this situation. In this context, it is interesting to note that over a similar time frame, the percentage of vegetables with residue levels above the tolerance level dropped from 37.5% to 15%. AQSIQ recently conducted a survey of food enterprises and found that 82.5% had no capability of in-house food testing. This finding suggests that, for the immediate future at least, there may be limited scope for self-regulation by the average food industry enterprise.

As mentioned previously, different government departments involved in food chain compliance administer their affairs independently and, as such, it is difficult to co-ordinate activities. It is not uncommon to find one subject covered by two standards. Different departments sometimes inspect the same enterprises and the same products according to their own departmental standards. As a result, food enterprises do not always know which standard to comply with. The underlying principles of many standards are, in general, not based on scientific risk assessment principles. The problem is especially important in the area of testing food for residues of harmful substances.

It is difficult to conduct effective animal disease control in China because of the geographically dispersed nature of animal husbandry and the vast area of the country. This is compounded by the fact that China has a land border with many countries, across which animal disease can spread. In China, animal diseases such as tuberculosis, foot and mouth disease, swine fever, and Newcastle disease continue to present a challenge. Until China's trading partners are convinced that diseases such as these are controlled in accordance with international trade standards established by the International Office for Epizootics (OIE), exports of cattle, sheep, hogs, poultry and their fresh products will be severely limited.

A significant proportion of China's animal medication plants have not been registered. Supervision of production and marketing is limited, as is testing food products for residues. Residues in meat of drugs, such as valium, olaquindox, terramycin, aureomycin, clenbuterol and furazolidone, are of particular concern and can result in rejection of a product in the export trade.

AQSIQ has introduced HACCP as a food safety enhancing measure. AQSIQ has also introduced a "market access" system. This requires that special pre-qualification requirements be met before an enterprise is allowed to enter the food market. The Department of Health has introduced a "performance measurement" system that involves awarding enterprises grades to indicate their level of regulatory compliance. Despite these current compliance efforts, bacterial contamination, chemical residues, and food-borne disease still present a threat to China's food system.

The central ministries and provincial officials have been very active in training their food system staff, both in Chinese and in overseas institutions. Training is being given in the functioning of international bodies such as the WTO, Codex Alimentarius, the OIE, and the International Plant Protection Convention (IPPC). Training is also being provided in technical areas such as Risk Assessment, HACCP, laboratory testing, and Good Laboratory Practice (GLP). AQSIQ has been especially active in offering training to their staff. International agencies, such as the World Bank, and individual countries have also been working with China on a bilateral basis. China is also drawing on the experience of developed nations such as the United States, the EU, Japan, and Canada, which are important trading partners for China.

Food safety and trade

Generally speaking, the Chinese food certification systems are not well integrated into the international system. From an export point of view, this has limited the value of certification. To overcome this problem, enterprises wishing to export from China often have to hire foreign institutions to conduct the necessary examination of the enterprise, and provide internationally accepted certification. This can impose a significant extra cost on both Chinese exporters and suppliers to large food supermarket chains operating in China.

China has recently become a member of the WTO and has taken steps to join the international organisations that set sanitary and phytosanitary standards for trade in crops, animals and food. China is also working hard to draw upon the laws, regulations, standards, guidelines and technologies related to food production, processing and distribution developed by such international organisations as the World Health Organization (WHO), Food and Agriculture Organization (FAO), the OIE for animals/animal products, International Plant Protection Convention (IPPC) for crop/crop products and the Codex Alimentarius Commission (CAC) for food. China has established a group to co-ordinate Codex activities and the Ministry of Health draws experts from across China to provide advice and to represent China's interests at Codex conferences. China has been especially active on files related to the use of food additives, soybean products, aflatoxin, and lead residues in fish.

Membership in the WTO has placed a new emphasis on food import and export issues. China's borders must be controlled to ensure that food exports could be certified with confidence for safety, from farm production, through the food chain right to the port of export. The borders must also be controlled to ensure that imports meet international and Chinese standards. China has created a single food inspection agency for imports and exports. As noted above, the single food inspection agency, AQSIQ, has been given direct control of food produced for export on the farm, in food processing plants, and at border crossings. It has direct control over its own staff, at the farm, food-processing and port levels. For the domestic market, the traditional inspection system, involving division of duties between central ministries and the provinces, remains in place. This organisational change allowed international trade to be inspected and certified without a major disruption of the mandates of the central ministries or provinces.

