

**The Impacts of China's Accession
into the WTO on the
U.S. Wheat Industry**

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Abstract

The purpose of this study is to evaluate the impacts of China's entry into the World Trade Organization on the world wheat industry. Special attention is given to the impact on the U.S. wheat industry.

The Global Wheat Policy Simulation Model was used for this analysis. This study indicates that the total value of China's imports from the United States in 2005 are predicted to increase by \$221 million in the normal import scenario and \$842 million in the maximum import scenario. However, net increases in U.S. export value would range from \$127 million to \$577 million in 2005 because increased world price of wheat in the scenarios lowers wheat imports from other countries.

Key Words: wheat industry, tariff-rate quota, bilateral agreement, wheat imports, wheat price

Highlights

The United States and China signed a comprehensive bilateral trade agreement on November 15, 1999. The agreement is based on China's desire and commitment to participate in the global trade community and was an effort by China to become a member of the World Trade Organization (WTO). Since China is the largest wheat producing and consuming country in the world, the impacts of the bilateral agreement on U.S. agriculture could be significant. The purpose of this study is to evaluate the impacts of China's entry into the WTO on the world wheat industry. Special attention is given to the impact on the U.S. wheat industry.

China will use a tariff-rate quota (TRQ) system under the agreement. China will import 7.3 million metric tons of wheat at a low duty of 1 percent and no more than 10 percent for partially processed wheat products. This import volume will expand to 9.636 million metric tons by 2004. Imports above the quota levels will face a higher duty of 76 percent. This tariff will be reduced to 65 percent by 2004.

Part of the TRQ for each grain will be reserved for importation through COFCO (China Cereals, Oils and Foodstuff Import and Export Company) and the rest will be reserved for non-state trading entities. If a TRQ share that was reserved by a state trader is not contracted for by October for any given year, it will be reallocated to non-state trading entities.

The trade liberalization policy would raise the world price of wheat about 2 to 5 percent and the U.S. domestic price about 3 to 6 percent. The trade liberalization policy would lower the Chinese domestic price of wheat. However, the lowered price of wheat would not affect domestic consumption and production in China, mainly because Chinese producers and consumers are not very sensitive to changes in wheat prices.

Under the Trade Liberalization Scenarios, increases in China's total wheat imports from the United States would range between 2.6 and 8.4 million metric tons in 2005. However, net increases in total wheat exports are expected to be smaller than those to China mainly because total exports to the rest of the world are predicted to decrease due to increased world price of wheat in the scenarios.

The total value of China's imports from the United States in 2005 is predicted to increase by \$221 million in Scenario 1 and \$842 million in Scenario 2. However, net changes in U.S. export value would range from \$127 million to \$577 million in 2005.

The Impacts of China's Accession into the WTO on the U.S. Wheat Industry

Won W. Koo*

China is the third largest country in the world, ranked after Russia and Canada, with land area of about 960 million hectares. However, its arable land is limited to approximately 95.7 million hectares, representing 10 percent of its total land. Arable land per capita in China is about 0.08 hectare, similar to Japan (0.05), and lower than in the United States (about 0.72 hectares) (FAO). This implies that China may not be able to produce enough food to feed its population as China's economy continues to grow.

The United States and China signed a comprehensive bilateral trade agreement on November 15, 1999. The agreement is based on China's desire and commitment to participate in the global trade community and was an effort by China to become a member of the World Trade Organization (WTO) (Economic Research Service/USDA). Since China is the largest wheat producing and consuming country in the world, the impacts of the bilateral agreement on U.S. agriculture could be significant.

The purpose of this study is to evaluate the impacts of China's entry into the WTO on the world wheat industry. Special attention is given to the impact on the U.S. wheat industry. A large body of literature has focused on the potential impacts of China's agriculture on the world agricultural industry (Brown; Koo, Lou, and Johnson) and China's agricultural development (Mao and Koo; Lin and Koo). However, a very limited number of studies (Economic Research Service/USDA) have analyzed the impacts of China's accession into the WTO on the world or U.S. wheat industries.

China's population has been growing at 1.3 percent annually for the last 10 years and is expected to reach 1.3 billion by 2000. To feed its large population, China has become one of the largest grain producers in the world. Chinese agricultural production has increased substantially during the last 15 years.

After the economic reform of 1978, China experienced dramatic economic growth. The country's GDP grew from 447 billion yuan in 1980 to 6,000 billion yuan in 1998. This resulted in a rapid increase in the demand for food in China. The Chinese government has used a self-sufficiency policy for grain products at the provincial and national levels since the 1950s. This policy emphasized minimal inter-provincial grain trade and minimal imports from other countries. To carry out the policy, the Chinese government has imposed a high degree of trade barriers to protect its domestic agricultural sector. In general, imports of agricultural goods have been allowed on the basis of domestic production of agricultural goods.

Section 2 presents an overview of China's wheat industry. Sections 3 and 4 present a review of Chinese trade policies and the U.S.-China bilateral trade agreement, respectively. Section 5 briefly describes the econometric policy simulation model used for this analysis. Results are presented in Section 6. Implications of the research are in the final section.

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China's Wheat Industry

China is the largest wheat producing country in the world. Average production was 112 million metric tons annually for the 1995-1999 period, which is about 20 percent of world production (Table 1). The second largest wheat producing region is the European Union (EU) (94 million metric tons), followed by the Former Soviet Union (FSU) (66 million metric tons). U.S. wheat production averaged 64 million metric tons during the 1995-1999 period.

