

IMPLICATIONS OF CHINA'S ACCESSION TO THE WORLD TRADE ORGANIZATION

By

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Abstract: China is in the midst of four types of structural transformations—command to market, agricultural to manufacturing and services, high fertility *cum* low longevity to low fertility *cum* high longevity, and closed to open. The last of these has been occurring for over two decades, and will accelerate with WTO accession. In the short and medium term, the changes that will result from joining the WTO, though significant in themselves, are modest in comparison to the trend resource reallocations that are already taking place due to the four continuing types of transformation. In general, the agricultural sector will suffer some disruptions, particularly in employment, though labor dislocations can be more serious in certain capital-intensive manufacturing sectors. Over the longer term, Chinese agriculture will develop along lines of its comparative advantage. Depending on the roles of foreign direct investment, local protectionism, and the private sector, industrial growth will either stagnate or grow rapidly. In all scenarios, Chinese trade with the Asian region will grow rapidly, especially in grain, textiles and apparel, automobiles, and electronics, and there will be a boom in domestic services. China's share of world trade may double.

Keywords: Accession to the WTO, structural transformation, trade liberalization, WTO Agreement on Textiles and Clothing, state-owned enterprise (SOE) reform.

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I. INTRODUCTION

The ability of China to raise per capita income by over 8 percent a year over the last two decades places it in a very small group of countries experiencing rapid economic growth. Rising standards of living, including lifting nearly 250 million people out of poverty, have been made possible through a factor-accumulation-based strategy that drew on China's immense labor resources, assisted by massive investments in physical capital and industrial infrastructure. Changes in incentives and organizations buttressed this strategy, and resulted in rising total factor productivity (TFP) averaging nearly 3 percent per year. In the 1990s, growth has slowed, reflecting a combination of macroeconomic and external sector policies and intensified structural bottlenecks. The regional economic slowdown since the beginning of the Asian financial crisis has also had an adverse effect. Visible urban unemployment (estimated to be about 9 percent of the workforce), factory closures and massive excess capacities in industry, price deflation, and a real growth rate that dipped to 7.1 percent in 1999 are some of these signs.

China's desire to join the World Trade Organization (WTO), despite fears that increased competition from abroad would cause further labor market stress, stems from the belief that the net gains in economic efficiency, employment and welfare will likely be positive in the medium and long term. Its negotiating stance on specific aspects of the accession protocols has reflected its desire to backload many of the projected adverse impacts on employment and income. Underlying these positions is a temporal view of how quickly robust and self-sustaining employment creation will follow from the massive structural changes taking place in the economy. In terms of economic management, the key issue is the authorities' ability to maintain the momentum of growth with the fiscal stimulus program until job creation accelerates, to provide social safety nets to alleviate labor dislocations, and to foster more balanced development in the Western Provinces.

This paper examines the implications of China's accession to the WTO for its economy, from sectoral, macro and structural perspectives, and for its major trading partners and global competitors.

II. FOUR TYPES OF STRUCTURAL TRANSFORMATION IN CHINA

Four major types of structural transformation have been underway in the Chinese economy. Each of these has profound implications for resource allocation, the distribution of income, and the relative emphasis given currently to specific aspects of economic policy. Briefly, these are:

- From a command economy to a market economy, a transformation that, *de jure*, started after the "opening" of China in 1978. It has been marked by the progressive deregulation of prices and resource allocation decisions. It has also been characterized by a shrinking role for the State in economic activity. The share of retail goods sold at prices fixed by the State fell from 97 percent in 1978 to 5 percent

in 1999; the share of agricultural goods sold at fixed prices fell from 94 percent to 23 percent; and the share of capital and industrial goods sold at fixed prices fell from 100 percent to 12 percent. Further, the share of the public sector in total fixed investment fell from 82 percent in 1980 to 53 percent in 1999. Similarly, direct funding of investment from the government budget declined from 30 percent to 6 percent over the same period.

- From an economy based mainly on agriculture to one based largely on manufacturing and services (see Appendix Table 1 for this trend). In 1980, agriculture accounted for 30 percent of total output. This had declined to 18 percent by 1999. The share of the workforce in agriculture fell over the same period from 69 percent to 50 percent. During the 1990s when the economy as a whole created 67 million new jobs, agriculture *shed* 31 million jobs, or roughly 3.4 million jobs each year. By contrast, services *added* 104 million jobs, or nearly 11.5 million jobs per year.
- From an economy with high-fertility and low-longevity, to one with a low-fertility and high-longevity demographic profile. The natural growth rate of the population has slowed from 1.2 percent per year in 1980 to 0.9 percent in 1999. Life expectancy rose from 67 years in 1980 to 70 years in 1998. The share of children (aged 14 years or below) in the total population had fallen from 35.5 percent in 1980 to an estimated 24.9 percent in 2000, while the share of the aged (aged 65 years or above) had risen from 4.7 percent to an estimated 6.7 percent over the same period.¹
- From a relatively closed to a relatively open economy. While imports and exports used to be controlled by 10-16 state trading firms, external trade is now conducted through well over 200,000 direct importers and exporters.² Although non-tariff barriers (NTB) distort China's trade regime, they are now estimated to have fallen to a tariff-equivalent level of 9.3 percent, covering 33 percent of China's imports. The average weighted tariff rate for the economy is now estimated to be 18 percent; nearly three-quarters of imports come in at zero, or close-to-zero, tariffs. As a result, China's trade (exports plus imports) as a share of GDP rose from 13 percent in 1980 to 44 percent in 1999. With on-shore foreign currency deposits of US\$128 billion, the second largest in the world after the United Kingdom, China's economy is more open than generally believed.

Any one of the above types of transformation could be expected to result in significant resource movements in an economy. In China they are occurring simultaneously. Given the nature of these transitions and the size of its economy, it is relatively easy to see that the resource reallocations that may be required as the country adjusts to a post-WTO accession world, while important, can only be small by

¹ The last census was completed in November 2000, but its results have not been made available. The figures for 2000 are estimates based on medium variant projections.

² Ianchovichina, Martin and Fukase (2000b).

comparison.³ Equally, it is difficult to judge the net impact of many impending changes. This refers not just to obtaining parametric estimates of the effects of various factors, but also in judging the direction of change (or, in the language of the economists, the “signs” attached to the parameter values). With a general caution, therefore, about relying excessively on numerical estimates of the likely effect of WTO accession, we also consider what the likely effects are, striking a balance between the quantitative results from a global trade model and the qualitative assessment of specific sectors.

III. EFFECTS OF WTO ACCESSION ON THE CHINESE ECONOMY

In this section, we examine the likely effects of WTO accession on the major sectors of the Chinese economy in terms of likely employment, output, and trade effects, and their broad implications for the economy as a whole and income distribution. However, to set the discussion in context, the section begins with a brief description of the trade liberalization measures that China is likely to introduce as a result of joining the WTO.

1. Main Features of Proposed Liberalization Measures

Since China applied for membership in the General Agreement on Trade and Tariffs (GATT) in 1984, it has been engaged in negotiations to enter into the multilateral trading arrangements that now characterize the WTO. It is in the final phase of these negotiations, and most observers and analysts expect membership of the WTO to occur in the first half of 2001. Although the specific details regarding the agreements China has struck with its trading partners are still not fully documented, there is sufficient information in the public domain to construct a broad picture of the liberalization measures that will be adopted.⁴ Table 1 summarizes the major features of the China-US agreement reached in November 1999, which may be regarded as the core of the likely final agreement.⁵

As Table 1 indicates, China has committed to a broad menu of market access measures, some of which become effective immediately upon accession. In many areas, the range of liberalization measures agreed surpasses efforts made in many developed and developing countries. Even commitments to the most general of WTO principles, such as unconditional most-favored-nation (MFN) treatment, national treatment, and transparency will result in major changes in economic practices of China.⁶ China’s obligations to more specific measures, such as reductions in tariff levels and time-bound phase-outs of trade-distorting practices, such as export subsidies and trading and

³ In conventional national output calculations, China’s gross national product (GNP) in 1999 was estimated at US\$980 billion, the seventh largest in the world. In purchasing power parity terms it was ranked second, with an estimated US\$4.1 trillion, half that of the United States, but a third larger than Japan’s.

⁴ For details see Martin (1999), United States Government (2000), and Addonizio and Bhattasali (2000).

⁵ China also reached an agreement with the European Union in May 2000.

⁶ In accordance with these general principles, for example, China will have to publish promptly all trade regulations and tariff rates and use price-based measures such as tariffs, rather than quotas, licenses and designated trading, to restrict imports.

distribution restrictions, will prompt further reform. Some will revolutionize the organization of business activity in China and the modes and intensity of government regulation. These include the requirements for transparency in the operation of state-owned enterprises (especially purchasing and sales), implementation of intellectual property regimes consistent with the Trade-Related Intellectual Property (TRIPS) agreement, customs valuation methods that are consistent with the Agreement on Customs Valuation, and judicial review of administrative decisions.