WTO membership created great expectations in certain sectors of China's agriculture and food industry for new export success in areas such as aquaculture, floriculture, and fruit and vegetables. These expectations have met with mixed success due to problems

associated with product safety. Unless China can reduce the problem of chemical residues in crops, control animal medication residues in meat, eliminate animal diseases of international trade significance, and control bacteria in foods, growth of the export market will be unattainable.

To help reduce these problems, Chinese government agencies are working to improve the registration system for farm inputs such as pesticides, animal medications, feeds, and fertilisers. These agencies are also working to improve the certification system for foods produced at the farm level. This is being done with the introduction of the systems mentioned earlier, *e.g.* the Hazard-Free Agricultural Products Certification programme. In addition, as of the late 1990s, AQSIQ has, for example, introduced HACCP in enterprises exporting aquatic products, poultrymeat, red meat, and vegetables and fruit juices.

Again, to help reduce the problems mentioned above, and to help meet the safety demands of the export market, China has favoured the use of "key enterprises" just as it has done for some time in the domestic market. This often involves a food processing company working in partnership with a large number of farmers. The "key enterprise" provides market analysis, marketing skills, capital, equipment and food production, handling, transportation and processing technology. Together, the group can also achieve some economies of scale. In some cases, the "key enterprise" is an association of Chinese and foreign interests. The foreign partner often has a ready market for the product in question in its home country. This provides the operation with good knowledge of the safety requirements of the destination market and the technical capacity to meet them. The system of "key enterprises" is being used to provide competitive products for both the export and domestic markets. This concept is used in China's domestic dairy market to produce competitive products where Yili Dairies, for example, has assembled a group of farmers to supply it with milk. Yili provides the farmers with all the technology required to ensure a supply of safe, high quality milk, and also makes available to the farmers a high-tech milking parlour. This allows sharing of equipment and bulk buying of farm inputs, such as feed and fertiliser. Yili handles all aspects of product marketing.

To generate the food safety data necessary to negotiate certification requirements for exports, the Ministry of Health began conducting in the early 1980s systematic surveys to monitor food safety. This same data is helpful in making informed policy decisions on domestic food safety. The results indicate that samples meeting China's domestic standards have risen from about 60% initially to close to 90% at present (DRC, 2004). It will be interesting to follow the results of these surveys as China gradually moves to the adoption of international standards. Two forces will come into play: China's food safety standards will become more demanding and control systems will also improve. Such hard data can be important in relation to exports as it can be used to help potential importers assess the risks associated with Chinese imports.

International food safety standards and negotiations related to food trade disputes increasingly require a scientifically supported "risk assessment" to justify the provisions included in new regulations and is becoming a necessary tool in the successful negotiation of difficult trade issues. A scientifically supported "risk assessment" generally requires, as its base, hard data on both the "hazard" in question and on the "exposure" of the human, animal or crop population at risk. For example, in setting a tolerance for a chemical food residue, data is required on the exposure of the population to this chemical. This requires survey knowledge of the food consumption profile of the population. This type of data is

difficult and expensive to generate. At present, China's export efforts are made more difficult by the lack of such data; however, the country is working to train its staff in this area and to generate better data.

To minimise possible damage to its export sector, China needs a system to rapidly identify disease outbreaks and health threats, such as those described above, and to bring these under control as quickly as possible. Thus, sustainable success in the export field requires the establishment of an emergency control system. Such a system is normally designed to include both an early warning system, to alert authorities to a potential crisis and an emergency response system to bring the crisis under control. China's experiences in dealing with the recent outbreak of Severe Acute Respiratory Syndrome (SARS) and the avian influenza in 2004 provide valuable experience from which such a system could be improved. In this context, AQSIQ established in 2002 a committee involving several ministries on the Analysis of Cross-border Animal and Plant Quarantine Risks to China. AQSIQ also produced a report covering Detailed Implementation of Early Warning and Rapid Response Regulations, on Animal and Plant Quarantine Risks.