Table 1. World Wheat Supply and Utilization, 1995 to 1999 Average

Country	Crop ^a	Production	Consumption	Net Exports ^b	Ending Stocks	Per Capita
						Consumption
		-----1000 mt-----			----- kg -----	
United States	c	61,287	31,547	29,433	12,579	80.90
United States	d	2,975	2,345	403	1,170	8.25
Canada	c	22,661	7,050	13,852	6,396	75.49
Canada	d	3,891	1,030	3,037	1,657	5.23
European U	c	85,652	73,862	11,949	14,918	95.19
European U	d	8,208	7,774	486	2,259	20.77
Australia	c	20,741	4,636	16,313	1,874	148.79
Argentina	c	12,960	4,519	8,335	454	127.36
Algeria	d	990	2,578	(1,650)	590	94.41
Algeria	c	486	3,100	(2,650)	327	113.27
Brazil	c	2,295	8,444	(6,115)	612	49.70
China	c	112,135	114,943	(3,343)	26,880	92.41
Egypt	c	5,792	12,562	(6,851)	1,067	203.41
Japan	c	533	6,245	(6,053)	944	49.68
S. Korea	c	8	3,790	(3,814)	790	82.58
Mexico	c	3,283	5,064	(1,858)	522	10.39
Morocco	c	3,164	5,154	(2,171)	1,822	182.15
FSU	c	65,813	68,950	(2,880)	10,299	232.36
Tunisia	c	89	878	(825)	206	94.26
Tunisia	d	891	1,143	(356)	467	122.57
Taiwan	c	1	996	(992)	261	45.85
Venezuela	c	0	863	(864)	54	38.18
Venezuela	d	0	327	(327)	21	14.51
Rest of World	c	161,055	203,181	(40,980)	37,835	34.89
Rest of World	d	5,670	715	(1,454)	1,332	0.12
World	c	557,955	555,784	115,636	117,850	95.43
World	d	32,625	31,911	6,177	7,496	3.80

^a c = common wheat; d = durum wheat.

^b Imports in parentheses.

Source: ERS/USDA, *PS&D View*, 1999.

Harvested area of wheat in China has ranged from between 28.7 million hectares in 1988 to over 30 million hectares in 1991, with an area variation of less than 5 percent (Figure 1). A long-term trend in harvested area remains unchanged for the 1985-1999 period. On the other hand, wheat yields have increased substantially from 3 kg/ha in 1985 to 4.16 kg/ha in 1997 and then decreased slightly in 1998 and 1999 (Figure 2). As a result, wheat production in China has increased about 45 percent during the 1985-1999 period.

China's per capita wheat consumption is 92 kg for the 1995-1999 period, which is smaller than the world average per capita consumption of 95.4 kg. Per capita consumption of wheat was 93.8 kg in 1985, then declined to 91.2 kg, and then started to increase for the 1995-1999 period (Figure 3). China, however, is the largest wheat consuming country in the world with annual wheat consumption of approximately 116 million metric tons for the 1995-1999 period. Average per capita wheat consumption is the largest in the FSU (232 kg) for the 1995-1999 period, followed by Egypt (203 kg).

Figure 4 shows total wheat production and consumption in China for the 1985-1999 period. In most years except for 1997, total wheat consumption was larger than total wheat production, indicating that China has been a wheat importing country. Both total wheat production and consumption in China have had an upward trend for the period, but production has fluctuated much more than consumption due to weather conditions. This resulted in a high degree of volatility in Chinese wheat imports, ranging from 1.2 million metric tons in 1999 to over 15 million metric tons in 1991. China gradually increased its wheat imports for the 1970-1991 period and then decreased its imports sharply for the 1992-1999 period, except for 1995. China's average wheat imports were 3.3 million metric tons annually for the 1995-1999 period. The largest wheat importing country was Egypt (6.8 million metric tons), followed by Japan (6.1 million metric tons), and S. Korea (3.8 million metric tons) for the 1995-1999 period. The United States is the largest wheat exporting country, followed by Canada. China imports soft and hard wheat from the United States, Canada, and Australia. However, U.S. wheat exports to China have been restricted by the sanitary and phyto-sanitary (SPS) regulations imposed by the Chinese government.

China has banned imports of U.S. wheat from the U.S. Pacific Northwest (PNW) where *Tilletia Controversa Kuhn* (TCK) has been known to occur. The TCK restriction has barred all wheat shipped from PNW ports to China. As a result, Canada and Australia have dominated the Chinese wheat import market (Amponsah, Qin, and Wang).

White wheat, which is produced in the northwestern region of the United States, is one of the most favorite wheat types for Chinese style noodles in China. However, the United States was not able to export white wheat through the PNW ports because of the TCK restriction by the Chinese government. The recent bilateral trade agreement between the United States and China includes lifting of the TCK restriction. This agreement could increase U.S. wheat exports to China.