Table 1: Summary of Important Features of the China-US Agreement

Sectors	Agreements
Agriculture	Average tariffs reduced from 20 percent to 17 percent by January 2004. A tariff-rate quota (TRQ) system established for bulk commodities, with quota quantities increasing over time, and subject to tariffs between 1-3 percent. Export subsidies on cotton and rice eliminated. Foreign exporters given the right to sell and distribute their products directly to consumers.
Manufacturing	Average tariffs reduced from 18.5 percent in 1998 to 9.4 percent by 2005, phased in linearly, with large cuts for automobiles, high tech products, wood, and paper. Quotas and non-tariff restrictions eliminated within 5 years (and most in 2002-03). Foreign firms given full trading and distribution rights for imported goods.
Services	<i>Telecommunications:</i> All geographic restrictions on services phased out in 2-6 years. 49 percent foreign ownership allowed in all services on accession, rising to 50 percent in some sub-sectors in 2 years. <i>Banking:</i> Foreign banks allowed to conduct RMB business with Chinese enterprises after 2 years of accession, and retail business after 5 years. Non-bank firms allowed to offer auto financing on accession. <i>Insurance:</i> Geographic and service restrictions phased out over 3-5 years. 50 percent foreign ownership in life insurance and 51 percent ownership in non-life insurance permitted on accession. Reinsurance made fully open on accession. <i>Securities Business:</i> Foreign firms allowed to hold minority stakes in securities funds, with shares rising from 33 percent initially to 49 percent after 3 years. <i>Distribution and Sales:</i> Foreign firms with existing domestic investments allowed to undertake wholesale business with a Chinese partner on accession. Foreign invested retail business permitted in a limited number of major cities on accession, and all quantitative and geographic restrictions removed by January 2003. Foreign firms allowed full access to import and export rights 3 years after accession.
Textiles and Clothing	Import quotas on China's textiles and clothing exports eliminated by end-2005, subject to anti-surge provisions through 2008.

Source: International Monetary Fund.

The major liberalization measures include:

- Full market access for foreign firms to distribute their products in China.
- Tariff reductions immediately upon accession, with further phase-ins over an eight-year period. For example, the average tariffs for all agricultural products will be reduced from 20 percent in 1998 to 17 percent by 2004, and the average tariffs on all manufactures will fall from 18.5 percent in 1998 to 9.4 percent by 2005.

- Bindings of all tariffs and elimination of quantitative restrictions (quotas, licenses and designated trading). A tariff-rate quota (TRQ) system will be established for bulk commodities (including wheat, cotton and rice), with quota quantities rising over time, and subject to tariffs between 1-3 percent. Quotas and non-tariff barriers will be eliminated within 5 years (and most within 2-3 years) after accession.
- More open services sectors, including finance (banking, non-bank firm financing, securities, and insurance), value-added telecommunications, distribution and sales, tourism, construction, professional and business services, and audio-visual services.
- Immediate resolution of outstanding problems with sanitary and phyto-sanitary standards.

Table 2: Weighted Average Tariffs in China with and without WTO Accession

	Without WTO Accession (%) ^(a)	With WTO Accession (%) ^(a)
Foodgrain ^(b)	0.00	0.00
Feedgrain ^(b)	6.03	6.03
Oilseeds ^(b)	4.16	4.16
Meat and livestock ^(b)	10.14	10.14
Dairy ^(b)	26.74	26.74
Other agriculture ^(b)	22.09	22.09
Other food	27.68	27.68
Beverages and tobacco	123.50	20.38
Extractive industries	3.59	1.26
Textiles ^(c)	57.10	9.39
Wearing apparel ^(c)	75.99	14.85
Wood and paper ^(c)	21.57	4.80
Petrochemicals ^(c)	20.17	6.94
Metals ^(c)	17.52	6.22
Automobiles ^(c)	129.07	13.76
Electronics ^(c)	21.69	3.44
Other manufactures ^(b)	23.53	6.74
Agriculture total ^(b)	17.09	16.88
Manufactures total ^(c)	24.27	6.95
Total	21.41	7.85

Note: (a) The tariff rates are the stated rates on imports that are subject to tariffs. As many imports enjoy duty exemptions currently and are expected to continue to do so with WTO accession, these stated rates overstate the actual rates. The rates without WTO are for the year 1995.

(b) The degree of agricultural protection is assumed to be virtually unchanged with WTO accession.

(c) The table highlights the large “offer” made by China on manufacturing protection.

Source: Ianchovichina, Martin and Fukase (2000b).

Table 2 summarizes China’s likely weighted average tariff rates with and without WTO accession. Despite considerable difficulty in quantifying the degree of protection in agriculture, rates of pre-WTO protection are assumed to be sustained after accession, because the bindings are estimated to be above the previously applied protection rates. For industrial products, average tariffs on imported manufactures that are subject to tariffs drop from 24 percent to 7 percent. Rates of protection of beverages and tobacco,

textiles and apparel products, and automobiles fall dramatically. Overall, China's WTO offer lowers the average tariff protection on imports from 21 percent to 8 percent.⁷

On the export side, China will receive MFN treatment from many WTO members. The most important change will be the elimination of import quotas that fall under the WTO Agreement on Textiles and Clothing (previously known as the Multi-Fibre Agreement, MFA). This means that China will be allowed to expand its export of textiles and clothing without facing the importers' quota restrictions, starting at end-2005.⁸

It is evident that "preparing" the Chinese economy for WTO accession involves a large number of reforms, not just in the way business is conducted but also in the legal and regulatory frameworks in which they operate. Such preparatory measures will be most important in the services sector, which labors under considerable government restriction at present, and where the most important market segments are dominated by state monopolies. In addition, in sectors such as manufacturing and finance, rapid regulatory development is necessary as liberalization proceeds and competition in the domestic market intensifies.

2. Effects on the Chinese Economy: Sectoral Analysis

We start with an assessment of the likely trends in the three major sectors—agriculture, manufacturing and services. The discussion below highlights the main expected effects in the short term as well as in the medium to long term.

Table 3 provides a summary of quantitative information concerning the medium-term impact of China's WTO accession on the values of output and wage bills in various disaggregated sectors of the economy. It shows the baseline values for 1995 and 2005 without WTO accession as well as projected values for 2005 with WTO accession. The table draws on the results obtained by Ianchovichina and Martin (2001), who applied the GTAP model of global trade to an aggregated version of Version 4 GTAP database.⁹

⁷ It is well established that imports of intermediate inputs and capital goods are exempted from duty if they are used for export processing or for other export-related activities. As a result, the actual tariff collected is much smaller than what the stated tariff rates would imply. The pre-WTO tariff rates summarized in Table 2 are the stated rates on imports that do not benefit from duty exemptions and, hence, overstate the actual rates of protection. When we assess the quantitative impact of China's WTO accession in Section IV, we explicitly consider duty exemptions in the GTAP model.

⁸ This impact will be significant, given that China was excluded from the Uruguay Round Agreement on Textiles and Clothing. Most quotas for China's exports of textiles and clothing will be phased out over five years, and special textile safeguards introduced under the agreement will be phased out over eight years. See Rosen (1999) and United States Senate (2000).

⁹ The GTAP model (Hertel, 1997) is used widely for trade policy analysis. It is a standard global general equilibrium model that assumes perfectly competitive markets and constant returns to scale technology. A representative household that allocates disposal income between consumption and savings according to a Cobb Douglas utility function governs each country's final demand. Land, labor, capital, and natural resources in a country are fixed and fully employed, though they are mobile (except for natural resources) across sectors within a country. The returns to these factors of production accrue to the households (i.e., factor owners) in the country in which they are employed. Product differentiation among imports from different countries and between imports and domestic goods allows for two-way trade in each product category, depending on the ease of substitution between products from different countries. The GTAP

This data base combines detailed bilateral trade, transportation and protection data accounting for international linkages between China and other economies and the 1995 input-output data accounting for inter-sectoral linkages within each economy.

**Table 3. China's Output Values and Wage Bills due to WTO Accession:
1995-2005 (Millions of US Dollars at the 1995 Prices)**

	Value of Output			Wage Bills Skilled Labor			Wage Bills Unskilled Labor		
	1995	2005		1995	2005		1995	2005	
		w/o WTO	w/ WTO		w/ WTO	w/o WTO		w/o WTO	w/ WTO
Foodgrain	63,277	92,575	91,436	0	0	0	18	22	22
Feedgrain	10,878	14,022	13,804	0	0	0	43	46	46
Oilseeds	4,014	5,315	5,311	2	2	2	196	216	216
Meat and livestock	72,163	126,285	130,832	9	14	14	719	1,017	1,059
Dairy	3,640	6,366	6,712	0	0	0	5	7	7
Other agriculture	74,656	114,373	111,984	7	10	10	920	1,182	1,157
Other food	34,773	52,334	52,786	26	23	23	122	80	80
Beverages and tobacco	29,370	53,071	33,423	6	6	4	42	32	20
Extractive industries	104,543	169,254	167,477	46	76	74	960	1,487	1,461
Textiles	83,176	142,729	156,370	107	113	123	654	492	535
Wearing apparel	40,319	63,301	146,560	260	266	609	1,887	1,368	3,130
Wood and paper	45,034	91,689	87,320	64	82	78	384	347	328
Petrochemicals	203,375	418,545	403,902	165	190	182	879	715	684
Metals	128,942	303,917	291,668	108	141	135	607	560	534
Automobiles	25,668	74,335	24,693	4	6	2	22	24	7
Electronics	35,957	87,195	96,760	180	249	274	879	860	946
Other manufactures	243,018	563,073	548,006	977	1417	1369	5,310	5,452	5,267
Utilities	81,236	165,072	163,447	7	7	7	19	13	13
Trade and transport	229,835	484,723	492,767	323	325	327	1,422	905	909
Construction	131,809	326,756	328,205	--	--	--	--	--	--
Business and finance	88,115	180,283	180,724	409	517	515	594	531	529
Government services	81,983	151,668	152,406	276	431	431	180	199	199

Note: The expression w/o WTO means the case of no WTO accession and w/ WTO means the case of WTO accession.

