United States Department of Agriculture

WRS-04-08
October 2004

Outlook

Electronic Outlook Report from the Economic Research Service

www.ers.usda.gov

China: A Study of Dynamic Growth

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Abstract

Few countries have been able to match China's sustained economic growth, which has averaged more than 8 percent annually since 1978. The combination of size and rapid growth make China's economy a major driver in global economic change. China's growth has been largely investment-driven, with investment consuming roughly 40 percent of gross domestic product. Gains in factor productivity were realized after China abandoned strict central planning. China's opening to foreign trade and investment has also been a key to growth. Conditions suggest that rapid growth will continue in coming years. However, the Chinese economy faces potentially unsustainable pressures, including possible currency appreciation, rising rural-urban inequality, unemployment, banking reforms, and an unusual combination of inflationary and deflationary tendencies that could slow China's growth.

Keywords: China, economic growth, global economy, trade, structural imbalances, productivity, investment, exchange rate, unemployment, banking, inflation, gross domestic product, devaluation

Acknowledgments: The authors would like to acknowledge the assistance of Joy Harwood and Cheryl Christensen in encouraging the development of this report. Greg Pompelli was instrumental in encouraging us to develop a set of macroeconomic country outlook reports. This report on China is the first of that series. David Stallings, Terry Roe, Bryan Lohmar, and Robert Collender made substantive comments that have improved the quality of the report. The errors remaining are the responsibility of the authors alone.

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Introduction

China's dynamic economy has one of the highest sustained growth rates in the 20th century. It has also gone through profound institutional and structural changes. It has been in a long, gradual transition from rigid central planning toward a more decentralized, market-based economy since initiating economic reforms in 1978. With its accession to the World Trade Organization in 2001, China is playing an increasingly important role in world commerce. Foreign investors from around the world have been attracted to its booming economy. China is a major exporter of manufactured products. It has also become a major player in world markets for oil, metals and other raw materials, and commodities such as grain, soybeans, fruits, vegetables, and seafood.

Gross Domestic Product (GDP) growth averaged more than 8 percent per year from 1978 to 2002.[1] In 2003, China's GDP grew 9.1 percent and many sectors grew in excess of 10 percent. Most analysts feel that the current pace of growth is unsustainable (Heytens and Zebregs). Even the Chinese government is trying to rein in growth. It set a GDP growth target for 2004 of just 7 percent, but actual growth in the first half was 9.7 percent.

[1]Using an exponential estimate, the growth rate over the period was 8.53 percent. However, even using an average annual growth rate, the growth rate over the period was 8.07 percent.

It is unprecedented for a large country to sustain such a high rate of growth over two decades. Changes that took decades to achieve in other countries are occurring in China over the course of just a few years. While China routinely grows at rates of 7 to 10 percent annually, the United States achieved its position as the world's largest economy by sustained growth of about 3 percent over a period of 100 years.[2] Japan's average growth rate between 1971 and 1991 was just 3.85 percent. Even the other "Asian miracle" countries have not grown as fast as China. South Korea, Taiwan, and Malaysia achieved growth rates between 1971 and 2003 of 7.06, 7.35, and 6.53 percent, respectively.

[2]Schumpeter (p. 72) asserts that the U.S. position was achieved with a sustained growth rate of only 2 percent.

China is increasingly important to the global economy. Its share of world GDP has risen from less than 1 percent in the 1970s to over 4 percent in 2003 (fig. 1). China has the world's seventh largest economy, behind the United States, Japan, Germany, the UK, France, and Italy, and some economists estimate that China's economy is even larger than official statistics indicate (see box, "How Big Is the Chinese Economy?"). By 2015, if growth continues as projected, China will be the third largest economy, with around 6.5 percent of world GDP.[3]

[3]These comparisons are based on a 2000 real dollar exchange rate. If purchasing power parity (PPP) dollars are used, then China's economy would be the second largest. We will comment more on purchasing power parity comparisons later in this report.

Why Has China Grown So Fast?

Chinese GDP growth is explained mostly by very high rates of both foreign and domestic investment, high productivity growth due to major structural changes, and the opening of its economy to international trade. Conditions in China suggest that rapid growth will continue in coming years. However, the Chinese economy faces a number of potentially unsustainable pressures, including possible currency appreciation, structural imbalances, and an unusual combination of inflationary and deflationary tendencies that could become serious obstacles to China's sustained growth.

How Big is the Chinese Economy?

Great care must be taken in basing international comparisons on Chinese statistics. Differences in accounting methods and prices, along with accounting errors, lead to uncertainty.[1] Official statistics likely understate China's income and living standards, but they may also overstate growth.

Gross Domestic Product (GDP) figures make China the sixth or seventh largest economy in the world, about the same size as that of Italy. However, China's GDP figures may understate the size of its economy. Many nonmonetary social indicators, such as life expectancy, child mortality, daily calorie supply, and television sets per capita, place China at a level of development comparable to countries like Thailand, Malaysia, and Brazil, which have per capita GDP much higher than China's $1,200 per year.[2]

Low prices for many consumer goods understate the quantity of goods produced and the standard of living in China. When converted to dollars at the official exchange rate, prices of many consumer products, including food, clothing, household goods, and services, are much lower than prices of comparable products in the United States. Valuing Chinese goods and services at U.S. prices, a concept known as purchasing power parity (PPP), provides a more accurate comparison. GDP is also understated because important components (land and residential housing rental, defense expenditures, and other government services) are not counted in China's statistics.

When adjustments are made for these shortcomings, China's economy ranks as the world's second-largest, behind only the United States. Per capita income is still low, but studies conducted in the early 1990s found adjusted estimates that ranged from three to nine times higher than the official per capita figure (Wu, 1999, table 1.2). The World Bank's PPP estimate of China's per capita GDP in 1999 was more than four times the official estimate.

On the other hand, Young (2003) describes numerous factors that overstate GDP growth.[3] It is widely believed that output reported by local government officials is overstated, since performance evaluations are linked to local production. Industrial output also tends to be overstated because output figures are not fully adjusted for inflation. Chinese statisticians revised GDP accounting methods to include services that were not previously counted in measures of national output, but did not revise historical series, artificially inflating GDP growth. After adjusting for these factors, Young finds that growth is less spectacular than the unadjusted numbers indicate.