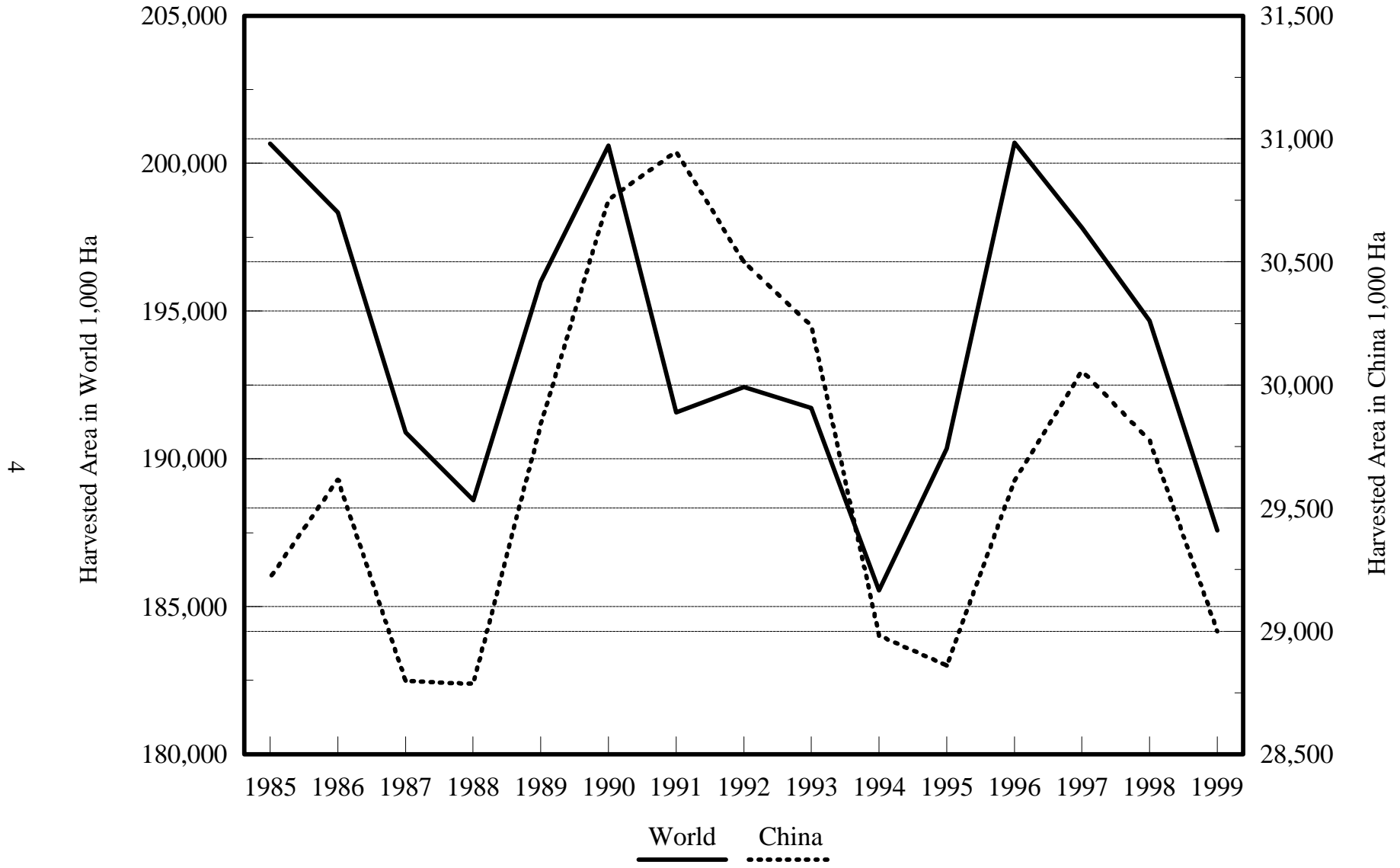


Figure 1. Harvested Area of Wheat in China and the Rest of the World

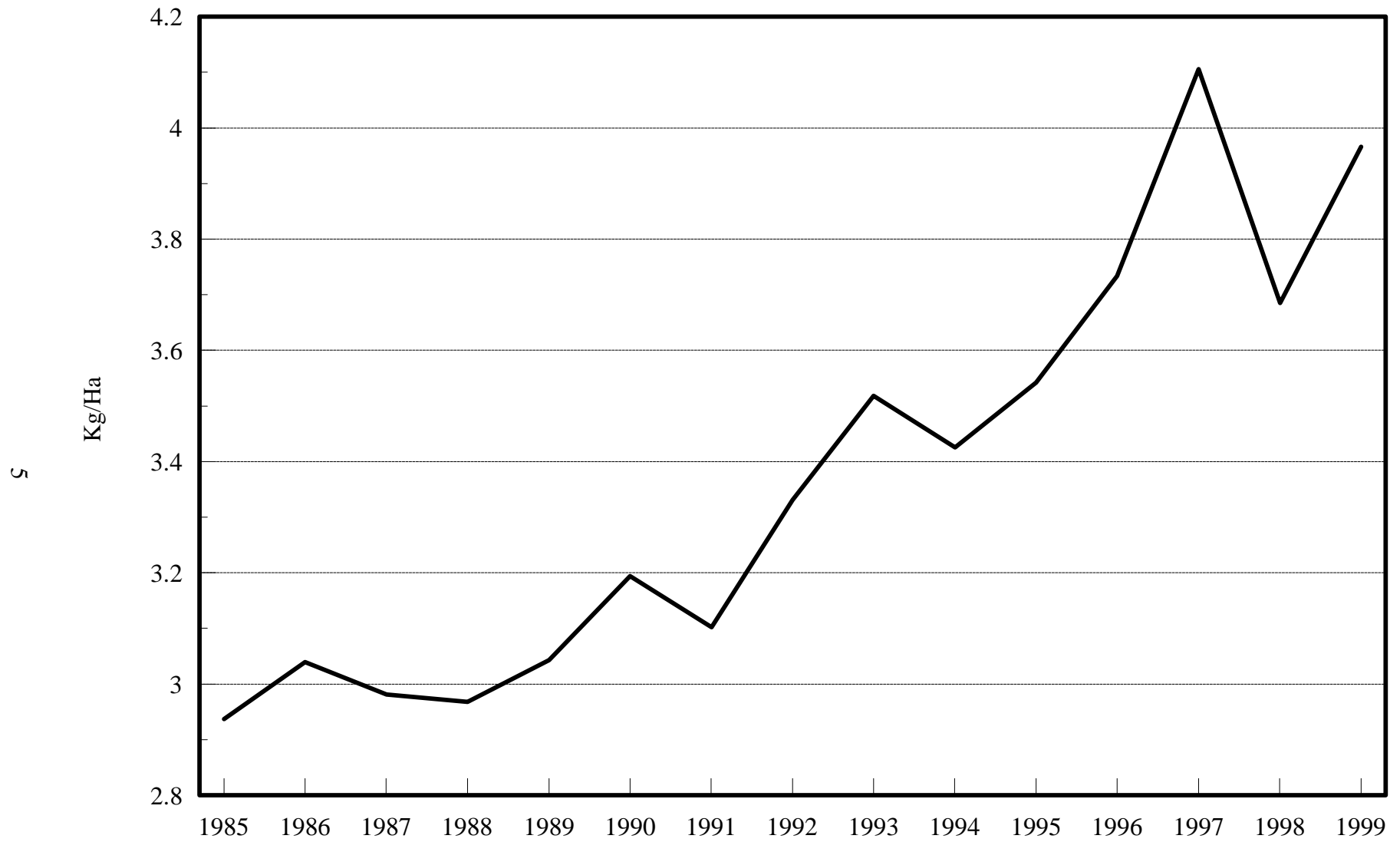


Figure 2. Average Wheat Yields in China, 1985-1999

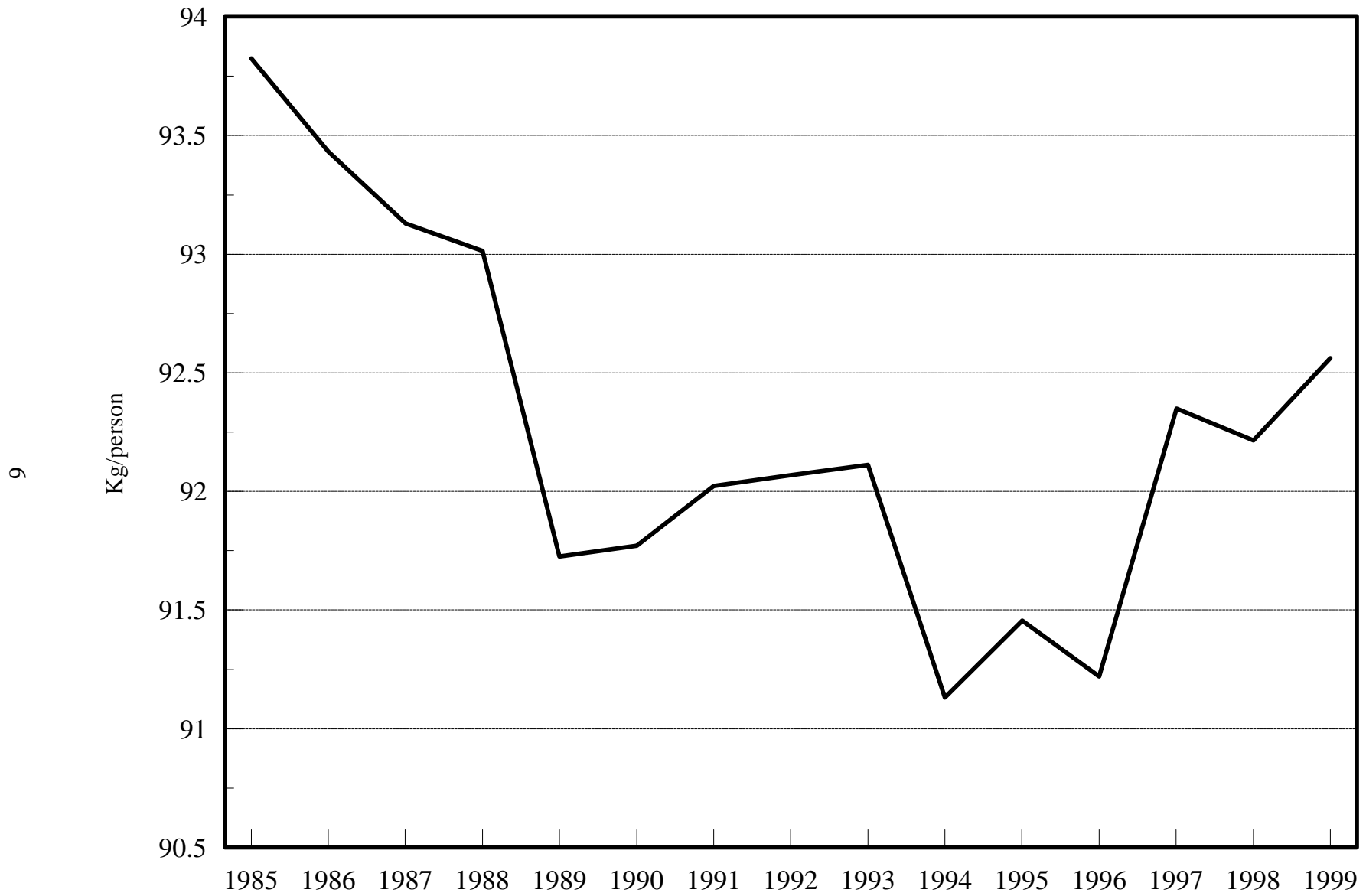


Figure 3. Per Capita Wheat Consumption in China, 1985-1999

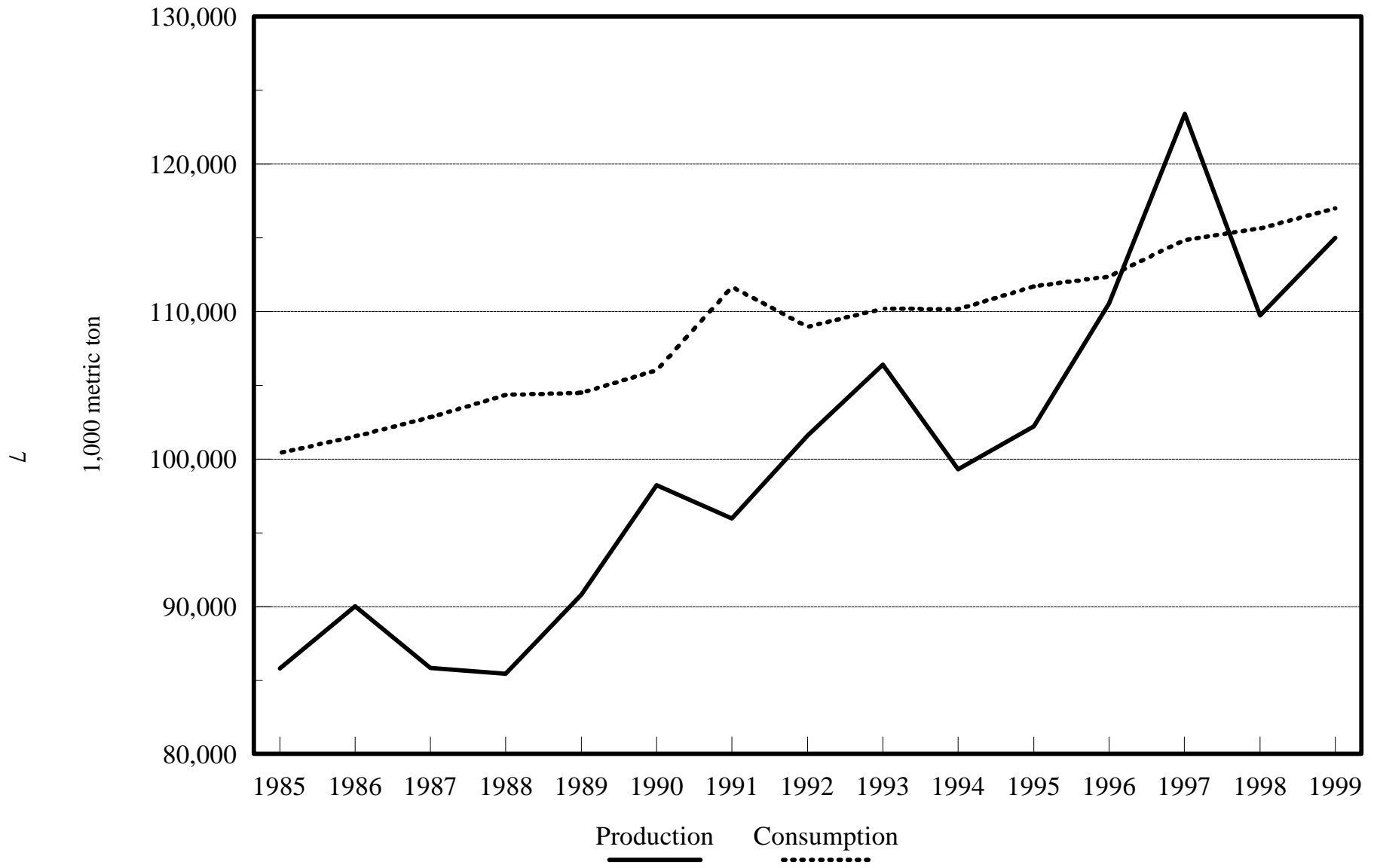


Figure 4. Total Wheat Production and Consumption in China, 1985-1999

China's Trade Policies and its Bilateral Trade Agreement

China introduced a comprehensive policy package to stimulate domestic cereal production, known as the "governors's grain responsibility system" in 1994. It provides incentives to increase cereal production and exerts administrative pressure to push farmers to grow more cereals.

China imposes a wide range of tariff and non-tariff measures on the importation of cereals. The most important import measures include quantitative restrictions, tariffs, value-added taxes (VAT), and SPS. In addition, a large proportion of cereal trade is under the control