Source: Background data in Ianchovichina and Martin (2001).

In addition to such quantitative information, some qualitative information is also provided and assessed in this section.

2-a. Agriculture

With half the national work force and nearly one fifth of national output currently, the degree to which agriculture will be affected by accession is of great importance. However, it is not an easy task to assess the impact on agriculture because of the lack of

model is solved in order to determine the changes in output and trade flows as a result of the proposed trade policy changes. The model maintains all of the restrictions imposed by static economic theory: global savings equal global investment and are allocated across countries in order to equate expected rates of return (without affecting capital stock); changes in consumer demand add up to changes in total spending; each country's total exports equal total imports of these goods by other countries, less shipping costs; and each country's income consists of consumption, investment, government spending, and net exports.

complete information and clarity concerning agricultural protection. In accordance with its schedule of commitments, China will lower tariffs partially on agricultural products upon accession, and phase in further reductions within five years. At the end of this period, it will lower its overall average tariff by more than half, and several non-tariff barriers will be eliminated. However, it will continue to maintain tariff-rate quotas (TRQs) for several key agricultural products. It will continue to use a state trading system to restrict external trade in grains (wheat, maize and rice), soybean oil, and cotton. Therefore, the effect on actual protection levels is difficult to estimate. Table 3 assumes that the same level of protection is maintained in agriculture in the medium term following WTO accession.

As with the other sectors, WTO-related liberalization will bring both obstacles and opportunities for agriculture. In the short run, the maintenance of a TRQ system will likely mitigate the liberalization pressure, and the persistence of international barriers to China's agriculture will prevent the full exploitation of benefits. In comparison to the case of no WTO accession, Table 3 indicates that WTO accession has a positive impact on meat and livestock while it has a negative impact on other agriculture. The net aggregate impact on the agricultural sector as a whole, while varying across provinces, will be slightly positive. Over the longer term, increased liberalization in China will accelerate the shift of agriculture away from areas of comparative disadvantage towards its comparative advantage. There is likely to be a more pronounced decline in the production of land-intensive sectors, such as grains and cotton, and an increase in the production of more labor-intensive agricultural sectors, such as livestock, fruit, flowers, and vegetables. Liberalization of global agricultural barriers should augment this trend, as it provides China with increased access to other countries' markets in return for its remarkably large concessions.

Actual trade and output patterns, however, are affected by many more factors than just trade liberalization. Therefore, the degree to which farmers experience a change in income due to WTO entry will depend on many factors. For example, farming in China is increasingly a part-time occupation. To the extent farmers have access to off-farm employment, which varies by province, they will be able to supplement farm incomes in varying degrees. Further, the international community has committed to liberalize textiles and apparel, which will benefit Chinese farmers in these sectors. These additional employment opportunities will increase farmers' income, thereby mitigating the negative impact of WTO entry on some inefficient sub-sectors within agriculture.

All of this points to the need to take a comprehensive view of WTO accession effects. Some quantitative estimation of economy-wide effects has yielded indicative results of the magnitude and direction of change. One caution is that the incomplete information base and sometimes unavoidably crude assumptions on which such modeling exercises were conducted suggest the potential for a wide margin of errors in terms of the quantitative estimates of the WTO accession impact.¹⁰ Nonetheless, the models suggest

¹⁰ Although there is nothing technically wrong with the models applied so far to the quantification of WTO effects, none of them are based on information regarding the actual commitments made by China. Several rely on heroic assumptions subsequently disproved by new data. See Wang (1997), People's Republic of

that the use of TRQ could provide transitional protection to farmers, as the quotas are likely to fill quickly (after which tariffs at high levels come into play).¹¹

For specific products, the likely outcomes are as follows:

- **Wheat**—Per capita wheat consumption in China is as high as in many developed countries. It is likely, therefore, that the growth of wheat consumption will be modest. Production levels have fallen in recent years, given a sharp drop in prices. China now sees net import levels of 7-8 million tonnes per year. Changes in domestic consumption patterns suggest that the substitution of homegrown wheat with imports is likely, so production can be expected to fall and imports expand.
- **Maize**—Domestic prices for maize have also fallen, but are still above international prices. High cost maize production has been sustained by active government procurement policies, motivated by food security considerations. Lately, domestic production has fallen back from the record levels achieved in 1998, but China is a net exporter of maize. This may not last, however, as large procurements have taken their toll on government finance, and the overhang of government and private stocks continues to depress the price. Further production declines are likely. As four-fifths of maize is used as feed in the livestock industry, which continues to experience strong domestic and regional growth, imports are projected to rise. Again, the TRQ is expected to bind quickly, offering some transitional protection to production of this crop.
- **Rice**—Domestic prices are low relative to those in international markets, and have been falling. The quota under the TRQ established for rice is fairly large, and surpasses by far the historic levels of rice imports in China. As such, it is unlikely that the TRQ for rice will bind. Nevertheless, given China's low prices, WTO accession is unlikely to have a negative effect on farmers. In fact, with increased trade liberalization globally, China could expand its exports of rice, resulting in higher returns for rice producers.
- **Soybeans**—There is no TRQ for soybeans, and the domestic price is close to border prices. Although there is little direct import competition for soybeans, there will be competitive pressure from the maize sector after accession. Maize, protected by TRQ, is the primary crop that competes with soybeans for resources. As maize imports exceed the TRQ, their prices could soar to about 165 percent of the import price, while soybeans prices are likely to remain at international levels.

In sum, the short run effect of WTO entry on agriculture is likely to be small. The observed and projected declines in crop production will not have a visibly adverse effect

China (1998), Rosen (1999), Huang and Chen (1999), Ianchovichina, Martin and Fukase (2000a, b), and Ianchovichina and Martin (2001) for some of the more useful estimates.

¹¹ This is another reason that Table 2 assumes the same degree of agricultural protection with or without WTO accession.

on agriculture, because farm incomes could well rise once the TRQ bind.¹² Over the long run, as China further liberalizes its market and the quota size increases, trade patterns increasingly should mirror China's comparative advantage. China has a low ratio of capital stock and of arable land relative to labor. As China has liberalized its economy over the past several years, its external trade patterns have increasingly followed its comparative advantage. Even while the share of agriculture in China's total trade has fallen from above 20 percent two decades ago to below 8 percent in 1999, traded agricultural products increasingly consist of labor-intensive exports and land-intensive imports. For example, horticultural and animal products, which are labor intensive, have steadily risen in their share of exports from about 45 percent to 78 percent over this period. Over time as a member of the WTO, the share of land-intensive commodities in China's imports is likely to rise.

An important, and possibly beneficial, effect over the long run will be the inability of the Government to maintain prices higher than international levels through the national procurement system. For example, if China produces more of any grain than is needed to meet domestic demand, it must either export the surplus or add to its stocks. Under the accession protocols, China has committed not to use export subsidies. Maintaining high stocks even at current levels is too costly for the public exchequer, which accounts for a procurement level that is well below the benchmark targets established since 1996. In this way, domestic prices must be reduced and converge to world market levels. If the grain trade is in balance, domestic prices cannot deviate significantly from border prices without an increase in imports, which when added to domestic supply would put downward pressure on prices. Thus, in the long run, an environment is being created whereby China's agriculture will develop along lines of its comparative advantage. This is welfare enhancing, and a significant resource use advantage that China will enjoy over other developed and developing countries that have chosen to protect their increasingly inefficient agricultural sectors.

Concerning the long run impact on China's post-WTO agriculture, the studies cited in footnote 10 would suggest that after approximately five years following accession, the profitability of grain production, especially wheat and maize, would decline. This decline will likely reduce grain output, the incomes of farmers in grain production, and employment. Over a ten-year projection horizon, there will be a dramatic increase in grain imports, with rice being the exception, given its competitiveness in international markets.

2-b. Manufacturing

¹² This assessment is in contrast with that of Zhai and Li (2000), who estimated that about 13 million workers would be released in rural areas over the next five years, mainly producing wheat (5.4 million), cotton (5.0 million), and rice (2.5 million). However, these figures appear to be exaggerated because their computation does not take into account: the protective nature of the TRQ bind; the low price of rice in the domestic market; the ease with which farmers shift their product mix away from those negatively affected by WTO accession towards those positively affected (such as non-grain, non-cotton crops, livestock, fruit, flowers, and vegetables); and the availability of off-farm income-earning opportunities.

Several key characteristics of China's manufacturing sector make it apparent that WTO accession will cause greater impact here than in agriculture. Tariff rates on manufacturing imports that are subject to tariffs without duty exemptions will fall sharply from an average of 24 percent in 1997 to 7 percent within five years of accession (see Table 2). Within this total, tariffs on information and communications technology (ICT) products (for example, computers, semi-conductors) will be eliminated, compared to an average tariff of about 13 percent today. Auto tariffs will be cut from 80-100 percent today to 25 percent by 2006. Auto parts will come down to an average of 10 percent. Such changes could be expected to have a significant effect on foreign direct investment, especially when seen in the light of the proposed liberalization of the services sector.

