United States International Trade Commission

U.S.-Taiwan FTA:

Likely Economic Impact of a Free Trade Agreement Between the United States and Taiwan

Investigation No. 332-438
USITC Publication 3548
October 2002

U.S. International Trade Commission

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U.S.-Taiwan FTA: Likely Economic Impact of a Free Trade Agreement Between the United States and Taiwan

Investigation No. 332-438

Publication 3548 **October 2002**

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PREFACE

On January 17, 2002, the U.S. International Trade Commission received a letter from the Senate Committee on Finance (the Committee) requesting that the Commission conduct a fact-finding investigation under section 332(g) of the Tariff Act of 1930 of the economic impact of establishing a free trade agreement between the United States and Taiwan. Subsequently, fourteen Members of the House Ways and Means Committee concurred in the request for a study of a free trade agreement with Taiwan, in a letter sent to the Commission. In response to the request, the Commission instituted investigation 332-438 on February 4, 2002.

The Committee requested that the Commission's report include:

- A general overview of the Taiwan economy;
- An overview of the current economic relationship between the United States and Taiwan, including a discussion of the important industry sectors in each;
- An inventory and analysis of the barriers (tariff and nontariff) to trade between the United States and Taiwan;
- To the extent data are available, the estimated economic effects of eliminating all quantifiable trade barriers (tariff and nontariff), with special attention to agricultural goods, on:
  - the volume of trade in goods and services between Taiwan and the United States;
  - sectoral output and gross domestic product for both;
  - wages and employment across industry sectors for each; and
  - final prices paid by consumers in Taiwan and the United States; and
- A qualitative assessment of the effects of removing nonquantifiable trade barriers

The Committee requested that the Commission conduct its analysis of the contemplated free trade agreement in a dynamic, as well as static, analytical framework.

Copies of the notice of the investigation were posted at the Office of the Secretary, U.S. International Trade Commission, Washington, DC 20436, and the notice was published in the Federal Register (67 F.R. 6276) on February 11, 2002. Nothing in this report should be construed to indicate how the Commission would find in an investigation conducted under other statutory authority covering the same or similar subject matter.

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List of Frequently Used Abbreviations and Acronyms

ADB	Asian Development Bank
APEC	Asia Pacific Economic Cooperation
ASEAN	Association of South East Asian Nations
ATC	Agreement on textiles and clothing
BEA	Bureau of Economic Analysis
BOFT	Board of Foreign Trade
CEPD	Council on Economic Planning and Development
CFI	The Chinese National Federation of Industries in Taiwan
CGE	Computable General Equilibrium
Commission	U.S. International Trade Commission
CSIS	Center for Strategic and International Studies
ERS	Economic Research Service
FAS	Foreign Agriculture Service
FDA	Food and Drug Administration
FDI	Foreign direct investment
FIRE	Finance, insurance, and real estate
FMD	Foot and mouth disease
FTA	Free trade agreement
FTE	Full time equivalent
GATT	General Agreement on Tariffs and Trade
GDP	Gross domestic product
GNP	Gross national product
GPA	Government procurement agreement
GTAP	Global Trade Analysis Project
HCI	Heavy and chemical industries
IPR	Intellectual property rights
IT	Information technology market
ITA	Information technology agreement
MPPs	Miscellaneous plastic products
NAFTA	North American Free Trade Agreement
n.e.c.	Not Elsewhere Classified
n.e.s.	Not Elsewhere Specified
NFI	National Federation of Industries
NPLs	Non-performing loans
NT$	New Taiwan dollar
NYSE	New York Stock Exchange
OE	Original equipment
OEM	Original manufacturer basis
OPIC	Overseas private investment corporation
PBEC	Pacific Basin Economic Council

List of Frequently Used Abbreviations and Acronyms-Continued

PECC	Pacific Economic Cooperation Council
PRC	People's Republic of China
PVC	Polyvinyl chloride
RCA	Revealed comparative advantage
RPC	Registration of product certification
SIC	Standard Industrial Classification
SITC	Standard Industrial and Trade Classification
SPS	Sanitary and phytosanitary
TFP	Total factor productivity
TRIPS	Trade related aspects of intellectual property rights
TRQs	Tariff rate quotas
TSEC	Taiwan Stock Exchange Corp.
USC	United States Code
USCS	U.S. Commercial Service
USDA	U.S. Department of Agriculture
USDOC	U.S. Department of Commerce
USDOL	U.S. Department of Labor
USDOT	U.S. Department of Transportation
USITC	U.S. International Trade Commission
USTR	United States Trade Representative
VAT	Value-added tax
WTO	World Trade Organization

EXECUTIVE SUMMARY

Scope of the Study

This report assesses the economic impact of establishing a Free Trade Agreement (FTA) between the United States and Taiwan. The report includes an overview of the Taiwan economy, an overview of the current economic relationship between the United States and Taiwan, a discussion of important industry sectors, an inventory of the trade barriers between the United States and Taiwan, estimates of the economic effects of eliminating quantifiable trade barriers, and an assessment of the effects of removing nonquantifiable trade barriers. It is estimated that both economies likely would experience relatively small economywide effects from a FTA. However, some sectoral trade flows would increase substantially in percentage terms. In motor vehicles, rice, fish, and other foods sectors, U.S. exports to Taiwan would increase by more than 100 percent. Similarly, U.S. imports from Taiwan for dairy, textiles, wearing apparel, leather, and certain crop commodities also would rise by more than 100 percent. In dollar terms, these changes are significantly smaller because in many of the sectors, current trade is small or near zero, so the percent change is being applied to a small base.

Overview of the Taiwan Economy

The Taiwan economy is only about 3 percent of the size of the U.S. economy, but has experienced strong, steady growth of about 8.2 percent annually since 1961. This sustained growth results in part from Taiwan's strong export promotion strategies, which were implemented gradually during the decades of the 1970s and 1980s. These export strategies, which focused on reducing barriers to trade and investment, resulted in large trade surpluses, a steady increase in Taiwan's foreign exchange reserves, stable prices, and full employment.

Over the decades, Taiwan's economy has gone through several transformations—from an agricultural base, to a manufacturing center of labor-intensive products, and finally to a major supplier of high-technology goods. The driver of Taiwan's economic growth is manufacturing, which was valued at $259 billion in 1999, and provided 98.6 percent of its exports in 2000. Electrical and electronic machinery account for the largest share of Taiwan's manufacturing, totaling $101 billion of all manufacturing value in 1999. Because this subsector is growing so rapidly, Taiwan has become the world's third largest producer of information technology hardware, and ranks first in the production of notebook computers, monitors, motherboards, and scanners. Taiwan also exports significant volumes of textile products and appliances.

Taiwan also relies on services to provide a large share of its gross domestic product (GDP). In 2001, services accounted for 67.2 percent of Taiwan GDP, and the largest share of this sector (32.7 percent) consists of finance, insurance and business services. In 2000, Taiwan agricultural production totaled $165 million, accounting for approximately 2 percent of GDP.

Taiwan's major trading partners include mainland China, the United States, Hong Kong, Japan, the European Union, and other economies of Southeast Asia. With the exception of Japan, Taiwan maintains a trade surplus with its major trading partners, and the largest surplus is with the United States.

The top destinations for Taiwan foreign investment include mainland China, the United States, Central America, and countries within the Association of Southeast Asian Nations (ASEAN). The largest share of Taiwan investment in mainland China - 45.3 percent - is in electronics and appliances.

Taiwan lifted important investment restrictions in 1997, both on the operation of its own firms abroad and on foreign firms operating in Taiwan. In mid 1997, Taiwan began permitting its firms to issue shares abroad and lifted restrictions that prevented foreign firms from issuing shares in Taiwan. However, Taiwan continues to maintain a range of formal and informal restrictions on capital flows into and away from the island.

Taiwan imports significant amounts of intermediate products in order to maintain its sizeable export growth. From Japan, Taiwan imports large quantities of machinery and equipment, and from the United States, it imports significant volumes of industrial raw materials and other industrial inputs.

U.S.-Taiwan Economic Relationship

The United States is an important supplier of electrical machinery and appliances, transport equipment, scientific instruments, and chemical products to Taiwan. Additionally, the United States is a net exporter of agricultural products to Taiwan, and in 2001 Taiwan was the fifth largest market for these U.S. products, in terms of value. Taiwan, in turn, supplies many manufactured goods – particularly machinery - to the United States. In 2001 the largest of these U.S. imports from Taiwan included office and data processing machines, electrical machinery and appliances, telecommunications and recording equipment, apparel and clothing accessories, as well as other manufactured metal goods and road vehicles.

Although overall bilateral trade volumes between the two economies decreased somewhat from 2000 to 2001, Taiwan was the eighth largest U.S. trading partner in 2001, ranking 10th in terms of U.S. exports and eighth in terms of U.S. imports. U.S. exports to Taiwan totaled $16.6 billion in 2001, down from $22.4 billion in 2000, and U.S. imports from Taiwan totaled $33.3 billion, down from $40.4 billion in 2000. The U.S. trade deficit with Taiwan was $16.6 billion in 2001.

The drop in U.S.-Taiwan trade volume from 2000 to 2001 in part reflects a longer, downward trend in agricultural trade between the two economies. The total value of U.S. agricultural exports to Taiwan fell by 31 percent between 1995 and 2001, decreasing from $3.3 billion in 1995 to $2.3 billion in 2001. The value of U.S. agricultural imports from Taiwan also fell during that period, from $600 million in 1995 to $542 million in 2001. U.S. agricultural exports to Taiwan consist primarily of bulk commodities like wheat, course grains, soybeans, and cotton. The United States imports a number of consumer-oriented agricultural products from Taiwan, such as snack foods, processed fruits and vegetables. The United States also imports fish and other seafood from Taiwan.

Most U.S. investment in Taiwan is concentrated in the manufacturing sector, especially in electronics and chemicals, but also flows into wholesale trade and finance, insurance, and real estate. U.S. net capital outflows to Taiwan totaled $1.15 billion in 2000, and by the end of 2000, total U.S. investment in Taiwan totaled $7.74 billion.

Taiwan's investment in the United States also is concentrated in manufacturing (particularly chemicals and machinery), and in financial institutions, wholesale trade, and services. At the end of 2000, Taiwan's investment in the United States totaled $3.22 billion, and net capital outflows to the United States in 2000 were $186 million.

Principal U.S.-Taiwan Trade Barriers

The United States maintains a relatively low average tariff rate of 2.8 percent. However, a number of higher tariffs remain on selected products, including poultry products, citrus juice, textiles, apparel, and trucks.

In order to gain admission to the WTO on Jan. 1, 2002, Taiwan made major improvements in its trade and business climates. For example, Taiwan reduced its average nominal tariff from 8.2 percent before accession to the current 7.1 percent, and will lower it again to 4.2 percent by 2007. Despite this effort, substantial trade barriers continue to exist. Many of the remaining tariff barriers are in the agricultural sector, where the average nominal tariff rate is 15.2 percent, down from the preaccession rate of 20 percent. That rate is scheduled to drop to 12.9 percent by 2006.

In addition to tariffs in the agricultural sector, Taiwan also maintains tariff-rate quotas (TRQs) on several agricultural products, including poultry products, several fruits, some fish and sugar and has an absolute import quota on rice. Tariff-rate quotas also are maintained on small passenger cars. In 2002, Taiwan's TRQ on U.S. passenger car and light truck imports stood at 159,220 vehicles, which were assessed an in-quota tariff of 29 percent. By 2010, the quota will be raised to 684,617 vehicles, which will be assessed an in-quota tariff of 17.5 percent.

During the Uruguay Round, the United States scheduled TRQs for approximately 11 agricultural commodity areas. The United States also maintains certain quotas on textile and apparel.

In gaining accession to the WTO, Taiwan greatly improved its regulatory regime, but important nontariff barriers from Taiwain's regulatory regime remain. These include some limitations on foreign investment and unnecessarily burdensome standards, testing, labeling, and certification requirements. While foreign investment restrictions have been reduced in many industries, limits still remain in telecommunications, air transport, and independent power sectors. Insufficient intellectual property rights protection remains a problem. In fact, because of enforcement problems and pirating, Taiwan was moved, in April 2001, from the United States Trade Representative's Special 301 general watch list to the priority watch list.

U.S. trade remedy laws are among the concerns most frequently raised by Taiwan exporters to the United States. These exporters also contend that complexities in the U.S. regulatory system have resulted in additional costs and difficulties at the border. Taiwan authorities claim that certain customs regulations, particularly those applied to textiles and clothing, are overly complex and require unnecessary information.

Impact from Eliminating Trade Barriers

The U.S. economy likely would experience very small effects from the elimination of trade barriers under a U.S.-Taiwan FTA, but U.S. trade with Taiwan would increase. Commission analysis suggests that both total U.S. exports and imports would be 0.2 percent higher than levels expected in the absence of a trade agreement. In value terms, U.S. exports to Taiwan likely would rise from about $21.9 billion to $25.3 billion, a 16 percent increase, while U.S. imports from Taiwan would increase from $39 billion to $46 billion, an 18 percent increase.

In percentage terms, the U.S. sectors likely to benefit the most would be motor vehicles, rice, fish, and other foods. These sectors likely would experience increases in exports to Taiwan of more than 100 percent. On the other hand, U.S. imports from Taiwan for dairy, textiles, wearing apparel, leather, and certain crop commodities would rise by more than 100 percent. In dollar terms, these changes are significantly smaller because in many of the sectors, current trade is small or near zero, so the percent change is being applied to a small base. U.S. sectors experiencing the largest dollar increase in exports to Taiwan would include machinery and equipment ($868 million), motor vehicles and parts ($629 million), and foods ($520 million). U.S. sectors with the largest dollar increase in imports would include: textiles, wearing apparel and leather products ($3.3 billion), machinery and equipments ($866 million), metals and related products ($705 million), and electronic equipments ($610 million).

Overall, the removal of quantifiable barriers would have a negligible impact on U.S. production and gross domestic product (GDP), but would have a small impact on Taiwan production and GDP. Taiwan GDP could increase by 0.3 percent as a result of eliminating trade barriers under an FTA.

The removal of certain nontariff measures would have additional effects on services. For example, U.S. asset management firms and banks could expect to increase sales in Taiwan if certain nontariff barriers were removed under an FTA. The removal of these barriers might also affect U.S.-Taiwan trade or investment in textiles and apparel, vehicles, and education.

Effects on Agriculture

One of Taiwan's economic disadvantages is its limited natural resource base. This limitation is one reason that the United States is able to export substantial amounts of raw material to the Taiwan economy, and it provides the United States with a comparative advantage under free trade conditions in agriculture, since only about one-quarter of Taiwan's land area is cultivatable. In addition, over time Taiwan has deemphasized agricultural production and agriculture's share of GDP is shrinking. Since 1951, the share of agriculture in Taiwan's GDP has fallen from 32.3 percent to less than 1.9 percent in 2001.

Under an FTA with Taiwan, overall U.S. output of vegetables, fruits, and nuts are estimated to be about 0.3 percent higher in 2005. In terms of U.S. exports to Taiwan, the value of rice, fish, meats, vegetables, fruits, and nuts and other foods would increase by more than 50 percent.

U.S. imports of certain agricultural products from Taiwan also would increase. For example, since U.S. barriers to Taiwan dairy trade are high, the likely impact of an FTA would be an increase in imports of these products from Taiwan by 264 percent.

In addition to the simulation results, qualitative analysis of removing nontariff barriers to trade between the United States and Taiwan indicates that U.S. exports of rice to Taiwan likely would increase substantially if Taiwan's absolute import quota was removed.

Effects on the Textiles, Apparel, and Leather Products

A U.S.-Taiwan FTA would have a very slight, negative impact on the U.S. textiles, apparel, and leather sector but a larger, positive impact on the same sector in Taiwan. The U.S. textile, apparel, and leather sector could shrink by about 0.4 percent as a result of larger volumes of Taiwan imports. The Taiwan textile, apparel, and leather sector could grow by about 8.2 percent. In relative terms, the volume of textile, apparel, and leather imports to the United States from Taiwan could be 126 percent higher than in the absence of the FTA.

CHAPTER 1
Introduction

Purpose of the Report

The purpose of this report is to assess the likely economic impact of establishing a free trade agreement between the United States and Taiwan. The U.S. International Trade Commission (the Commission) initiated work on this fact-finding investigation under section 332(g) of the Tariff Act of 1930 (19 U.S.C. 1332(g)), following receipt of a letter from the United States Senate Committee on Finance (the Committee) on January 17, 2002 (see Appendix A).[1] Specifically, the Committee requested that the Commission's report include the following:

- A general overview of the Taiwan economy;
- An overview of the current economic relationship between the United States and Taiwan, including a discussion of the important industry sectors in each; An inventory and analysis of the barriers (tariff and nontariff) to trade between the United States and Taiwan;
- To the extent data are available, the estimated economic effects of eliminating all quantifiable trade barriers (tariff and nontariff), with special attention to agricultural goods, on:
  - the volume of trade in goods and services between Taiwan and the United States;
  - sectoral output and gross domestic product for both;
  - wages and employment across industry sectors for each; and
  - final prices paid by consumers in Taiwan and the United States; and
- A qualitative assessment of the effects of removing nonquantifiable trade barriers.

Scope of the Report

This report will focus on the economic relationship between the United States and Taiwan.[2] That relationship has grown significantly over the past half century,

[1] Subsequently, fourteen Members of the House Ways and Means Committee concurred in the request for a study of a Free Trade Agreement with Taiwan, in a letter sent to the Commission (Appendix A).

[2] The current political relationship between Taiwan and the United States is beyond the scope of this study and is formally described in Taiwan Relations Act, Public Law 96-8, 96th U.S. Congress, effective as of January 1, 1979; approved April 10, 1979.

reflecting both policy changes and the rapid economic development of Taiwan. Based on total trade, Taiwan was the eighth largest U.S. trading partner in 2001. It was the 10th largest destination for U.S. exports, and the eighth largest source of U.S. imports.

Trade and investment between the United States and Taiwan are currently subject to relatively few barriers. Taiwan recently passed a comprehensive tariff schedule revision in connection with its accession to the World Trade Organization (WTO). About 4,500 tariffs were reduced as of Jan. 1, 2002, the date Taiwan became a WTO member. Taiwan's average nominal tariff rate has been lowered from the pre-accession level of 8.2 percent ad valorem to 7.1 percent in 2002 and will fall to 4.2 percent by 2007. For the purpose of this study, it has been assumed that the contemplated free trade agreement between the two economies consists of a complete elimination of all tariff and nontariff trade barriers between them, effective 2001.[3] The Commission makes no attempt to assess the probability that any specific barrier will be eliminated under the hypothetical free trade agreement. It is assumed that all trade barriers would be removed simultaneously with no gradual phase-in provisions.

Approach of the Report

To collect information for this report, Commission staff conducted extensive surveys of the existing literature on the subject matter, and held a number of interviews with U.S. officials, Taiwan representatives, and industry contacts both in Washington, D.C. and in Taiwan. In addition, the Commission received about 125 written submissions, which were solicited from the public through a *Federal Register* notice (see appendix B). On May 13, 2001, a public hearing took place in which the Commission heard testimony from nine witnesses regarding the proposed FTA (see appendix C). Information on bilateral trade as well as trade barriers was retrieved from standard, publicly available, data sources.

To assess the potential effects of a U.S.-Taiwan FTA, the Commission used the Global Trade Analysis Project (GTAP) model to conduct a series of simulations over the period 2001- 2013.[4] The GTAP model is a multicountry and multisector computable general equilibrium (CGE) model with economywide coverage of merchandise and service sectors.[5] The comparative static GTAP model is solved sequentially to estimate the

[3] The year 2001is the last full year for which complete trade data are available for modeling purposes.

[4] The impact of an FTA on the variables of interest are measured relative to a projected baseline (2001-2013). The effects of an FTA, implemented in 2001, are measured in four-year intervals in 2005, 2009, and 2013.

[5] The model estimates the impact of various types of trade policy changes on various commodity and factor prices across sectors and regions. The GTAP model has been applied extensively in research assessing changes in trade policy. For recent applications of this model, see *The Impact on the U.S. Economy of Including the United Kingdom in a Free Trade Arrangement with the United States, Canada, and Mexico*, Inv. No. 332-409, USITC publication 3339, August 2000; and *U.S.-Korea FTA: The Economic Impact of Establishing a Free Trade Arrangement (FTA) between the United States and the Republic of Korea*, Inv. No. 332-425, USITC publication 3452, September 2001.

impacts of the FTA on the evolving U.S. and Taiwan economies. The evolution of the U.S., Taiwan, and other global economies over time is summarized by projections of important macro-variables. The Commission analysis also considers the implications of productivity gains in Taiwan from a more open economy due to the FTA. Additionally, the Commission qualitatively assessed the removal of non-tariff measures that could not be otherwise quantified. Appendix D presents a comprehensive discussion of the GTAP model and database.

Organization of the Report

This report contains seven chapters, including this introduction. Chapter 2 provides an overview of the Taiwan economy, including discussion of its resources and infrastructure, economic structure, economic policy and performance, international trade and investment relationships, and its participation in international trade agreements.

Chapter 3 discusses the economic relationship between Taiwan and the United States. Specifically, it presents facts and figures concerning bilateral trade, trading patterns, and the structure of the bilateral relationship. Bilateral investment trends and patterns also are reviewed.

Chapter 4 provides detailed discussions of the trends in bilateral trade and domestic production in both economies for a number of important agricultural sectors including grains; citrus fruits; fresh deciduous fruit; fish and shellfish; poultry; red meat; and processed foods. The chapter also provides other information such as the relative competitive strengths or weaknesses of each sector. Chapter 5 provides similar discussions for 10 non-agricultural goods industries including textiles; apparel; industrial organic chemicals; miscellaneous plastics products; industrial fasteners; motor vehicles; auto parts; measuring, testing, controlling, and analytical instruments; semiconductors; and computers, peripherals, and parts. It also covers the banking and securities industry and education services.

Chapter 6 reviews the principal tariff and nontariff barriers to U.S.-Taiwan trade. Although the two economies have relatively low average protection rates, substantial trade barriers remain in a number of important areas, such as agriculture or motor vehicles.

Chapter 7 provides estimates of the likely economic effects of the removal of those barriers on a number of measures of economic activity. As mentioned previously, the quantitative analysis conducted by the Commission incorporates the static GTAP model into a dynamic framework. The effects of the FTA are examined by means of a series of comparative static analyses with multiple sequential simulations extending out to 2013. Finally, a qualitative assessment is presented on the likely impact of removing nonquantifiable barriers to trade between the United States and Taiwan.

CHAPTER 2
The Taiwan Economy

Introduction

Over the last five decades, Taiwan has gradually democratized and implemented policies that fostered rapid growth, large trade surpluses, stable prices, full employment, and relatively equitable income distribution.[1] Throughout this period, Taiwan's economy has benefitted from a reduction of barriers to trade and investment, and has gone through several transformations–from an agriculturally based economy to a manufacturing center for labor-intensive products, and then to a major supplier of high-technology goods.