of the State Trading Entity (STE), called COFCO (China Cereals, Oils and Foodstuff Import and Export Company), which controls China's imports and exports of wheat, rice, and maize.

COFCO controls and regulates trade in grains and, to a lesser extent, trade in oilseeds and oilseed products. COFCO, as a monopoly buyer and seller, determines both the direction and the volume of grain trade. The State Planning and Development Commission (SPDC) formulates an annual plan for exports and imports of cereals (wheat, rice, and maize) in consultation with the State Council and the Ministry of Foreign Trade and Economic Co-operation (MOFTEC). COFCO is a trade agency that implements import or export orders from MOFTEC and transfers grain to and from the Grain Bureaux.

As of April 1, 1996, China applied tariff rate quotas (TRQs) to wheat, corn, and rice. However, rules on TRQ administration have not been made publicly available nor have quota volumes been announced. All quotas and licenses on imports of cereals are determined by the state council and executed through COFCO. Exports of cereals are regulated by a system of export licenses under the control of the State Council and executed by COFCO.

Implicit export subsidies and VAT rebates for exporters are the most important elements of China's export promotion policies. Direct export subsidies were abolished as of January 1, 1991, and China declared to a WTO working party in 1997 that it would no longer use direct export subsidies. However, COFCO buys quota grain in the domestic procurement system at prices lower than domestic market prices and sells it on the world market. This implies that exports in China are indirectly subsidized by producers who deliver a certain proportion of their production at low procurement prices.

VAT rates applied to all domestic and imported goods vary between 13 and 17 percent. VAT is used to manage exports and imports. VAT rebates have been used to promote exports, while VAT exemptions are used to provide incentives to imports to meet the growing demand for goods.