As pointed out by Naughton (2000), manufacturing trade is characterized by a marked dualistic structure, that is, a liberal export processing regime and a protected trade regime. The incentive-based export-processing regime, which covers goods produced entirely for export and often dominated by foreign invested enterprises, accounted for 48 percent of exports in 1999 and 53 percent of imports. Imports of intermediate inputs and capital goods are duty free. However, its domestic value added is typically below 20 percent of export value. The trade regime for other products, which covers products traded mainly by state-owned enterprises and collectives, remains quite restrictive with high tariffs and non-tariff barriers, including restrictions on trading rights and distribution. A range of companies with trading rights manages such trade, and it is here that most of China's trade liberalization measures have been concentrated in recent years. Also, it is this segment of the trading regime that will bear the brunt of the post-accession liberalization of tariff and non-tariff barriers. However, the rationale for continuing with the existing export processing regime will also be eroded with the general reduction of such barriers in China.

There is a distinct difference in ability between medium-sized and large-sized firms, when benchmarked to international standards. The former have typically operated in more competitive domestic markets, are fast growing, have aggressively entered foreign markets, and most importantly, have evolved flexible cost structures that permit them to compete.¹³ On the other hand, the larger firms are far behind their global competitors, and the gap has been widening.¹⁴ Thus, despite their size, "legacy positions," and the WTO transitional rules, they may expect wrenching competition in the medium to long term.¹⁵

Since 1993, Chinese manufacturing has entered a period of severe retrenchment and restructuring, reflecting the effects of a policy-induced slowdown in the macroeconomy, high levels of domestic and foreign competition as trade liberalization accelerated, and the slowdown in the regional and world economy at the time of the

¹³ Some examples of such firms are TV manufacturers TCL and Konka, automotive manufacturers Qingling and Brilliance China, and Legend, China's leading manufacturer of PCs.

¹⁴ See Nolan (2000) and McKinsey & Company (2000) for comments on the state of readiness of Chinese firms.

¹⁵ Such firms dominate the electrical equipment, oil and petrochemicals, aerospace, metallurgical, chemical and pharmaceutical industries.

Asian financial crisis. Large excess capacity exists in manufacturing but, due to the structure of the labor market, excess labor is still carried on the books of many firms. Profitability is low in most segments, including textiles, automobiles, beverages and tobacco, which are given high levels of protection. Except for a few sectors with solid market leaders, entry into the WTO can be expected to accelerate the process of consolidation in these industries.

In view of the above, further trade liberalization in the context of WTO entry will adversely affect profitability in several manufacturing sub-sectors and firms in the short to medium term, and will affect employment quite severely in others as well over a longer period. At the outset, some of the capital-intensive industrial sector such as automobiles, petrochemicals and metals will suffer, with additional labor unemployment in these industries ranging as high as 12 percent of their existing workforce. A second tier of adverse effects is expected in the energy, processed food and pharmaceutical sectors, where a surge of competition from well-positioned foreign firms is expected. Foreign firms' market shares would likely increase most rapidly in this segment of the manufacturing sector. In contrast, the electronics sub-sector is expected to gain as a result of China's WTO accession.

A significant boost to the Chinese economy is expected to come from the phase-out of the WTO Agreement on Textiles and Clothing (the previous MFA) by 2005. As China is the world's largest textile producer and exporter, the potential gains are enormous. The growth of textiles and apparel exports has been slowed by the fact that, due to its exclusion from the Uruguay Round Agreement on Textiles and Clothing, it could not benefit from quota growth on the importers' side as much as other manufacturing countries. According to Table 3, China's wearing apparel output and wage bills rise by 130 percent. Textiles sub-sector also expands.

2-c. Services

By far the most dramatic changes in China's employment, consumption and production structure are expected to come from the projected boom in the services sector following WTO accession. Although many services have grown rapidly since the Government officially initiated promotional policies in 1992, there is large variability in the quality and cost of services. More significantly, measured services are estimated to be about 33 percent of GDP, well below China's income comparators, although somewhat to be expected because of the lagged development of consumer services in socialist economies. In addition, there are large gaps in the provision of basic producer services.¹⁶

¹⁶ There are, however, serious measurement problems. Many producer services are wrongly attributed to manufacturing sector value added. Although this is a common problem for national account statistics all over the world, it is especially troublesome in China. Firms in this country have traditionally performed a range of functions in-house that in more developed or market-oriented economies would be delivered by specialized services sector enterprises (for example, sales, marketing, logistics management).

A fundamental reason for the under-development of China's services sector is economic: *a highly restrictive policy regime for services delivery that does not allow it to respond effectively to the growing demand for services*. As most services are tightly managed and controlled by the Government, the dominant services providers are able to operate with great monopoly power (for example, banking, insurance, telecommunications, passenger air transport, and railways). In other areas such as housing, health care, urban transport, and education, there is a strong emphasis on social welfare dimensions. This often results in high policy-induced barriers to entry and price regulation that seldom promote resource use efficiency, product innovation or quality improvements, and often undermines desirable social welfare outcomes (for example, in the areas of banking, insurance or health care). In addition, low rates of urbanization, labor market skills and mobility, the development of Hong Kong as a major provider of services to Mainland China firms (mostly internationally benchmarked for quality) are also factors in the slow growth of services. The result has been inadequate and poor quality services accompanied by ever rising prices.

China has promised far-reaching liberalization measures in the services sector as has been seen in Table 1, and these are expected to have a notable effect. A substantial liberalization of the financial sector is expected, with foreign banks allowed to conduct *renminbi* (RMB) businesses with Chinese firms and, at a later stage, with retail customers. Restrictions on foreign participation in the securities business, auto financing by non-bank firms, and the fast growing insurance business will also be substantially reduced. With the foreign market shares in these sectors extremely small currently (e.g., in mid-1999, foreign banks accounted for 1.6 percent of bank assets), such developments represent potentially enormous changes. In the initial stages, foreign banks are likely to focus on servicing the RMB needs of foreign firms and a few domestic blue chip enterprises. The scope of their businesses will be limited, however, due to the lack of a deposit base, retail networks, and the under-developed interbank market. The main risk to domestic banks is that their best borrowers can migrate to foreign banks, thus worsening the overall quality of their assets. Foreign institutions' entry into financial services will undoubtedly require major reforms on the part of domestic institutions and regulatory frameworks.

In the telecommunications sector, all segments will be progressively liberalized, including value-added and paging services, mobile voice and data services, domestic and international services and, to a lesser degree, internet and satellite services. By far the most significant liberalization measures are those that will affect transport, domestic trade and logistics management, as China allows foreign entry into distribution. All restrictions on distribution services for most products will be removed within three years after accession.

The nature of services (for example, intensive customer interface, labor intensity, high domestic content) implies that the growth of this sector has direct and favorable effects on employment creation in the broader domestic economy. With improved labor mobility in the Chinese economy, both the efficiency and welfare gains are expected to be large. This may explain why almost all the credible quantitative models of the post-

WTO economy suggest that the wages of unskilled workers in China will grow between 60 and 90 percent faster than those of skilled workers, despite large-scale retrenchment in manufacturing and a secular decline in agricultural employment. Elements of the coming services revolution not captured in current analyses, however, include the *level* effect that liberalization and foreign entry can be expected to have on the entire cost structure of manufacturing and consumption activity in China, and the *growth* effect that the high-quality services content, especially knowledge, embodied in consumer and producer goods (as well as in other services) may bring about in the economy.

2-d. The role of foreign direct investment

One additional economy-wide effect is worth highlighting. There is at present a lively and interesting debate on the effect that WTO accession will have on the volume of and environment for foreign direct investment (FDI) in China. Specifically, the question is whether the investment regime becomes rules-based, as opposed to the widely-perceived “relationships-based” regime that exists. Undoubtedly, entry into the WTO will require the amendment of laws, regulations and practices to align them with a number of international investment related rules—the General Agreement on Trade in Services (GATS), the agreement on Trade-Related Investment Measures (TRIMS) and the agreement on Trade-Related Intellectual Properties (TRIPS). However, as noted by several observers, there are significant gaps in the WTO investment rules.¹⁷ Therefore, our assessment of the situation would suggest that, although FDI can be expected to increase sharply following entry in the WTO, this would be due mainly to increases in market opportunities. It is unlikely, therefore, that there would be a fundamental shift to a rules-based investment policy regime, not because of China’s unwillingness but the limited effect that the WTO has on investment policies anywhere.

3. Macroeconomic and Social Impact

Not surprisingly, trade liberalization initially is expected to have a negative, though modest, impact on China’s aggregate output.¹⁸ GDP growth would be about 0.25 percentage point lower than the baseline a year after WTO accession, but thereafter exceed the baseline forecast by increasing amounts. Initially, the negative impact of trade liberalization on output would be offset partly by the expansionary effect of greater foreign direct investment and larger exports. After 3 years, however, GDP growth would be boosted by higher total factor productivity (TFP) growth as corporate restructuring and state-owned enterprise (SOE) reform begin to bear fruit, and later by an increasing boost from the textile and clothing sector as textiles and apparel exports are expected to rise.