Conclusions

The current system for ensuring food safety in China is changing rapidly. China's progress in establishing institutional support for food safety is reasonably good. Areas in which further improvement might be considered are as follows:

- Correcting legislative gaps and overlaps, perhaps passing an overall Food Law.
- Consolidating and then improving co-ordination between the domestic food inspection ministries.
- Increasing the penalties for violators of food safety laws.
- Improving the Emergency Response System.
- Improving the system for tracing problems to their point of origin.
- Improving the capacity to use the latest test methods.
- Improving testing capacity at the local level.
- Improving inspection coverage for China's numerous small food enterprises.
- Introducing a degree of self-regulation to industry.
- Harmonising food standards with international standards.
- Improving public recognition and acceptance of internationally recognised certification systems.
- Improving the registration systems for pesticides, fertilisers, animal feeds, and animal medications.
- Increasing the testing for residues of unsafe substances in food.
- Reorganising an "agricultural extension" system and refocusing it from training farmers on how to produce more food to producing safer food in an environmentally acceptable manner.
- Increasing the use of "key enterprises" to give technical assistance to farmers and quality assurance to consumers.
- Improving the generation of the data necessary for risk analysis.
- Improving skills in conducting risk analysis.

- Training food safety staff, both in China and abroad.
- Improving information sharing and co-operation between government, industry, consumers, the media, educational, and research institutions.
- Giving priority to solving problems that act as a bottleneck to exports and threaten domestic public health. These are the problems associated with:
  - Pesticide residues in food products of plant origin.
  - Animal drug residues in food products of animal and aquatic origin.
  - Bacterial contamination in all food products.
  - Control of animal diseases of international trade significance.

Acronyms and Abbreviations

ABC	Agricultural Bank of China
ACFSMC	All-China Federation of Supply and Marketing Co-operative
ADBC	Agricultural Development Bank of China
AGVA	Agricultural Gross Value Added
AQSIQ	National Administration for Quality Supervision, Inspection and Quarantine
ASEAN	Association of South-East Asian Nations
CCCPC	Central Committee of the Communist Party of China
CCTV	China Central TV
CEREOILS	China National Cereals, Oils and Foodstuffs Import & Export Corporation; now COFCO
CIF	Cost, Insurance and Freight
CITES	Convention on International Trade and Endangered Species
CNY	Yuan Renminbi
COFCO	China National Cereals, Oils and Foodstuffs Import & Export Corporation
CPC	Communist Party of China
CSE	Consumer Support Estimate
DRC	Development Research Centre of the State Council
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
FAOSTAT	FAO statistical database
FDI	Foreign Direct Investment
FOB	Free on Board
GAO	Gross Agricultural Output
GDP	Gross Domestic Product
GGBRS	Governor's Grain-Bag Responsibility System
GMO	Genetically Modified Organisms
GSSE	General Services Support Estimate
GVA	Gross Value Added
HACCP	Hazard Assessment Critical Control Point
HPRS	Household Production Responsibility System
ISO	International Standards Organisation
JGIEC	Jilin Grain Group Import and Export Company
MFN	Most Favoured Nation
MLR	Ministry of Land Resources
MOA	Ministry of Agriculture
MOF	Ministry of Finance
MOFCOM	Ministry of Commerce
MOFTEC	Ministry of Foreign Trade and Economic Co-operation; now MOFCOM

MOH	Ministry of Health
MPS	Market Price Support
MWR	Ministry of Water Resources
NBSC	National Bureau of Statistics of China
NDRC	National Development and Reform Commission
NPC	National People's Congress
NTBs	Non-Tariff Barriers
OECD	Organisation for Economic Co-operation and Development
OIE	International Office for Epizootics
PBC	People's Bank of China
PPP	Purchasing Power Parity
PRC	People's Republic of China
PSE	Producer Support Estimate
RCCs	Rural Credit Co-operatives
RCRE	Research Centre of Rural Economy
SARS	Severe Acute Respiratory Syndrome
SAGR	State Administration of Grain Reserves
SASAC	State-owned Assets Supervision Administration Commission
SEPA	State Environmental Protection Administration
SFDA	State Food and Drug Administration
SGA	State Grain Administration
SGEs	State Grain Enterprises
SINOGRAIN	China Grain Reserve Corporation
SMCs	Supply and Marketing Co-operatives
SOEs	State Owned Enterprises
SPS	Sanitary and Phytosanitary (measures)
STEs	State Trading Enterprises
TBT	Technical Barriers to Trade
TFP	Total Factor Productivity
TRQ	Tariff Rate Quota
TSE	Total Support Estimate
TVEs	Township and Village Enterprises
VAT	Value Added Tax
WB	World Bank
WTO	World Trade Organization

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