In addition, local and provincial authorities impose discretionary trade barriers which result in considerable uncertainty when exporting goods to China. Trade policies related to tariffs and VAT are not transparent; therefore, exporting goods to China is very difficult.

In addition, China restricts its imports based on SPS. For example, China has banned wheat imports from the Pacific Northwest where TCK smut is endemic. China also restricts beef and pork imports on food safety concerns.

U.S.-China Bilateral WTO Agreement

China will use a tariff-rate quota system and state trading for certain commodities, including wheat, corn, and rice. Under the agreement, China will permit certain levels of imports of each commodity at a low duty of 1 percent for grain and no more than 10 percent for partially processed grain products (U.S. Trade Representatives). This import volume will expand significantly by 2004. Imports above the quota levels will face a higher duty of 76 percent. This tariff will be reduced to 65 percent by 2004. Part of the TRQ for each grain will be reserved for importation through COFCO and the rest will be reserved for non-state trading entities. If a TRQ share that was reserved by a state trader is not contracted for by October for any given year, it will be reallocated to non-state trading entities.

For wheat, the quota is 7.3 million metric tons in 2000 and will be expanded to 9.636 million metric tons by 2004 (Table 2). The quota levels are substantially larger than average imports of 1.8 million metric tons for the 1997-1999 period, but much smaller than the maximum imports of wheat in 1995. China's import quota for corn will be 4.5 million metric tons in 2000 and will be expanded to 7.2 million metric tons. China's quota for rice will be 2.6 million metric tons in 2000 and will be expanded to 5.32 million metric tons by 2004. There will be only 1 percent duty for imports of grains within the quota levels. When imports exceed the quota level, the import duty will be 76 percent in 2000 and will be reduced to 65 percent by 2004.

In addition, China agreed in April 1999 to lift its long-standing restriction on importing U.S. wheat from PNW ports. This agreement will be implemented upon the approval of China's accession into the WTO.

Table 2. China's TRQ under the U.S.-China Bilateral Trade Agreement

	Quota		Private Share	Average Imports (1997-1999)
	2000	2004		
	----- thousand metric tons -----		(%)	thousand metric tons
Wheat	7,300	9,636	10	2,000
Corn	4,500	7,200	25(40) ^a	250
Rice	2,660	5,320	--	250
Short/medium grain	1,330	2,660	50	--
Long grain	1,330	2,660	10	--

^a 40% is private share of the total import quota in 2005.

Source: U.S. Trade Representative.

The Global Wheat Simulation Model

The Global Wheat Policy Simulation Model (Benirschka and Koo), which is operational at the Northern Plains Trade Research Center, was used to analyze the impacts of China's trade liberalization policy on the U.S. wheat industry. The model is an econometric dynamic partial equilibrium model that differentiates wheat into common and durum wheat. Common wheat in the United States is further divided into hard red winter, hard red spring, soft red winter, and white wheat.

The model contains 5 exporting countries [Argentina, Australia, Canada, the United States, and the EU] and 13 importing countries and regions [Algeria, Brazil, China, Egypt, the FSU, Japan, Mexico, Morocco, South Korea, Taiwan, Tunisia, Venezuela, and a Rest of the World Region]. The model simulates production, consumption, stocks, exports, and trade flows for wheat classes over a 10-year period. The model is solved for a set of equilibrium wheat prices in which demand for each wheat class equals supply for every year.

Model Structure and Development

Area and yield equations determine the supply of wheat. Since wheat is divided into two classes (common and durum), two separate supply equations are estimated in countries where both wheat classes are produced (Canada, the EU, and the United States).

Wheat area depends upon expected prices of wheat and alternative crops. As a proxy for price expectations, lagged prices are used in the area equation. In addition to commodity prices, the lagged area variable is included to capture dynamics associated with producers' planting decisions. Area harvested is a function of lagged area, prices of wheat and alternative crops, and government policies as follows:

$$a_{i,t}^n = f(a_{i,t-1}^n, p_{i,t-1}^n, p_{c,t-1}^n, g_t^n) \quad (1)$$

where $a_{i,t-1}$ is the wheat area harvested, $p_{i,t-1}$ is the world market price or domestic price of wheat, $p_{c,t-1}$ is the price of alternative crops, g represents policy parameters, i represents an index for wheat type ($i=1$ for common wheat and $i=2$ for durum wheat), c represents an index for competing crops, and n represents the country index.

Since the wheat classes are generally competing directly for land, area of each type is a function of prices of both wheat types and competing crops. Competing crops are barley, corn, and soybeans in common wheat producing regions and barley in durum wheat producing regions.

Assuming that wheat yields depend upon production practices and advances in technology, the total quantity of wheat produced (qp) is the product of the area harvested and yield per hectare:

$$qp_{i,t}^n = a_{i,t}^n \cdot y_{i,t}^n \quad (2)$$

Per capita wheat consumption is a function of the price of wheat, income, and a time trend representing changes in consumers' tastes and preferences:

$$fd_{i,t}^n = f(p_{i,t}^n, cy_{i,t}^n, t) \quad (3)$$

where fd^n is per capita demand for wheat, p^n is the domestic price of wheat, cy^n is per capita disposable income, and t is a trend.

Total consumption of wheat is calculated by multiplying the per capita consumption by population in the country as

$$qd_{i,t}^n = fd_{i,t}^n * pop_t^n \quad (4)$$

where qd is the total demand for wheat and pop represents population in country n .