¹⁷ In manufacturing, there are no transparency commitments required for policies currently in place related to investment, nor are there any principles of non-discriminatory treatment or protection from expropriation without compensation. In services, the agreed performance requirements for the goods-producing sectors with respect to minimum standards of treatment, non-discriminatory treatment, transfer of funds or transparency may not apply. National treatment of foreign firms is only substantive in the GATS.

¹⁸ This projection is based on the International Monetary Fund (IMF).

Together with the initial, modest fall in output, labor market pressures could increase in the short run, especially in the capital-intensive manufacturing sector and, to a lesser extent, in the agricultural sub-sectors. The released workforce needs to be re-employed in other sectors. Rural farmers on marginal land could be seriously affected, resulting in greater poverty. In urban areas, given the already existing labor market pressures, the scope for re-employment could be limited in the manufacturing sector until textiles, apparel, and other emerging sectors begin to be active. Most of the manufacturing sector labor force to be released will have to be re-employed in the expanding services sector, which will mitigate the unemployment pressure.

To the extent that labor dislocations emerge at least in the initial stage, therefore, WTO accession may exacerbate income distribution. The export intensive coastal provinces will gain, while the inland provinces—which contain the bulk of grain production and capital-intensive SOEs—may not gain much or lose. Rural-urban income disparities may widen. This requires further efforts to strengthen the social safety net and to foster regional development in the inland provinces.

Three broad conclusions that are relevant for policy can be drawn from the macroeconomic and social impact:

- WTO accession is unlikely to lead to significant pressures on GDP growth, aggregate employment, or the external accounts in the short run.
- If developments were markedly unfavorable—for instance, if foreign direct investment (FDI) did not increase much or if labor dislocations were serious—GDP growth would be marginally lower (about 0.5 percentage point lower in 1 to 3 years after WTO accession), while the overall balance of payments would still remain in significant surplus.
- In the initial period before the beneficial effects of higher TFP growth and textile and clothing export growth are felt, there is a possibility of rising labor market dislocations, mainly from the capital-intensive manufacturing sector as well as the grain producing agricultural sector.

IV. QUANTITATIVE EFFECTS ON THE GLOBAL MARKETS

China's WTO accession is expected to have significant impact on the competitive position of China and the rest of the world in the global markets in certain highly affected sectors and on their incomes. This section provides detailed quantitative estimates from a global market point of view by taking into account the likely effect of China's liberalization measures and the *quid pro quo* changes expected of other countries.

1. Sectoral Impact in China: Quantitative Assessments

Table 4 summarizes the implications of the baseline growth scenario and the WTO liberalization scenario for China's share of world output, export and import markets at sector levels. It draws heavily on the results obtained by Ianchovichina, Martin and Fukase (2000b), who used the GTAP model of global trade (see footnote 9 for explanation of the GTAP model).

Table 4: Global Impact of China's WTO Accession on Major Sectors in China

	China's Output as a Share of World Output (%)			China's Exports as a Share of World Exports (%)			China's Imports as a Share of World Imports (%)		
	1995	2005		1995	2005		1995	2005	
		w/o WTO	w/ WTO		w/o WTO	w/ WTO		w/o WTO	w/ WTO
Foodgrain	14.3	19.6	19.4	0.3	0.1	0.1	6.5	16.4	16.0
Feedgrain	8.3	10.6	10.4	0.7	0.1	0.1	3.2	9.2	9.1
Oilseeds	5.1	6.2	6.3	4.1	0.8	0.7	1.2	3.9	4.0
Meat and livestock	6.7	11.6	12.1	3.5	0.5	0.5	2.0	8.9	9.6
Dairy	0.8	1.3	1.4	0.1	0.0	0.0	0.2	0.6	0.6
Other agriculture	10.6	15.7	15.4	2.3	0.4	0.4	2.7	9.6	9.8
Other food	2.3	3.2	3.2	2.6	1.2	1.3	3.1	6.4	6.2
Beverages and tobacco	4.9	7.0	4.4	2.4	1.0	1.0	0.9	1.3	16.2
Extractive industries	8.1	12.3	11.9	1.7	0.1	0.1	1.6	9.1	8.5
Textiles	10.8	13.9	14.2	8.4	8.8	10.6	13.4	18.0	25.5
Wearing apparel	7.0	8.8	20.1	19.6	18.5	47.1	1.0	1.1	3.7
Wood and paper	2.4	3.7	3.4	2.2	2.6	3.0	2.6	3.9	4.6
Petrochemicals	5.0	7.6	7.1	2.6	3.1	3.4	4.0	5.8	6.3
Metals	5.5	9.0	8.4	3.4	5.5	6.5	4.2	5.8	6.6
Automobiles	1.9	3.8	1.1	0.1	0.7	2.2	2.0	1.8	4.8
Electronics	2.6	4.5	4.8	5.0	7.8	9.8	3.6	5.3	5.7
Other manufactures	6.4	10.4	9.8	5.5	8.1	9.9	4.2	5.9	7.5
Utilities	2.7	3.9	3.8	5.8	6.7	7.5	1.2	1.7	1.5
Trade and transport	2.6	3.7	3.7	1.7	2.8	3.1	2.0	2.4	2.2
Construction	3.3	6.2	6.1	0.0	0.0	0.0	1.8	2.8	2.7
Business and finance	0.9	1.3	1.3	1.9	2.5	2.7	1.5	2.0	1.8
Government services	1.6	2.4	2.3	1.0	0.6	0.7	0.7	1.3	1.2
Total	3.4	5.3	5.1	3.7	4.8	6.8	3.4	5.3	6.6

Note: (a) The expression w/o WTO means the case of no WTO accession and w/ WTO is the case of WTO accession.

(b) The model assumes the presence of concessional imports in the form of duty exemptions.

Source: Ianchovichina, Martin and Fukase (2000b).

The table demonstrates the rapid growth in China's share of world output, exports and imports even in the absence of WTO accession.¹⁹ Without accession, China's total share of world output is projected to rise from 3.4 to 5.3 percent over the decade, its share of exports from 3.7 to 4.8 percent, and its share of imports from 3.4 to 5.3 percent. While the accession offer has almost no impact on China's share of world output, it has a large positive impact on the share of world trade. With implementation of the accession offer,

¹⁹ Changes in consumption patterns and costs in the world drive this result, which is noted by Wang (1997) and People's Republic of China (1998). One important property of the baseline scenario is the rapid growth of China's output shares in the global market for almost all agricultural products. This is based on the assumptions of high rates of population growth (0.83 percent per year), strong income growth (7.4 percent per year), and high income elasticities of demand for agricultural commodities and food.

China's share of world export markets rises to 6.8 percent, and of world import markets, to 6.6 percent.

At the sectoral level, the overall impact of China's WTO accession on agriculture is limited. China's agricultural exports face a more restrictive international trading environment than do its manufactures.²⁰ Clearly, with reciprocal arrangements and emergence of better rules for world trade in agriculture, such restrictions can be expected to decline in size. In these circumstances, given China's large cost advantage in the production of fruit, flowers, and vegetables, its exports may be expected to make major inroads into regional markets.²¹

The most important impact of WTO accession on China's share in world output is observed in beverages and tobacco (negative), wearing apparel (positive) and automobiles (negative). China's share in world output for beverages and tobacco declines sharply due to the fall in protection of these products, with the resulting rise in imports. China's share in world output for apparels rises dramatically because of the lifting of the burdens imposed by the quota restrictions on China's exports and by China's high cost structure in the industry. China's share in world output for automobiles declines sharply.²² Not surprisingly, China's shares of world export markets for apparel, textiles, electronics, and other manufacturers rise dramatically due to WTO accession. There is scope for high-tech sectors to grow, as reflected in the expansion of the electronics sector

On the import side, China becomes a much bigger market for its trading partners. Interestingly, China's import shares in the world market for textiles, apparel, automobiles, other manufactures are expected to rise significantly. WTO liberalization clearly expands opportunities for intra-industry trade in many manufacturing sectors, particularly in textiles, automobiles, electronics, and other manufactures. In these sectors, even though the output shares may not rise significantly, both export and import shares rise, implying that greater import demand may be export-driven. Important is the fact that greater intra-industry trade benefits not only China but also its trading partners.

2. Sectoral Impact on Japan, North America, the EU, and Developing Economies

Attempts are made to quantify the sectoral impacts of China's WTO accession on major developed and developing countries or regions.

²⁰ As pointed out by Martin (1999), on average China's agricultural goods face restrictions that approximate a tariff of 32 percent in regional markets, compared to about 8 percent for its manufactured exports.

²¹ In this connection it is useful to note the behavior of foreign investors in agro-industrial fields, mainly from the region and chiefly from Japan, who have flooded into the coastal provinces of China since early in 2000.

²² The automobile industry is currently very inefficient due to the excessive entry into the sector in the presence of protection. The inefficiency will be eliminated by the removal of protection and the resulting increase in the size/scale of automobile firms. Once this takes place, China's automobiles sector will be able to cope with foreign competition and expand output and exports. Unfortunately the GTAP model does not capture greater efficiency due to scale economies.