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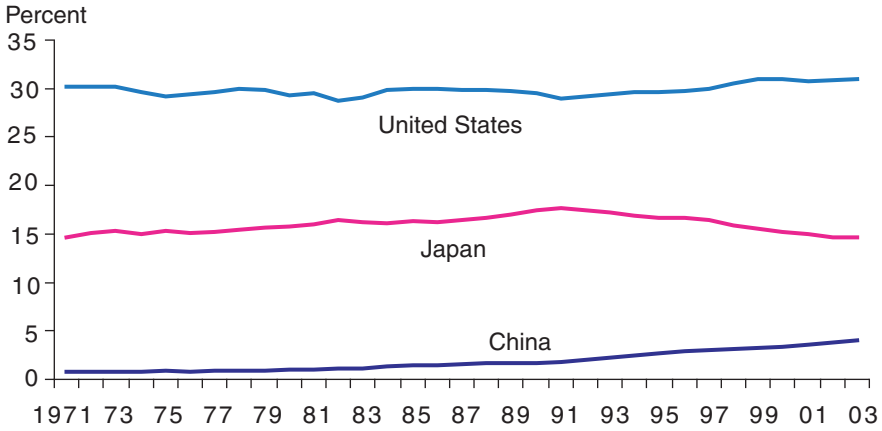
[1]Fred Gale, "China's Statistics: Are They Reliable?" in Fred Gale, ed., *China's Food and Agriculture: Issues for the 21st Century*, USDA/ERS, AIB-775, April 2002, pp. 50-53.

[2]Yanrui Wu, *China's Consumer Revolution*. Northhampton, MA: Edward Elgar, 1999.

[3]Alwyn Young. "Gold Into Base Metals: Productivity Growth in the People's Republic of China During the Reform Period," *Journal of Political Economy*, vol. 111, no. 6, 2003, pp. 1220-61.

Figure 1
China's spectacular growth translates into an increasing share of world GDP



Source: USDA's ERS long-term macroeconomic dataset.

Investment Drives Growth

Much of China's growth reflects a combination of increased capital investment in machinery, equipment, roads, buildings, and other infrastructure and increased productivity from more efficient uses of labor and capital. Economies can grow (increase their output) by adding more factors of production——more labor, land, or capital——or by increasing productivity, that is, by getting more output from given amounts of labor, land, and capital. Productivity can be increased by using factors of production more efficiently, by improving the quality of the basic factors of production (for example, increasing the skill or education of labor), or by adopting more advanced technology.[4]

The relaxation of strict central planning in the late 1970s initiated a period of productivity gains. Before 1978, in China's centrally planned economy, factors of production were producing much below their potential. Production methods, equipment, and machinery were relatively primitive. Each province was set up as a self-sufficient economy with, for example, its own food processing, steel, and transportation industries, resulting in redundant investment and a lack of specialization. Resources were lost to corruption and bureaucracy, and there was overinvestment in uncompetitive, capital-intensive industries that are not well suited to China's labor-abundant economy. Since the 1970s, factors of production have been employed in a more rational manner. Farmers and factory managers have been allowed to keep profits, inducing them to get more output from their land, workers, machines, and equipment. Specialization has also resulted in higher productivity.

Economic reforms provided a short-term burst of productivity· but a high rate of investment was necessary to sustain China's growth rate over more than two decades.[5] China's rapid growth since 1978 reflects, in part, its attempt to catch up after decades of economic stagnation under central planning and economic isolation. Long-neglected infrastructure is being upgraded, and crumbling apartment and office buildings are being replaced

[4]Denison (1974) introduced the concept of growth accounting in his classic work *Accounting for United States Economic Growth, 1929-69*. Others have since refined and expanded the concept, but the underlying methodology has remained remarkably constant.

[5]Eduardo Borensztein and Johathan D. Ostry. "Accounting for China's Growth Performance," *American Economic Review*, vol. 86, no. 2, May 1996, pp. 224-28.

with new structures. Industries are struggling to upgrade production technology and construct state-of-the-art production facilities. China is also rationalizing investment in new production facilities in nearly every industry, while scaling back older, uncompetitive state-owned enterprises.

About two-thirds of China's gross capital formation[6] (GCF) is construction of infrastructure such as roads, dams, public buildings, and other facilities. Most of the remainder is spent on machinery and equipment. The majority of investments enhance the manufacturing sector; agriculture represents about 15 percent of GDP, but only 2 percent of investment. Most "private" investments are made by state-owned or collectively owned enterprises, funded by internally generated funds or loans from state-owned banks. Foreign investment accounts for about 5 percent of investment in fixed assets.

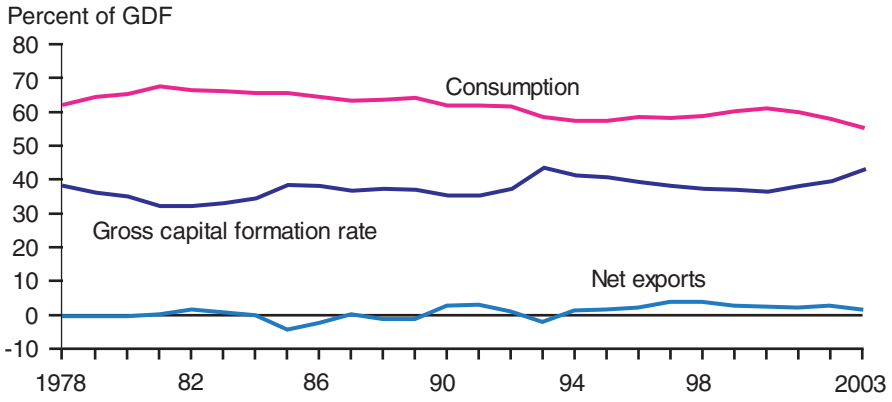
[6]Gross capital formation is the value of investment in fixed assets and inventories.

Consumption spending contributed to much of China's early growth following market-oriented reforms in the early 1980s. Over time, the role of consumption has declined and the contribution of investment has generally risen. Since 1978, gross capital formation accounted for an average of 37 percent of GDP, while the share due to consumption expenditures averaged 62 percent (fig. 2). Consumption's contribution to GDP peaked at about two-thirds in the early 1980s and fell to 55 percent in 2003. By comparison, consumption accounts for 70 percent of GDP in the United States. The low level of consumption is the flip side of China's remarkably high savings rate, which has provided much of the capital to finance the high rates of investment.[7]

[7]Franco Modigliani and Shi Larry Cao. "The Chinese Saving Puzzle and the Life-Cycle Hypothesis," *Journal of Economic Literature,* vol. 42, March 2004, pp. 145-70.

Investment accelerated in the early 1990s when China's leadership signaled China's long-term commitment to market-based reforms. GCF reached a record 43.5 percent of GDP in 1993. Investment was slowed by a bursting real estate bubble and retrenchment policies aimed at controlling surging inflation during 1995-96. Subsequently, consumption and exports played an increasingly important role until the late 1990s, when the effects of the Asian financial crisis of 1997-99 slowed China's growth.

Figure 2
China's substantial gross capital formation (investment) contributed to its high growth rate



Note: Chart shows spending as share of gross domestic product.
Source: China National Bureau of Statistics.

[10] Shane, Roe, and Gopinath, 1998.