During a 50-year period of colonial rule between 1895 and 1945, Japan promoted agriculture in Taiwan, with the goal of making the island the "rice bowl" for Japan.[2] Following the end of this occupation, and during the 1950s, the ruling Nationalist Party implemented an extensive land reform program, redistributing land among small farmers and compensating large landowners with commodities certificates in state-owned industries. Many of these new equity owners used their capital to develop commercial and industrial enterprises, transforming Taiwan from an agricultural economy to an industrial one.[3]

The industrialization in the 1950s was followed by an export boom in the 1960s and 1970s, consisting primarily of low-cost, labor-intensive manufactures. Taiwan's wages eventually began to rise and its currency appreciated significantly in the 1980s, as the economy made yet another transition–into higher-technology, capital-intensive manufactures, such as computer parts and electronics. In the 1990s, most of Taiwan's labor-intensive industries moved their production facilities to mainland China, allowing the island economy to specialize in capital-intensive manufacturing.[4]

Because of its conservative financial approach, Taiwan suffered little compared to many of its neighbors from the Asian financial crisis in 1997-99.[5] Taiwan also

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[1] Shirley W.Y. Kuo and Christina Y. Liu, "The Development of the Economy of Taiwan," *Asian Pacific Economic Literature*, 1999, pp. 36-49.

[2] Kuo-Ting Li, *The Evolution of Policy Behind Taiwan's Development Success*, World Scientific Publishing, New Jersey, 1995, p. 54.

[3] U.S. Department of State, "Background Note: Taiwan," found at Internet address http://www.state.gov, retrieved Apr.7, 2002.

[4] *Economist Intelligence Unit*, "Taiwan: Country Profile 2001," p. 26. On a macroeconomic level, the Taiwan economy as a whole maintained GDP growth throughout the period of the Asian financial crisis. However, various sectors of the economy were affected differently. More complete discussion of individual sectors of the Taiwan economy and their experience during the financial crisis is presented in chapter 4.

[5] Official from North American Affairs Department, Taiwan Ministry of Foreign Affairs, interview with Commission staff, Taipei, Taiwan, May 22, 2002.

maintained strong growth following a major earthquake that struck the capital of Taipei, and severely damaged many of its computer chip manufacturing facilities. Taiwan has maintained positive growth throughout these events, but has suffered in 2001-02 due to the global economic downturn and decreased demand for its exports, as well as a slowdown in the global information technology (IT) market.[6] Other noteworthy events in Taiwan have included the March 2000 election of Taiwan's first opposition party candidate as president, and the December 2001 accession of Taiwan to the WTO. Key economic indicators for Taiwan are shown in table 2-1.

This chapter will provide an overview of the Taiwan economy, including discussion of its resources and infrastructure, economic structure, economic policy and performance, international trade and investment relationships, and its participation in international trade agreements.

Resources and Infrastructure

One of Taiwan's economic disadvantages is its limited natural resources.[7] The area under the control of the Taiwan authorities includes Taiwan proper, Penghu (the Pescadores), Kinmen (Quemoy), and Matsu. These lands hold modest domestic reserves of coal, natural gas, and oil, but not enough to be commercially viable. As a result, Taiwan is almost completely dependent on imports for its energy supply.

Table 2-1
Taiwan key economic indicators, 1997-2000

	1997	1998	1999	2000
GDP *(NT$ trn)*	8,329	8,939	9,290	9,686
GDP *(billion dollars)*	290.2	267.2	287.9	310.1
Real GDP Growth *(percent)*	6.7	4.6	5.4	5.9
CPI Inflation *(percent annual avg.)*	0.9	1.7	0.2	1.3
Population *(mn)*	21.7	21.9	22.1	22.3
Exports *(billion dollars)*	121.7	110.2	121.1	147.6
Imports *(billion dollars)*	107.8	99.9	106.1	133.6
Trade Balance *(billion dollars)*	13.9	10.3	15.0	14.0
Current Account *(billion dollars)*	7.1	3.4	8.4	9.3
Foreign Exchange Reserves *(billion dollars)*[1]	83.5	90.3	106.2	106.7
Total External Debt *(billion dollars)*	33.5	30.0	31.5	38.4
Debt Service Ratio, paid[2] *percent*	2.0	2.2	2.1	2.2
Exchange Rate *(NT$/US$)*	28.70	33.46	32.26	31.24

[1] Taiwan is ranked third in the world for quantity of foreign exchange reserves, behind Japan and China. Hong Kong is ranked fourth. According to Taiwan authorities, the large reserves are held as a precaution against liquidity or other economic crises forwhich other countries might expect assistance from the IMF or other international organizations of which Taiwan is not a member. Official from Taiwan Ministry of Economic Affairs, interview with Commission staff, Taipei, Taiwan, May 24, 2002.

[2] Debt service as a percentage of earnings from exports of goods and services.

Source: *Economist Intelligence Unit.*

[6] Official from Council on Economic Planning and Development, interview with Commission staff in Tapei, Taiwan, May 21, 2002.

[7] Official from North American Affairs, Taiwan Ministry of Foreign Affairs, interview with Commission staff, Taipei, Taiwan, May 22, 2002.

Mountains extend the entire length of the island, covering approximately 63 percent of the land area; only about one-quarter of Taiwan's land area is cultivatable.[8] The island is subject to two monsoon seasons, which together last almost 10 months and provide plentiful rainfall. Taiwan's climate is characterized as maritime subtropical.[9]

Taiwan experiences frequent earthquakes due to its location at the junction of the Manila and Ryukyu Trench in the Philippine Sea. The majority of earthquakes occur off the coast of eastern Taiwan and are deep beneath the sea floor causing little damage. The pushing together of plates has created numerous fault lines that crisscross the island. The largest earthquakes in recent history include a 7.4 magnitude quake that killed more than 3,250 people in 1935, and a 7.8 magnitude quake on November 14, 1986, which killed 15 and injured 44. More recently, a powerful and devastating earthquake struck on September 21, 1999, toppling high-rise buildings, damaging roads and bridges, and severing power across the island. According to statistics from the National Fire Administration of the Ministry of the Interior, the "921 Earthquake" caused 2,333 deaths, injured 10,002, and left 39 still unaccounted for. More than 4,950 people were rescued from collapsed buildings.[10]

Taiwan's Ministry of Foreign Affairs considers the education of the Taiwan labor force as one of the economy's most critical assets.[11] After the end of Japanese occupation, Taiwan authorities put a strong emphasis on promoting education, and have achieved near universal literacy. This effort meant both large government expenditures on education and a goal to provide equal opportunity in education. Since fiscal year 1991-92, total expenditure on education has measured more than 6 percent of GDP, and approximately 18 percent of total government expenditures.[12] Taiwan's emphasis on education significantly improved the quality of the labor force in Taiwan, and helped fuel the economy's rapid industrialization and sustained growth.[13]

Taiwan has developed a complex transportation network that includes roads, rail transport, ports and harbors, and urban mass transit. Taiwan's railway system provides passenger service between all major cities on the island, with a total of 2,363 kilometers of track. The system transported 16.7 million tons of freight and 182 million passengers in 1999.[14] The rail network is state owned, and has been electrified since 1979. There have been major improvements to the system, including a 345-kilometer bullet train from Taipei to Kaohsiung, but the proportion of freight transported by rail has been declining, as increasing number of shippers prefer to move their goods by truck.[15]

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[8] *Economist Intelligence Unit*, "Taiwan: Country Profile 2001," p. 20.

[9] U.S. Department of State, "Background Note: Taiwan," found at Internet address http://www.state.gov, retrieved Apr.7, 2002.

[10] Taiwan Government Information Office, *The Republic of China Yearbook 2001*, found at Internet address http://gio.gov.tw, retrieved Apr. 7, 2002.

[11] Official from North American Affairs Department, Taiwan Ministry of Foreign Affairs, interview with Commission staff, Taipei, Taiwan, May 22, 2002.

[12] Economist Intelligence Unit, "Taiwan: Country Profile 2001," p. 20.

[13] Shirley W.Y. Kuo and Christina Y. Liu. "The Development of the Economy of Taiwan," *Asian Pacific Economic Literature*, 1999, p. 43.

[14] Taiwan Government Information Office, *The Republic of China Yearbook 2001*, found at Internet address http://gio.gov.tw, retrieved Apr. 7, 2002.

[15] *Economist Intelligence Unit,* "Taiwan: Country Profile 2001," p. 23.

There are major highways extending the length of the island, including Taiwan's first major highway (opened in 1978), the Sun Yat-sen Freeway. In 1999, there were 16.3 million motor vehicles in Taiwan. The number of highway passengers for the year was 1.05 billion, while cargo transported via Taiwan's highways and freeways totaled 350 million tons in 1999.[16] One problem for Taiwan is the lack of east-west highways crossing the island. There is one large east-west route that stretches through the mountains from Nantou to Hualien, but the lack of other east-west routes has acted as an impediment to economic development of the more rural east coast of Taiwan.[17]

Taiwan has six international harbors and two international airports. The six ports–Keelung , Suao, Taichung, Hualien, Anping, and Kaohsiung–handled 175.5 million metric tons of cargo in 1999.[18] Kaohsiung, the largest, handles more than one half of Taiwan's cargo, and boasts the third largest container throughout in the world. Taiwan's two major airports include Chiang Kai-shek International Airport outside of Taipei, and a smaller facility at Kaohsiung.[19] Chiang Kai-shek International is already into its third expansion to meet increased passenger and goods traffic, and a high speed passenger rail to central Taipei has been planned, with completion scheduled in 2003.[20]

Economic Structure

Historically, the Taiwan economy was predominantly agricultural.[21] However, as shown in figure 2-1, the structure of Taiwan GDP has shifted away from agriculture and towards services and industry. The share of industry in GDP reached a peak of 47.1 percent in 1986, but has since declined to 30.9 percent in 2001. Services accounted for 67.2 percent and agriculture accounted for 1.9 percent of the economy in 2001. As discussed later in this chapter, this shift in economic structure was significantly influenced by Taiwan's early policy of promoting the heavy industry and chemical sectors, and then the abandonment of this policy. Another significant factor in this pattern of development has been the sharp appreciation of the Taiwan currency, and the steady rise in the costs of labor.[22]

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[16] Taiwan Government Information Office, *The Republic of China Yearbook 2001*, found at Internet address http://gio.gov.tw, retrieved Apr. 7, 2002.

[17] *Economist Intelligence Unit*, "Taiwan: Country Profile 2001," p. 23.

[18] Taiwan Government Information Office, *The Republic of China Yearbook 2001*, found at Internet address http://gio.gov.tw, retrieved Apr. 7, 2002.

[19] Taiwan currently bans direct mail, trade, and transport links (the "three links") with mainland China. One exception to this ban includes the "three mini-links," which allow such contact between the mainland and Kinmen and Matsu, two small Taiwan islands which lie just offshore the Chinese mainland. In April 1997 the first sanctioned direct cross-Strait shipping began between selected PRC ports and Kaohsiung for cargo being transshipped through Taiwan. Opening the direct links has been a matter of discussion between Taiwan and China for many years. See Taiwan Mainland Affairs Council website at address *www.mac.gov.tw.* Also see Ministry of Foreign Affairs of the People's Republic of China at address *www.fmprc.gov.cn.eng.* Further details on trade and investment links are discussed later in this chapter.

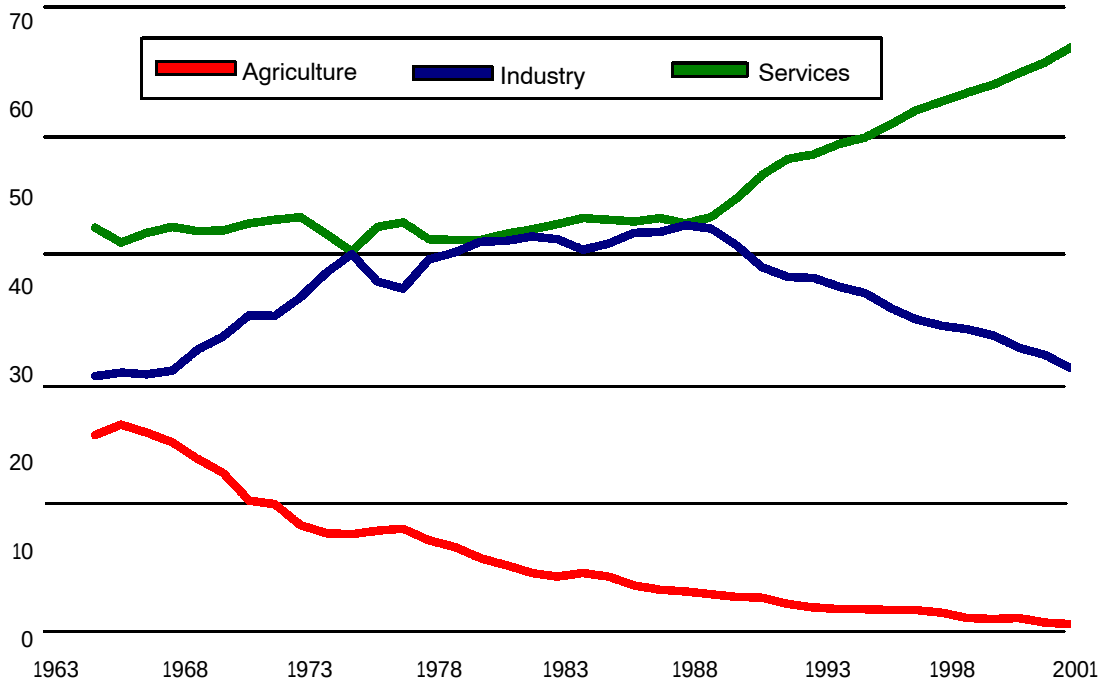
[20] *Economist Intelligence Unit*, "Taiwan: Country Profile 2001," p. 23.

[21] Ibid, p. 26.

[22] Official from Taiwan Ministry of Economic Affairs, interview with Commission staff, Taipei, Taiwan, May 24, 2002. This is described later in this chapter under the section, "Policy and Performance."

Figure 2-1
Structure of Taiwan GDP, 1963-2001

(Percent of total GDP)



Source: National Statistical of Taiwan, Republic of China. Found at internet address: *http://www.stat.gov.tw/main.htm*, retrieved Mar. 27, 2002

Manufacturing

Total manufacturing in Taiwan was valued at $259.1 billion in 1999, with the production of electrical and electronic machinery by far being the largest single manufacturing sector (table 2-2). In 1999, Taiwan produced $101.5 billion in electrical and electronic machinery. Other large sectors include chemical materials, basic metals, transport equipment, food and beverages, and fabricated metal products.[23] Manufacturing employs more than 26 percent of the work force in Taiwan.[24]

The rapid development of the electrical and electronic machinery sector has allowed Taiwan to become the third largest producer of information technology hardware, after the United States and Japan. Taiwan ranks first in the production of notebook computers, monitors, motherboards, and scanners, supplying more than one half of

[23] Department of Statistics, Ministry of Economic Affairs, Industrial Statistics Monthly, Taiwan Area, The Republic of China, Nov. 2001, p. 207.

[24] Taiwan Government Information Office, *The Republic of China Yearbook 2001*, found at Internet address http://gio.gov.tw, retrieved Apr. 7, 2002.

Table 2-2
Taiwan manufacturing, by sectors, 1999 (million dollars)

Sector	Value
Electrical and electronic machinery	101,488.6
Chemical materials	17,526.9
Basic metal	17,353.0
Transport equipment	15,472.3
Food and beverages	14,262.6
Fabricated metal products	13,384.3
Machinery and equipment	12,915.7
Petroleum and coal products	12,333.1
Textiles	10,450.9
Plastic products	9,513.9
Chemical products	6,384.7
Non-metallic mineral products	6,082.2
Pulp, paper, and paper products	4,821.2
Other industrial products	3,569.3
Apparel	3,204.7
Printing processing	2,098.7
Rubber products	2,013.2
Precision instruments	1,802.3
Furniture and fixtures	1,704.6
Leather and fur products	1,328.8
Tobacco	792.4
Wood and bamboo products	563.9
Total	259,067.3

Source: Department of Statistics, Ministry of Economic Affairs, Industrial Production Statistics Monthly, Taiwan Area, The Republic of China, November 2001, pp 207-209.

the world's market of these items.[25] Taiwan also is becoming an increasingly dominant supplier of semiconductors.[26] Much of this production has been done on an original equipment manufacturer basis, where local Taiwan firms produce products based on the designs and plans provided by foreign companies. The final goods were then sold using the brand names of the foreign firms. Recently, however, Taiwan firms have been playing a greater role in the original design manufacturing of products, and a few have even established their own internationally recognized information technology brand names.[27] One example is Acer, a computer and computer peripherals manufacturer.[28]

[25] Shin-Horng and Da-Nien Liu, "Taiwan's Active Role in the Production Network," in Peter C.Y. Chow and Bates Gill, *Weathering the Storm: Taiwan, Its Neighbors, and the Asian Financial Crisis*, Brookings Institution, 2000, pp. 169-170.

[26] Cheng Tun-jen, "Transforming Taiwan's Economic Structure in the 20th Century," The China Quarterly, Mar. 2001, pp. 33-34

[27] Official from Taiwan Semiconductor Industry Association, interview with Commission staff, HsinChu County, Taiwan, May 20, 2002.

[28] *Economist Intelligence Unit*, "Taiwan: Country Profile 2001," p. 38.

A number of characteristics of Taiwan manufacturing have been cited as contributing factors to Taiwan's success. First, Taiwan's industrial sector is largely dominated by small and medium-scale enterprises, which are more able to adapt quickly to the changing commercial environment and latest innovations.[29] Second, Taiwan authorities have limited regulation of small and medium-scale enterprises.[30] Finally, in the last few years, Taiwan manufacturing has benefitted from an "international division of labor," where many Taiwan firms invest heavily in both the Association of Southeast Asian Nations (ASEAN) countries and mainland China, moving production centers off the island to where labor is less expensive.[31] With this approach, Taiwan has been able to shift away from labor-intensive products and move into capital-intensive manufacturing. This shift started with electronics, moved to higher technology electronics, and in the future will emphasize biotechnology as an engine for growth.[32] These sectors appear to coincide with Taiwan's comparative advantages in high-tech and capital-based production, because none of them require a large native endowment of natural resources.[33]

According to the Taiwan Institute of Economic Research, the IT sector will remain the growth engine for Taiwan. With the current wave of investment flowing into mainland China, to capture its comparative advantage in low-cost, labor-intensive products, the challenge will be most acute for Taiwan's small and medium-size firms. The question for these Taiwan firms will be whether they can adjust to this internationalization and division of production in both IT and traditional manufacturing.[34]

Services

The service sector in Taiwan accounted for 67.2 percent of GDP in 2001. The largest portion of this sector is made up of finance, insurance, and business services, which made up 38.6 percent of Taiwan's service output in 2001. This was followed by

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[29] Shirley W.Y. Kuo and Christina Y Liu, "The Development of the Economy of Taiwan," *Asian Pacific Economic Literature*, 1999, p. 37.

[30] *Economist Intelligence Unit*, "Taiwan: Country Profile 2001," p. 27.

[31] Jiann-Chyuan Wang, "Taiwan and the Asian Financial Crisis: Impact and Response," in Peter C.Y. Chow and Bates Gill, *Weathering the Storm: Taiwan, Its Neighbors, and the Asian Financial Crisis*, Brookings Institution, 2000, pp. 152-153.

[32] Official from North American Affairs Department, Taiwan Ministry of Foreign Affairs, interview with Commission staff, Taipei, Taiwan, May 22, 2002.

[33] American Institute in Taiwan, economic section, interviews with Commission staff, Taipei, Taiwan, May 20-24, 2002. The American Institute in Taiwan (AIT) is a non-profit, private corporation established shortly after the U.S. Government changed its diplomatic recognition from Taipei to Beijing on Jan. 1, 1979. Under the Taiwan Relations Act of 1979 (Public Law 96-8, 96th U.S. Congress, effective as of January 1, 1979; approved April 10, 1979), which authorizes the continuation of commercial, cultural, and other relations between the people of the United States and the people on Taiwan, AIT conducts and carries out any transactions by the President or any agency of the U.S. Government with respect to Taiwan, through a contract with the Department of State and under the oversight of Congress. See *http://ait.org.tw/ait/aitintro.html*, downloaded on July 30, 2002.

[34] Official from Taiwan Institute of Economic Research, interview with Commission staff, Taipei, Taiwan, May 21, 2002. With the exception of high-end products, Taiwan is not competitive in the textile and bicycle industries. Low-end production has been transferred to mainland China.

commerce (32.7 percent), government services (17.3 percent), and transport, storage, and communication services (11.4 percent).[35]

Most Taiwan banks are state owned, and historically have been subject to regulations that influenced lending decisions. During Taiwan's early economic plan to develop its heavy and chemical industries (HCI), budget funds were appropriated to preferred industries, and banks gave lending support.[36] However, the extent of strategic lending was not as large as that in Korea, which was also supported the development of HCI.[37] While Korea implemented an interest rate-ceiling for HCI sectors, (which often meant negative real interest rates for preferred Korean borrowers), Taiwan banks maintained a policy of higher interest rates throughout the 1970s and its HCI drive.[38] This suggests that even in the 1970s, Taiwan's credit allocation was less distorted (closer to market-based) than Korea's.

Interest rates were freed from government control in 1989, and many restrictions on establishing bank branches were lifted. Large-scale privatization of banks began in 1997, when Taiwan authorities reduced its ownership in Chiao Tung Bank from 89 percent to 60 percent. In May 1999, authorities announced that all existing state banks (except the Export-Import Bank) would be privatized by the end of 2002. By 2000, Taiwan had 46 private commercial banks.[39]

Taiwan's financial system has benefitted from Taiwan's high savings rate, which allowed the economy to finance its rapid capital investment with comparatively small foreign funds. One result is that Taiwan's foreign debt measures are significantly lower than those of other Asian economies.[40]

Despite the positive results in reform, some problems remain in Taiwan's banking and financial sectors. A basic characteristic of the domestic market is the high level of competition and the relatively large number of banks in Taiwan, meaning limitations to the profits or market share available to any one firm, especially in certain service areas such as consumer credit and credit cards.[41] According to the American Institute in Taiwan (AIT), this feature of the market contributes to a decline in the quality of loans extended, as illustrated by the growing rate of nonperforming loans (NPLs)–something that has prompted Taiwan authorities to establish an agency similar

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[35] National Statistics of Taiwan, Republic of China. Found at Internet address: http://www.stat.gov.tw/main.htm, retrieved Mar. 27, 2002.

[36] American Institute in Taiwan, economic section, interviews with Commission staff, Taipei, Taiwan, May 20-24, 2002.

[37] Tian-jy Chen and Ying-Hua Ku, "Differing Approaches, Differing Outcomes: Industrial Priorities, Financial Markets, and the Crisis in Korea and Taiwan," in Peter C.Y. Chow and Bates Gill, *Weathering the Storm: Taiwan, Its Neighbors, and the Asian Financial Crisis*, Brookings Institution, 2000, pp. 116-117. Also see a comparison of Taiwan and Korea later in this chapter, which shows that the degree of control of the financial sector was greater in Korea, and possibly a reason why Korea suffered more than Taiwan during the Asian financial crisis of 1997-99.

[38] Tian-jy Chen and Ying-Hua Ku, "Differing Approaches, Differing Outcomes: Industrial Priorities, Financial Markets, and the Crisis in Korea and Taiwan," in Peter C.Y. Chow and Bates Gill, *Weathering the Storm: Taiwan, Its Neighbors, and the Asian Financial Crisis*, Brookings Institution, 2000, pp. 116-117.

[39] *Economist Intelligence Unit*, "Taiwan: Country Profile 2001," p. 39.

[40] Shirley W.Y. Kuo and Christina Y Liu. "The Development of the Economy of Taiwan," *Asian Pacific Economic Literature*, 1999, pp. 36-49.