Tables 5a and 5b show China's real imports, measured at the 1995 prices, due to WTO accession over the period 1995-2005, both by source and sector. The estimates suggest that China's entry into the WTO will provide the greatest benefits to exporters in the Asian newly industrialized economies (NIEs)—such as Hong Kong SAR, Korea, Singapore, and Taiwan Province of China (POC)—, Japan and Western Europe. The benefits accruing to ASEAN exporters are not as large as those to Asian NIEs exporters. The imports with the largest increases are other manufactures, textiles, petrochemicals, metals, wearing apparel, and beverages and tobacco from the Asian NIEs, automobiles from Western Europe (members of the European Union and the EFTA), other manufactures, electronics, and textiles from Japan, and beverages and tobacco from North America (the United States and Canada). Note that the benefits to the United States and Western Europe are concentrated in a specific sector in each case, i.e., beverages and tobacco and automobiles, respectively, while the benefits to Japan and other East Asian economies are spread across various sectors.

Table 5a. China's Real Imports from Developed Regions due to WTO Accession: 1995-2005 (Millions of US Dollars at 1995 Prices)

Import source	North America			Western Europe			Japan		
	1995	2005		1995	2005		1995	2005	
		w/o WTO	w/ WTO		w/o WTO	w/ WTO		w/o WTO	w/ WTO
Sectors									
Foodgrain	1,276	3,044	2,972	310	874	855	0	0	0
Feedgrain	827	2,218	2,191	225	593	592	0	0	0
Oilseeds	109	353	364	2	5	6	0	0	0
Meat & livestock	238	1,260	1,436	98	558	636	33	141	158
Dairy	17	53	55	36	135	139	2	6	6
Other agriculture	829	3,005	3,118	48	178	186	10	26	26
Other food	544	1,010	959	379	550	516	128	166	147
Beverages & tobacco	29	58	5,202	11	13	1,454	4	4	242
Extractive industries	141	1,352	1,416	156	1,445	2,159	32	283	754
Textiles	471	390	0	652	461	1,060	3,223	1,265	7,766
Wearing apparel	11	14	145	25	25	140	78	13	684
Wood & paper	1,009	1,194	688	553	555	1,477	375	309	787
Petrochemicals	3,560	4,328	3,423	2,883	2,339	2,150	4,388	2,855	3,520
Metals	924	647	1,198	1,384	1,007	1,311	4,427	3,046	2,872
Automobiles	290	91	-259	1,897	532	23,478	1,215	181	-1,027
Electronics	1,871	2,186	1,350	2,614	2,828	1,195	3,715	2,956	8,644
Other manufactures	5,592	5,435	3,491	12,944	13,094	10,462	15,282	11,331	24,444
Utilities	0	0	0	0	0	0	0	0	0
Trade & transport	357	131	113	1,005	359	301	107	31	22
Construction	2	3	3	254	253	233	0	0	0
Business & finance	809	805	712	2,669	1,738	1,461	279	208	164
Government services	111	74	61	428	435	372	3	1	1
Total	19,019	27,651	28,638	28,571	27,978	50,182	33,301	22,824	49,212

Note: The expression w/o WTO means the case of no WTO accession and w/ WTO is the case of WTO accession.

Source: Background data in Ianchovichina and Martin (2001).

According to Table 5b, the aggregated impact on exporters in other developing countries is negative, though there are variations in impact across source countries. Though not shown in the table, South Asia is a large beneficiary by way of increasing

exports of other manufactured products. In essence, while the industrialized countries benefit from China's WTO accession by expanding exports to China, not all developing economies gain. Those that gain are the neighboring economies capable of exploiting the trade opportunities with China through intra-industry trade in manufacturing including textiles and wearing apparel.

Table 5b. China's Real Imports from Developing Regions due to WTO Accession: 1995-2005 (Millions of US Dollars at 1995 Prices)

Import source Sectors	Asian NIEs			Southeast Asia			Other Developing Regions		
	1995	2005		1995	2005		1995	2005	
		w/o WTO	w/ WTO		w/o WTO	w/ WTO		w/o WTO	w/ WTO
Foodgrain	13	48	41	368	828	794	33	83	85
Feedgrain	0	0	0	0	1	1	42	103	102
Oilseeds	1	3	2	0	1	1	34	104	108
Meat & livestock	88	498	498	138	717	804	223	1,116	1,298
Dairy	4	12	11	2	7	8	2	6	6
Other agriculture	115	482	439	832	2,638	2,695	833	3,200	3,376
Other food	244	389	322	1,175	1,708	1,588	1,432	2,240	2,168
Beverages & tobacco	151	213	6,056	4	3	22	1	2	11
Extractive industries	107	476	737	1,198	7,942	6,805	2,990	22,019	20,647
Textiles	11,181	11,282	35,735	489	368	1,304	846	940	626
Wearing apparel	895	485	7,010	6	7	34	21	49	377
Wood & paper	1,831	1,750	4,668	1,400	1,595	2,254	259	294	225
Petrochemicals	10,445	11,314	24,889	695	621	786	3,118	2,749	975
Metals	4,335	5,254	12,812	244	226	318	3,050	2,467	1,493
Automobiles	265	86	-224	8	3	-8	295	94	-54
Electronics	3,316	3,685	5,575	133	149	348	38	40	42
Other manufactures	15,979	16,930	52,247	572	648	2,140	1,105	1,530	3,573
Utilities	95	92	62	0	0	0	3	1	1
Trade & transport	8,897	6,109	4,401	88	44	38	323	180	169
Construction	40	40	32	10	15	14	99	98	93
Business & finance	351	222	139	135	113	98	347	349	318
Government services	79	61	38	12	32	29	294	840	793
Total	58,433	59,433	155,491	7,510	17,667	20,074	15,386	38,505	36,432

Note: The expression w/o WTO means the case of no WTO accession and w/ WTO is the case of WTO accession.

Source: Background data in Ianchovichina and Martin (2001).

The impacts of China's WTO entry on the global shares of output and trade of developed countries (Japan, North America, and the European Union) at sectoral levels are summarized in Appendix Tables 2-4. It turns out that China's WTO accession has a negligible impact on the total output and trade shares of Japan and North America in the global market, while it has a small negative impact on the EU's total trade share.

Japan's shares in the global output and export markets for textiles and electronics rise modestly relative to the baseline scenario of no WTO accession, while its output and export shares of automobiles decline. There is very little impact on Japan's import share at sectoral levels, except for agriculture that is expected to see some modest increase. The reason for the negligible impact is that China's WTO accession is unlikely to

generate large-scale intra-industry trade in manufacturing for Japan, thus limiting its imports of manufactured products.

China's WTO accession has differential impacts on several sectors in North America. It has a direct positive impact on beverages and tobacco by expanding the output and export shares and reducing the import share. It has a negative impact on textiles and apparel by reducing the output and export shares and raising the import shares (for apparel).

It turns out that China's WTO accession leads to a contraction in Western Europe's textiles and apparel sector and other manufactures as their shares in the global output, export and import markets are reduced. Hence, Western Europe will not enjoy trade expansion in these sectors. There will be some boost to the automobiles sector, however, by stimulating the output and export shares and cutting the import share.

The impact on other developing countries, particularly China's neighbors in Asia, is mixed (the estimation results are not reported). Taiwan POC is one of the economies that will benefit most from China's WTO accession. It will see a rise in the shares in the global output, export, and import markets for textiles and petrochemicals, with the consequent expansion of intra-industry trade in these sectors.²³ Similarly, other Asian NIEs also see an expansion of its intra-industry trade in manufacturing with China. On the other hands, countries in Southeast Asia and South Asia will see a relatively large decline in the output and export shares in apparel. These sectors are the ones most adversely affected by China's WTO accession.

3. Impact on Incomes of China and the Rest of the World

Table 6 demonstrates income changes that are expected to take place between 1995 and 2005, due to China's WTO accession.²⁴ The table demonstrates that the baseline changes in China's income over the decade are substantial (about 39 percent) and that China will gain an additional 2 percent, beyond the baseline changes, due to WTO accession because the fall in its protection and the removal of the trade partners' barriers on its textile and apparel products improve the country's competitiveness and efficiency in resource utilization. Naturally, the largest percentage gain accrues to China among the economies in the world in terms of the net impact of WTO accession.

North America, Western Europe, and Japan also benefit from China's WTO accession as they can increase the efficiency of resource use due to more liberal trade with China. The Asian NIEs, including Taiwan POC, benefit significantly because of

²³ If Taiwanese firms choose to relocate its production sites to China, however, it may not benefit in terms of output and export expansion as much at least in the short to medium term. Because of its comparative static nature, the current GTAP model does not capture the impact of additional FDI flows that may be induced by trade policy changes.

²⁴ Strictly speaking, the estimates are welfare changes expressed in million US dollars at the 1995 prices. The estimates are derived from the GTAP model that incorporates duty exemptions (Ianchovichina, Martin and Fukase, 2000a, b).

their expanded exports of textiles and other manufacturing products to China and their engagement in intra-industry trade in manufacturing with China.

Interesting is the observation that the income gain for Japan is much smaller than that for North America, Western Europe and the Asian NIEs. The reason is that the impact on Japanese income, including consumer benefits due to greater imports, is limited as Japan is not expected to deepen intra-industry trade in key manufacturing products with China, or with the neighboring Asian NIEs, as a result of China's entry into the WTO. If Japan wishes to realize greater gains in income, it needs to invest more in China and expand the basis for intra-firm trade.