Beginning in 2000, investment surged again through a combination of massive government infrastructure spending and investment in manufacturing facilities by both foreign and domestic investors. Preparations to host the 2008 Olympic Games contributed to a further frenzy of construction projects. China's late-2002 accession to the World Trade Organization spurred many companies, both domestic and multinational, to invest in China in anticipation of greater market opportunities. Gross capital formation rose sharply from 36.4 percent in 2000 to 43 percent in 2003—nearly equal to the historical high of 1993 and about 5 percentage points above China's average over 1978-2003—as investments in factories, real estate, roads, and other infrastructure reached unprecedented levels.

A very high GCF rate is a characteristic of the rapidly growing "Asian miracle" economies. Singapore had an extended period between 1971 and 1985 when its GCF share exceeded 40 percent of GDP. Malaysia similarly had several years in the mid-1990s where GCF share exceeded 40 percent. In the United States, investment has historically been around 15 to 17 percent of GDP and contributes around 1.2 percentage points of GDP growth.[8] If we use the same assumed input-output ratio in China as in the United States, the contribution from GCF to overall growth would be 2.4 percentage points of China's 8-percent annual growth. However, comparisons may be misleading, since China's high rate of investment occurred in tandem with significant structural change. This has resulted in a large contribution to growth from capital accumulation of between 4.7 and 6.4 percentage points of annual growth.[9] This varied over time, with early contributions smaller than those in later years. A major component of this growth was the transfer of labor from agriculture to industry. Worker productivity rises when laborers move from low-productivity agricultural work to jobs in industry where capital and output per worker are much higher.

[8]See: Shane, Roe, and Gopinath (1998), over the period 1959-91, p. 3, table 1. Denison (1974) estimates that capital investment and economies of scale combined to contribute slightly more than 30 percent to the growth of GDP in the United States between 1948 and 1969.

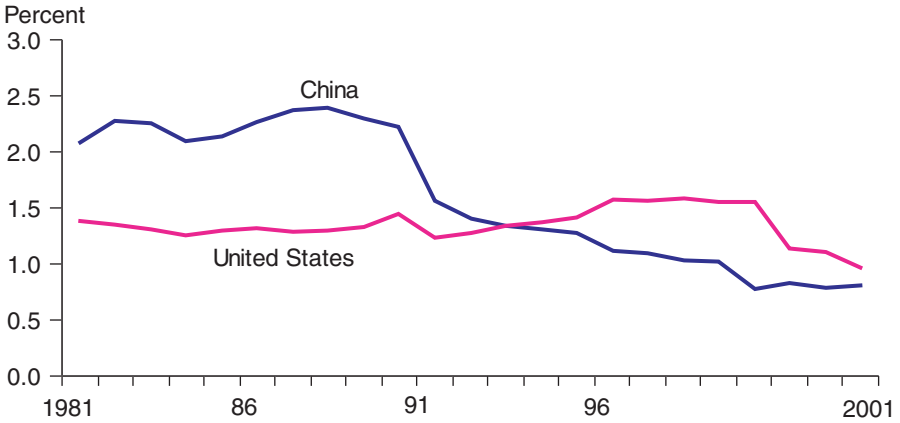
[9]Heytens and Zebregs (2003), table 2.1, p. 16. The authors estimate the contributions using Translog and Cobb-Douglas functions with endogenous or exogenous total factor productivity (TFP) growth.

Labor's Contribution

China's abundant supply of labor keeps Chinese wages low, making China highly competitive in labor-intensive industries. Labor-supply growth was particularly rapid during the 1980s, when China's labor force grew by around 14 million workers per year, an average of 3 percent. This reflected high birth rates during the 1960s to early 1970s, when China pursued a pronatalist policy. China's abrupt introduction of the "one-child" population control policy in the 1970s sharply reduced birth rates, and population growth fell from 2.5 percent in 1971 to its current 1 percent. As a result, between 1990 and 2002, China's annual labor force growth slowed to less than 1 percent (fig. 3). By comparison, U.S. population and labor force growth has remained relatively steady, at approximately 1 to 1.5 percent over this period.

In the United States, labor contributed approximately 40 percent of the realized growth in GDP over the period 1959-91, a contribution of about 1.18 percentage points on average per year.[10] According to Denison (1974), U.S. labor contributed 38.7 percent or 42.8 percent, depending on whether scale economies are included. However, while China's labor force growth rate was approximately 20 percent higher than that of the United States, the

Figure 3
China's labor force growth rate has been falling faster than the U.S. rate



Note: Chart shows annual percentage growth in labor force.
Source: World Bank, World Development Indicators.

estimated direct contribution to growth was fairly modest, averaging less than 1 percentage point per year.

Improvements in Efficiency and Total Factor Productivity

Based on the analysis by Heytens and Zebregs, the contribution of efficiency gains and total factor productivity (TFP) to Chinese growth over the period 1971-1998 was between 2 to 3 percentage points per year.[11] This compares favorably to experience in the United States since about 1995, but it is substantially higher than the U.S. rate of total factor productivity growth before that.[12] Some studies suggest that China's productivity growth is overstated, but it is hard to escape the conclusion that substantial increases in China's GDP were derived from sources other than traditional factors and inputs.[13]

China's TFP growth came from a combination of efficiency gains, improved technology, and improved worker skills. The transition from rigid central planning to a more market-based economy allowed factors of production to move to more productive activities. For example, in 1978, 70 percent of labor was employed in primary industries (agriculture, forestry, fisheries, and mining), which accounted for just 28 percent of GDP. By 2003, the primary sector share of employment had fallen to 49 percent. There have also been improvements in productivity from closing loss-making state-owned enterprises, streamlining government bureaucracy, and improving the efficiency of enterprises that remained in business. Inflows of capital and production expertise after China opened its economy to foreign investment improved productivity. The quality of the labor force improved as education levels rose.

Another factor promoting productivity is foreign direct investment (FDI), which rose from $35 billion in 1990 to over $50 billion in 2002 and 2003. This has resulted in a substantial inflow of not only capital, but also produc-

[11]Total factor productivity is the percent of gross domestic product that cannot be accounted for by increases in factors of production. Thus, an increase in TFP means that more output is achieved given the same amount of factors and inputs.

[12]Based on Shane et al. (1998), overall TFP growth in the United States between 1959 and 1991 averaged 0.4 percent per year.

[13]Alwyn Young (2003) argues that Chinese statistics overstate growth. After making adjustments in the GDP, investment, and labor data, he finds a much less striking growth rate in total factor productivity. Borensztein and Ostry argue that pre- and post-reform differences in growth are more modest when the disastrous Great Leap Forward and Cultural Revolution periods are excluded from the pre-reform period.

tion expertise. Significant transfers of technology to foreign-invested enterprises probably spill over into the general economy and raise total factor productivity.