[41] American Chamber of Commerce in Taiwan, interview with Commission staff, Taipei, Taiwan, May 22, 2002.

to the U.S. Resolution Trust Corporation, in an effort to consolidate bad loans and strengthen the asset position of the financial sector.[42] Taiwan sees itself as a possible Asian hub for the financial sector of the region, much like Hong Kong is seen as a hub for international trade. According to the American Chamber of Commerce in Taiwan, one obstacle to such a goal would be some of Taiwan's present tax laws, which encourage many businesses to take their financial assets abroad.[43]

Further discussion of service sectors and the financial services industry is presented in chapter 5.

Agriculture

According to the Taiwan Council on Agriculture, the Taiwan agricultural sector is not competitive, because Taiwan farmers' costs are high, while agricultural commodity prices are low. Taiwan currently has a trade deficit in agriculture and with Taiwan's accession to the WTO, this deficit will likely grow as Taiwan imports higher volumes of foreign agricultural commodities.[44] Since 1951, the share of agriculture in Taiwan's GDP has fallen from 32.3 percent to less than 1.9 percent.[45] Due much in part to Taiwan's early land reforms of the 1950s, agriculture on the island is dominated mainly by small family farms.[46] In 1999, more than 782,000 farming households controlled 858,756 hectares of land, meaning that each household, on average, farmed only 1.1 hectares (2.7 acres). For the past decade, Taiwan farmers have derived more than 69 percent of their annual income from non-farming activities.[47]

Problems facing agricultural production in Taiwan include weather, animal diseases, part-time farming, and the aging of the agrarian workforce. The June-September typhoon season can result in significant crop damage, and has a large effect on consumer prices in Taiwan.[48] Economic planners are concerned about the aging agrarian workforce and the prominence of part-time farming, arguing that only full-time farmers are likely to invest in the capital and training necessary to develop large and profitable businesses.[49] Another concern among Taiwan farmers is the adjustment costs connected with Taiwan's recent accession to the WTO and the effect of eliminating certain agricultural tariffs and quotas.[50]

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[42] American Institute in Taiwan, economic section, interviews with Commission staff, Taipei, Taiwan, May 20-24, 2002.

[43] Chamber of Commerce in Taiwan, interview with Commission staff, Taipei, Taiwan, May 22, 2002.

[44] Official from International Cooperation Department, Taiwan Council on Agriculture, interview with Commission staff, Taipei, Taiwan, May 23, 2002.

[45] Taiwan Council of Agriculture, found at Internet address: http://stat.coa.gov.twn, retrieved Mar. 27, 2002.

[46] Cal Clark, "Theories of Development and the Taiwan experience: Success and Challanges from Incongruity," paper prepared for presentation at the Annual Meeting of the American Political Science Association, Aug. 31-Sep. 3, 2000, Washington, D.C., pp. 24-26.

[47] Taiwan Government Information Office, *The Republic of China Yearbook 2001*, found at Internet address http://gio.gov.tw, retrieved Apr. 7, 2002.

[48] *Economist Intelligence Unit*, "Taiwan: Country Profile 2001," p. 36.

[49] Taiwan Government Information Office, *The Republic of China Yearbook 2001*, found at Internet address http://gio.gov.tw, retrieved Apr. 7, 2002.

[50] U.S. Department of State, "2001 Country Reports on Economic Policy and Trade Practices," Feb. 2002, found at Internet address http://www.state.gov, retrieved Mar. 24, 2002.

Taiwan authorities have placed great importance on reforming the rice industry on the island. According to Taiwan's Council on Agriculture, there were 353,122 hectares of ricefields in Taiwan in 1999, producing 1.56 million tons of brown rice during the island's two crop seasons. Apparently due to a change in Taiwan's eating habits, this level of rice production now represents a significant surplus of Taiwan's domestic demand. Given further downward price pressure on rice expected with Taiwan's recent WTO accession, Taiwan authorities have implemented several programs intended to benefit rice farmers, including government purchases of rice and programs to reduce rice production.[51] The total production of rice and all other agricultural products in Taiwan is presented in table 2-3.

Economic Policy and Performance

Taiwan has averaged more than 8.2 percent annual growth in GDP since 1961, and had never experienced a recession year until 2001, when exports declined due to the global economic slowdown and lower prices in the semiconductor market, causing Taiwan's GDP to decrease by 1.9 percent (figure 2-2). Taiwan authorities blame the decline partly on decreased exports to the United States during the U.S. economic slowdown, but believe that the more important factor has been a recent slowdown in the global IT sector. Taiwan authorities consider the IT sector the most important part of the domestic economy and closely monitor the drop in IT production and sales. Such a decline was reflected in a 24 percent decline in Taiwan's private investment flows to the mainland, where much of the labor-intensive production is completed.[52] Taiwan expects to recover quickly from its recession, and return to the high growth path it has enjoyed since the end of World War II. During the first quarter of 2002, growth measured 2.9 percent (annualized), while Taiwan expects 2.7 percent annual growth for the year as a whole.[53]

Taiwan's high growth has been the result of changing policies, and multiple transformations in Taiwan's economic structure. Four periods of structural transformation in Taiwan include the transformation from agriculture to industry in the 1950s, the export boom in the 1960s and early 1970s, the promotion of heavy industry in the 1970s and early 1980s, and the decline of labor-intensive industries from the late 1980s to the present.[54] The next section describes this process of transformation and economic development in Taiwan.

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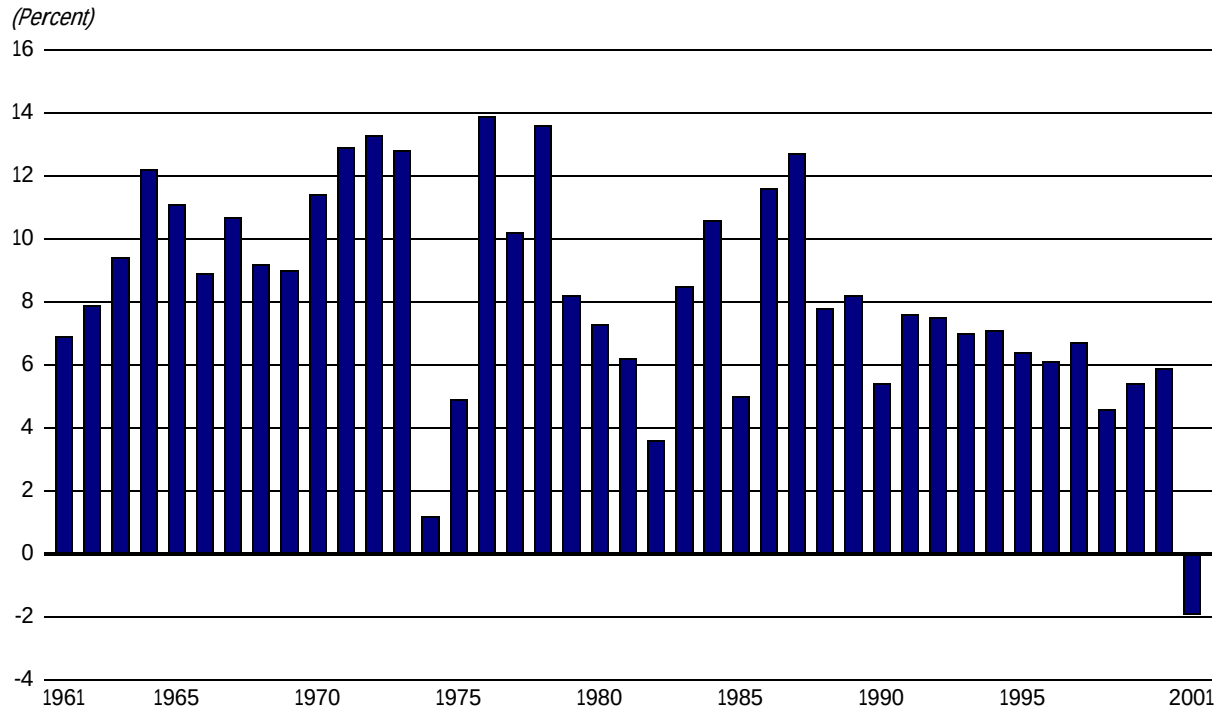
[51] These programs include the Rice Production and Rice-field Diversion Program, the Program for Rezoning Paddy Fields and Dry Farmland, and others. For more details, see Taiwan Government Information Office, *The Republic of China Yearbook 2001*, found at Internet address http://gio.gov.tw, retrieved Apr. 7, 2002.

[52] Official from Council on Economic Planning and Development, interview with Commission staff in Tapei, Taiwan, May 21, 2002.

[53] Ibid.

[54] This description of Taiwan's development since World War II is found in Cal Clark,"Theories of Development and the Taiwan Experience: Success and Challenges from Incongruity," paper prepared for presentation at the Annual Meeting of the American Political Science Association, Aug. 31-Sep. 3, 2000, Washington, DC., pp. 24-26 The same general description is found in other publications, including Shirley W.Y. Kuo and Christina Y. Liu, "The Development of the Economy of Taiwan, *Asian Pacific Economic Literature*, 1999, pp. 36-49; and Cheng Tun-jen, "Transforming Taiwan's Economic Structure in the 20th Century," *The China Quarterly,* Mar. 2001, pp. 33-34.

Figure 2-2
Taiwan GDP growth rate, 1961-2001
(Annual percent growth rate)



Source: National Statistics of Taiwan, Republic of China. Found at internet address: *http://www.stat.gov.tw/main.htm*, retrieved Mar. 27, 2002.

Table 2-3
Taiwan agricultural production, by sectors, 2000 (million dollars)

Sector	Value
Livestock	3,443.6
Fishery	2,923.6
Fruits	1,849.8
Vegetables	1,234.6
Rice	1,109.8
Specialty Crops	419.5
Ornamental plants	304.7
Coarse grain	289.7
Mushrooms, Shiitake	80.4
Forestry	8.6
Total	11,664.4

Source: Taiwan Council of Agriculture, found at Internet address: http://stat.coa.gov.tw, retrieved Mar. 27, 2002.

Transformation of Agriculture

At the end of the Japanese occupation (1895-1945), Taiwan had a comparatively well-developed agricultural industry. When the Nationalist Party came to power, one of the first economic policies implemented was the broad-based land reform program. The program gave property rights to small landholders, and distributed shares of state-owned enterprises to former landholders. This created a group of entrepreneurs, many of whom would become the base for industrialization in Taiwan.

Many other policies during this period had the result of fostering industrialization in Taiwan, including a program of import substitution to promote the development of light industry, mass education of the Taiwan population, and the hiring of skilled technocrats into the higher levels of policymaking. By the end of the 1950s, Taiwan's production of light industrial products exceeded domestic demand.[55]

From Import Substitution to Export Promotion

The effect of the import substitution program of the 1950s was a saturation of the domestic market. At this point, Taiwan began to look abroad. In the 1960s, Taiwan moved to export expansion. A 19-point economic and financial reform and a Statute for Encouragement of Investment were implemented to promote more open trade policies. Expecting the end of foreign economic aid (of which much came from the United States), Taiwan's overall policy objective during this period was to expand industrial exports to absorb surplus labor and eventually use foreign export earnings as the main capital source for continued economic growth.[56] Exports were aided by various policies in the movement, including lower tariff rates, stable exchange rates, and trade loans.[57] Tax benefits were extended to export firms in almost all sectors, as well as newly formed "pioneer" industry firms, such as electronics. Many import tariffs remained in place, but significant import-tax rebates were extended to export processing companies.[58] The result was a significant increase in Taiwan's exports of light industrial products.[59] The number of labor-intensive, export-oriented firms quickly multiplied, and their output and exports soon exceeded that of agriculture.[60]

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[55] Cal Clark, "Theories of Development and the Taiwan experience: Success and Challanges from Incongruity," paper prepared for presentation at the Annual Meeting of the American Political Science Association, Aug. 31-Sept. 3, 2000, Washington, D.C., p. 26.

[56] Cheng Tun-jen, "Transforming Taiwan's Economic Structure in the 20th Century," *The China Quarterly*, Mar. 2001, p. 20

[57] Kuo, Shirley W.Y. and Liu Christina Y, "The Development of the Economy of Taiwan," *Asian Pacific Economic Literature*, 1999, pp. 44-45.

[58] Cheng Tun-jen, "Transforming Taiwan's Economic Structure in the 20th Century," *The China Quarterly*, Mar. 2001, p. 20

[59] Cal Clark, "Theories of Development and the Taiwan experience: Success and Challenges from Incongruity," paper prepared for presentation at the Annual Meeting of the American Political Science Association, Aug. 31-Sep. 3, 2000, Washington, D.C., p. 26.

[60] Cheng Tun-jen, "Transforming Taiwan's Economic Structure in the 20th Century," *The China Quarterly*, Mar. 2001, p. 20

Promotion of Heavy Industry

By the mid-1970s Taiwan was facing new problems, many involving the cost of production of its labor-intensive products. The domestic prices of oil, electric power, and transportation rose dramatically in Taiwan during the global oil shocks, as Taiwan imports almost all of its energy. Global stagflation meant higher prices for Taiwan's imported inputs, most especially the prices of synthetic fibers, plastics, and raw materials. As Taiwan industrialized, its demand for imported machinery, electrical, and transportation equipment also grew. Finally, Taiwan's own domestic economy demanded more infrastructure, including housing, roads, steelworks, and other, more heavy-industrial type goods.[61]

A solution Taiwan tried during this period, then later abandoned, was the promotion of the heavy industry and chemical sectors. The effort was solidified in the 10-Year Economic Development Plan of 1979, which focused on the rapid development of high value-added, low-energy-intensive production, including machinery, information electronics, electrical machinery, and transportation equipment.[62] Such a plan required large-scale capital investment, but with Taiwan's high savings rate and targeted development, it was able to avoid significant foreign indebtedness.[63] This benefitted Taiwan in the later Asian financial crisis of 1997-99, when other countries that implemented similar heavy-industry and chemical development plans suffered much larger adjustment costs.[64]

In relation to trade policy, Taiwan's promotion of heavy industry and chemicals represented a second period of import substitution.[65] Although the resumption in trade protections was not as severe as those in Korea, Taiwan did implement policies to protect its infant heavy industries from outside competition. By 1986, the industry share in Taiwan's GDP had grown to more than 47 percent.[66]

The Decline of Labor-Intensive Industry

In the mid-1980s, the Taiwan economy experienced two major price changes that would force the economy to adapt: the increasing price of labor and the appreciation of the Taiwan currency.[67] These changes would produce something similar to the

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[61] Wan-An Yeh, "The Taiwanese Experience in Retrospect: Before the 1980s," in *Taiwan's Economic Success Since 1980*, edited by Chao-Cheng Mai, Edward Elgar Publishing, 2001, pp. 3-7.

[62] Ibid.

[63] American Institute in Taiwan, Economic Section, interviews with Commission staff, Taipei, Taiwan, May 20-24, 2002.

[64] Tian-jy Chen and Ying-Hua Ku, "Differing Approaches, Differing Outcomes: Industrial Priorities, Financial Markets, and the Crisis in Korea and Taiwan," in Peter C.Y. Chow and Bates Gill, *Weathering the Storm: Taiwan, Its Neighbors, and the Asian Financial Crisis*, Brookings Institution, 2000, pp. 116-117.

[65] Wan-An Yeh, "The Taiwanese Experience in Retrospect: Before the 1980s," in Taiwan's Economic Success Since 1980, edited by Chao-Cheng Mai, Edward Elgar Publishing, 2001, p. 11.

[66] National Statistics of Taiwan, Republic of China. Found at Internet Address: http://www.stat.gov.tw/main.htm, retrieved Mar. 27, 2002.

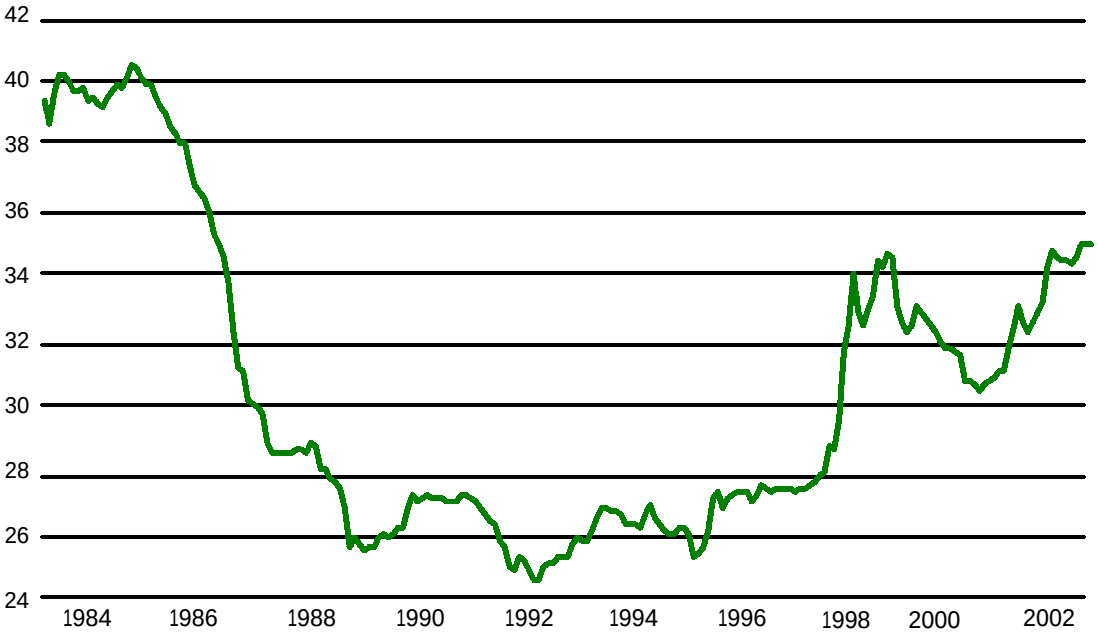
[67] Taiwan Ministry of Foreign Affairs, interview with Commission staff, Taipei, Taiwan, May 22, 2002.

effects of the "Dutch disease" experienced in the Netherlands, Australia, or Russia.[68] Higher labor costs and the appreciating currency resulted in a significant reduction in the competitiveness of Taiwan's traditional manufacturing exports.

The currency appreciation was a policy decision in Taiwan, taken by authorities largely in response to pressure from trading partners that expressed concern over Taiwan's long-standing trade surpluses. Taiwan responded, and the Taiwan currency, which had been pegged to the U.S. dollar, appreciated quickly from more than 39 new Taiwan dollars (NT$) to the U.S. dollar in 1986 to 28 NT$ per U.S. dollar in 1988 (figure 2-3).[69] In the same period, unit costs were significantly rising (figure 2-4). Both trends caused a deterioration in the competitiveness of Taiwan's labor-intensive goods on the world market.[70]

Figure 2-3
Taiwan exchange rate during period of "Dutch Disease," 1984-2002

(New Taiwan dollars per U.S. dollar)



Source: U.S. Federal Reserve Board of Governors, Federal Reserve Bank of Saint Louis, FRED, found at internet address: *http://stls.frb.org/fred*, retrieved Mar. 29, 2002.

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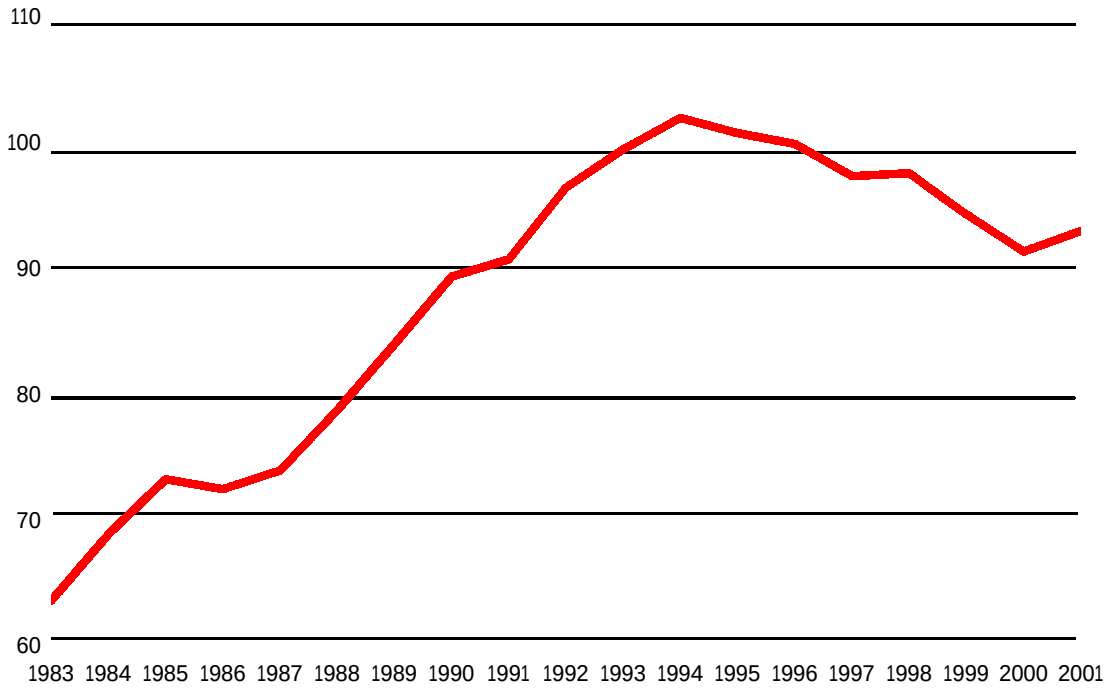
[68] The term "Dutch disease" was first used to describe the Netherlands's mixed blessing of discovering significant natural gas reserves. This expansion in the natural gas export sector caused currency appreciation in the Netherlands, meaning a deterioration in the terms of trade for other manufacturing sectors. Similar situations developed with Britain's discovery of oil in the North Sea in the 1970s, Russia's post-USSR dependence on oil exports, and the discovery of minerals in Australia in the 1950s. According to some economists, Taiwan experienced the "Dutch disease," but never got to enjoy an oil boom or other discovery. See Maxwell J. Fry, "Taiwan's Current Account Surplus: Incipient Dutch Disease?" *International Economic Journal*, vol. 4, No. 3, 1990, pp. 93-112.

[69] U.S. Federal Reserve Board of Governors, Federal Reserve Bank of Saint Lous, FRED, found at internet address www.stls.frb.org/fred, retrieved Mar. 29, 2002.

[70] Justin Yifu-Lin and Chen Chien-Liang, "Dutch Disease, Taiwan's Success, and the $China Boom,'" in *Three Chinese Economies: China, Hong Kong, and Taiwan*, edited by Linda Fung-Yee and Chyau Tuan, Chinese University Press, 1996, pp. 53-75.

Figure 2-4
Taiwan Index of Unit Output Labor Costs for industrial sectors, 1983-2001
(Index 1996 = 100)



Source: National Statistics of Taiwan, Republic of China. Found at internet adress: *http://www.stat.gov.tw/main.htm*, retrieved Mar. 27, 2002.

While many economies that have faced similar price shocks have tended to suffer serious economic downturns or recessions, Taiwan managed to maintain strong GDP growth while it adapted to the new environment. The production in Taiwan of low-tech commodities, which uses labor as an intensive input, was less profitable in Taiwan. Taiwan's solution to the profitability issue was two-fold: 1) shift to more production of capital intensive and higher-technology goods, and 2) move production of labor-intensive goods to other countries, mainly ASEAN countries and recently to mainland China.