Carry-out stocks in country n (qs^n) are a precaution against unexpected shortfalls in production. These stocks, therefore, are likely related to the level of domestic production. However, since the opportunity cost of holding stocks depends on the price of wheat, the stocks should respond to price changes as

$$qs_{i,t}^n = f(qs_{i,t-1}^n, qp_{i,t}^n, p_{i,t}^n). \quad (5)$$

Net exports in country n (qx^n) are the difference between domestic supply (domestic production plus carry-in stocks) and demand (domestic consumption plus carry-out stocks):

$$qx_{i,t}^n = qs_{i,t-1}^n + qp_{i,t-1}^n - qd_{i,t}^n - qs_{i,t}^n \quad (6)$$

If net exports (qx^n) in a country are positive, the country is an exporting country. If net exports (qx^n) in a country are negative, the country is an importing country.

A market equilibrium condition is expressed as:

$$\sum_{n=1}^n qx_{i,t}^n = 0 \quad (7)$$

The equilibrium condition is solved to determine market clearing prices of wheat classes. The equilibrium world prices of wheat type i (pm^w) obtained from Equation 7 are converted into domestic prices (pm^n) using the official exchange rates (er^n) as follows:

$$pm_{i,t}^n = pm_{i,t}^w * er_t^n \quad (8)$$

A price equation, which was estimated by regressing the domestic price of wheat against the world price of wheat (pm^w), is used to convert world price into domestic price. To simulate Trade Liberalization Scenarios, the domestic price of wheat is enforced to be equal to the world

price (pm^w), plus handling charges in the home country. Because of government protections, domestic prices are higher than world prices in most countries.

Assumptions and Data Collection

The baseline simulation is grounded on a series of assumptions about the general economy, agricultural policies, and technological change in exporting and importing countries for the simulation period (2000-2005). Macro assumptions are based on forecasts prepared by WEFA group and Project Link. Some of the macro variables are GDP growth rates, interest rates, exchange rates, and inflation rates in wheat trade countries. It is generally assumed that current agricultural policy will be continued in all countries in the baseline simulation. Average weather conditions and historical rates of technological change also are assumed in this simulation. The price of wheat in individual countries and the world market are endogenous, while the prices of other crops are exogenous. Thus, the baseline simulation is based on the forecasted world prices of other crops which have substitute and complementary relationships with wheat. The forecasted prices were obtained from the Food and Agricultural Policy Research Institute (FAPRI) baseline solution and the 2000 USDA agricultural outlook.

Alternative Scenarios

Two alternative scenarios were developed to estimate the world wheat industry's response to China's inclusion into the WTO. The Base Scenario assumes that China's import tariffs remain at current levels. Scenario 1 assumes normal wheat imports based on China's trade liberalization policy under the TRQ in which the tariffs on wheat would be reduced to 1 percent if China's wheat imports are less than 7.3 million metric tons in 2000 and 9.5 million metric tons in 2005. In Scenario 2, it is assumed that China imports wheat up to the maximum level of the TRQ (7.3 million metric tons in 2000 and this increases to 9.5 million metric tons in 2005).

Results

Effects on World and U.S. Domestic Prices

Under the Base Scenario, the U.S. wheat price is estimated to increase 6.8 percent from \$3.49 per bushel in 2000 to \$3.73 per bushel in 2005, and world prices are expected to increase 7.6 percent (Table 3). This is because of strong demand for wheat in major importing countries, including S. Korea and Japan. If China reduces its import barriers based on the bilateral trade agreement with the United States, China will increase its wheat imports from major exporting countries, which will cause increases in prices of wheat in both the world and U.S. markets. The U.S. wheat price is estimated to increase 10.6 percent to \$3.86 per bushel in 2005 under Scenario 1, compared to the wheat price in 2000. The increase in wheat price due to the bilateral trade agreement in 2005 is about 13 cents/bushel, which is a 3.5 percent increase in the price of wheat compared to the 2005 price in the Base Scenario. The wheat price increases further in the U.S. and world markets under Scenario 2. Increases in price in 2005 due to the bilateral agreement are 5.1 percent in the U.S. market and 5.4 percent in the world market under Scenario 2.

Table 3. Wheat Prices in the U.S. and World Markets (\$/bushel)

		Base		Scenario 1		Scenario 2	
		2000	2005	2005	Change (%)	2005	Change (%)
U.S.	\$/bushel	3.49	3.73	3.86	10.6	3.92	12.3
World	\$/mt	3.30	3.55	3.65	10.2	3.74	13.5

Changes in China's Wheat Industry

In the Base Scenario, Chinese domestic wheat production is expected to increase 3.6 percent for the 2000-2005 period (Table 4). However, wheat production would decrease under the Trade Liberalization Scenarios, mainly because the trade liberalization policy would lower domestic price of wheat in China. Wheat production is expected to decrease 2 percent from 120.7 million metric tons under the Base Scenario in 2005 to 118.3 million metric tons in 2005 under Scenario 1 and 6.61 percent to 112.8 million metric tons in 2005 under Scenario 2. Small reductions in wheat production in China under the Trade Liberalization Scenarios are mainly because Chinese farmers, in general, are less sensitive to prices. The average farm size is small; thus, a large portion of their production is used on the farm.

Domestic consumption of wheat in China is expected to increase under both the Base and Trade Liberalization Scenarios. Domestic consumption of wheat in the Trade Liberalization Scenarios, however, is larger than the Base Scenario because lower prices under the Trade Liberalization Scenarios tend to stimulate wheat consumption. But increases in wheat consumption are not substantial; 3.4 percent in the Base Scenario for the 2000-2005 period, 3.6 percent in Scenario 1, and 3.8 percent in the Scenario 2 (Table 4). The main reason is Chinese consumers are not sensitive to domestic prices of wheat. In China, COFCO (the government import agency) imports wheat from foreign markets and resells wheat to domestic millers. Consumers buy wheat flour or wheat products processed by wheat millers and food processors, which are generally owned by the Chinese government. Thus, prices of consumer goods, such as wheat flour and wheat products, are not directly influenced by changes in the domestic price of wheat.