The Role of Foreign Trade

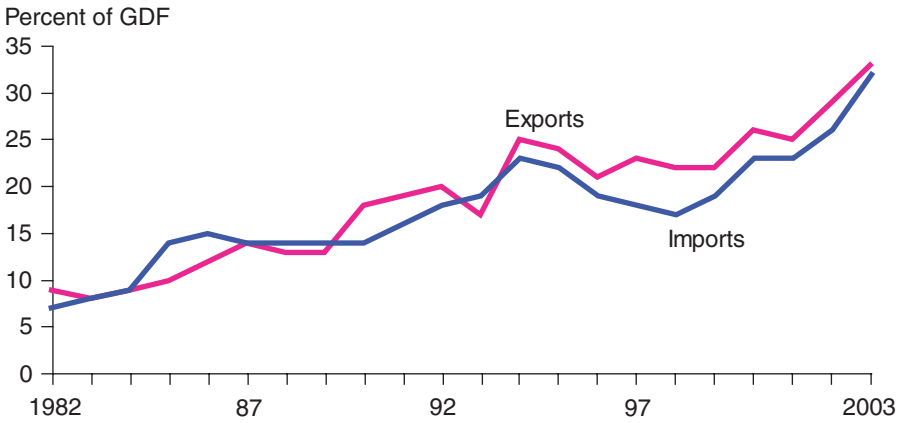
Since the 1980s, China has embraced foreign trade as a key to economic growth. Tariffs have been slashed, import and export licensing requirements have been dropped for many products, and most government trading monopolies have been eliminated. China's entry to the World Trade Organization was a notable event, although it was preceded by a series of tariff cuts and other liberalizations during the long period leading to its formal accession in late 2001. It will take a number of years to fully implement WTO commitments and realize their impact on trade.

The most notable impact of China's opening to trade is the growth of its export share in many global markets, which has given it the nickname "the world's workshop." While exports have played an important role in China's economic resurgence, its imports have also climbed rapidly. China's trade balance alternated between small surpluses and deficits until the 1990s. Since 1990, exports have grown faster than imports and China has had trade surpluses in all but 1 year from 1990 to 2003.

China exports labor-intensive manufactured products such as apparel, shoes, toys, electronics, furniture, and tools. These exports go primarily to the United States and other developed countries. China is also a major exporter of many agricultural products, including vegetables, seafood, rice, and corn, most of which are sold to other Asian countries. China imports raw materials (petroleum, iron ore, rubber, and soybeans), industrial machinery, equipment, and unassembled components.

Exports have grown from less than 10 percent of GDP in 1982 to over 30 percent in 2003, underscoring the growing importance of foreign trade (fig. 4). China has greatly benefited by opening its economy. However, this

Figure 4
China has had a trade surplus every year since 1990 except for 1993



Note: Chart shows exports and imports as percentage of gross domestic product.
Source: World Bank World Development Indicators.

rising share overstates the contribution of foreign trade to China's economy, since much of China's foreign trade involves the assembly of imported components and raw materials using designs, engineering, equipment, and technology outsourced by other countries. China is also becoming increasingly dependent on imported energy and other raw materials to operate its factories. In many cases, the value-added in China is a small percentage of an exported product's final sale value.

Thus, China's trade surplus (the value of exports net of imports) is a better measure of the contribution of foreign trade to the economy. Since 1990, the trade surplus has averaged about 2 to 3 percent of GDP. The trade surplus peaked at 4.5 percent in 1997-98 and has fallen to less than 2 percent since then. In 2003, the value of China's exports surged by nearly 35 percent, but its imports grew nearly 40 percent as raw material prices surged. Its trade surplus of $25 billion amounted to 1.8 percent of GDP in 2003.

Policymakers and news media have given much attention to China's widening trade surplus with the United States, the destination for about one-fifth of the value of China's exports. According to China's customs statistics, exports to the United States during 2003 surged to $92.5 billion against imports of $33.8 billion, a surplus of $58.6 billion.[14] The surplus with the United States increased by $30 billion between 2001 and 2003.

It is less well-known that China's imports have also surged in recent years. China's trade deficit with other trading partners has risen to offset its rising surplus with the United States and other developed countries. In the first 6 months of 2004, China's imports surged 40 percent over year-earlier totals and its overall trade balance tipped into deficit. Imports include machinery and equipment, instruments, electronic components, fabric, petroleum, chemicals, steel, copper and other metals, rubber, and animal hides. China is a net importer of agricultural products from the United States.The largest agricultural import items from the United States are soybeans, cotton, animal hides, and animal offal.

In most years, China has a trade surplus in agricultural products.[15] It exports vegetables, fruits, poultry, processed foods, corn, and rice, and imports soybeans, cotton, wheat, rubber, vegetable oils, animal hides, and animal offal. However, a surge of imports during 2003 made China a net importer of agricultural products. The value of agricultural imports rose more than 60 percent in 2003 to $17.4 billion, largely due to sharp increases in both the quantity and price of soybean and cotton imports (fig. 5). Agricultural exports were $15.4 billion, leaving China with an agricultural trade deficit of $2 billion.

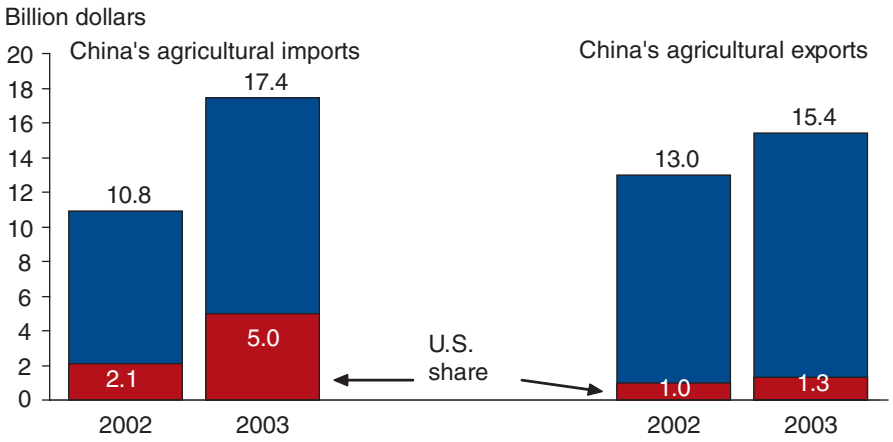
Agriculture is one of the few sectors where China has a deficit in trade with the United States. U.S. agricultural exports to China surged from $2 billion in 2002 to $5 billion in 2003, mostly due to rising exports of soybeans and cotton. The U.S. agricultural trade surplus rose from about $1 billion per year during 2000-2002 to $3.7 billion during 2003.

China's foreign trade surplus, in combination with a large influx of foreign direct investment, has injected significant amounts of foreign currency and

[14]There are large disparities between U.S. and Chinese customs statistics, and U.S. statistics suggest that China's trade surplus with the United States is even larger, at $124 billion. U.S. statistics show imports of $152.4 billion from China during 2003, over 50 percent higher than China's reported exports to the United States. U.S. exports to China were reported at $28.4 billion, much closer to China's $33.8 billion of reported imports from the United States. Statistics for the two countries can differ due to inclusion of transportation costs and tariffs in the destination country's reported value, and to smuggling and differences in counting products that transit through third countries or territories.