This process of de-industrialization in labor-intensive industries and re-industrialization in capital-intensive industries was aided by the flexibility of Taiwan's industrial firms. Whereas in Korea, much of manufacturing was controlled by large, heavily invested conglomerates known as *chaebols*, Taiwan's industrial sector consisted of many small firms and entrepreneurs.[71] The success of the transformation can be seen in Taiwan's present production and trading pattern.

[71] Tian-jy Chen and Ying-Hua Ku, "Differing Approaches, Differing Outcomes: Industrial Priorities, Financial Markets, and the Crisis in Korea and Taiwan," in Peter C.Y. Chow and Bates Gill, *Weathering the Storm: Taiwan, Its Neighbors, and the Asian Financial Crisis*, Brookings Institution, 2000, pp. 128-129.

Taiwan has maintained high growth rates and is now one of the world's leading producers of computers and computer peripherals.[72]

Taiwan authorities see the next challenge as adjusting to the increased flow of investment towards the mainland both within traditional manufacturing sectors and, increasingly, in higher technology sectors such as some aspects of semiconductor manufacture and notebook computer production.[73] Authorities in Taiwan view this sector as a future "gateway" to the mainland China market. Taiwan authorities cite the similarities in culture and language, as well as knowledge of Chinese institutions and its business environment as reason for other countries to use Taiwan as a trade and investment conduit to the larger, but more risky mainland market.[74] Taiwan authorities state that presently, there are over 50,000 foreign-invested factories in mainland China, but only 40 percent of these investments are profitable. Taiwan believes it can help such foreign firms in China become profitable.[75]

Taiwan has continued to relax restrictions on unofficial contacts with the PRC, and cross-Strait interaction with the PRC has substantially increased. Since 1987, when the ban on travel to the PRC was lifted, Taiwan residents have made more than 10 million trips to the mainland.[76] Taiwan's Board of Foreign Trade reports that indirect trade between Taiwan and the PRC, including Hong Kong, measured $22.5 billion in 1998.[77] In an attempt to facilitate trade, Taiwan's Executive Yuan approved the construction of an offshore transshipment center at the port of Kaohsiung through which direct shipping with the PRC would be permitted. In April 1997 the first sanctioned direct cross-Strait shipping began between selected PRC. ports and Kaohsiung for cargo being transshipped through Taiwan.[78]

China and Taiwan continue to discuss, however, the formal end to a ban on the "three direct links," which restricts mail, trade, and transport between Taiwan and the mainland.[79] On January 1, 2001, Taiwan authorities announced the "three mini-links," which allow such cross-strait contact between the mainland and Kinmen and Matsu, two small Taiwan islands located near the mainland coast.[80] In addition, in March 2002, Taiwan announced that Taiwan semiconductor manufacturers may

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[72] *Economist Intelligence Unit*, "Taiwan: Country Profile 2001," p. 26.

[73] Official from North American Affairs Department, Taiwan Ministry of Foreign Affairs, interview with Commission staff, Taipei, Taiwan, May 22, 2002.

[74] Official from Council on Economic Planning and Development, interview with Commission staff in Tapei, Taiwan, May 21, 2002.

[75] Ibid.

[76] U.S. Department of State, Background Note: Taiwan, found at Internet address: http://www.state.gov, retrieved Sept. 24, 2002.

[77] Taiwan Board of Foreign Trade. Found at Internet address http://www.moeaboft.gov.tw/english.htm, retrieved Sept. 23, 2002.

[78] U.S. Department of State, Background Note: Taiwan, found at Internet address: http://www.state.gov, retrieved Sept. 24, 2002.

[79] U.S. Department of State, Background Note: Taiwan, found at Internet address: http://www.state.gov, retrieved Sept. 24, 2002.

[80] Taiwan Mainland Affairs Council, Overview of the Provisional Implementation of "Mini-links" between the Offshore Islands of Kinmen and Matsu and Mainland China. Found at website at address *www.mac.gov.tw*, retrieved Sept. 20, 2002.

invest in older-technology factories in mainland China if they already have newer-technology factories in operation in Taiwan.[81]

International Trade and Investment

Taiwan's successful export promotion strategy of the 1970s and 1980s brought sustained trade surpluses and resulted in a large increase in Taiwan's foreign exchange reserves. The annual trade surplus peaked at $18.7 billion in 1987.[82] As shown in figure 2-5, Taiwan maintains a trade surplus with most of its major trading partners, with the exception of Japan. Many of Taiwan's industries rely heavily on the supply of key parts and the transfer of technology from Japan, especially the information technology and automobile industries. Major import items from Japan included machinery, auto parts, electrical appliances, electronics, chemicals, and metal products.[83]

Exports

Taiwan's exports are dominated by manufactured goods. Industrial goods accounted for 98.6 percent of Taiwan's exports in 2000, with heavy industrial goods accounting for 71.4 percent of the total.[84] As shown in tables 2-4 and 2-5, major export items include mechanical appliances and accessories, electronics and electrical appliances, personal computers and peripherals, metal products, transportation equipment, furniture, and garments. Taiwan is one of the world's top suppliers of computer parts and peripherals. The United States, Hong Kong, and Japan continued to remain the top buyers of Taiwan's exports, while other major destinations include Europe and Southeast Asia. For decades, the U.S. market has been the most important export destination for Taiwan. The importance of the U.S. market significantly decreased, however, when Taiwan began to pursue liberalization and internationalization of its economy in the early 1990s.[85]

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[81] The regulation allows Taiwan firms to invest in semiconductor foundries on the mainland which produce 8-inch wafers as long as they already have in operation 12-inch wafer foundries in Taiwan. Taiwan Government Information Office, Taiwan Outlines New Silicon Chip Investment Rules for Mainland China," found at Internet address http://www.roc-taiwan.org.sg/taiwan/4-oa/20020329/2002032901.html, retrieved Sept. 21, 2002.

[82] Taiwan Government Information Office, *The Republic of China Yearbook 2001*, found at Internet address http://gio.gov.tw, retrieved Apr. 7, 2002.

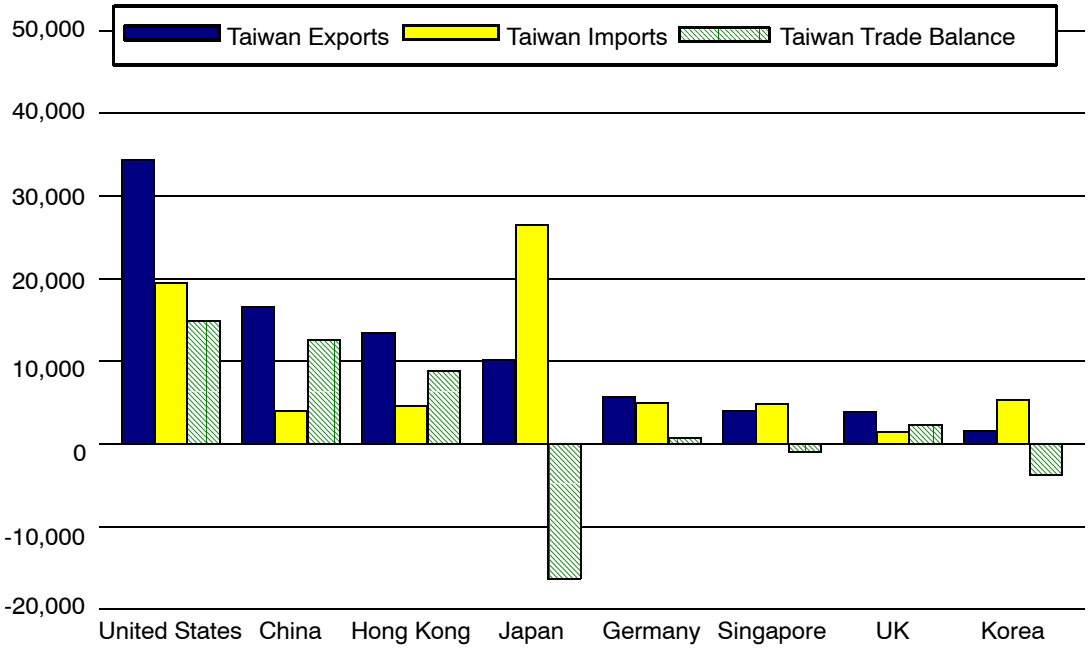
[83] Taiwan Government Information Office, *The Republic of China Yearbook 2001*, found at Internet address http://gio.gov.tw, retrieved Apr. 7, 2002.

[84] *Economist Intelligence Unit*, "Taiwan: Country Profile 2001," p. 42.

[85] Taiwan Government Information Office, *The Republic of China Yearbook 2001*, found at Internet address http://gio.gov.tw, retrieved Apr. 7, 2002.

Figure 2-5
Taiwan exports, imports, and trade balance with selected trading partners, 1998

(Millions of dollars)



Source: Statistics Canada.

Table 2-4
Taiwan exports to the world, by one-digit SITC, 1980, 1990, 1998

Item	1980	1990	1998	Percent change 1990-98
		1,000 dollars		
7 Machinery and transport equipment	5,228,076	27,398,106	67,280,784	145.6
6 Manufactured goods classified chiefly by material	4,814,205	15,512,642	26,158,530	68.6
8 Miscellaneous manufactured articles	8,061,953	19,491,524	17,143,782	12.0
5 Chemicals and related products, n.e.s.	525,679	3,049,049	8,098,770	165.6
9 Commodities & trans. not classified	17,163	806,013	5,129,153	536.4
0 Food and live animals chiefly for food	1,803,948	3,417,895	1,850,199	45.9
2 Crude materials, inedible, except fuels	353,296	1,381,359	1,576,996	14.2
3 Mineral fuels, lubricants and related material	303,065	194,072	351,966	81.4
1 Beverages and tobacco	11,970	25,123	50,539	101.2
4 Animal and vegetable oils, fats and waxes	3,746	22,147	28,789	30.0
Total	21,123,101	71,297,930	127,669,508	79.1

Source: Statistics Canada.

Table 2-5
Taiwan exports to the world, by two-digit SITC, 1980, 1990, 1998

	1980	1990	1998	Percent change 1990-98
	1,000 dollars			
75 Office machines & automatic data processing	224,238	7,826,884	25,296,800	223.2
77 Electrical machinery, apparatus & appliance	1,253,123	7,836,143	23,418,868	198.9
65 Textile yarn, fabrics, made up art., related products	1,903,763	6,823,083	11,025,903	61.6
89 Miscellaneous manufactured articles, n.e.s.	2,438,722	7,438,895	7,156,450	3.8
69 Manufactures of metal, n.e.s.	872,786	3,253,544	5,788,851	77.9
76 Telecommunications & sound recording	2,188,708	3,936,626	4,894,532	24.3
58 Plastics in nonprimary forms	212,852	1,730,678	4,834,039	179.3
78 Road vehicles (including air cushion vehicles)	517,154	2,226,811	3,764,847	69.1
67 Iron and steel	341,731	1,104,911	3,629,557	228.5
84 Articles of apparel and clothing accessories	2,588,770	4,157,777	3,493,609	16.0
74 General industrial machinery & equipment	206,596	1,604,023	3,481,989	117.1
99 Non identified products			3,440,081	
72 Machinery specialized for particular industries	336,689	2,352,576	3,421,200	45.4
82 Furniture and parts thereof	307,548	1,751,288	2,030,900	16.0
93 Special transactions & commodities, not classified	14,142	794,120	1,653,972	108.3
73 Metalworking machinery	196,886	799,965	1,606,579	100.8
68 Non ferrous metals	60,116	672,025	1,602,899	138.5
88 Photographic apparatus, optical goods, watch	413,646	1,183,017	1,431,362	21.0
87 Professional, scientific & controlling instruments	42,235	545,824	1,274,186	133.4
03 Fish, crustaceans, molluscs, preparations thereof	597,326	1,600,046	1,237,843	22.6
59 Chemical materials and products, n.e.s.	63,267	236,727	1,118,641	372.5
71 Power generating machinery and equipment	163,551	591,137	1,059,179	79.2
61 Leather, leather manufactures, n.e.s.	94,576	803,002	1,047,872	30.5
66 Non metallic mineral manufactures, n.e.s.	403,708	1,050,785	1,038,477	1.2
64 Paper, paperboard, articles of paper, paper pulp	116,843	584,380	855,304	46.4
62 Rubber manufactures, n.e.s.	202,501	506,096	843,464	66.7
51 Organic chemicals	112,291	436,712	814,895	86.6
81 Sanitary, plumbing, heating and lighting fixtures	75,257	887,100	729,945	17.7
26 Textile fibers (except wool tops)	115,129	546,216	728,938	33.5
53 Dyeing, tanning and coloring materials	25,849	242,487	690,678	184.8
85 Footwear	1,509,395	2,599,417	599,173	76.9
83 Travel goods, handbags	686,380	928,206	428,157	53.9
33 Petroleum, petroleum products	294,979	186,707	343,020	83.7
79 Other transport equipment	141,131	223,941	336,786	50.4
63 Cork and wood manufactures	818,181	714,816	326,203	54.4
52 Inorganic chemicals	50,796	181,707	305,069	67.9
23 Crude rubber	31,636	123,767	283,581	129.1
29 Crude animal and vegetable materials, n.e.s	76,583	274,421	263,463	4.0
05 Vegetables and fruit	717,725	686,309	255,928	62.7
55 Essential oils & perfume materials.	33,189	131,537	235,309	78.9
28 Metalliferous ores and metal scrap	27,570	140,968	125,923	10.7
09 Miscellaneous edible products and preparations	24,628	91,855	104,447	13.7
24 Cork and wood	64,205	116,340	84,675	27.2
27 Crude fertilizers and crude materials	8,939	40,844	81,812	100.3
54 Medicinal and pharmaceutical products	27,134	62,849	80,967	28.8
Other	520,627	1,271,368	403,131	-68.3
Total	21,123,101	71,297,930	127,669,504	79.1

Source: Statistics Canada.

Imports

As previously mentioned, the island of Taiwan is not abundant in natural resources. To be able to maintain rapid export growth, Taiwan has relied on significant imports of raw materials. Taiwan imports from Japan large quantities of machinery, equipment, and consumer goods, while much of the imports from the United States are industrial raw materials and other industrial inputs. Other large suppliers of capital goods to Taiwan include Germany and South Korea. Malaysia and Australia also supply Taiwan with many important raw materials.[86]

Taiwan's annual trade surplus with other nations is offset by its large trade deficit with Japan. More recently, Taiwan authorities have taken a series of measures to help restore a more balanced trade account with Japan. Authorities encourage more exports of Taiwan-made products to the Japanese market, and several programs attempt to attract more Japanese investment and joint-ventures to Taiwan. The goal of these programs is to increase output from these joint ventures, and then to export that output back to Japan to reduce the Taiwan trade deficit.[87]

Tables 2-6 and 2-7 show Taiwan's imports from the world, classified by one- and two-digit Standard Industrial and Trade Classification (SITC), respectively.

Table 2-6
Taiwan imports from the world, by one-digit SITC, 1980, 1990, 1998

	1980	1990	1998	Percent change 1990-98
		1,000 dollars		
7-Machinery and transport equipment	5,448,531	21,430,900	48,678,456	127.1
6-Manufactured goods classified chiefly by material	2,521,897	7,723,789	12,224,561	58.3
5-Chemicals and related products, n.e.s.	1,783,916	5,808,397	10,656,233	83.5
8-Miscellaneous manufactured articles	704,990	3,550,376	9,581,441	169.9
2-Crude materials, inedible, except fuels	2,466,385	3,437,716	3,797,129	10.5
3-Mineral fuels, lubricants and related material	5,514,007	2,614,132	3,363,053	28.6
0-Food and live animals chiefly for food	1,177,409	2,481,167	3,312,645	33.5
9-Commodities & trans. not classified	145,692	1,174,964	2,790,681	137.5
1-Beverages and tobacco	125,691	1,138,245	842,269	-26.0
4-Animal and vegetable oils, fats and waxes	47,456	71,428	222,824	212.0
Total	19,935,974	49,431,114	95,469,292	93.1

Source: Statistics Canada.

[86] *Economist Intelligence Unit*, "Taiwan: Country Profile 2001," p. 44.

[87] Taiwan Government Information Office, *The Republic of China Yearbook 2001*, found at Internet address http://gio.gov.tw, retrieved Apr. 7, 2002.

Table 2-7
Taiwan imports from the world, by two-digit SITC, 1980, 1990, 1998

	1980	1990	1998	Percent Change 1990-98
		1,000 dollars		
77 Electrical machinery, apparatus & appliance	1,224,585	7,032,146	20,641,640	193.5
72 Machinery specialized for particular industries	916,007	2,319,363	5,413,978	133.4
75 Office machines & automatic data processing	144,208	1,766,356	5,311,907	200.7
74 General industrial machinery & equipment	522,518	2,285,179	4,258,839	86.4
87 Professional, scientific & controlling instruments	206,171	979,448	4,013,918	309.8
51 Organic chemicals	638,033	2,419,432	3,836,438	58.6
79 Other transport equipment	741,937	974,976	3,598,826	269.1
76 Telecommunications & sound recording	576,409	2,043,838	3,415,218	67.1
67 Iron and steel	1,173,642	2,182,093	3,297,207	51.1
78 Road vehicles (incl. air cushion vehicles)	499,610	3,201,077	3,072,494	-4.0
68 Non ferrous metals	519,608	1,742,949	2,883,207	65.4
58 Plastics in nonprimary forms	333,790	1,148,568	2,216,861	93.0
93 Special transactions & commodities, not classified	135,004	763,011	1,991,624	161.0
89 Miscellaneous manufactured articles, n.e.s.	149,044	1,145,970	1,922,615	67.8
88 Photographic apparatus, optical goods, watch and clocks	324,356	690,797	1,780,337	157.7
33 Petroleum, petroleum products	5,294,800	1,851,655	1,777,471	-4.0
71 Power generating machinery and equipment	589,420	1,256,778	1,768,656	40.7
59 Chemical materials and products, n.e.s.	262,735	591,092	1,726,472	192.1
65 Textile yarn, fabrics, made up articles, n.e.s.	327,877	1,181,540	1,630,682	38.0
73 Metalworking machinery	233,837	517,613	1,196,899	131.2
66 Non metallic mineral manufactures, n.e.s.	110,732	648,222	1,147,220	77.0
69 Manufactures of metal, n.e.s.	191,095	644,669	1,106,431	71.6
32 Coal, coke and briquettes	200,019	607,178	1,098,598	80.9
84 Articles of apparel and clothing accessories	6,159	368,652	1,087,717	195.1
04 Cereals and cereal preparations	720,545	911,556	968,149	6.2
64 Paper, paperboard, articles of paper, paper pulp	82,593	613,247	956,762	56.0
28 Metalliferous ores and metal scrap	430,571	613,818	833,819	35.8
54 Medicinal and pharmaceutical products	100,129	297,527	742,731	149.6
53 Dyeing, tanning and coloring materials	141,000	529,709	734,096	38.6
03 Fish, crustaceans, molluscs, preparations thereof	53,679	333,010	687,040	106.3
55 Essential oils & perfume materials.	61,126	295,707	674,009	127.9
52 Inorganic chemicals	202,752	466,637	634,523	36.0
26 Textile fibers (except wool tops)	575,168	518,509	561,682	8.3
05 Vegetables and fruit	107,435	330,514	525,074	58.9
34 Gas, natural and manufactured	19,188	155,299	486,984	213.6
22 Oil seeds and oleaginous fruit	301,584	464,966	473,856	1.9
12 Tobacco and tobacco manufactures	92,133	947,055	472,434	-50.1
25 Pulp and waste paper	119,327	353,400	461,834	30.7
97 Gold, non monetary	5,085	173,850	457,887	163.4
63 Cork and wood manufactures	26,443	272,496	447,516	64.2
24 Cork and wood	526,127	469,029	412,349	-12.1
61 Leather, leather manufactures, n.e.s.	57,399	257,434	379,331	47.4
62 Rubber manufactures, n.e.s.	32,508	177,043	376,205	112.5
11 Beverages	33,558	191,190	369,835	93.4
95 Armoured fighting vehicles, arms of war	4,713	236,424	338,843	43.3
Other	921,315	2,460,091	3,279,079	33.3
Total	19,935,974	49,431,113	95,469,293	93.1

Source: Statistics Canada.

Participation in International Trade Organizations and Agreements

Multilateral Agreements

On Nov. 11, 2001, the WTO Ministerial Conference announced the accession of the Separate Customs Territory of Taiwan, Penghu, Kinmen, and Matsu on the terms set in the group's accession protocol.[88] On Jan. 1, 2002, Taiwan officially entered the World Trade Organization as its 144th member.[89] In joining the WTO, Taiwan pledged to reduce tariff and nontariff barriers to trade. Taiwan's tariff concessions include:

- The average nominal tariff rate will be reduced from 7.1 percent in 2002 to 4.2 percent in 2007– involving 4,491 tariff lines.
- The average nominal agricultural tariff rate will be reduced from 14.0 percent in 2002 to 12.9 percent in 2007–involving 1,021 tariff items.
- The average nominal industrial tariff will be reduced from 5.8 percent in 2002 to 4.2 percent in 2004–involving 3,470 tariff items.[90]

Taiwan's nontariff concessions include:

- Eliminate export subsidies and domestic subsidies to the agricultural sector.
- Abide by the multilateral rules on import licenses, quotas, import bans, customs standards, sanitary and phytosanitary restrictions, and product specifications.
- Abolish the liquor and tobacco monopoly.
- Open up the financial services market (banking, insurance, securities, foreign exchange, and services) to foreign companies.
- Open up the telecommunication services market to foreign companies.
- Open up the professional services market (law, accounting, construction, education, real estate, medical) to foreign competitors.[91]

Taiwan became a member of the Asia Pacific Economic Cooperation (APEC) in November, 1991, and a member of the Central American Bank for Economic

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[88] World Trade Organization, "Accession of the Separate Customs Territory of Taiwan, Penghu, Kinmen, and Matsu: Decision of 11 November 2001." WTO Document WT/L/433, found at Internet address http://www.wto.org, retrieved on Jan. 20, 2002.

[89] Taiwan Studies Institute, "Taiwan Joins WTO, Opens Further to China," found at Internet address: http://www.taiwanstudies.org, retreived Feb. 8, 2002.

[90] Rong-I Wu. "Taiwan's Future Economic Place in the World," a paper presented at the "Taiwan: Economic Issues Ahead" Conference, Center for Strategic and International Studies (CSIS), Washington, D.C., Feb. 6, 2002.

[91] Rong-I Wu, "Taiwan's Future Economic Place in the World," a paper presented at the "Taiwan: Economic Issues Ahead" Conference, Center for Strategic and International Studies (CSIS), Washington, D.C., Feb. 6, 2002.