Table 4. China's Wheat Industry under the Base and Alternative Trade Scenarios

	Base		Scenario 1		Scenario 2	
	2000	2005	2005	Change (%)	2005	Change (%)
Carry-in	26,336	25,897	26,315	-1.0	26,724	1.5
Production	116,481	120,735	118,340	1.6	112,760	-3.3
Imports	1,262	772	3,422	171.4	9,176	627.4
Consumption	117,671	121,741	121,965	3.6	122,162	3.8
Carry-out	26,409	25,662	26,111	-1.2	26,497	0.3

China's Wheat Imports

China's wheat imports are projected to be about 772 thousand metric tons in 2005 under the Base Scenario, which is much smaller than expected wheat imports in 2000. This is mainly because of (1) expected increases in wheat production (3.6 percent) in China and (2) slow increases in consumption of wheat (3.4 percent).

China's wheat imports are expected to increase dramatically under both Trade Liberalization Scenarios. China is expected to import 3.4 million metric tons in 2005 under Scenario 1, which is over 4 times higher than China's expected wheat imports in 2005 under the Base Scenario (Table 4). However, these imports are smaller than the import quota (7.5 million metric tons) established by the bilateral trade negotiation. Under Scenario 2, China is assumed to import about 9.5 million metric tons of wheat, which is the same as the import quota in 2005. China's total wheat imports under Scenarios 1 and 2 are about 3.0 and 8.0 percent of the total world annual trade volume of wheat, respectively.

China imports wheat from four major exporting countries: the United States, Canada, Australia, and Argentina. If China liberalizes its wheat imports under Scenarios 1 and 2, China is expected to increase its wheat imports as mentioned previously, but major importing countries are expected to reduce their wheat imports due mainly to increased wheat prices in the world market. The increase in U.S. exports to China is projected to be 1,562 thousand metric tons in 2005 under Scenario 1, while U.S. exports to the rest of the world are expected to decrease by 662 thousand metric tons, implying that the net change in U.S. exports is 904 thousand metric tons (Table 5).

Similarly, an increase in major exporting countries' exports to China is expected to be 1,096 in Scenario 1, while their exports to the rest of the world are predicted to decrease by 474 thousand metric tons. Thus, net increase in wheat exports by major exporting countries is 622 thousand metric tons under Scenario 1. Export shares in the Chinese market are 59.2 percent for the United States and 40.8 percent for the rest of the world in Scenario 1.

U.S. exports to China are expected to increase by 5,856 thousand metric tons under Scenario 2, while U.S. exports to the rest of the world are expected to decrease by 1,844 thousand metric tons. In this scenario, the net increase in U.S. exports, therefore, is 4,012 thousand metric tons. The impacts of China's trade liberalization policies on the other major exporting countries are much smaller than for the United States. An increase in major exporting countries' exports to China is expected to be 2,548 thousand metric tons which is about 30.3 percent of the total wheat imported by China in Scenario 2. The net increase in the countries' wheat exports is predicted to be 1,746 thousand metric tons. U.S. export shares in China are much higher under the Trade Liberalization Scenarios than in the Base Scenario because the United States could be more competitive in exporting wheat to China through PNW ports under the bilateral trade agreement.

Table 5. Changes in Wheat Exports in 2005 in the Base and Alternative Scenarios

	Base	Scenario I	Scenario II
<u>Export quantity (thousand metric tons)</u>			
United States			
Exports to China	0	1,562	5,856
Exports to ROW	0	-662	-1,844
Net change	0	904	4,012
<u>Major exporting countries</u>			
Exports to China	0	1,096	2,548
Exports to ROW	0	-474	-802
Net change	0	622	1,746
<u>Export values (million U.S. dollars)</u>			
United States			
Exports to China	0	221	842
Exports to ROW	0	-94	-265
Net change	0	127	577
<u>Major exporting countries</u>			
Exports to China	0	147	349
Exports to ROW	0	-63	-110
Net change	0	84	239

The total value of world wheat exports to China in 2005 are expected to increase by \$147 million under Scenario 1 and \$349 million under Scenario 2. However, net increases in the total export value are smaller than those to China, because exports to the rest of the world were reduced in the scenarios. The total value of U.S. wheat exports to China ranges between \$221 million under Scenario 1 to \$842 million under Scenario 2, while net increases in U.S. exports under the scenarios are much smaller; \$127 million under Scenario 1 and \$349 million under Scenario 2, due mainly to reductions in wheat exports to the rest of the world in the scenarios.

Conclusions

The purpose of this study is to evaluate the impacts of China's entry into the WTO on the world wheat industry. Special attention is given to its impacts on the U.S. wheat industry.

The impacts of China's trade liberalization policy based on the proposed TRQ on the U.S. and world wheat industries are not substantial. The trade liberalization policy would raise the world price of wheat about 2 to 5 percent and the U.S. domestic price about 3 to 6 percent. The trade liberalization policy would lower the Chinese domestic price of wheat. However, the lowered price of wheat would not affect domestic consumption and production in China, mainly because Chinese producers and consumers are not very sensitive to changes in wheat prices.

Under the Trade Liberalization Scenarios, increases in China's total wheat imports from the United States would range between 2.6 and 8.4 million metric tons in 2005. However, net increases in total wheat exports are expected to be smaller than those to China mainly because total exports to the rest of the world are predicted to decrease in the scenarios.

The total value of China's imports from the United States in 2005 is predicted to increase by \$221 million in Scenario 1 and \$842 million in Scenario 2. However, net changes in U.S. export value would range from \$127 million to \$577 million in 2005.

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