[15]Fred Gale and James Hansen, *China's Exports Outpaced Imports During WTO Year One,* USDA/ERS, FAU-79-02, August 2003.

Figure 5
China's agricultural imports and exports, 2002 and 2003



Source: Calculations by ERS using China customs statistics and USDA's Foreign Agricultural Service trade data system.

liquidity into the Chinese economy. China maintains a fixed exchange rate of 8.28 yuan per dollar through strict controls on capital inflows and outflows. Its central bank buys up foreign currency entering the country by selling bonds denominated in yuan to "sterilize" the trade surplus and prevent the yuan from appreciating against the dollar. Its foreign exchange reserves rose 25 percent in 2003 to $400 billion, much of it in U.S. Treasury securities. China's sustained trade surplus depends on willingness to save its export earnings (by investing them in dollar-denominated securities) instead of spending them on imports for consumption. This is the mirror image of the U.S. trade deficit, which reflects consumption exceeding domestic production of goods. China's trade surplus with the United States persists because China——like other U.S. trade partners——is willing to save rather than spend its earnings from exports to the United States.

Challenges Facing the Chinese Economy

China has potential for continued rapid growth in the foreseeable future. The factors that have propelled growth over the past 30 years are still in place. China's economy is still a long way from "mature" status where growth rates tail off. Its per capita income in 2003 was still less than 3 percent of that in the United States in constant 2000 dollars. When adjustments are made for the unusually low prices in China, per capita income at purchasing power parity (PPP) is about 12 percent of the U.S. average.[16] (See box "How Big is the Chinese Economy?") Growth in the 7 to 8-percent range per year over the next decade would still leave China with a per capita income of less than 5 percent in 2000 dollars and less than 20 percent in PPP dollars than that expected for the United States in 2013. Thus, China will still have very low labor costs compared with other major countries. While per capita income in South Asia, Indonesia, Vietnam, and the Philippines is less, none of these countries has the political commitment to facilitate openness to foreign investment in its export industry sector. As long as China maintains an open attitude toward foreign investment and invests heavily in infrastructure and other capital, it will continue to grow rapidly.

[16]A purchasing power parity exchange rate is derived by comparing the cost of a common bundle of consumer goods across countries. Since non-traded goods and goods manufactured in China are very cheap relative to similar goods in the United States, the PPP exchange rate would be multiples of the current market exchange rate. For instance, rents in China might be a tenth of what they are in the United States.

However, China's current growth at rates exceeding 9 percent annually is likely unsustainable. Limited supplies of raw materials and rising prices for petroleum, metal ores, coal, and other commodities may slow the country's growth. Energy shortages are common in many areas, and China is now a major oil importer. In 2003, China accounted for 4 percent of world GDP, but consumed 21 percent of the world's steel, 31 percent of the world's coal, 25 percent of the world's aluminum, and 40 percent of the world's concrete. Consumption of raw materials clearly cannot continue to increase at this pace indefinitely. China's impact on agricultural commodity markets is felt most keenly in soybeans and cotton. It accounted for a third of the world's cotton use and a fourth of cotton imports in 2003. While it accounted for only 16 percent of soybean consumption, it was a destination for 32 percent of all soybean exports.[17]

[17]By comparison, China has 22 percent of the world's population.

Effects of Exchange Rate Policy on Economic Growth

China's exports rely on what may be an unsustainably low fixed exchange rate. China has maintained its currency at a fixed rate of approximately 8.28 yuan per U.S. dollar since 1997, a rate that some economists suggest is undervalued by as much as 40 percent.[18] A number of Asian countries have stimulated export-led development by pursuing a policy of an undervalued real exchange rate.

[18]There is a range of opinions on China's exchange rate. Some economists argue that a removal of capital controls would lead to outflows of capital, which would lead to devaluation. China resisted pressure to devalue as recently as the 1997-98 Asian financial crisis.

Although it is difficult to determine an appropriate exchange rate exactly, several indicators suggest that China's real exchange rate is undervalued. The first indicator is China's substantial trade and current account surplus since 1995.[19] The inflow of foreign currency (e.g., U.S. dollars) resulting from a trade surplus normally increases the value of the home country's currency. China's central bank has been following a policy of "sterilization" by purchasing foreign currency coming into the country to prevent this from happening.

[19]China's imports surged in the first half of 2004, pushing its foreign trade into deficit. However, a surplus was expected for the second half of 2004.

Perhaps a more significant indicator is the failure of the current exchange rate to maintain purchasing power parity between the U.S. dollar and the yuan. An exchange rate would achieve parity if a dollar could buy the same amount of goods and services in either country. In fact, Chinese prices of comparable goods are much lower than U.S. prices when converted at the official exchange rate. For example, in 2004 fresh pork retail prices in Beijing averaged about $0.66 per pound, poultry was $0.57 per pound, and apples $0.16 per pound, converted at the official exchange rate. After adjusting for differences in quality and service, these prices would still be a fraction of U.S. retail prices. Valuing Chinese consumption of goods and services at U.S. prices results in a Purchasing Power Parity per capita income of $4,400 for 2002 (at 2000 prices), which is 3.67 times the $1,200 per capita income converted at the official exchange rate. Thus, the exchange rate would have to value the yuan at more than three times (2.25 yuan per dollar) its current value in order to achieve purchasing power parity. While it may be expected that the current dollar exchange rate and the PPP exchange rate would differ for developing countries, the ratio of 3.67 is much higher than the average ratio of 2.5 for low-income developing countries.

Another factor suggesting undervaluation is China's extremely low labor costs. Annual earnings by Chinese manufacturing workers averaged $1,330 when valued at the official exchange rate in 2003, compared with $30,000 for U.S. workers.[20] Labor costs do not directly translate into competitive advantage since low labor productivity can offset the cost savings from lower hourly wages. However, remarkably low Chinese labor costs, valued at the official exchange rate, are a major factor in allowing Chinese exporters to sell at prices far below those for comparable goods produced with U.S. labor. For instance, based on a recent survey of U.S. furniture stores, furniture manufactured in China can enter the U.S. market at 25 to 33 percent of the cost of comparable furniture manufactured in the United States.

[20]China's earnings were estimated by dividing total manufacturing earnings by the manufacturing employment published by China's National Bureau of Statistics. U.S. earnings were estimated based on average hourly earnings in manufacturing reported by U.S. Bureau of Labor Statistics, multiplied by an assumed 2,000 hours worked per year. These calculations do not include nonwage benefits. There is no adjustment for differences in productivity.

The growing bilateral trade surplus with the United States has put substantial pressure on China to revalue its currency. Other countries, frustrated at losing export markets to China, have also pressured China to appreciate. However, China resisted pressure to devalue during the 1997-98 Asian financial crisis when currencies of neighboring countries fell sharply. More recently, China's booming exports have prompted accusations from trade partners and competing nations that it undervalues its currency to maintain low prices for its exports.