Integration in 1992. It is also a member of the Asian Development Bank (ADB) and an active participant in the Pacific Economic Cooperation Council (PECC) and the Pacific Basin Economic Council (PBEC).[92]

The PRC replaced Taiwan at the United Nations in 1971. At the same time, many countries changed their official recognition from Taipei to Beijing. In mid-2000, Taiwan had formal diplomatic ties with 29 countries. Taiwan is not a member of the International Monetary Fund, the World Bank, or many other international bodies. At the same time, Taiwan has made informal ties with most countries to offset its diplomatic isolation and to expand its economic relations.[93] A number of nations have set up unofficial organizations to carry out commercial and other relations with Taiwan. Between its official overseas missions and its unofficial representative and/or trade offices, Taiwan is represented in 149 countries.[94] The PRC opposes Taiwan's membership in such organizations, most of which require statehood for membership, because Beijing considers Taiwan to be a province of China, not a separate sovereign state.[95]

Taiwan authorities claim this non-membership is political isolation,[96] and stress that in terms of national security or economic stabilization, (as during the Asian financial crisis), Taiwan must be cautious in its own domestic policies because the level of aid shown to other economies is not likely to be bestowed on Taiwan.[97]

Bilateral Agreements

Taiwan has recently decided to pursue bilateral trade agreements with a number of its trading partners. While no agreements have been signed yet, Taiwan has been in various levels of free trade discussions with New Zealand, Singapore, Japan, and the United States.[98] On May 18, 2002, Taiwan's ambassador to Panama David C.Y Hu also stated that Taiwan and Panama are expected to sign a FTA in the near future.[99] On April 14, 2002, Taiwan's President Chen Shui Bien announced interest in a tripartite FTA between Taiwan, Japan, and the United States.[100] Several weeks later,

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[92] U.S. Department of State, "Taiwan Country Commercial Guide 2001," found at Internet address http://www.state.gov, retrieved Apr. 16, 2002.

[93] U.S. Department of State, Background Note: Taiwan, found at Internet address: http://www.state.gov, retrieved Sept. 24, 2002.

[94] U.S. Department of State, Background Note: Taiwan, found at Internet address: http://www.state.gov, retrieved Sept. 24, 2002.

[95] Ibid.

[96] Official from North American Affairs Department, Taiwan Ministry of Foreign Affairs, interview with Commission staff, Taipei, Taiwan, May 22, 2002.

[97] Official from Council on Economic Planning and Development, interview with Commission staff in Tapei, Taiwan, May 21, 2002.

[98] American Institute in Taiwan, economic section, interviews with Commission staff, Taipei, Taiwan, May 20-24, 2002.

[99] *Taipei Times*, "Trade: Pact to Be Inked with Panama," online version, May 18, 2002, found at Internet address *http://www.taipeitimes.com*, retrieved Jun. 4, 2002.

[100] American Institute in Taiwan, economic section, interviews with Commission staff, Taipei, Taiwan, May 20-24, 2002.

President Chen stated that Taiwan should consider forming such bilateral or multilateral free-trade agreements with several countries in order to reduce Taiwan's dependence on China, a situation "which could tip the political and economic equilibrium between the two sides of the Taiwan Strait." The president also said that signing such agreements would ensure stability in the Asia-Pacific region and peace across the Taiwan Strait.[101] Taiwan authorities closely monitor China's own movements toward multilateral and bilateral trade agreements. In May 2002, senior trade officials from several Southeast Asian countries and China launched the first round of talks on setting up a free trade area between China and ASEAN, a trade region that could encompass over a third of the world's population.[102] According to officials from the U.S. Department of State, Taiwan regards any "ASEAN plus China" or "ASEAN plus Three" arrangements as equal to "Asia minus Taiwan."[103]

Taiwan has begun studies of the economic impacts of such agreements. The Taiwan Institute for Economic Research (TIER) has completed a report for the Taiwan central authorities on the effects of a Taiwan-New Zealand FTA, and is now working on a similar study of a possible Taiwan-Japan FTA. It has not yet been awarded a contract for a Taiwan-United States FTA study, but Institute representatives have told commission staff that TIER will likely undertake the study.[104] Representatives of Taiwan's Council on Economic Development and Planning[105] cited an internal report prepared by Taiwan's Chung-Hua Institution for Economic Research, where economic models forecast that a FTA with the United States would result in a 4.44 percent increase in Taiwan exports to the United States and 6.14 percentage increase in Taiwan imports from the United States. According to the study, because of the magnitude of current trade, these percent increases would balance out, leaving the bilateral trade balance almost unchanged.[106]

Taiwan's trade talks with various countries continue as this study is being written. According to AIT officials, Japanese trade representatives have expressed interest in an FTA with Taiwan, but do not want Japan to be the first country to sign such an agreement. Because of its own relations with mainland China, Japan believes it best if the United States were the first to sign an FTA with Taiwan. AIT officials also report that representatives of the New Zealand Trade Office told AIT that they would like a FTA with Taiwan only if there is real economic gain involved for both sides.[107]

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[101] *Taipei Times*, "Chen Calls for Trade Deals,"online version, May 19, 2002, found at Internet address *http://www.taipeitimes.com*, retrieved Jun. 4, 2002.

[102] *Taipei Times*, "China, ASEAN Discuss Forming a Free Trade Area ," online version, May 15, 2002, found at Internet address *http://www.taipeitimes.com*, retrieved Jun. 4, 2002.

[103] American Institute in Taiwan, economic section, interviews with Commission staff, Taipei, Taiwan, May 20-24, 2002.

[104] Official from Taiwan Institute of Economic Research, interview with Commission staff, Taipei, Taiwan, May 21, 2002.

[105] Official from Council on Economic Planning and Development, interview with Commission staff in Tapei, Taiwan, May 21, 2002.

[106] Chung-Hua Institution for Economic Research, excerpts from report on economic impact of a free trade agreement between the United States and Taiwan. Photocopied excerpts provided by Taiwan Council on Economic Planning and Development, during interviews with Commission staff, May 21, 2002.

[107] American Institute in Taiwan, economic section, interviews with Commission staff, Taipei, Taiwan, May 20-24, 2002.

According to the AIT, Singapore Trade Office representatives believe that a FTA with Taiwan must be "WTO plus-plus," meaning it should yield benefits for both sides that are well beyond those gained from Taiwan's recent entry to the WTO or that would be bargained from upcoming trade rounds in the WTO. Singapore officials see the main benefits of a FTA with Taiwan as the lifting of technical barriers to trade. They also told AIT that Singapore has agreed to a joint study group with Taiwan to examine the benefits of an FTA, but is waiting for further Taiwan response to this idea.[108] There are no detailed studies as of yet in Singapore on this issue, but Singapore officials believe they must balance the importance of a Taiwan FTA with its own interests in the China mainland. They are concerned that any expression of interest in preliminary Taiwan FTA talks might be prematurely published in the Taiwan press. More than 800 items have been excluded from FTA talks with Singapore–mostly textiles and ready-made garments. Taiwan officials have said different exclusion lists might be developed for other trade negotiations with other trading partners.[109]

Foreign Investment

Investment into Taiwan

For the past few years, Taiwan authorities have been lifting restrictions on both inbound and outbound investment. Until July 1997, Taiwan firms were not allowed to issue shares abroad, and regulations prevented foreign companies from issuing shares in Taiwan. Most of these restrictions have been lifted, though Taiwan maintains a range of formal and informal restrictions on capital flows to and from the island.[110]

Most of Taiwan's inward foreign investments in 2000 came from British territories in Central America (mainly the British Virgin Islands and British Cayman Islands), the United States, Japan, Hong Kong, and Europe. The top five sectors for foreign investment were banking and insurance, electronics and electronic appliances, services, wholesale and retail trade, and construction. Table 2-8 presents total foreign direct investment flows into Taiwan by the investing source, and table 2-9 presents foreign direct investment into Taiwan by industry.

Taiwan Investment Abroad

Taiwan's Board of Foreign Trade (BOFT) believes there has been a significant loosening on the restriction of trade and investment to mainland China. This relaxation has allowed more Taiwan businesses to move facilities to the mainland to capture low-cost production and less expensive labor. A recent example is the decision of Taiwan authorities to allow more Taiwan investment in the 12-inch wafer

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[108] American Institute in Taiwan, economic section, interviews with Commission staff, Taipei, Taiwan, May 20-24.

[109] Ibid.

[110] *Economist Intelligence Unit*, "Taiwan: Country Profile 2001," p. 46.

Table 2-8
Total foreign direct investment flows into Taiwan, by investing source, 1990-2000 (million dollars)

Year	Japan	U.S.	Hong Kong	Europe	Central America	All other	Total
1990	839	581	236	283	66	(1)	(1)
1991	535	612	129	165	60	277	1,778
1992	421	220	213	165	37	405	1,461
1993	278	235	169	214	38	279	1,213
1994	396	327	251	245	76	335	1,630
1995	573	1,304	147	338	151	412	2,925
1996	546	489	267	198	417	543	2,460
1997	854	491	237	401	659	1,625	4,267
1998	540	952	274	367	711	895	3,739
1999	514	1,145	161	462	1,216	733	4,231
2000	733	1,329	271	1,000	2,300	1,975	7,608

[1] Not available

Source: Taiwan Foreign Investment Commission.

Table 2-9
Foreign direct investment flows into Taiwan, by industries, 2000 (million dollars)

Industry	Value
Banking and insurance	2,182.5
Electronic and electronic appliances	1,092.9
Services	1,054.1
Wholesale and retail trade	990.6
Construction	254.1
Chemicals	146.1
Machinery and equipment	87.1
Non-metallic minerals	83.1
Food and beverage processing	81.5
Precision instruments	63.0
Basic metal and metal products	59.0
Transportation	52.6
Paper and printing	46.8
Trade	36.4
Transport equipment	26.5
Leather and fur products	16.9
Garment and footwear	16.1
Plastics	10.6
Storage	10.0
Textile	4.9
Lumber and bamboo products	2.8
Rubber products	0.6
Mining	0.4
Agriculture and forestry	0.2
Fishery and animal husbandry	0.0
Restaurant	0.0
Others	1,288.9
Total	7,607.7

Source: Taiwan Foreign Investment Commission.

semiconductor industry in Shanghai, China. Representatives of the IT industry in Taiwan also said plans exist to move more notebook computer production to the mainland.[111]

However, a question exists on direct transportation, passenger travel, and postal service to the mainland. Presently, goods destined for mainland China must be transhipped through a third-party location, such as Hong Kong. BOFT officials said Executive Yuan and other Taiwan authorities are studying this issue.[112] According to representatives of Taiwan's Council on Economic Planning and Development (CEPD), trade and investment restrictions between Taiwan and the mainland are not effective. They do not deter trade and investment across the straits, and when Taiwan does attempt to restrict these flows, the flows will still find a way to the mainland. According to CEPD, such economic links are more efficient if left unrestricted because trade and investment flows are forced through the "market mechanism."[113] The American Institute in Taiwan, however, explains that the lack of one single central authority on economic policy in Taiwan will affect potential changes to these "three-links" restrictions on trade and investment. Other non-economic considerations also tend to keep the restrictions in place.[114]

As shown in table 2-10, the top destinations for Taiwan investment abroad include the Chinese mainland, the United States, Central America, and ASEAN countries. As the market on the Chinese mainland becomes more open and Taiwan firms face growing labor costs at home, an increasing number of companies are moving production facilities to the Chinese mainland. Industries with the most Taiwan investment into mainland China include electronics and electronic appliances (45.3 percent), the basic metal manufacturing industry (6.7 percent), chemical products (5.8 percent), plastic products (5.8 percent), and precision instruments (4.9 percent).[115] Approved Taiwan investments into the mainland were concentrated in the following provinces: Jiangsu (51.1 percent), Guangdong (28.2 percent), and Zhejiang (7.9 percent.) These are coastal provinces, but evidence suggests more and more Taiwan investment is moving into central and northern mainland China.[116] Taiwan businessmen are also beginning to invest in activities other than export manufacturing, setting up mainland offices to handle real estate, insurance, banking, and tourism.[117]

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[111] Official from Taiwan Semiconductor Industry Association, interview with Commission staff, HsinChu County, Taiwan, May 20, 2002.

[112] Taiwan Board of Foreign Trade (BOFT), division of Taiwan Ministry of Economic Affairs, interviews with Commission staff, Taipei, Taiwan, May 20 and May 24, 2002.

[113] Official from Council on Economic Planning and Development, interview with Commission staff in Tapei, Taiwan, May 21, 2002.

[114] American Institute in Taiwan, economic section, interviews with Commission staff, Taipei, Taiwan, May 20-24, 2002.

[115] Investment Commission, Ministry of Economic Affairs, Statisitics on Overseas Chinese and Foreign Investment, Outward Investment, Outward Technical Cooperation, Indirect Mainland Investment, Guide of Mainland Industry Technology, The Republic of China, Nov. 2001, pp. 3-4.

[116] Investment Commission, Ministry of Economic Affairs, Statisitics on Overseas Chinese and Foreign Investment, Outward Investment, Outward Technical Cooperation, Indirect Mainland Investment, Guide of Mainland Industry Technology, The Republic of China, Nov. 2001, pp. 3-4.

[117] Taiwan Government Information Office, *The Republic of China Yearbook 2001*, found at Internet address http://gio.gov.tw, retrieved Apr. 7, 2002.

Table 2-10
Taiwan outbound foreign direct investment, 1990-2000 (million dollars)

Year	PRC[1]	United States	ASEAN	Central America	All other	Total
1990	0	429	567	170	386	1,552
1991	174	298	720	268	370	1,830
1992	247	193	309	239	146	1,134
1993	3,168	529	434	194	504	4,829
1994	962	144	398	569	506	2,579
1995	1,093	248	326	370	413	2,450
1996	1,229	271	587	809	498	3,394
1997	4,334	547	641	1,051	655	7,228
1998	2,035	599	478	1,838	381	5,331
1999	1,253	445	522	1,359	943	4,522
2000	2,607	862	389	2,248	2,118	8,224

[1] These are measures reported by Taiwan. The PRC reports FDI inflows from Taiwan which are significantly higher than what Taiwan reports as outflows to PRC. Much of the difference is explained by unofficial investment or investment not formally approved by Taiwan authorities. For example, China reports $2.9 billion in FDI from Taiwan for 199, China Statistical Yearbook 1999.

Source: Taiwan Foreign Investment Commission.

CHAPTER 3
U.S.-Taiwan Economic Relationship

This chapter examines the bilateral trade and investment aspects of the U.S.-Taiwan economic relationship. Specifically, this chapter provides data and analysis concerning bilateral trade, trading patterns and the structure of the bilateral trade relationship. Bilateral investment trends and patterns are reviewed.

The economic relationship between the United States and Taiwan has evolved significantly over the past half century, reflecting both policy changes and the rapid economic development of Taiwan. In the years immediately following the end of World War II, the U.S.-Taiwan economic relationship took the form of significant U.S. aid for Taiwan development. During the 1950s, 90 percent of Taiwan's GDP was produced for national consumption. Approximately 16 percent of GDP was investment in fixed assets, though Taiwan's domestic savings accounted for only 10 percent. The 6 percent gap was filled by large inflows of U.S. economic aid. The result was a rapid increase in capital stock, and rapid economic growth exceeding 7 percent per year.[1]

U.S. economic aid to Taiwan ended in 1965, a period when Taiwan authorities actively pursued programs to ensure availability of investment funds on the island and maintain growth and employment. Taiwan's domestic national savings rate increased markedly, from 10 percent in 1950 to more than 20 percent in 1965. Domestic investment also grew, from 16 percent to 23 percent of GDP between 1950 and 1965.[2] As a result, Taiwan's economic growth was not affected significantly by the end of economic aid.[3] To the present day, Taiwan regards its success in encouraging domestic savings and investment as one of the keys to its economic success.[4] This policy not only helped during the adjustment period during the end of U.S. aid, but also helped to keep Taiwan's foreign debt burden lower than in many other economies of the region.[5] This has been cited as a reason for Taiwan's relative success in avoiding the problems of the 1997-98 Asian financial crisis.[6]

As Taiwan developed, so did its economic links with the United States. Based on total trade, Taiwan was the eighth largest U.S. trading partner in 2001, behind Canada, Mexico, Japan, China, Germany, the United Kingdom, and Korea. Taiwan is ranked 10th in terms of U.S. exports, and eighth in terms of U.S. imports for consumption.

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[1] Chao-Cheng Mai and Chien-Sheng Shih, editors, "Taiwan's Economic Success Since 1980," Edward Elgar Publishing, Northampton, Massachusetts, 2001, pp. 27-28.

[2] Ibid, pp. 28-29.

[3] See chapter 2 for a summary of Taiwan's economic development and GDP growth statistics.

[4] Taiwan Economic and Cultural Representative Office, Washington D.C., interviews with Commission Staff, Washington. D.C., Mar. 26, 2002 and May 9, 2002.

[5] Shirley W.Y Kuo and Christina Y. Liu, "The Development of the Economy of Taiwan," *Asian Pacific Economic Literature*, 1999, pp. 36-49.

[6] *Economist Intelligence Unit*, "Taiwan: Country Profile 2001," p. 27.

Taiwan is the fifth largest market for U.S. agricultural products.[7] During 2000,[8] Taiwan ranked 25th in terms of destination for U.S. foreign direct investment, just behind Korea, France, and Indonesia, and just ahead of Israel, Chile, and the British islands of the Caribbean.[9] As a source of foreign direct investment into the United States during 2000, Taiwan ranked 30th, behind South Africa, Liberia, and Barbados, and ahead of Brazil, Bahamas, and Turkey.[10]

Taiwan authorities view their relationship with the United States today both in political and economic terms.[11] The current political relationship between Taiwan and the United States is beyond the scope of this study, but is formally described in the Taiwan Relations Act of 1979.[12] The Taiwan Ministry of Foreign Affairs has told the Commission that it would value a free trade agreement with the United States for several reasons, including 1) the trade and economic gains to two "complementary" economies, 2) the military and national security benefits to Taiwan, and 3) the psychological impact of a free trade agreement on Taiwan, the PRC, and the rest of the world.[13] With a similar appraisal, the Taiwan Ministry of Economic Affairs states that the United States and Taiwan already are cooperative partners and already have a deep and fundamental trading relationship. According to Taiwan authorities, this relationship goes beyond trade, investment, and technological cooperation.[14]

In purely economic terms, Taiwan authorities believe an FTA with the United States would be a win-win situation for both sides. According to an internal study in Taiwan, a free trade agreement with the United States would result in a 4.44 percent increase in Taiwan exports to the United States, and a 6.14 percent increase in Taiwan imports from the United States. Because of the magnitude of current trade, these percent increases would balance out, leaving the bilateral trade balance almost unchanged.[15] Taiwan authorities also have described a desire for Taiwan to increase its role as "gateway to China" for U.S. trade and investment.[16]

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[7] Compiled from official statistics of the U.S. Department of Commerce. In comparison, in 2000, China was ranked fourth in terms of U.S. imports, ninth in terms of U.S. exports, 25th in terms of U.S. investment position abroad, and 16th in terms of annual U.S. FDI outflows. Investment data available from U.S. Department of Commerce, Bureau of Economic Analysis, found at Internet address *www.bea.doc.gov*, retrieved Sept. 23, 2002.

[8] Latest data available for U.S. foreign direct investment abroad.

[9] U.S. Department of Commerce, Bureau of Economic Analysis, found at Internet address http://www.bea.doc.gov, retrieved May 6, 2002.

[10] Ibid.

[11] Official from North American Affairs Department, Taiwan Ministry of Foreign Affairs, interview with Commission staff, Taipei, Taiwan, May 22, 2002.

[12] Taiwan Relations Act, Public Law 96-8, 96th U.S. Congress, effective as of January 1, 1979; approved April 10, 1979.

[13] Official from North American Affairs Department, Taiwan Ministry of Foreign Affairs, interview with Commission staff, Taipei, Taiwan, May 22, 2002.

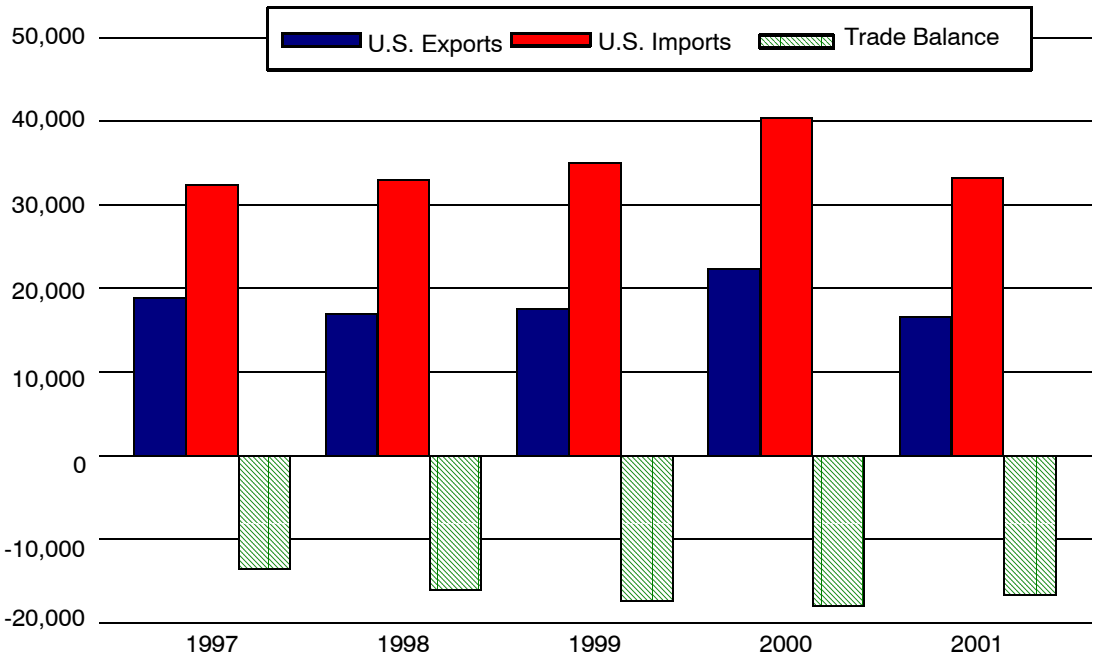
[14] Official from Taiwan Ministry of Economic Affairs, interview with Commission staff, Taipei, Taiwan, May 23, 2002.

[15] Official from Council on Economic Planning and Development, interview with Commission staff in Tapei, Taiwan, May 21, 2002.

[16] Official from Outward Investment Division, Taiwan Ministry of Economic Affairs, interview with Commission staff, Taipei, Taiwan, May 23, 2002.

Figure 3-1
U.S trade with Taiwan, 1997-2001

(Millions of dollars)



Source: Compiled from official statistics of the U.S. Department of Commerce.

According to Taiwan authorities, an FTA would help encourage the further development of a "triangle" relationship among the United States, Taiwan, and China, with low-wage production performed in mainland China, core technology and product finishing remaining in Taiwan, and resulting exports going to the United States.[17] Representatives of the Taiwan semiconductor industry told the Commission that an FTA would strengthen this "triangle" within high-tech manufacturing by promoting cooperation in research and design between the United States and Taiwan–a "win-win" situation for both economies.[18]

Even though many Taiwan firms report the United States is open in terms of trade and investment barriers, industry sentiment (with the exception of agriculture) in Taiwan is strongly in favor of a free trade agreement.[19] The Chinese National Federation of Industries in Taiwan (CFI) conducted a poll of its membership, to which 400 firms responded. According to this poll, 82.5 percent of respondents believe that a trade agreement would be very helpful, while 15.5 percent believe that an agreement would

[17] Official from Council on Economic Planning and Development, interview with Commission staff in Tapei, Taiwan, May 21, 2002.

[18] Official from Taiwan Semiconductor Industry Association, interview with Commission staff, HsinChu County, Taiwan, May 20, 2002.

[19] Official from International Cooperation Department, Taiwan Council on Agriculture, interview with Commission staff, Taipei, Taiwan, May 23, 2002.

be somewhat helpful.[20] Using a similar survey conducted in 1999, CFI conducted an investigation of trade barriers. They found that Taiwan faces no great problems in exporting to the United States, except for antidumping duty orders.[21] However, a separate report was prepared by Taiwan's Board of Foreign Trade, outlining several issues it perceives as significant barriers to Taiwan exports to the United States including import policies, regulatory regime, intellectual property rights protection and government procurement.[22] Specific barriers to trade and investment are discussed in chapter 4.