Other developing economies, mostly those in South and Southeast Asia, such as India and Indonesia, that compete with China in third markets lose primarily due to the removal of quotas on Chinese textile and apparel products. Essentially these economies will experience a substantial reduction in the textiles or apparel sector, leading to a net income loss at least in the short to medium term.

Table 6. Net Impact of China's WTO Accession on Income Levels of China and Other Countries/Regions, 1995-2005

Countries/Regions	Income in US\$ Mill. 1995 A	Income w/o WTO (Baseline) 2005 B	Income w/ WTO (Accession) 2005 C	Net Income Changes w/ WTO C-B	Impact of Baseline (%) (B-A)/A	Net Impact of WTO: from 1995 (%) (C-B)/A
China	713,567	1290265	1318887	28,622	80.8	4.01
Developed Countries	22,141,335	27,381,493	27,401,201	19,708	23.7	0.09
North America	7,976,177	10,537,421	10,546,877	9,456	32.1	0.12
Western Europe	8,649,828	10,477,846	10,484,961	7,115	21.1	0.08
Japan	5,095,149	5,819,510	5,822,431	2,921	14.2	0.06
Australia & New Zealand	420,182	546,717	546,933	216	30.1	0.05
Developing Economies	5,464,721	7,399,992	7,407,744	7,752	35.4	0.14
East Asia	1,447,568	2,029,513	2,041,975	12,462	40.2	0.86
Taiwan POC	280,853	457,624	462,815	5,191	62.9	1.85
Other Asian NIEs	624,308	861,972	869,791	7,819	38.1	1.25
Indonesia	199,799	249,702	249,531	-171	25.0	-0.09
Other Southeast Asia	342,609	460,216	459,839	-377	34.3	-0.11
South Asia	440,769	689,394	685,431	-3,963	56.4	-0.90
India	331,447	519,507	516,317	-3,190	56.7	-0.96
Other South Asia	109,322	169,887	169,114	-773	55.4	-0.71
Latin America	1,360,294	1,766,251	1,766,308	57	29.8	0.00
Brazil	700,697	891,545	891,514	-31	27.2	-0.00
Other Latin America	659,597	874,706	874,794	88	32.6	0.01
Middle East & N. Africa	848,233	1,126,061	1,125,701	-360	32.8	-0.04
Sub-Saharan Africa	319,542	429,908	429,985	77	34.5	0.02
Eastern Europe and FSU	792,466	971,226	970,981	-245	22.6	-0.03
Rest of the World	255,850	387,640	387,364	-276	51.5	-0.11
Total	28,319,624	36,071,751	36,127,833	56,082	27.4	0.20

Source: Background data in Ianchovichina, Martin, and Fukase (2000b).

V. CONCLUDING REMARKS

This paper has examined some of the issues associated with China's impending accession to the WTO. It has focused on likely developments in agriculture, manufacturing, and services, as well as those in the aggregate economy. In the short to medium term, the changes that will take place from WTO accession are significant in themselves, but modest in comparison to the long-term resource reallocations that are taking place due to the on-going socio-economic transformation in China.

On the trade side, the impact of China's WTO accession will depend on the phasing of the agreement, the interaction between tariff reductions and the elimination of quantitative barriers, the extent of other remaining trade barriers including local protection, and the magnitude of foreign direct investment. WTO accession will also have important implications for structural reforms underway in China. In broad terms, accession will add urgency to the further acceleration of reforms in the state-owned enterprise (SOE) and commercial bank (SOCB) sectors, spurring the development of the legal and regulatory framework necessary for a market economy.

There are several expected effects. First, at the initial stage, trade liberalization is likely to increase competitive pressures in some agricultural sub-sectors and major capital-intensive manufacturing sectors. Since these sectors account for relatively small proportions of exports and imports, the negative impact on economic growth will be limited. Though agriculture employs half of labor force, the impact on the sector's employment will be small. As Chinese farmers begin to produce along lines of their comparative advantage, agriculture becomes more efficient. Unlike most other developed and developing countries, the Chinese economy will derive major gains from avoiding the resource misallocation involved in subsidizing increasingly inefficient agricultural sub-sectors. In addition, diversification into high value-added agricultural products can also help labor-intensive exports.

Second, while manufacturing is also likely to develop along lines of comparative advantage, this process is likely to be slower due to the coexistence of a variety of adverse factors—sluggish, giant state-owned enterprises, monopolies, and excessive and inappropriate industrial capacities—and more disruptive with regard to employment. In the short run, automobiles, machinery, petrochemicals and certain other capital-intensive sectors will be forced to adjust, with a large negative impact on employment. On the other hand, the elimination of the textiles and clothing quotas overseas, beginning in 2005, will result in a substantial increase in textiles and apparel exports. With textiles and clothing already accounting for 4.25 percent of GDP, and 22 percent of exports, the impact on growth and exports would be non-negligible.

Third, the employment and income gains in services will be significant, partly in response to rising demands for consumer services from the increasingly affluent urban populations, and partly from the reduction of the State's role in core sectors such as housing, health, education and personal services. But the main thrust of growth in the economy is expected to come from the expansion and deepening of producer services,

chiefly distribution, logistics and financial services. There will be a considerable increase in foreign direct investment, which would be concentrated in finance (banking, insurance, and securities), telecommunications, and retail. Once foreign direct investment in the distribution sector has been completed, there would likely be a further surge in imports since the requirement that foreign firms use Chinese distributors has been a major constraint on imports.

Finally, as the effects of increased competition feed through into efficiency gains, higher total factor productivity (TFP) growth is expected. How fast TFP rises will depend on the speed with which supporting reforms in the SOE and SOCB sectors will be undertaken and private sector activity will develop and on the magnitude of FDI inflows into the various sectors of the economy.

WTO accession is clearly a net gain to the Chinese economy in the medium to the long run, with China's share of world trade expected to double. In the short run, however, the net macroeconomic effect on employment and output would be mildly adverse, which will be broadly manageable. It seems unlikely that GDP growth will fall sharply, or that there will be a major deterioration in the balance of payments. There could be some labor dislocations in certain sectors and a widening of income disparities that will require further efforts to strengthen the social safety net and to foster more balanced regional development. In the medium term, China's growth rates are expected to be higher due to greater efficiency in resource use and higher TFP growth.

Appendix Table 1.

Gross Domestic Product and Labor Force and Employment by Sector, 1980-1999

	1980		1990		1999	
Gross Domestic Product (GDP) (in billions of yuan, at current prices)	451.8	(100.0)	1,854.8	(100.0)	8,191.9	(100.0)
<i>Agriculture</i> ^(a)	<i>135.9</i>	<i>(30.1)</i>	<i>501.7</i>	<i>(27.0)</i>	<i>1,445.7</i>	<i>(17.7)</i>
<i>Manufacturing</i> ^(b)	<i>199.7</i>	<i>(44.2)</i>	<i>685.8</i>	<i>(37.0)</i>	<i>3,497.5</i>	<i>(42.7)</i>
<i>Other</i>	<i>116.2</i>	<i>(25.7)</i>	<i>667.3</i>	<i>(36.0)</i>	<i>3,247.9</i>	<i>(39.6)</i>
Construction	19.6	(4.3)	85.9	(4.6)	544.3	(6.6)
Trade	21.4	(4.7)	142.0	(7.7)	684.2	(8.4)
Transport and Communications	20.5	(4.5)	114.8	(6.2)	446.0	(5.4)
Finance, public administration & others	54.7	(12.1)	324.6	(17.5)	1,573.4	(19.2)
Labor Force (end-year; in millions) ^(c)	429.0	--	644.8	--	719.8	--
Employed ^(d)	423.6	(100.0)	639.1	(100.0)	705.9	(100.0)
<i>Agriculture</i> ^(a)	<i>291.2</i>	<i>(68.7)</i>	<i>384.3</i>	<i>(60.1)</i>	<i>353.6</i>	<i>(50.1)</i>
<i>Manufacturing</i> ^(b)	<i>67.1</i>	<i>(15.8)</i>	<i>97.1</i>	<i>(15.2)</i>	<i>90.6</i>	<i>(12.8)</i>
<i>Other</i>	<i>65.3</i>	<i>(15.4)</i>	<i>157.7</i>	<i>(24.7)</i>	<i>261.7</i>	<i>(37.1)</i>
Construction	9.9	(2.3)	24.2	(3.8)	34.1	(4.8)
Trade	13.6	(3.2)	28.4	(4.4)	47.5	(6.7)
Transport and Communications	8.1	(1.9)	15.7	(2.5)	20.2	(2.9)
Finance, public administration & others	33.6	(7.9)	89.4	(14.0)	159.8	(22.6)
Unemployed ^(e)	5.4	--	5.7	--	14.0	--

Notes: (a) Agriculture includes farming, forestry, husbandry, sideline production, and fishing. Labor force employed in agriculture refers to those in the primary industry.

(b) Manufacturing includes mining, manufacturing, electricity, gas and water.

(c) Labor force refers to people within the working age range 16-50 years for men and 16-45 years for women, excluding military personnel, prisoners, and the disabled, and excludes unemployed rural laborers.