Chinese authorities have resisted calls for appreciating the yuan or floating the exchange rate. Various news reports indicate officials are considering eventual movement to a more flexible exchange rate mechanism, such as tying the yuan to a market basket of currencies, but no definite plans have been announced.

Chinese authorities may be forced to allow a modest appreciation of 5 to 10 percent to slow down inflows of foreign currency and raw material imports and prevent overheating of the economy. There have been recent indications that such a move is at least being considered, if not being planned for implementation. The latest suggestions are that the currency will be allowed to float around a band of, say, 5 to 10 percent from its current rate of 8.28 yuan to the dollar.[21]

[21]For instance, see The Economist Intelligence Unit, China Country Profile 2004, March 2004, p. 56.

Given the importance of China to world trade, a substantial appreciation of the yuan would have large impacts. Appreciation would raise prices for China's exports and erode its dominant position in markets for textiles, electronics, and other manufactured goods. At the same time, imports valued in yuan would be cheaper, stimulating China's imports. China, already a significant trader in agricultural goods, would become even more so. The United States, as a major agricultural exporter, would be a main beneficiary of those increased imports. An appreciation of around 33 percent would reduce China's exports and increase the volume of imports, but an appreciation of 5 percent would have only modest impacts.

Structural Imbalances

China has some serious structural problems that have resulted from the combination of extraordinarily rapid growth and the transition from a

centrally planned to a market economy. These could lead to economic or social instability and threaten China's continued economic growth.

Troubled Banking System

Nonperforming loans in the Chinese banking system are one of the most important structural problems. China's major banks are state-owned and have historically made loans under government direction to unprofitable state-owned industries, with little regard for repayment or risk. Many of these loans were never paid back. The official estimates are that nonperforming loans total around 25 percent of GDP, or $300 billion. However, it is widely believed that the official number greatly understates the extent of the problem. Nonperforming loans could exceed 50 percent of GDP, or more than $600 billion.[22]

[22]Global Insight. Presentation in Washington, DC on March 16, 2004, p. 11.

While Chinese banks may be near insolvency, they have little competition for the savings of Chinese households. The inflow of deposits from China's high savings rate has given the banks enough liquidity to continue operating. However, as a WTO member, China must open its domestic market to foreign banks starting in 2005. If foreign banks attract deposits away from the Chinese banks, the Chinese banks could become insolvent, leading to a major financial crisis.

Addressing problems in the banking system is a top priority in China. In 2003, China used $50 billion from its foreign reserves to recapitalize its two strongest banks and prepare them for stock market listings. Management, customer service, and risk analysis are being upgraded to compete with foreign banks. A major bailout and reform of the system of rural credit cooperatives was also initiated. Chinese banks are also rapidly upgrading notoriously poor management and customer service to compete with foreign banks. However, there were continuing concerns that rapid loan growth and reckless lending during 2004 could lead to even more nonperforming loans in the future. In response, authorities overseeing Chinese banks raised reserve requirements and called a moratorium on loans to certain sectors in an attempt to cool down the economy.

State-Owned Enterprises

A second, and related, structural problem concerns the inefficiencies of state-owned enterprises, formerly the primary employers in urban China. SOEs employed 59 percent of urban workers in 1995, but only 27 percent in 2003. They consume much of China's capital through their historical links to the state banks and dominance of stock exchanges in China, but they produce little or even negative return on their capital. Many are poorly managed and protected from competition. Private enterprises are much more efficient, but most are excluded from stock exchanges and they have less access to loans from state-owned banks. Many state-owned enterprises have been shut down or merged with stronger enterprises, but fears of exacerbating already-serious unemployment problems are a constraint as China shifts resources to the private sector.

Growing Regional Disparities

A third major structural imbalance is the degree to which development has been concentrated in a few major coastal areas, with less growth occurring in the rural, central, and western regions. Living standards in some coastal cities are approaching those of middle income countries, while other cities lag far behind (fig. 6). In 2003, urban per capita income was more than three times the rural average, up from twice the rural average during the 1980s (fig. 7). In 2000, China embarked on a "develop the west" campaign to push both public and private investment into the country's poorest western provinces. In 2004, the party and central government leadership issued a "No. 1 Document" that made increasing rural incomes a top policy priority. Major policy initiatives in 2004 included a phase-out of agricultural

Figure 6
China's estimated per capita income by province, 2003

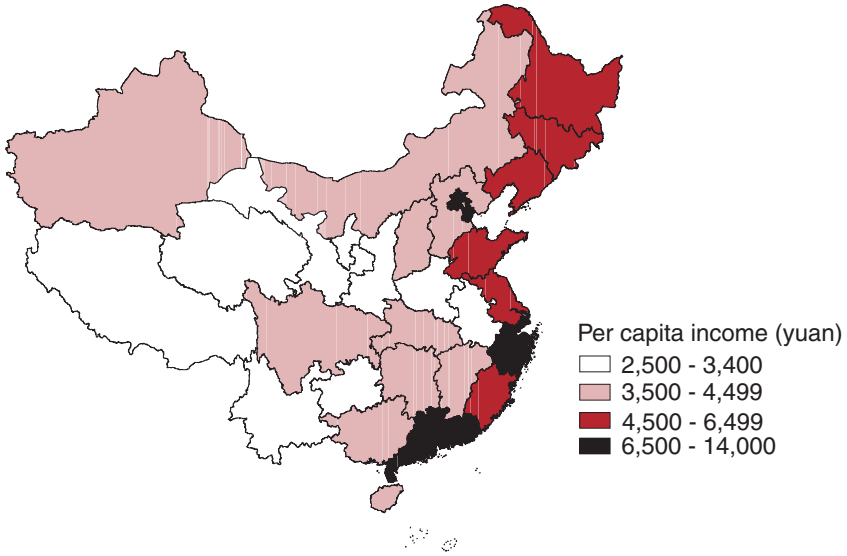
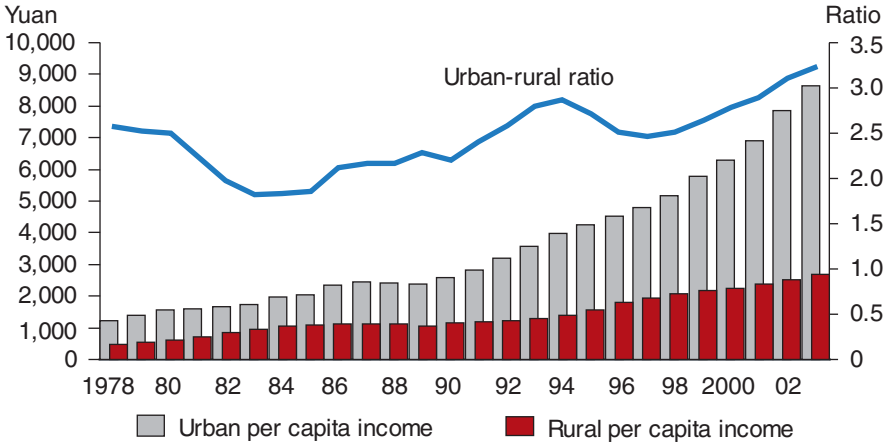


Figure 7
China's urban and rural real per capita income, 1978-2003



Note: Per capita income is deflated using the retail price index and expressed in year 2000 constant yuan.
Source: Calculated by ERS using data from China National Bureau of Statistics.

taxes and direct subsidies of $1.2 billion to grain producers in 13 of China's 31 provinces.