Merchandise Trade

As shown in figure 3-1, the United States has maintained a long-standing bilateral trade deficit with Taiwan. The U.S. deficit with Taiwan grew from $13.6 billion in 1997 to a peak of $18.0 billion in 2000. The deficit fell to $16.6 billion in 2001, due much in part to the sharp decrease in U.S. imports during the U.S. economic slowdown.[23] U.S. domestic exports to Taiwan totaled $16.6 billion, down from $22.4 billion in 2000. U.S. imports for consumption from Taiwan totaled $33.3 billion, down from $40.4 billion in 2000.[24] The United States remains Taiwan's largest overall trading partner, largest export market, and its second largest import supplier, after Japan.[25]

U.S. Exports

With few domestic natural resources and a relatively small domestic market, much of Taiwan's economic growth has been based on the success of its export sector.[26] Accomplishing this required large capital expenditures in Taiwan's export manufacturing industry, which in turn, depended on Taiwan imports of capital goods produced overseas, especially those from the United States. Taiwan's capital expenditure in the manufacturing industry accounted for more than 35 percent of its

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[20] The Chinese National Federation of Industries, in Taiwan (CFI), of Taiwan, Industry Survey 2001, discussed in interviews with Commission staff, Taipei, Taiwan, May 22, 2001. CFI comprises 135 Taiwan industry associations which, together, have a total of 18,000 member firms. These industry associations are from both high-tech and traditional sectors. CFI serves as a bridge between Taiwan business enterprises and government, as it collects suggestions from industry and sends them to the government.

[21] Ibid.

[22] Taiwan Board of Foreign Trade, "Examples of Selected U.S. Trade Barriers to Taiwan Exports," given to Commission staff by representatives of Taiwan Economic and Cultural Representative Office, Washington, D.C. For more complete analysis of trade barriers between Taiwan and the United States, see chapter 6.

[23] Official from Council on Economic Planning and Development, interview with Commission staff in Taipei, Taiwan, May 21, 2002.

[24] Compiled from official statistics of the U.S. Department of Commerce.

[25] U.S. Department of State telegram, "Taiwan: 2001 Trade Performance," message reference number 1821, prepared by the American Institute in Taiwan, Taipei, Feb. 8 , 2001.

[26] Cheng Tun-jen, "Transforming Taiwan's Economic Structure in the 20th Century," *The China Quarterly*, Mar. 2001, pp. 33-34

total gross fixed investment in 1999.[27] Between 1999 and 2000, all private sector investment in Taiwan grew more than 10 percent.[28] Much of this capital investment is accounted for by a growth in U.S. exports to Taiwan.[29]

The most significant U.S. exports to Taiwan in 2001 were electrical machinery and appliances, transport equipment, specialized machinery, professional and scientific instruments, office machines and data processing machines, general machinery, and chemical products. Export growth has been dependent on Taiwan's domestic GDP growth. U.S. exports of machinery and transport equipment grew from $9.6 billion in 1999 to more than $12.9 billion in 2000, when Taiwan's GDP growth measured a healthy 5.4 percent. However, Taiwan's first recession year in half a century brought a 1.9 percent shrinkage of Taiwan GDP in 2001, causing U.S. exports of electrical appliances and machinery to fall by $3.9 billion (30.2 percent), to $9.0 billion.[30] Taiwan officials are expecting a quick economic rebound in 2002, with GDP growth targeted at 2.7 percent.[31]

Taiwan's main agricultural crops include rice, sugarcane, fruit, and vegetables. Other products include pigs, chickens, fish, other seafood, and some dairy products. While Taiwan is self-sufficient in rice production,[32] all of the wheat, corn, and soybeans consumed in Taiwan are imported, mostly from the United States. The U.S. market share of world agricultural exports to Taiwan measured 35 percent in 2001.[33] Bulk commodities made up more than 50 percent of Taiwan's agricultural imports from the United States in dollar terms. Intermediate products accounted for approximately 20 percent, and processed and consumer-ready goods for the remaining 30 percent.[34]

Table 3-1 presents U.S. exports to Taiwan, classified by one-digit SITC code. Table 3-2 presents U.S. exports to Taiwan, classified by two-digit SITC code. More detailed information on individual industries is provided later in chapters 4 and 5.

U.S. Imports

U.S. imports from Taiwan peaked at $40.4 billion in 2000 before falling 17.6 percent in 2001 to $33.3 billion. Due much in part to the U.S. economic slowdown in 2001, the

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[27] Latest data available.

[28] *Economist Intelligence Unit*, "Taiwan: Country Profile 2001," p. 34.

[29] Ibid.

[30] Taiwan GDP data available from Taiwan Government Information Office, *The Republic of China Yearbook 2001*, found at Internet address http://gio.gov.tw, retrieved Apr. 7, 2002. Trade data compiled from official statistics of the U.S. Department of Commerce.

[31] Taiwan GDP growth in the first quarter 2001 measured 2.9 percent. Growth data and target GDP growth reported by an official from the Council on Economic Planning and Development, interview with Commission staff in Taipei, Taiwan, May 21, 2002.

[32] U.S. Department of State, "Background Note: Taiwan," found at Internet address http://www.state.gov, retrieved May 7, 2002.

[33] American Institute in Taiwan, agriculture section, interviews with Commission staff, Taipei, Taiwan, May 20-24, 2002.

[34] American Institute in Taiwan, "U.S.-Taiwan Free Trade Area: Implications for Agricultural Trade," p. 1.

Table 3-1
U.S. exports to Taiwan, classified by one-digit SITC, 1997-2001 (million dollars)

SITC	1997	1998	1999	2000	2001
7 Machinery and transport equipment	9,799.3	9,610.1	9,964.1	12,914.1	9,046.1
5 Chemicals and related products, n.e.s.	2,424.3	1,940.1	2,221.9	2,634.7	2,095.3
8 Miscellaneous manufactured articles	1,686.7	1,695.2	1,751.3	2,905.3	1,906.8
0 Food and live animals	1,568.0	1,144.2	1,275.5	1,283.4	1,242.4
2 Crude materials, inedible, except fuels	1,561.3	1,011.7	1,042.4	1,132.5	1,117.4
6 Manufactured goods classified chiefly by material	1,028.5	843.5	734.0	827.9	678.0
9 Commodities and transactions, n.e.c.	399.3	339.2	370.4	454.1	376.2
1 Beverages and tobacco	163.6	119.9	80.2	87.0	83.2
3 Mineral fuels, lubricants and related materials	236.8	185.1	163.1	144.3	67.9
4 Animal and vegetable oils, fats and waxes	15.0	34.4	36.6	20.3	12.8
Total	18,882.9	16,923.3	17,639.7	22,403.7	16,626.1

Source: Compiled from official statistics of the U.S. Department of Commerce.

decline was especially sharp in U.S. imports of capital goods such as machinery and transport equipment, which make up 62.3 percent of all U.S. imports.[35] Taiwan's economists hope the recovery of both the U.S. and Taiwan economies in 2002 will result in an increase in U.S. imports of Taiwan goods. However, some economists note a structural change in Taiwan's exports and have called for various policies to increase Taiwan competitiveness in order to maintain higher volumes of exports to the United States, Japan, and Europe.[36]

Based on two-digit SITC classification, the most significant U.S. imports from Taiwan in 2001 included office and data processing machines, electrical machinery and appliances, telecommunications and recording equipment, apparel and clothing accessories, manufactures of metals, general machinery, and road vehicles. Table 3-3 presents U.S. imports from Taiwan, classified by one-digit SITC code. Table 3-4 presents U.S. imports from Taiwan, classified by two-digit SITC code. More detailed information on individual industries is provided in chapter 4 and 5.

Services Trade

U.S. cross-border exports of private commercial services to Taiwan were $4.7 billion in 2000, and U.S. imports were $3.7 billion .[37] Sales of services in Taiwan by majority U.S.-owned affiliates were $3.9 billion in 1999, while sales of services in the Unites States by majority Taiwan-owned firms measured $582 million. Table 3-5 presents U.S. cross-border services trade with Taiwan.

[35] Compiled from official statistics from the U.S. Department of Commerce.

[36] U.S. Department of State telegram, "Taiwan: 2001 Trade Performance," message reference number 1821, prepared by the American Institute in Taiwan, Taipei, Feb. 8 , 2001.

[37] U.S. Department. of Commerce, Bureau of Economic Analysis, Survey of Current Business, November 2000, pp. 49-91

Table 3-2
U.S. exports to Taiwan, classified by two-digit SITC, 1997-2001 (million dollars)

SITC	1997	1998	1999	2000	2001
77 Electrical machinery, apparatus	3,063.0	2,923.9	3,384.3	4,814.0	3,687.7
79 Transport equipment, n.e.s.	2,128.3	2,667.9	2,108.1	1,438.5	1,255.7
72 Machinery specialized for particular industries	1,136.2	968.8	1,536.3	2,837.1	1,210.7
87 Professional, scientific and controlling instruments and apparatus, n.e.s.	840.4	877.5	1,085.7	1,976.8	1,065.7
75 Office machines and automatic data processing machines	862.5	797.4	737.7	961.8	838.9
74 General industrial machinery and equipment, n.e.s.	711.1	703.0	689.9	828.8	743.5
51 Organic chemicals	1,044.6	781.8	911.5	1,093.8	665.6
89 Miscellaneous manufactured articles, n.e.s.	653.4	626.0	457.3	677.2	646.9
04 Cereals and cereal preparations	872.3	538.4	608.4	613.9	643.2
76 Telecommunications and sound recording	555.0	572.2	429.1	567.1	484.2
57 Plastics in primary forms	421.7	346.8	402.3	452.3	418.4
22 Oil seeds and oleaginous fruits	650.7	277.2	395.2	389.7	388.6
71 Power generating machinery and equipment	328.0	303.9	293.3	434.9	354.0
73 Metalworking machinery	576.5	414.1	581.4	802.5	331.0
59 Chemical materials and products, n.e.s.	271.1	261.8	322.6	362.6	282.1
05 Vegetables and fruit	301.8	270.0	280.6	295.6	261.0
52 Inorganic chemicals	273.1	173.3	174.2	206.2	259.9
99 Non -identified products	246.9	243.3	259.6	326.8	232.6
21 Hides, skins and furskins, raw	214.7	165.3	165.0	184.1	201.3
28 Metalliferous ores and metal scrap	185.4	124.5	106.8	140.6	160.2
54 Medicinal and pharmaceutical products	108.1	101.4	113.8	139.9	144.2
88 Photographic apparatus, equipment and supplies and optical goods, n.e.s.; watches and clocks	115.8	125.6	146.3	194.2	146.4
93 Special transactions and commodities not classified according to kind	89.8	79.4	99.6	107.4	141.8
78 Road vehicles (including air-cushion vehicles)	438.6	258.8	204.0	229.5	140.4
64 Paper, paperboard, and articles of paper pulp	248.8	173.4	157.4	159.2	139.3
26 Textile fibers and their wastes	131.6	139.9	74.3	121.9	131.0
69 Manufactures of metals, n.e.s.	152.9	145.2	128.9	145.0	129.3
55 Essential oils and resinoids and perfume materials	133.4	112.9	109.1	130.7	123.0
66 Nonmetallic mineral manufactures, n.e.s.	114.9	83.8	84.7	90.6	112.4
09 Miscellaneous edible products and preparations	124.5	114.3	118.5	88.3	112.1
68 Nonferrous metals	240.8	200.2	161.7	203.1	100.7
58 Plastics in nonprimary forms	97.6	82.3	96.6	131.0	94.2
25 Pulp and waste paper	160.3	113.5	113.9	113.6	83.7
53 Dyeing, tanning and coloring materials	69.2	57.5	70.7	110.3	80.7
01 Meat and meat preparations	61.1	62.9	116.4	123.6	78.4
08 Feeding stuff for animals	93.9	86.0	74.5	78.8	76.5
61 Leather, leather manufactures, n.e.s.	35.6	59.1	43.4	61.8	62.5
27 Crude fertilizers (imports only)	75.3	82.4	78.0	69.1	61.5
33 Petroleum, petroleum products and related materials	153.8	128.4	119.9	130.1	60.0
12 Tobacco and tobacco manufactures	95.7	76.9	52.2	61.0	60.0
Other	804.6	602.2	546.2	510.6	416.7
Total	18,882.9	16,923.3	17,639.7	22,403.7	16,626.1

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 3-3
U.S. imports from Taiwan, classified by one-digit SITC, 1997-2001 (million dollars)

SITC	1997	1998	1999	2000	2001
7 Machinery and transport equipment	20,447.2	20,496.8	22,027.9	26,280.2	20,737.3
8 Miscellaneous manufactured articles	6,518.4	6,594.3	6,566.7	7,086.8	6,160.9
6 Manufactured goods classified chiefly by material	4,095.5	4,229.7	4,466.4	4,814.4	4,080.0
9 Commodities and transactions, n.e.c.	556.4	739.5	1,009.9	1,090.6	1,131.9
5 Chemicals and related products, n.e.s.	425.1	461.4	483.5	635.1	605.6
0 Food and live animals	294.7	324.5	347.1	307.3	313.5
2 Crude materials, inedible, except fuels	127.4	127.1	130.6	155.2	139.0
3 Mineral fuels, lubricants and related materials	0.1	0.1	13.4	2.0	81.5
1 Beverages and tobacco	6.3	7.4	7.6	7.8	7.7
4 Animal and vegetable oils, fats and waxes	3.2	4.1	3.9	4.4	4.3
Total	32,474.3	32,984.8	35,057.0	40,383.7	33,261.7

Source: Compiled from official statistics of the U.S. Department of Commerce.

Bilateral Investment

Taiwan authorities report that the United States is the top foreign investor in Taiwan, followed by Japan. During 1952-2000, internal Taiwan approvals for investments from the United States have totaled $10.7 billion. Of this total, 40 percent has been approved for the electronics and electrical industries, with another 13 percent approved for investment in Taiwan chemicals. The Japanese investment pattern in Taiwan has been similar, with $9.2 billion over the same period. A larger portion of Japanese investment has gone into the Taiwan services and trade sectors.[38]

According to U.S. investment statistics, U.S. net capital outflows to Taiwan totaled $1.15 billion in 2000. Most U.S. investment in Taiwan is concentrated in the manufacturing sectors, especially the electronic and chemical industries. U.S. investment also flows into wholesale trade, and finance, insurance, and real estate sectors. At the end of 2000, the total U.S. investment position in Taiwan measured $7.74 billion.[39]

Taiwan investment in the United States is much smaller. Taiwan net capital outflows to the United States measured $186 million in 2000, mostly concentrated in services, wholesale trade, and machinery. At the end of 2000, Taiwan's investment position in the United States measured $3.22 billion, with holdings concentrated mostly in manufacturing (chemicals and allied products, and machinery), depository institutions, wholesale trade, and services.[40]

Table 3-6 presents U.S. foreign direct investment in Taiwan during 2000. Taiwan's foreign direct investment into the United States is presented in table 3-7.

[38] U.S. Department of Commerce, "Taiwan: Country Commercial Guide FY2002: Investment Climate," found at Internet address http://www.usatrade.gov, retrieved Jan. 25, 2002.

[39] U.S. Department of Commerce, Bureau of Economic Analysis, found at Internet address http://www.bea.doc.gov, retrieved May 6, 2002.

[40] Ibid.

Table 3-4
U.S. imports from Taiwan, classified by two-digit SITC, 1997-2001 (million dollars)

SITC	1997	1998	1999	2000	2001
75 Office machines and automatic data processing machines	9,875.5	9,560.5	9,640.8	10,592.2	8,751.3
77 Electrical machinery, apparatus	5,750.2	5,438.0	6,369.6	8,492.3	5,878.5
89 Miscellaneous manufactured articles, n.e.s.	2,145.8	2,105.7	2,256.2	2,654.6	2,470.8
76 Telecommunications and sound recording	1,589.7	1,926.4	2,237.6	2,986.2	2,361.9
69 Manufactures of metals, n.e.s.	2,313.1	2,427.2	2,487.6	2,639.1	2,321.3
84 Articles of apparel and clothing accessories	2,164.4	2,222.5	2,075.7	2,159.8	1,907.3
74 General industrial machinery and equipment, n.e.s.	1,182.4	1,282.3	1,410.5	1,472.4	1,376.6
78 Road vehicles (including air-cushion vehicles)	986.7	1,082.9	1,168.2	1,334.6	1,124.9
82 Furniture and parts thereof	924.2	966.7	1,009.1	1,031.2	765.6
93 Special transactions and commodities not classified according to kind	322.0	415.8	584.0	586.9	713.9
65 Textile yarn, fabrics, made-up articles, n.e.s	743.8	731.1	761.1	739.7	704.1
72 Machinery specialized for particular industries	541.7	568.6	616.4	704.8	626.0
98 Estimate of import items valued under $251	232.7	323.2	424.9	502.8	417.4
87 Professional, scientific and controlling instruments and apparatus, n.e.s.	283.0	341.0	343.7	433.8	372.7
67 Iron and steel	248.7	329.1	449.1	648.6	346.8
62 Rubber manufactures, n.e.s.	266.1	280.7	304.5	317.5	316.4
88 Photographic apparatus, equipment and supplies, optical goods, watches and clocks	360.4	375.5	361.1	342.2	282.6
73 Metalworking machinery	319.8	396.2	304.9	358.4	250.9
58 Plastics in nonprimary forms	198.0	207.6	210.5	257.6	229.8
79 Transport equipment, n.e.s.	64.0	99.7	118.2	155.0	184.6
03 Fish, crustaceans, molluscs, preparations thereof	183.6	206.1	220.0	180.0	184.2
71 Power generating machinery and equipment	137.4	142.4	161.7	184.1	182.7
66 Nonmetallic mineral manufactures, n.e.s.	232.6	187.8	182.0	182.2	167.6
81 Sanitary, plumbing, heating and lighting fixtures	274.1	262.4	260.9	235.2	156.8
83 Travel goods, handbags	183.5	176.4	149.1	138.4	129.8
51 Organic chemicals	73.6	83.1	68.8	84.6	111.7
57 Plastics in primary forms	74.0	89.3	109.2	128.2	104.5
63 Cork and wood manufactures	146.4	126.1	114.1	108.9	85.8
33 Petroleum, petroleum products and related materials	0.1	0.0	13.4	2.0	81.5
59 Chemical materials and products, n.e.s.	16.0	22.4	31.8	94.8	81.3
85 Footwear	183.1	144.1	110.9	91.7	75.4
26 Textile fibers and their wastes	49.2	57.7	63.5	75.8	74.4
68 Nonferrous metals	69.5	81.9	98.4	106.8	73.6
09 Miscellaneous edible products and preparations	36.1	31.9	40.9	39.2	51.4
64 Paper, paperboard, and articles of paper pulp	44.5	41.4	43.4	44.9	41.0
29 Crude animal and vegetable materials, n.e.s	53.2	44.8	43.9	53.2	38.8
05 Vegetables and fruit	25.1	27.8	33.4	41.1	35.6
55 Essential oils and resinoids and perfume materials	22.3	23.3	25.4	31.9	35.4
52 Inorganic chemicals	16.0	16.2	18.7	19.8	28.6
61 Leather, leather manufactures, n.e.s.	30.8	24.5	26.3	26.8	23.6
Other	111.2	114.8	107.6	104.7	95.0
Total	32,474.3	32,984.8	35,057.0	40,383.7	33,261.7

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table 3-5
U.S. cross-border services trade with Taiwan, 2000 (million dollars)

	Exports	Imports
Total private services	4,712	3,676
Travel	1,184	948
Passenger fares	101	847
Other transportation	1,206	1,560
Freight	261	1,384
Ocean port services	70	1,145
Air freight services	191	239
Port services	945	176
Ocean port services	778	39
Air port services	167	137
Royalties and license fees	670	42
Transaction between affiliated parties	([1])	([1])
U.S. parents' receipts from their foreign affiliates	192	3
U.S. affiliates receipts from their foreign parents	([1])	([1])
Transactions between unaffiliated parties	([1])	([1])
Industrial processes	214	10
Books, records, tapes	6	0
Broadcasting and recording of live events	5	([1])
Franchise fees	17	0
Trademarks	10	([1])
Other (includes software distribution and related rights)	([1])	([1])
Other private services	1,551	279
Transaction between affiliated parties	339	124
U.S. parents' receipts from their foreign affiliates	209	37
U.S. affiliates receipts from their foreign parents	129	88
Transactions between unaffiliated parties	1,212	155
Education	480	1
Financial Services	219	31
Insurance, net	5	2
Premiums	55	5
Losses	51	3
Telecommunications services	100	54
Business, professional, and technical services	354	67
Advertising services	4	12
Computer and data processing services	30	3
Database and other information services	21	([2])
Research, development, and testing services	19	2
Management, consulting, and public relations services	10	8
Legal services	37	10
Construction, engineering, architectural, and mining services	45	([2])
Industrial engineering services	30	([2])
Equipment installation, maintenance, and repair services	108	9
Other business, professional, and technical services	50	22
Other unaffiliated transactions	53	0
Addendum: film and tape rentals	78	([2])

[1] Suppressed to avoid disclosure of individual companies.
[2] Less than $500,000.

Source: U.S. Department of Commerce, Bureau of Economic Analysis, Survey of Current Business, November 2000, pp. 49-91.

Table 3-6
U.S. direct investment in Taiwan, 2000 (million dollars)

Sector	Net capital outflows to Taiwan	U.S. investment position in Taiwan
Manufacturing, total	567	3,692
Electronic and other electric equipment	303	1,454
Chemicals and allied products	74	1,483
Primary and fabricated metals	15	60
Food and kindred products	11	59
Industrial machinery and equipment	-5	188
Transportation equipment	(2)	65
Other manufacturing	(2)	381
Wholesale trade	242	871
Finance, insurance, real estate	207	1,972
Other industries	107	285
Services	49	154
Depository institutions	-26	703
Petroleum	(1)	60
All industries	1,147	7,737

[1] Less than $500,000 (+/-).
[2] Suppressed to avoid disclosure of individual company data.
Source: U.S. Department of Commerce, Bureau of Economic Analysis, found at Internet address *http://www.bea.doc.gov,* retrieved Apr. 22, 2002.

Table 3-7
Taiwan direct investment in the United States, 2000 (million dollars)

Sector	Net capital outflows to the United States	Taiwan investment position in the United States
Manufacturing, total	11	1,179
Chemicals and allied products	-20	782
Primary and fabricated metals	(1)	(1)
Food and kindred products	-1	-1
Machinery	30	342
Other manufacturing	2	56
Wholesale trade	85	722
Retail trade	(1)	21
Depository institutions	9	878
Finance, except depository institutions	6	65
Insurance	(2)	(2)
Real Estate	2	56
Other industries	(2)	(2)
Services	90	240
Petroleum	(1)	-4
All industries	186	3,224

[1] Less than $500,000 (+/-).
[2] Suppressed to avoid disclosure of individual company data.
Source: U.S. Department of Commerce, Bureau of Economic Analysis, found at Internet address *http://www.bea.doc.gov*, retrieved Apr. 22, 2002.