(d) Employed labor force refers to social labor force that generates income including total staff and workers, employees in urban private enterprises, urban individual laborers, rural laborers and other social laborers.

(e) Unemployed refers to unemployed labor force in urban areas only.

Source: National Bureau of Statistics, *China Statistical Yearbook*.

Appendix Table 2.

Impact of China's WTO Accession on Major Sectors in Japan

	Japan's Output as a Share of World Output (%)			Japan's Exports as a Share of World Exports (%)			Japan's Imports as a Share of World Imports (%)		
	1995	2005		1995	2005		1995	2005	
		w/o WTO	w/ WTO		w/o WTO	w/ WTO		w/o WTO	w/ WTO
Foodgrain	22.9	19.3	19.4	0.1	0.1	0.1	19.6	16.0	16.2
Feedgrain	0.9	0.8	0.8	0.0	0.0	0.0	45.3	39.5	39.6
Oilseeds	0.3	0.3	0.3	0.0	0.0	0.0	16.6	15.1	15.1
Meat & livestock	8.4	7.5	7.5	0.3	0.3	0.4	17.6	16.9	16.7
Dairy	8.5	8.1	8.1	0.0	0.0	0.0	9.7	10.1	10.2
Other agriculture	11.7	9.8	9.9	0.3	0.3	0.3	8.4	7.5	7.6
Other food	23.7	22.0	22.0	0.8	0.9	0.9	12.8	11.8	11.9
Beverages & tobacco	22.2	20.3	20.6	0.9	4.3	4.0	7.0	6.0	5.2
Extractive industries	7.7	6.4	6.4	0.4	0.5	0.6	17.8	14.3	14.4
Textiles	12.8	10.9	11.5	5.6	5.2	7.2	3.7	3.2	3.1
Wearing apparel	16.7	14.7	14.5	0.4	0.2	0.4	11.3	11.1	11.2
Wood & paper	19.2	17.4	17.5	1.5	1.5	1.7	7.1	6.7	6.7
Petrochemicals	19.1	17.0	17.1	6.4	6.1	6.1	4.6	4.3	4.3
Metals	20.2	18.0	18.0	7.8	7.7	7.5	5.3	5.0	5.0
Automobiles	14.9	13.3	13.1	17.7	16.4	14.2	2.8	2.9	2.9
Electronics	31.4	28.5	28.8	14.2	12.8	13.4	5.7	5.7	5.9
Other manufactures	19.0	17.1	17.2	15.3	14.6	14.3	4.5	4.3	4.3
Utilities	12.8	11.5	11.5	0.0	0.0	0.0	0.0	0.0	0.0
Trade & transport	20.1	17.9	18.0	7.4	6.9	6.8	16.2	16.1	16.3
Construction	24.0	21.4	21.5	0.0	0.0	0.0	0.2	0.2	0.2
Business & finance	19.9	18.3	18.4	5.2	5.4	5.4	8.2	8.1	8.2
Government services	9.3	8.4	8.5	0.4	0.3	0.3	0.5	0.5	0.5
Total	18.1	16.3	16.3	8.6	8.3	8.2	7.7	7.1	7.1

Note: The expression w/o WTO means the case of no WTO accession and w/ WTO means the case of WTO accession.

Source: Background data in Ianchovichina, Martin and Fukase (2000b).

Appendix Table 3.

**Impact of China's WTO Accession on Major Sectors in North America
(USA and Canada)**

	North America's Output as a Share of World Output (%)			North America's Exports as a Share of World Exports (%)			North America's Imports as a Share of World Imports (%)		
	1995	2005		1995	2005		1995	2005	
		w/o WTO	w/ WTO		w/o WTO	w/ WTO		w/o WTO	w/ WTO
Foodgrain	4.5	4.8	4.8	40.0	43.1	42.7	2.3	2.1	2.2
Feedgrain	44.1	43.3	43.5	59.8	63.0	62.9	3.8	3.6	3.6
Oilseeds	22.6	22.9	23.3	58.4	61.6	61.5	8.4	8.3	8.4
Meat & livestock	23.1	22.0	21.9	18.2	19.6	20.1	7.6	7.1	7.0
Dairy	20.6	20.9	21.0	3.6	3.9	4.0	4.6	4.8	4.8
Other agriculture	11.1	10.5	10.5	14.7	16.8	16.9	14.3	13.3	13.3
Other food	20.1	20.2	20.3	12.2	13.7	13.7	11.1	10.5	10.5
Beverages & tobacco	19.2	20.0	20.8	14.4	15.4	19.5	13.4	10.4	8.8
Extractive industries	21.1	21.1	21.2	10.9	11.2	11.1	18.9	17.7	17.8
Textiles	16.9	15.5	14.4	7.5	7.0	5.6	9.0	8.4	7.8
Wearing apparel	20.9	15.5	12.2	6.5	4.4	3.2	26.3	34.3	35.1
Wood and paper	28.3	29.7	29.8	25.6	26.8	26.3	19.4	19.8	19.6
Petrochemicals	20.4	21.1	21.1	14.9	16.6	16.3	14.3	14.0	13.9
Metals	20.2	20.7	20.9	12.5	11.7	11.6	15.7	16.8	16.5
Automobiles	28.6	30.7	31.4	24.2	26.5	25.6	30.8	32.7	31.3
Electronics	25.0	26.8	26.8	19.8	20.1	19.8	27.1	28.0	27.7
Other manufactures	24.2	24.2	24.2	18.5	17.8	17.2	21.2	22.3	21.9
Utilities	28.9	28.8	28.9	12.6	12.7	12.6	12.6	12.7	12.6
Trade & transport	28.1	29.2	29.2	17.6	16.7	17.0	14.6	15.3	15.2
Construction	24.8	26.8	26.8	0.9	1.0	1.0	2.0	2.2	2.2
Business & finance	28.3	29.8	29.8	27.0	29.6	29.8	20.3	19.9	19.7
Government services	29.4	30.1	30.1	19.7	14.7	14.8	13.2	14.7	14.7
Total	25.5	26.3	26.3	17.7	17.9	17.5	18.7	19.5	19.2

Note: The expression w/o WTO means the case of no WTO accession and w/ WTO means the case of WTO accession.

Source: Background data in Ianchovichina, Martin and Fukase (2000b).

Appendix Table 4.

Impact of China's WTO Accession on Major Sectors in the European Union

	European Union's Output as a Share of World Output (%)			European Union's Exports as a Share of World Exports (%)			European Union's Imports as a Share of World Imports (%)		
	1995	2005		1995	2005		1995	2005	
		w/o WTO	w/ WTO		w/o WTO	w/ WTO		w/o WTO	w/ WTO
Foodgrain	4.9	4.5	4.5	24.6	23.5	23.3	18.8	15.6	15.5
Feedgrain	13.8	12.8	12.8	27.0	24.8	24.9	14.4	12.8	12.8
Oilseeds	6.6	5.6	5.6	10.2	10.1	10.1	46.7	43.0	43.0
Meat & livestock	30.1	26.6	26.4	47.8	45.1	44.6	47.6	41.0	40.4
Dairy	40.9	38.1	38.1	80.2	80.0	80.0	57.6	53.1	53.0
Other agriculture	16.0	13.6	13.6	28.6	26.0	25.8	47.5	41.2	41.0
Other food	26.3	24.9	24.9	43.2	40.9	40.8	41.2	38.1	38.2
Beverages & tobacco	29.5	28.4	28.9	69.7	68.5	60.0	39.8	42.0	35.5
Extractive industries	15.7	14.6	14.6	18.7	18.8	18.8	34.1	29.4	29.5
Textiles	22.1	19.6	18.7	40.5	35.4	29.7	33.7	29.0	26.2
Wearing apparel	23.3	20.3	17.6	27.1	17.8	11.7	44.3	37.4	35.1
Wood & paper	31.6	30.1	30.1	49.5	46.5	45.9	47.8	44.5	44.0
Petrochemicals	30.0	28.1	28.1	53.9	49.9	49.0	44.4	41.1	40.7
Metals	31.9	29.3	29.5	46.2	42.1	41.1	43.5	40.4	39.8
Automobiles	41.8	39.1	41.5	52.0	49.5	51.6	42.4	39.9	38.6
Electronics	21.0	19.8	19.7	30.1	28.2	27.4	37.6	34.6	34.3
Other manufactures	32.2	30.1	30.0	41.3	38.9	37.3	34.0	30.7	30.1
Utilities	33.1	31.7	31.7	71.9	69.3	68.8	73.2	72.0	71.6
Trade & transport	29.2	27.7	27.7	37.9	35.3	35.4	37.9	35.9	36.0
Construction	27.7	25.7	25.7	61.9	60.7	60.6	33.0	31.8	31.8
Business & finance	39.3	38.3	38.2	51.9	47.9	47.7	46.9	45.5	45.4
Government services	40.6	38.6	38.6	47.5	40.9	40.5	53.3	50.8	50.8
Total	32.0	30.2	30.3	42.5	39.5	38.5	39.9	36.6	35.9

Note: The expression w/o WTO means the case of no WTO accession and w/ WTO means the case of WTO accession.

Source: Background data in Ianchochina, Martin and Fukase (2000b).

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