Fiscal Deficits

The boom of recent years has been partially supported by substantial fiscal deficits. On average, during the decade of the 1990s, China had a fiscal deficit in excess of 2 percent of GDP. This compares with a current U.S. fiscal deficit of around 4 percent of GDP. Between 2000 and 2002, China's fiscal deficit widened to an average of more than 3.5 percent per year. In 2003, the deficit narrowed, but new spending programs and tax cuts could expand it. It is possible to sustain a fiscal deficit in the 2 percent of GDP range for a developing country with excess capacity and low external debt. However, sustained fiscal deficit in the range of 2 percent of GDP, the higher range of the early 2000s, would be excessive.

The central government's fiscal deficit does not include deficits incurred by local governments. Many rural townships and villages are heavily in debt or bankrupt. The extent of local government deficits is unknown, but press reports often include references to difficulties paying teachers and local government employees. Recent government directives aimed at helping farmers (reducing local taxes and fees and paying out subsidies and other benefits to farmers) may put additional financial stress on local government finances.

More troubling are potential liabilities, including nonperforming loans held by state banks and unfunded pension liabilities. Fiscal deficits could eventually lead to inflation if the government prints money to pay pensioners or bail out banks, state-owned enterprises, and local governments.

Unemployment Problems

The relatively rapid expansion of China's labor force has left China's economy with an unusual combination of extremely rapid growth and chronic unemployment problems. The official urban unemployment rate is in the range of 4 to 5 percent, but large numbers of laid-off workers are not counted in the statistics because they remain on their employers' books although they draw little or no salary. Actual unemployment is much higher, with a recent estimate of urban unemployment for 2002 of 14 percent.[23] More seriously, it is widely recognized that much of China's rural labor force is underemployed, engaged only in seasonal agricultural work with paltry earnings. China has about 2.5 agricultural laborers for every hectare of arable land. China's Ministry of Agriculture estimates that rural China has 150 million surplus workers.[24]

Many of China's labor-intensive factories and construction sites are staffed with migrants from rural areas whose only alternative is to subsist on landholdings that average about 1 acre per person. However, despite the huge rural-urban migration flows, rural areas still have surplus labor because China's household registration system prevents most rural people from legally moving to cities. At the same time, urban unemployment problems have been exacerbated by industry restructuring that has closed down or downsized loss-making state-owned enterprises. Many laid-off workers

[23]John Giles, Albert Park, and Juwei Zhang. "What is China's True Unemployment Rate?" Unpublished paper, February 2004, http://www.msu.edu/~gilesj/gpz2.pdf.

[24]"China: Surplus Rural Laborers Hit 150 Million," China Xinhua News Agency, April 8, 2004.

have been forced into early retirement on minimal pensions or into low-paying jobs as street vendors or taxi drivers.

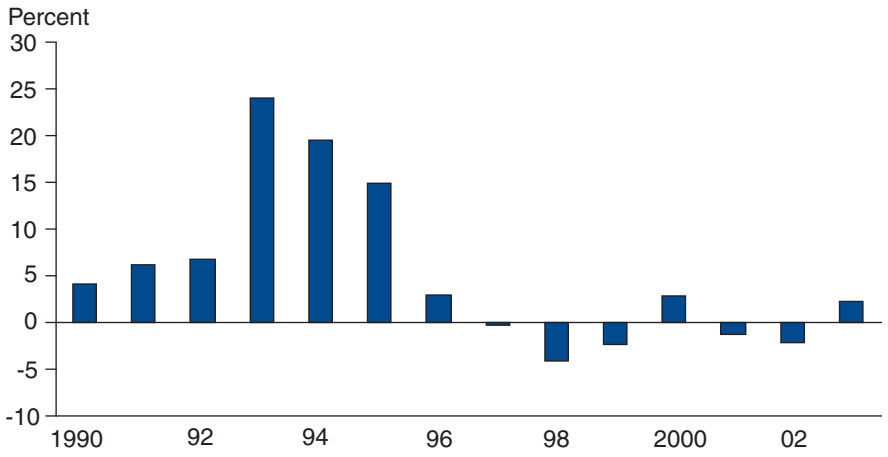
China now faces the difficult challenge of simultaneously reducing unemployment problems and raising incomes. Employment must grow by 1 percent annually just to keep up with growth in the labor force. Nonagricultural job growth will have to be even faster to absorb unemployed and underemployed rural workers. At the same time, Chinese companies are under pressure to raise worker productivity in order to cut costs and compete both domestically and internationally. The need to increase worker productivity induces employers to minimize hiring, which conflicts with the goal of employment growth.

Inflation or Deflation: Which Is It?

In recent years, China has been viewed by various economists as both a potential source of deflation in the world economy for manufactured goods and a source of inflationary pressure for raw materials. Extremely rapid growth in the range of 8 to 10 percent annually would result in significant inflationary pressures in most economies as demand for raw materials outstrips supply. With China such a large part of the world market, however, this pressure spills over into the international market. Thus increases in the price of oil and other primary commodities in 2003 and 2004 are a direct result of the increasing demand from China and the upswing in the United States. During the early 1990s, China did experience a bout of rapid inflation that peaked in 1996. Officials cooled down the economy through tighter monetary policy and by ordering state-run banks to tighten credit availability.

However, between 1997 and 2002, China experienced periods of mild deflation, with the price level dropping 1 to 3 percent annually (fig. 8). Agricultural prices fell over this period after reaching historical highs in 1996. Rapid investment in factories and other assets boosted production capacity, and demand weakened during the Asian financial crisis of 1997-

Figure 8
China's industrial product prices fell during 5 of the last 7 years



Note: Calculated from China price index for industrial products when they leave the factory.
Source: China National Bureau of Statistics.

98. Spending by cautious Chinese consumers grew at a relatively slow rate as saving rates rose. Supply outpaced domestic demand in many industries, leading to inventory buildups and price wars between rival companies in the late 1990s. Normally, in a market economy low prices drive firms out of business or induce them to cut back production. But in China, many companies keep producing despite chronic losses and unpaid debts because state-owned banks continue to extend them credit. Many foreign-backed ventures accept short-term losses because they view China as a potentially lucrative market in the long-term.