Other Issues

While Taiwan has enacted many laws and policies meant to improve intellectual property rights (IPR) protection, enforcement remains a subject of consultations between the United States and Taiwan. Because of enforcement problems and pirating in Taiwan, in April 2001, Taiwan was moved from the United States Trade Representative's Special 301 general watch list to the priority watch list.[41]

According to the United States Trade Representative (USTR), despite significant efforts of some in Taiwan to improve IPR protection, concrete results in key areas have not been achieved. These important areas include: 1) improving a prejudicial climate in the Taiwan court system relative to the protection of foreign copyright and patents, and 2) enforcing an effective system for placement of identifying marks on audio and video CDs as well as computer chips.[42]

Several U.S. government delegations have visited Taiwan to discuss IPR issues. A USTR delegation informed Taiwan in February 2001 that it likely would be moved to the Priority 301 list. During these consultations, the Taiwan Ministry of Justice, the Judicial Yuan, the Taiwan Board of Foreign Trade, and the Intellectual Property Office promised to address U.S. IPR concerns. USTR officials pointed to several examples of continuing IPR problems, including a lack of vigorous followup by Taiwan IPR prosecutors and judges, lack of police seizures of counterfeit products, and specific problems in the Taiwan pharmaceuticals industry.[43]

In January 2002, U.S. Assistant Secretary of Commerce William H. Lash became the first Bush Administration official to visit Taiwan. As the head of the Department of Commerce's Market Access and Compliance Division, Lash praised Taiwan's efforts in reducing tariffs, lowering trade barriers, and increasing transparency. But Lash, too, called for better enforcement of IPR protection in Taiwan. At a speech to the Center for Strategic and International Studies in Washington, D.C., Lash said that although Taiwan has implemented a TRIPs-consistent statutory and regulatory infrastructure over the past 15 years, the weak link in Taiwan is the judiciary.[44] More sector-specific information on IPR issues is presented in chapter 6.

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[41] USTR, *2002 National Trade Estimate Report on Foreign Trade Barriers*, p. 399. See also, U.S. Department of State telegram, "2001 Investment Statement-Taiwan Part 1," message reference number 02520, prepared by the American Institute in Taiwan, Taipei, Jul. 13, 2001.

[42] USTR, "Taiwan Issues Summary," found at Internet address http://www.ustr.gov, retrieved Jan. 24, 2002.

[43] U.S. Department of State telegram, "Taiwan: USTR-Led Delegation Slams Enforcement Efforts," message reference number 00802, prepared by the American Institute in Taiwan, Taipei, Mar. 13, 2001.

[44] William H. Lash, Assistant Secretary of Market Access and Compliance, U.S. Department of Commerce. Speech at the Center for Strategic and International Studies, Washington, D.C., Feb. 6, 2002. A copy of his remarks are available at Internet address: http://www.csis.org.

CHAPTER 4
Selected Agricultural Sectors

The agricultural sectors in the United States and Taiwan are statistically similar in terms of their relative importance to the overall economy. In 2000, agricultural production accounted for approximately 2 percent of Taiwan GDP and slightly less than 1.5 percent of U.S. GDP. However, significant differences exist between these agricultural industries in terms of absolute size. In 2000, total agricultural GDP was $136 billion in the United States, as opposed to $6.5 billion in Taiwan. The United States cultivated nearly 170 million hectares in 2001, whereas Taiwan cultivated just under 900,000 hectares.[1] The United States has more than 2 million farms in production, while Taiwan has about 900,000.[2] Average size of cultivated area per farm in the United States is about 85 hectares, whereas in Taiwan the average size of cultivated area per farm is about 1 hectare.

In 2000,[3] the United States exported a total of $62 billion in agricultural products, compared to Taiwan exports of $3.3 billion. The United States is a net exporter of agricultural products to Taiwan. In 2001, Taiwan was the fifth largest market for U.S. agricultural exports in terms of value, trailing only Japan, Canada, Mexico, and Korea. During 1995-2001, U.S. agricultural exports to Taiwan averaged $2.4 billion annually, while U.S. agricultural imports from Taiwan averaged about $500 million annually. However, the total value of U.S. agricultural exports to Taiwan fell by 31 percent between 1995 and 2001, from $3.3 billion to $2.3 billion, partly as a result of the Asian financial crisis. The value of U.S. imports from Taiwan also fell between 1995 and 2001, from $600 million in 1995 to $542 million in 2001.

In 2001, bulk commodities such as wheat, coarse grains, soybeans, and cotton constituted nearly 56 percent of the total value of U.S. agricultural exports to Taiwan. Consumer-oriented agricultural goods, such as snack foods and breakfast cereals, accounted for 23 percent of the value of such exports. Intermediate agricultural goods such as soybean meal, animal feed, and vegetable oils accounted for 17 percent. Forestry products and fish and seafood accounted for the remaining 4 percent of agricultural exports to Taiwan in 2001. The United States principally imports consumer-oriented agricultural products such as snack foods and processed fruits and vegetables, and fish and other seafood from Taiwan. In 2001, these two subsectors accounted for almost 70 percent of the total value of agricultural imports from Taiwan. Taiwan has the potential to export tropical fruits, such as star fruit and mangoes, to the United States.[4] There is little foreign direct investment between the United States and Taiwan in the agriculture sector.

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[1] U.S. Department of Commerce, Bureau of Economic Analysis and http://www.coa.gov.tw.

[2] USDA, Agricultural Statistics and http://www.coa.gov.tw.

[3] This is the most recent year for which comparable data are available.

[4] Chung Hua Institute for Economic Research, interview May 22, 2002, and the Taiwan Board of Foreign Trade, interview May 20, 2002.

This chapter provides comparisons of the industry structure, as well as an overview of the economic relationship between the United States and Taiwan in seven selected agricultural industries. These industries either account for a substantial share of U.S.-Taiwan trade, are affected by significant U.S. or Taiwan barriers, or are otherwise notable with regard to U.S.-Taiwan trade. They industries include grains (rice and wheat), citrus fruits, fresh deciduous fruit, fish and shellfish, poultry, red meat (beef and pork), and processed foods.

Grains (Rice and Wheat)[5]

U.S. wheat and rice exports accounted for $161 million, or 7 percent, of U.S. agricultural exports to Taiwan in 2001. Taiwan imposes a 6.5 percent ad valorem tariff on wheat imported from the United States, and has an absolute quota on rice. Rice is a leading field crop in the United States, with production of about 6.0 million metric tons ($1.2 billion in farm-level sales) in 2001, from a harvested area of 1.3 million hectares (table 4-1). Long-grain rice (Indica rice) accounts for 75 percent of U.S. rice production, while short or medium rice (Japonica rice)[6] accounts for 24 percent of production. Rice production in Taiwan, which totaled 1.4 million metric tons in 2001 from an area of 345,000 hectares, is about one-fifth the size of U.S. output. Japonica accounts for the majority of rice production in Taiwan, although production of long-grain and other varieties of rice is increasing.[7] In 2001, the U.S. rice yield per acre was 26 percent above that of Taiwan. U.S. rice farms tend to be much larger than Taiwan farms, and typically more fertile.

Table 4-1
Grains (wheat and rice): Selected industry data, 2001

Item	Wheat		Rice	
	United States	Taiwan	United States	Taiwan
Production *(1,000 metric tons)*	60,758	0	6,017	1,355
Land in production *(1,000 hectares)*	21,000	0	1,341	345
Yield *(bushels per acre)*	42	0	5	4
Apparent consumption *(1,000 metric tons)*	36,316	1,083	3,667	1,400
Per capita consumption *(kilograms)*	130	49	13	63
Exports to all trading partners *(1,000 metric tons)*	25,856	0	2,992	88
Share of production exported *(percent)*	43	0	50	6
Imports from all trading partners *(1,000 metric tons)*	2,400	1,000	405	4
Share of consumption imported *(percent)*	7	100	11	([1])

[1] Less than 0.5 percent.

Sources: USDA, Foreign Agriculture Service (FAS), *Grain World Markets and Trade*, various months; USDA, ERS, *Wheat Outlook*, Feb. 12, 2002; USDA, FAS, *Taiwan Grain and Feed Annual*, GAIN Report No. TW1017, May, 4, 2001; USDA, ERS, *Rice Outlook*, Feb. 11, 2002; and official statistics of the U.S. Department of Commerce.

[5] Rice includes all types of milled and unmilled rice, classified under HS heading 1006. Wheat includes all types of unmilled wheat, classified under HS 1001. Rice farms are classified under SIC 0112, rice mills are classified under SIC 2044, and wheat farms are classified under SIC 0111.

[6] USDA, ERS, Rice: Background and Issues for Farm Legislation, July 2001, p. 2.

[7] USDA, FAS, Taiwan Grain and Feed–The Post-WTO Accession Rice Market 2002, GAIN Report #TW2002, Jan. 9, 2002, p. 3.

Per capita rice consumption is much higher in Taiwan than in the United States. In 2001, per capita rice consumption in Taiwan stood at 63 kilograms, compared to 13 kilograms in the United States. Taiwan per capita consumption of rice experienced an overall decline of 2 percent during 1996-2001 as consumers turned to meat, wheat-based food, and fruits and vegetables, and away from the staple rice.[8] However, Taiwan demand for niche types of rice, such as organic rice and Thai jasmine rice, is rising.[9] U.S. per capita rice consumption rose about 4 percent during 1996-2001. In 2001, long-grain rice accounted for approximately 67 percent of total U.S. rice consumption.[10]

Wheat is the third-leading field crop in the United States, with production of 61 million metric tons ($6.0 billion in farm-level sales) in crop year 2001-02. U.S. wheat exports principally comprise unmilled wheat rather than fully milled flour. Taiwan does not grow wheat, but has 32 wheat mills that produce wheat flour.[11]

Demand for wheat in Taiwan is rising, but remains lower than in the United States. In 2001, Taiwan per capita consumption amounted to 49 kilograms, compared to 130 kilograms in the United States. Taiwan per capita consumption of wheat rose about 12 percent between crop years 1995-96 to and 2000-01, as consumers turned to wheat-based foods, such as ramen noodles, bagels, Danish toast, and sour dough breads and to organic, pesticide-free baked products.[12] Sales of frozen dough in Taiwan have nearly tripled since 1997. Total demand for wheat in Taiwan is expected to grow by 2 percent in crop year 2001-02.[13] In the United States, per capita wheat consumption rose 10 percent from 1996 to 2001.

The United States is a leading rice exporter, typically ranking among the world's top four rice-exporting economies. However, the United States exported very little rice to Taiwan in 2001,[14] as Taiwan banned virtually all rice imports prior to WTO accession on Jan. 1, 2002.[15] Taiwan exports little rice to the United States or any other foreign market.[16]

The United States is the world's leading wheat exporter, and Taiwan was the seventh largest market for U.S. wheat exports in 2001. The United States exported 1.03 million metric tons of wheat to Taiwan in 2001, accounting for 93 percent of Taiwan wheat imports. Such exports were valued at $161 million. Australia and Canada, both of

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[8] USDA, ERS, Taiwan Grain and Feed Annual, 2001, GAIN Report # TW1017, May 4, 2001, p. 3.

[9] USDA, FAS, Taiwan Grain and Feed–The Post-WTO Accession Rice Market 2002, GAIN Report #TW2002, Jan. 9, 2002, p. 3.

[10] USDA, ERS, Rice Outlook, July 12, 2002, Table 2.

[11] USDA, FAS, Taiwan Grain and Feed Annual 2001, GAIN Report #TW1017, May 4, 2001, p. 1 The United States has shipped little or no wheat flour to Taiwan in recent years. Taiwan imported 16,000 metric tons of flour in 2000, primarily coming from Australia, Japan, and South Korea.

[12] USDA, FAS, Taiwan Grain and Feed Annual 2001, GAIN Report #TW1017, May 4, 2001, p. 1.

[13] Ibid.

[14] In 2001, U.S. exports of rice to Taiwan amounted to $10,000 (43 metric tons), according to data of the U.S. Department of Commerce.

[15] Taiwan rice imports are currently subject to an absolute import quota. For more information on Taiwan barriers to trade in rice, see chapter 6.

[16] Taiwan exports principally comprise lower grade, non-commercial rice.

which are highly competitive wheat exporters to East Asian markets, accounted for the remaining 7 percent of Taiwan's wheat imports. Taiwan does not export wheat to the United States or any other foreign market.

Citrus Fruits[17]

Taiwan has not been a significant U.S. export market for citrus fruits, owing to high tariffs of 25 percent to 50 percent.[18] Citrus accounted for less than 1 percent of total U.S. agricultural exports to Taiwan in 2001. Citrus is an important industry in certain parts of the United States, particularly in Florida where it is a mainstay of the economy. U.S. farm-level citrus production in 2001 was estimated at $2.3 billion, including $1.3 billion in Florida, $900 million in California, and the remainder in Arizona and Texas.[19] In 1997, the U.S. citrus industry comprised approximately 12,000 citrus growers and approximately 200,000 workers, including part-time workers and those indirectly employed (table 4-2). Many of these workers are in low-wage jobs such as grove care, harvesting, and packing fruit, and much of this work is seasonal or itinerant. U.S. trade-weighted ad valorem duties on citrus imports from Taiwan in 2001 were 0.3 percent.

The United States, which produced about 15 million metric tons of citrus fruit annually between 1995 and 2001, is the world's leading producer of fresh and processed citrus and a leading exporter of fresh navel oranges, grapefruits, and frozen concentrated orange juice.[20] Most of the citrus fruit grown in the United States is processed into

Table 4-2
Citrus: Selected industry data, 2001

Item	United States	Taiwan
Production *(1,000 metric tons)*	15,042	440
Land in production *(1,000 hectares)*	438	35
Yield *(metric tons per hectare)*	34	13
Apparent consumption *(1,000 metric tons)*	14,452	485
Per capita consumption *(kilograms)*	53	21
Exports to all trading partners *(1,000 metric tons)*	1,081	3
Share of production exported *(percent)*	7	0.7
Imports from all trading partners *(1,000 metric tons)*	491	48
Share of consumption imported *(percent)*	3	10
Number of firms *(1,000)*	12	([1])

[1] Not available.

Source: U.S. trade data are based on official data of the U.S. Department of Commerce. Taiwan data are based on official data from Taiwan Directorate General of Customs, Ministry of Finance, Taiwan.

[17] In general, citrus fruits encompasses those products covered by SIC codes 0174 (establishments primarily engaged in the production of citrus fruits), and part of SIC 2037 (establishments primarily engaged in freezing fruits, fruit juices, and vegetables).

[18] For more information regarding Taiwan tariff rates, see chapter 6.

[19] USDA, Citrus Fruits 2001 Summary, USDA/NASS Fr Nt 3-1 (01), September 2001, p. 5.

[20] USDA, FAS, World Horticultural Trade and U.S. Export Opportunities, USDA/FAS FHORT 02-02, February 2002, p. 13.

juice. Taiwan, which produced 440,000 metric tons of citrus fruit in 2001,[21] grows a variety of citrus fruits, particularly mandarin oranges. Taiwan is located too far south to produce many of the larger varieties of citrus fruit that it imports from the United States. Productivity is higher in the U.S. citrus industry than in the Taiwan citrus industry, owing to high inputs of technology and fertilizer and highly productive farm land. In 2001, the United States produced about 34 metric tons per hectare, compared to about 13 metric tons per hectare in Taiwan.

Per capita consumption of citrus products is lower in Taiwan than in the United States. Per capita fresh citrus consumption in Taiwan is 21 kilograms (fresh weight equivalent) compared to 53 kilograms consumed in the United States. However, in Taiwan most citrus is consumed fresh while in the United States most citrus is consumed processed. The United States is a net importer of processed citrus and a net exporter of fresh citrus.[22] By weight, three-fourths of the fruit grown in the United States for the fresh market is consumed domestically and one-fourth is exported. Taiwan's overall citrus imports in 2001 totaled about $25.0 million while its exports totaled about $2.0 million. Most of Taiwan's imports were of fresh navel oranges, grapefruit, and orange juice,[23] while its leading citrus export was canned mandarin oranges.[24]

Consumers in Taiwan prize large citrus varieties such as navel oranges and grapefruits that are grown in the United States. The United States has consistently been Taiwan's main supplier of these higher-end citrus fruits, and consumers in Taiwan are willing to pay the higher prices, particularly for gifts and for holidays and other special occasions. Between 1995 and 2001, the United States accounted for more than 95 percent of the value of Taiwan's fresh citrus imports. However, Brazil is Taiwan's primary supplier of processed citrus, followed by Israel and the United States.

From 1995 to 2001, U.S. citrus exports to Taiwan decreased by 42 percent, from $27.6 million in 1995 to $16.0 million in 2001, owing in part to a devaluation in Taiwan's currency in 1997. Fresh citrus, mainly in the form of navel oranges and grapefruits, accounted for $14.8 million of U.S. citrus exports to Taiwan in 2001. Taiwan accounted for 2.5 percent of the total value of U.S. exports of fresh citrus in 2001. In addition to fresh citrus, the United States also exported $1.2 million of processed citrus to Taiwan, mainly in the form of citrus juices, such as frozen concentrated orange juice. Taiwan represented less than 1 percent of the total value of U.S. processed citrus exports in 2001.

The majority of U.S. citrus imports from Taiwan are in the form of satsumas in airtight containers.[25] Total U.S. imports of citrus products from Taiwan totaled $182,000 in 2001, up from $75,000 in 1995, as Taiwan captured from Spain, the dominant global supplier of such products, a larger share of the U.S. market for canned satsumas. Overall, Taiwan accounted for less than 1 percent of total U.S. citrus imports in 2001.

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[21] Council of Agriculture Executive Yuan, Agricultural Statistics Yearbook, "Quantity of Fruit Production," http://stat.coa.gov.tw/dba_as/english/asp/.

[22] Ibid, p. 13.

[23] Based on official statistics of Taiwan "ROC Exports and Imports by Product/Country," and found at http://www.moeaboft.gov.tw/english/page9.htm.

[24] Based on Official U.S. Department of Commerce statistics.

[25] The satsuma is a mandarin orange of medium size and mainly seedless, with thin smooth skin.

Fresh Deciduous Fruit[26]

Fresh deciduous fruit accounted for approximately 6 percent of total U.S. agricultural exports to Taiwan, by value, in 2001. U.S. exports to Taiwan faced a 19 percent ad valorem tariff in 2001. Taiwan produces relatively little fresh deciduous fruit, while the United States produces an abundance of such fruit, owing mainly to a favorable climate and relatively abundant land. U.S. production of fresh deciduous fruit totaled about 4.8 million metric tons on 380,000 hectares in 2001, compared with 278,000 metric tons on 20,000 hectares in Taiwan (table 4-3). Production and capacity have remained relatively steady in the United States since 1995, but declined slightly in Taiwan. U.S. apparent consumption of fresh deciduous fruit totaled about 4.1 million metric tons in 2001, while per capita consumption totaled about 15 kilograms. Taiwan, while a much smaller market, consumes substantially more fresh deciduous fruit on a per capita basis. Taiwan's apparent consumption totaled about 488,000 metric tons in 2001, while per capita consumption totaled about 22 kilograms.

U.S. imports of fresh deciduous fruit totaled 748,000 metric tons in 2001, accounting for about 18 percent of apparent consumption that year. From 1995 to 2001, imports of such products increased by almost 20 percent while apparent consumption increased by 3 percent. Taiwan imports increased by 25 percent during 1995-2001 to 210,000 metric tons, accounting for 43 percent of apparent consumption. U.S. exports of fresh deciduous fruit totaled 1.4 million metric tons in 2001, representing about 29 percent of production, while Taiwan's exports totaled less than 500 metric tons.

Table 4-3
Fresh deciduous fruit: Selected industry data, 2001

Item	United States	Taiwan
Production *(1,000 metric tons)*	4,804	278
Land in production *(1,000 hectares)*	380	20
Yield *(metric tons per hectare)*	13	14
Apparent consumption *(1,000 metric tons)*	4,146	488
Per capita consumption *(kilograms)*	15	22
Exports to all trading partners *(1,000 metric tons)*	1,406	(1)
Share of production exported *(percent)*	29	(2)
Imports from all trading partners *(1,000 metric tons)*	748	210
Share of consumption imported *(percent)*	18	43

[1] Less than 500 metric tons.
[2] Less than 0.5 percent.

Source: Compiled from official data of the U.S. Department of Commerce, the U.S. Department of Agriculture, the Taiwan Board of Foreign Trade, and the Taiwan Ministry of Agriculture.

[26] Includes grapes (HS subheading 0806.10), apples (HS 0808.10), pears and quinces (HS 0808.20), apricots (HS 0809.10), cherries (HS 0809.20), peaches and nectarines (HS 0809.30), and plums (HS 0809.40). Farms producing these products are classified in SIC industry groups 0172 (grapes) and 0175 (deciduous tree fruits).

In 2001, average productivity in the fresh deciduous fruit sector as a whole was similar in the United States and Taiwan, at about 13 to 14 metric tons per hectare. However, significant differences in U.S. and Taiwan productivity exist in certain industry segments. For example, in 2001, the U.S. yield for apples was about 14 metric tons per hectare while that in Taiwan was about 7 metric tons per hectare. The U.S. yield for grapes was approximately 15 metric tons per hectare that year, while that in Taiwan was about 28 metric tons per hectare. Factors affecting productivity include climate, weather, scale of production, technology, labor availability, and infrastructure.

The United States historically has run a substantial trade surplus with Taiwan in fresh deciduous fruit. Taiwan is the third largest U.S. export market for fresh deciduous fruit, having accounted for 176,000 metric tons, or about 13 percent of such exports in 2001.[27] However, the relative importance of Taiwan as an export market for such products has declined somewhat since 1995,[28] as U.S. exports to both Canada and Mexico have increased under the NAFTA. The United States supplied about 92 percent of Taiwan's imports of fresh deciduous fruit in 2001.[29] In contrast, the United States imported no fresh deciduous fruit from Taiwan in 2001, owing mainly to Taiwan's limited production and the substantial output of U.S. producers.

Fish and Shellfish[30]

Fish and shellfish account for 1.6 percent of total U.S. agricultural exports to Taiwan. Such exports are subject to high Taiwan tariffs, averaging about 25 percent ad valorem, and ranging as high as 50 percent ad valorem.[31] The U.S. fish and shellfish industry is one of the world's largest, due to rich fishing grounds on the continental shelf adjacent to the United States and near U.S. territorial possessions in the Pacific and Atlantic oceans. The U.S. industry ranks sixth in size among world fishing economies, with about 4 percent to 5 percent of the global total. In contrast, Taiwan, with limited nearby fish resources largely due to a narrow continental shelf off its eastern coast, is the 19th largest fishing economy in the world, with about 1 percent of global production in 2000.

The principal varieties of fish and shellfish harvested by the U.S. industry include salmon, shrimp, and crabs. U.S. production of salmon accounts for 30 percent of global production, while U.S. production of shrimp accounts for 6 percent and crab for 12 percent of the world total. Processed fish and shellfish commodities produced in the United States principally include canned tuna, breaded or canned shrimp, canned

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[27] Based on official statistics of the U.S. Department of Commerce.

[28] In 1995, Taiwan was the second largest U.S. export market for fresh deciduous fruit, having accounted for 14 percent of the quantity of such exports.

[29] Based on statistics of the Taiwan Board of Foreign Trade.

[30] The fish and shellfish sector includes aquacultured (i.e., farmed) fish and shellfish (SIC 0273); harvested fish and shellfish (SIC 0912 and 0913); and canned and cured fish and seafood (SIC 2901).

[31] For more information on Taiwan tariff rates, see chapter 6.

salmon, and fresh or frozen fillets and steaks or a variety of fish species. The United States supplied $3 billion, or about 6 percent, of world exports of fish and shellfish in 2000, while the U.S. market purchased $10 billion, or 16 percent, of world imports.