During China's deflationary period, some observers suggested that China was a source of deflationary pressure on world prices. Its seemingly boundless supply of low-priced exports was seen as keeping downward pressure on prices worldwide. Manufacturers in other countries had to maintain constant prices to stay competitive with Chinese products.

Inflationary pressures started to manifest themselves in late 2003 and 2004 through rapidly rising raw material prices. China's consumer price index in April-June 2004 was up 5 percent and the retail price index up 4.1 percent over year-earlier levels. However, consumer price inflation was confined to food items. The food component of China's consumer price index was up 14 percent in June 2004 relative to year-earlier levels. Consumer grain prices were up 32.0 percent, and meat up 22.1 percent, eggs, 30.3 percent, and fish 18.5 percent, reflecting rising commodity prices not only in China but worldwide (table 1). Prices rose sharply for nearly every major raw material, including petroleum, steel, other metals, and coal. The Chinese Government became concerned that the economy was overheating, raised bank reserve requirements, and prepared to tighten money supply growth.

Table 1—China's annual inflation rate increase in consumer prices, by item, June 2004

	Annual change in consumer prices
	Percent
Consumer price index, all items	5.0
Consumer price index, by item:	
1. Food items	14.0
Grain	32.0
Meat	22.1
Eggs	30.3
Fish	18.5
Vegetables	10.2
Fruit	-0.9
2. Tobacco, alcohol	1.5
4. Clothing	-1.5
5. Household items	-1.4
6. Health	-1.4
7. Transport, communication	-1.3
8. Recreation, culture	0.7
9. Housing	4.9

Note: Annual percent change in Consumer Price Index from the same month in 2003.
Source: China National Bureau of Statistics.

Prices of most nonfood consumer products continued to fall, despite sharply rising raw material prices. In June 2004, Chinese consumer prices of clothing, household items, health services and products, and transportation were again down 1.3 to 1.5 percent from year-earlier levels (table 1). Prices for recreation and cultural items were up 0.7 percent, and tobacco and alcohol registered inflation of just 1.5 percent. Housing was the only nonfood consumer item with significant inflation, at 4.9 percent over year-earlier levels. Thus, sharply rising raw material prices were still not reflected in nonfood consumer prices.

Conclusions

China's economy has grown at rates that are among the highest for any major country in the 20th century. The Chinese have accomplished this by moving their highly centrally planned economy toward a decentralized market economy. Underlying this change and the very high rates of economic growth are high gross capital formation shares of GDP, which have exceeded 40 percent in some years, and a flow of direct foreign investment that has brought the added benefit of technology transfer. While it is clear that a substantial part of the high growth rate is due to overcoming inefficiencies in the centrally planned economy, the increase is also the result of significant growth in total factor productivity.

However, serious structural imbalances exist that must be dealt with if growth is to continue at or near past rates. A substantial burden of nonperforming loans, equal to perhaps as much as 1 year of Chinese GDP, overhangs the banking system. Significant income differentials between rural and urban areas must be addressed. In spite of the impressive economic growth rate, high unemployment and underemployment still exist. Finally, significant international pressure is on China to revalue its arguably undervalued exchange rate. All these factors pose risks for future Chinese growth. While our central forecast supports continued high growth, uncertainty as to how China will deal with its risk factors tempers that forecast.

References

Borensztein, Eduardo, and Johathan D. Ostry. "Accounting for China's Growth Performance," *American Economic Review*, vol. 86, no. 2, May 1996, pp. 224-28.

Chen, Xiwen. "Resource Allocation and China's Rural Development" (in Chinese), *China Rural Economy*, January 2004, pp. 4-9.

China National Bureau of Statistics. *China Statistical Yearbook 2003*. Beijing: China Statistical Publishing House, 2003.

China Xinhua News Agency. "China: Surplus Rural Laborers Hit 150 Million." Online news report, April 8, 2004.

Denison, Edward F. *Accounting for United States Economic Growth, 1929-1969.* Washington, DC: Brookings Institution, 1974.

Economist Intelligence Unit. *China Country Profile 2004*. March 2004, p. 56.

Gale, Fred. "China's Statistics: Are They Reliable?" in Fred Gale, ed., *China's Food and Agriculture: Issues for the 21st Century*, U.S. Dept. Agr., Econ. Res. Serv., AIB-775, April 2002, pp. 50-53.

Gale, Fred, and James Hansen. *China's Exports Outpaced Imports During WTO Year One,* U.S. Dept. Agr., Econ. Res. Serv., FAU-79-02, August 2003.

Giles, John, Albert Park, and Juwei Zhang. "What is China's True Unemployment Rate?" Michigan State University, unpublished paper, February 2004. http://www.msu.edu/~gilesj/gpz2.pdf.

Global Insight, Inc. *The Global Economy and Outlook*, presentation by Global Insight in Washington, DC, March 16, 2004.

Han, Jun. "The Creation of a Favorable Environment for Investment in Rural China: Current Situation and Future Prospects." In *Rural Finance and Credit Infrastructure in China*. Paris: Organization for Economic Cooperation and Development, 2004.

Heytens, Paul, and Harm Zebregs. "How Fast Can China Grow?" In Wanda Tseng and Markus Rodlauer (eds.). *China, Competing in the Global Economy*. Washington, DC: International Monetary Fund, 2003.

Modigliani, Franco, and Shi Larry Cao. "The Chinese Saving Puzzle and the Life-Cycle Hypothesis," *Journal of Economic Literature,* vol. 42, March 2004, pp. 145-70.

Schumpeter, Joseph A. *Capitalism, Socialism, and Democracy*. New York: Harper, 1950.

Shane, Mathew, Terry Roe, and Munisamy Gopinath. *U.S. Agricultural Growth and Productivity: An Economywide Perspective*. U.S. Dept. Agr., Econ. Res. Serv., AER-758 1998.

U.S. Dept of Labor, Bureau of Labor Statistics. "Current Employment Statistics." http://www.bls.gov/ces/home.htm, accessed June 2004.

U.S. Dept. of Agriculture, Economic Research Service. Long-term Macroeconomic Dataset, http://www.ers.usda.gov/data/macroeconomics.

U.S. Dept. of Agriculture, Foreign Agricultural Service. *U.S. Trade Internet System*. Accessed June 2004. http://www.fas.usda.gov/ustrade/.

World Bank. *World Development Indicators*. Washington, DC, 2004. http://www.worldbank.org/data/wdi2004/index.htm.

Wu, Yanrui. *China's Consumer Revolution*: *The Emerging patterns of Wealth and Expenditure*. Northhampton, MA: Edward Elger, 1999.

Young, Alwyn. "Gold Into Base Metals: Productivity Growth in the People's Republic of China during the Reform Period," *Journal of Political Economy*, vol. 111, Dec. 2003, pp. 1220-61.