The principal varieties of fish and shellfish harvested or farmed by the Taiwan industry include tropical tunas, tilapia, and squid. In 2000, Taiwan production accounted for 8 percent of global tropical tuna production, 10 percent of tilapia production, and 22 percent of total squid production. Processed fish and shellfish commodities produced in Taiwan include canned mackerel and prepared or preserved squid. In 2000, Taiwan's fish and shellfish industry supplied about $2 billion, or 3 percent, of world exports of fish and shellfish, while its market purchased less than $1 billion, or 1 percent, of world imports. In 2000, per capita seafood consumption in Taiwan, although moderate by Asian standards, stood at 22 kilograms per year, about double the U.S. level of 11 kilograms (table 4-4).

Table 4-4
Fish and shellfish: Selected industry data, 2001

Item	United States	Taiwan
Production *(1,000 metric tons)*	2,300	750
Apparent consumption *(1,000 metric tons)*	3,120	480
Per capita consumption *(kilograms)*	11	22
Exports to all trading partners *(1,000 metric tons)*	985	720
Share of production exported *(percent)*	43	96
Imports from all trading partners *(1,000 metric tons)*	1,805	450
Share of consumption imported *(percent)*	58	94
Number of firms *(1,000)*	75	([1])

[1] Not available.

Sources: Food and Agriculture Organization of the United Nations; and official data of the U.S. Department of Commerce.

With respect to fish and shellfish harvesting, productivity is determined largely by the abundance of local fishery resources, and in this regard the U.S. industry holds a clear advantage over Taiwan. With respect to fish processing, there is no clear advantage held by either side, as most firms in both nations' industries employ state-of-the-art technology and have access to ready supplies of skilled labor.

The U.S. trade deficit with Taiwan in the fish and shellfish sector increased from $89.5 million in 1995 to a peak of $169.3 million in 1999, before declining to $147.4 million in 2001. In 2001, U.S. exports of fish and shellfish to Taiwan totaled $36.8 million, following an overall decline of 55 percent from the 1995 level of $81.2 million. In terms of quantity, U.S. exports of fish and shellfish to Taiwan totaled 17,242 metric tons in 2001, down by 48 percent from the 1995 level of 33,169 metric tons. Partly because of weak Asian economic conditions during much of the period, the average unit value of U.S. fish and shellfish exports to Taiwan decreased by 13 percent during 1995-2001. The principal fish and shellfish products exported by the U.S. industry to Taiwan include high-value varieties, such as frozen shellfish (mainly lobsters) and fish roe (mainly mullet and salmon). Together, these two product types accounted for more

than half of total U.S. exports to Taiwan in this sector in 2001. Overall, U.S. exports supplied only 3 percent of the Taiwan fish and shellfish market in 2000 (the latest year for which such data are available).

Taiwan is the 11th largest foreign supplier of fish and shellfish to the U.S. market, having accounted for 5 percent of U.S. imports of these products in 2001. In that year, U.S. imports of fish and shellfish from Taiwan totaled $184.2 million, down by 6 percent from the 1995 level of $196.2 million. In terms of quantity, however, such imports increased by 18 percent, to 82,325 metric tons in 2001, from 69,969 metric tons in 1995. Principally because of a change in product mix, the average unit value of U.S. imports from Taiwan declined by 20 percent during 1995-2001. The principal fish and shellfish products imported from Taiwan include frozen whole albacore (used in tuna canning), frozen Atlantic cod fillets, frozen orange roughy fillets,[32] and frozen or cured squid.

Poultry[33]

Taiwan is not a significant market for U.S. poultry, principally due to Taiwan tariff-rate quotas (TRQs). U.S. exports face an in-quota tariff rate of 25 percent ad valorem, and an over-quota tariff of 400 percent. In 2001, U.S. poultry exports accounted for approximately $15 million, or about 0.5 percent, of total U.S. agricultural exports to Taiwan. The United States is the world's top poultry producing and exporting country. In 2001, U.S. poultry production reached 16.7 million metric tons, accounting for 27 percent of total world production, while exports reached 3 million metric tons, almost one-half of world exports (table 4-5).[34] With the exception of limited export assistance, the U.S. Government does not intervene in the domestic poultry market, although producers are impacted indirectly by government programs which influence feed prices. Growth of both production and exports during 1995-2001 was the result of strong demand for poultry meat in domestic and overseas markets, including Russia, Hong Kong, Mexico, and Korea.[35]

The poultry industry in Taiwan is small in comparison with that of the United States. In 2001, total Taiwan poultry production reached about 720,000 tons, less than one-twentieth of U.S. production, and equivalent to about 1 percent of world

[32] Orange roughy is not native to the waters off Taiwan. Taiwan has a large distant-water fleet of harvesters and factory ships. Some of these factory ships, according to industry sources, obtains orange roughy "over the side" from local harvesters in distant fishing grounds, such as off the New Zealand coast. The whole fish is processed by the Taiwan factory ships into fillets for domestic consumption and export.

[33] Poultry includes all types of poultry, whether whole or in pieces and whether fresh, chilled, or frozen, covered under the following Standard Industrial Code (SIC) industry numbers: 0251 broiler, fryer, and roaster chickens; 0252 chicken eggs; 0253 turkeys and turkey eggs; 0254 poultry hatcheries; 0259 poultry and eggs, not elsewhere classified; 2015 poultry slaughtering and processing; 5144 poultry and poultry products (wholesale trade); and, 5149 farm-product raw materials, not elsewhere classified.

[34] USDA, FAS, Livestock and Poultry: World Markets and Trade, various issues.

[35] USDA, FAS, "Overview of the World Broiler Situation," 2002 USA Poultry & Egg Export Council Staff Conference in Annapolis, Maryland, Dec. 9, 2002, found at Internet address http://www.fas.usda.gov/dlp/highlights/2001/worldbroilersit/index.html, retrieved Mar. 19, 2002.

Table 4-5
Poultry: Selected industry data, 2001

Item	United States	Taiwan
Production *(1,000 metric tons)*	16,661	720
Apparent consumption *(1,000 metric tons)*	13,587	741
Per capita consumption *(kilograms)*	49	33
Exports to all trading partners *(1,000 metric tons)*	3,079	3
Share of production exported *(percent)*	18	0
Imports from all trading partners *(1,000 metric tons)*	5	24
Share of consumption imported *(percent)*	0	([1])

[1] Not available.

Source: USDA, Foreign Agriculture Service, GAIN report #TW1032, Aug. 23, 2001; and official statistics of the U.S. Department of Commerce, the U.S. Treasury, and the U.S. International Trade Commission.

production.[36] Weak domestic demand and poor profitability has led production to stagnate in recent years, although Taiwan authorities are responding by providing incentives for industry consolidation and for the modernization of production and marketing infrastructure. U.S. consumption grew by about 3 percent annually during 1997-2001, reaching 13.6 million metric tons in 2001, while Taiwan poultry consumption has stagnated over the past 5 years at about 740,000 tons.

Industry consolidation continues to reduce the number of poultry farms and processing plants in the United States. For example, the number of U.S. poultry processing plants fell from about 450 in 1997 to less than 420 in 2001. Currently, about 200,000 people are employed in the U.S. poultry processing industry.[37] The U.S. poultry industry is highly competitive, benefitting from low feed costs, advanced technology, and a skilled labor force. The feed-conversion ratio, a gauge of productivity in the poultry industry, measures the amount of feed required to produce one pound of meat. For the U.S. poultry industry this ratio is about 2 to 1, while the equivalent measure for the Taiwan poultry industry is about 5 to1.[38] Poultry production reportedly costs about 50 percent more in Taiwan than in the United States.[39] In 2000, the average farmgate price for poultry in the United States was about 35 cents per pound, compared with 50 cents per pound in Taiwan.[40]

In 2001, U.S. exports of poultry to Taiwan amounted to $14.8 million, down from $20.6 million in 2000, but up significantly from $8 million in 1995. Frozen cuts and offal of chicken and turkey accounted for almost all U.S. poultry exports to Taiwan. The United States also exported a small amount of processed poultry meat to Taiwan

[36] USDA, FAS, Taiwan. Poultry and Poultry Products, Annual, 2001, Gain Report # TW1032, Aug. 23, 2001, found at Internet address http://www.fas.usda.gov/gainfiles/200108/125681722.pdf, retrieved Mar. 19, 2002.

[37] American Meat Institute, 2001 Meat and Poultry Facts, Washington, DC.

[38] USDA, FAS, Taiwan. Poultry and Poultry Products, Annual, 2001, Gain Report # TW1032, Aug. 23, 2001.

[39] Ibid.

[40] USDA, Agricultural Marketing Service, Poultry Market Statistics 2001 Summary, Mar. 2002.

during this period. Currently, the United States supplies more than 95 percent of all Taiwan poultry imports, though it faces competition from producers in Brazil, Canada, and Thailand.[41] Much of the poultry meat imported from the United States is used in quick service restaurant chains, which are becoming increasingly popular in Taiwan.[42] Due to U.S. sanitary and phytosanitary (SPS) regulations, Taiwan is not permitted to export poultry to the United States.

Red Meat (Beef and Pork)[43]

U.S. beef and pork exports accounted for $60.8 million, or less than three percent, of total U.S. agricultural exports to Taiwan in 2001. In 2001, U.S. exports of beef and pork both faced tariffs of 15 percent ad valorem. The United States is the world's largest producer of beef, the world's largest beef importer, and currently ranks second in beef exports. In the United States, beef production is a highly specialized industry, whereas Taiwan's beef production is primarily a byproduct of the dairy industry. In 2001, U.S. production of beef amounted to almost 12 million metric tons, compared with 5,000 metric tons for Taiwan (table 4-6). Taiwan consumes less than one-tenth the amount of beef consumed in the United States on a per capita basis. Per capita beef consumption in Taiwan is also substantially less than beef consumption in

Table 4-6
Red meat (beef and pork): Selected industry data,[1] 2001

Item	Beef		Pork	
	United States	Taiwan	United States	Taiwan
Production *(1,000 metric tons)*	11,983	5	8,691	910
Number slaughtered *(1,000 animals)*	36,376	25	97,961	10,130
Yield *(dressed carcass weight, kilograms)*	337	200	89	91
Apparent consumption *(1,000 metric tons)*	12,349	85	8,476	921
Per capita consumption *(kilograms)*	45	4	30	41
Exports to all trading partners *(1,000 metric tons)*[2]	1,030	0	709	0
Share of production exported *(percent)*	9	0	8	0
Imports from all trading partners *(1,000 metric tons)*	1,434	80	431	11
Share of consumption imported *(percent)*	12	94	5	1
Number of firms *(1,000 operations)*	1,077	([3])	81	14

[1] All reported quantities have been converted to a carcass weight basis. Trade flows include only import and export volumes for fresh, chilled, and frozen muscle meats. Edible offal trade is not included because carcass weight data do not include the production of edible offal. Other processed and preserved meat products are not included.
[2] Taiwan's beef and pork exports for 2001 were zero. Taiwan last exported pork in 1996.
[3] Not available.

Sources: USDA, National Agriculture Statistics Service, *Livestock Slaughter,* Mar. 2000; and USDA, Foreign Agriculture Service, *Taiwan, Livestock Products, Semi-annual 2002,* February 2002.

[41] USITC staff interview with Council of Agriculture, May 23, 2002.
[42] William P. Roenigk, Senior Vice President, National Chicken Council, in letter to Commission staff, April 18, 2002.
[43] Products included in this sector are: meat of bovine animals, fresh or chilled (HS subheading 0201) and frozen (HS 0202); meat of swine, fresh, chilled, or frozen (0203); and edible offal, fresh, chilled, or frozen (HS 0206). There products are generally included in Standard Industrial Classification categories: beef cattle feedlots (0211); beef cattle, except feedlots (0212); hogs (0213); and meat packing plants (2011).

other Asian markets such as Japan, Korea, and Hong Kong. Taiwan's low beef consumption and increasing income suggest that potential for market expansion may exist.

The United States ranks third in the world in pork production, pork imports, and pork exports. Taiwan ranks among the top 10 pork producing economies, and prior to a foot and mouth disease (FMD) outbreak in 1997, was a major exporter of pork to Japan. In 2001, U.S. pork production was 8.7 million metric tons, while Taiwan pork production totaled 910,000 metric tons. Taiwan consumption of pork exceeds U.S. pork consumption by about one-third on a per capita basis.

Available evidence suggests that U.S. productivity exceeds Taiwan productivity in the beef and pork sectors. Competition from the highly efficient U.S. chicken industry has pushed U.S. beef and pork producers to increase production and marketing efficiency continuously. A large U.S. domestic market and rich resource endowment allow U.S. producers, processors, and distributors to exploit economies of size and scale. Taiwan's limited arable land resources and high population density preclude extensive cattle grazing and the efficient production of forages.

The average cost of pork production in Taiwan[44] is about 70 percent greater than U.S. operating costs.[45] In Taiwan, feed accounts for 65 to 70 percent of these costs compared with 55 percent of U.S. operating costs. Taiwan must import more than 90 percent of its corn and soybean requirements, the major components of swine feed, whereas U.S. pork producers have access to low-cost domestic supplies. Large swine production units in Taiwan may be competitive with U.S. exports. However, expansion of these large units in Taiwan may be limited by Taiwan's lack of arable land and dense population.

The United States is the dominant supplier of pork and a major supplier of beef to the Taiwan market, accounting for 75 percent of Taiwan's pork imports and 19 percent of Taiwan's beef imports, making Taiwan the fifth largest export market for each of the U.S. beef and pork industries. Lower prices and increased demand[46] resulted in an increase of U.S. beef exports to Taiwan by nearly 41 percent from 8,057 metric tons in 1995 to 11,348 metric tons in 2001. The level of U.S. pork exports to Taiwan are dependent on pork prices in Taiwan. Taiwan's high pork prices and reduced production[47] stimulated increased U.S. pork exports, which increased by more than 550 percent from 4,174 metric tons in 1995 to 27,243 metric tons in 1999, but fell by 70 percent to 8,163 metric tons in 2001. Because Taiwan pork prices were low in 2001, U.S. pork exports were diverted to more lucrative markets, primarily Japan. Taiwan does not export beef, and since the outbreak of FMD in 1997, has not exported pork.

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[44] Food and Agricultural Policy Research Institute, "Shifting Patterns in Asian Agricultural Trade," FAPRI Bulletin, Mar./Apr. 1999, Iowa State University, p. 2.

[45] USDA, ERS, "Hog production costs and returns pre hundred weight gain, 1999-2000," found at Internet address http://www.ers.usda.gov/Data/CostsAndReturns/data/current/C-Hogs.xls, retrieved on Mar. 15, 2002.

[46] The FMD outbreak caused some substitution of beef for pork among Taiwan consumers.

[47] The FMD outbreak eliminated about 4 million hogs from Taiwan's production.

Processed Foods[48]

For purposes of this study, the processed foods sector comprises the following product groups: starches, vegetable fats and oils, pasta, breakfast cereals, bakery products, tortillas, condiments, flavoring syrups and concentrates, coffee and tea products, snack foods and other prepared foods, and animal feed.[49] Processed foods manufacturing is composed largely of capital-intensive facilities that produce highly differentiated products. Multinational conglomerates with global brand names are the principal participants in this industry. U.S. exports of processed foods accounted for approximately 8 percent of all U.S. agricultural exports to Taiwan in 2001. On average, Taiwan imposes a 12 percent ad valorem tariff on U.S. exports of processed food while U.S. average tariff was about 4 percent ad valorem.

Because both the United States and Taiwan have highly developed food processing sectors, each country produces, consumes, and trades significant amounts of processed foods. Table 4-7 indicates that the United States consumes most of the

Table 4-7
Processed foods: Selected industry data, 2001

Item	United States	Taiwan
Shipments/Production *(million dollars)*[1]	161,294	5,420
Number of firms *(1,000)*[2]	17	([3])
Apparent consumption *(million dollars)*	157,261	6,113
Per capita consumption *(dollars)*	566	273
Exports to all trading partners (*million dollars)*	10,241	228
Share of shipments/production exported *(percent)*	6	4
Imports from all trading partners *(million dollars)*	6,208	922
Share of consumption imported *(percent)*	4	15

[1] U.S. data on shipments taken from 1997 Economic Census: Manufacturing, Department of Commerce, U.S. Census Bureau. Taiwan data on production taken from the Department of Statistics, Ministry of Economic Affairs, Taiwan, for 1997, as reported by the American Institute in Taiwan.

[2] U.S. data on companies taken from 1997 Economic Census: Manufacturing, Department of Commerce, U.S. Census Bureau.

[3] Not available.

Source: Official data of the U.S. Department of Commerce, U.S. Census Bureau, the U.S. Treasury, U.S. International Trade Commission, and USDA, Foreign Agriculture Service; and the Directorate General of Customs, Ministry of Finance, Taiwan.

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[48] Includes processed food products covered under the following HS headings and subheadings: 1101-04, 1107-09, 1208, 1213-14, 1901.10, 1901.20, 1901.90, 1902-05, 2102-04, 2106, 2209, 2301-09, and 3504. The corresponding North American Industry Classification System (NAICS) codes are 3111, 3112, 3114, 3118, 31191, 31194, and 31199, and the SIC codes are 203, 204, 205, 2096, 2098, and 2099.

[49] Traditionally, the processed foods sector has included food and beverage products that have some degree of value-added through processing beyond any minimal first-stage processing (e.g., grading, sorting, washing) and either (i) can be directly consumed as a food or beverage product or (ii) can be directly used as an input in the production of food or beverage products without significant further processing. See Processed Foods and Beverages, USITC publication 3455, October 2001, pp. 1-2.

processed foods it produces. Likewise, local companies in Taiwan produce primarily for consumers in the domestic market. Of the estimated $161 billion of processed foods shipped in the United States during 2001, only 6 percent ($10.2 billion) was exported. Similarly, Taiwan exported $228.4 million, or 4 percent, of its estimated $5.4 billion in processed foods production in 2001. The U.S. processed foods sector is roughly 30 times larger than Taiwan's processed foods sector (table 4-7).

The United States and Taiwan have significant trade ties in the processed foods sector. The United States exports a wide variety of processed food products to Taiwan, including malt, alfalfa meal and hay, mixes and doughs, pasta, prepared cereal products, yeasts, condiments, soups and broths, and protein concentrates. U.S. exports of processed food products to Taiwan totaled $210 million in 2001. These exports are up marginally from $200 million in 1995. Many of the processed food products exported by Taiwan, such as soy sauce, are associated with cultural cuisine. Taiwan exported $51 million in processed foods to the United States in 2001, up from $45 million in 1995. The overall increase in Taiwan's processed food exports to the United States were primarily due to increased exports of animal feed (both pet food and other feeds), food industry residues,[50] and bakery products. Overall trends in U.S.-Taiwan processed food trade from 1995 to 2001 can be attributed in part to exchange rate fluctuations. The U.S. dollar's appreciation vis-a-vis the Taiwan dollar has made Taiwan's processed foods less expensive in the United States, resulting in increased Taiwan exports to the U.S. market. Conversely, the exchange rate has made U.S. processed food exports increasingly expensive in Taiwan, resulting in decreased U.S. exports to the Taiwan market.

For the 1995 to 2000 period, Taiwan recorded a negative foreign direct investment position in the U.S. food and kindred products industry.[51] This means that the value of U.S. parent-firm loans to their Taiwan affiliates exceeded the combined value of Taiwan affiliates' assets and such affiliates' loans to parent firms in this industry. Sales by Taiwan-owned affiliates of manufactured foods[52] in the United States totaled $39 million in 1999. The U.S. direct investment position in Taiwan's food and kindred products industry totaled $95 million in 1996 and declined to $59 million by 2000. Data on sales by U.S.-owned manufactured foods affiliates in Taiwan were suppressed to avoid disclosing individual company information.

Taiwan's highly developed distribution infrastructure,[53] capital-intensive industrial base, and close proximity to Asian consumers makes it a logical place to produce processed foods, such as bakery goods, single-serving bottled beverages, and

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[50] Particularly soybean oilcake, cotton seed oilcake, peanut oilcake, and corn gluten meal.

[51] Reflects a broad definition of processed foods which includes tobacco and alcoholic beverages, two product groups not typically included in this sector. See Department of Commerce, Bureau of Economic Analysis, Survey of Current Business, September 1999 and September 2001.

[52] Reflects a broad definition of processed foods which includes tobacco and alcoholic beverages, two product groups not typically included in this sector. See Department of Commerce, Bureau of Economic Analysis, Foreign Direct Investment in the United States: Preliminary 1999 Estimates, 2000.

[53] USDA, FAS, Taiwan, Retail Food Sector, 2000, GAIN Report #TW0048, Nov. 20, 2000, pp. 1-2.

packaged noodles for distribution to the entire region. Problems with clean water and reliable energy production in China and other Asian countries makes Taiwan particularly appealing for U.S. investors producing ready-made processed foods.[54]

[54] Supermarkets and hypermarkets (grocery stores with more floor space than a typical supermarket, in which nonfood items account for a significant percentage of sales) sell much of the imported processed food consumed in Taiwan and provide efficient distribution networks for these products. Much of the growth in sales of U.S. processed foods in Taiwan is expected to be through supermarket and hypermarket outlets. U.S. investors believe that these outlets will continue to gain market share from smaller "Mom and Pop" shops. Commission staff meeting with Taipei Economic and Cultural Representative Office, Washington, D.C., Mar. 19, 2002.

CHAPTER 5
Selected Nonagricultural Goods and Services Sectors

This chapter provides comparisons of the industry structure as well as an overview of the economic relationship between the United States and Taiwan in 12 selected industries. These industries either account for a substantial share of U.S.-Taiwan trade, are affected by significant U.S. or Taiwan barriers, or are otherwise notable with regard to U.S.-Taiwan trade. These sectors include 10 nonagricultural goods industries: apparel; auto parts; computers; industrial fasteners; industrial organic chemicals; measuring, controlling, and analytical instruments; miscellaneous plastics products; motor vehicles; semiconductors; and textiles. Two services industries–banking and securities and education services–are also included.

Textiles[1]

In 2001, Taiwan was the seventh-largest source of U.S. imports of textile mill products with $704 million, or 5 percent of the total, and the third-largest source of imported manmade fibers with $74 million, or 17 percent of the total. Taiwan's textile mill industry is smaller than the U.S. textile mill industry in terms of revenue, although Taiwan has more textile mills. In 2001, Taiwan's textile industry consisted of an estimated 5,600 mills with shipments of $12.3 billion, while the U.S. textile industry consisted of approximately 4,200 establishments with shipments of $49.6 billion (table 5-1). Taiwan is the world's second-largest producer of manmade fibers after China,[2]

Table 5-1
Textiles: Selected industry data, 2001

Item	United States	Taiwan
Shipments *(million dollars)*	49,647	12,300
Employment *(number of employees)*	473,000	159,000
Wages *(per hour)*	$11.35	$6.40
Number of firms	4,210	5,600
Labor productivity *(value added per employee)*	$43,812	([1])
Exports to all trading partners*(million dollars)*	8,798	12,262
Imports from all trading partners*(million dollars)*	9,214	2,892
Apparent consumption *(million dollars)*	50,063	2,930

[1] Not available.

Source: U.S. Department of Commerce, Taiwan Textile Federation.

[1] In general, the textile industry encompasses those products covered by SIC 22 and a portion of the products covered by SIC 28.

[2] Fiber Economics Bureau Inc., "Fiber Organon," tables 2 and 3, Washington, DC, August 2001.

due to such factors as economies of scale and ready access to local supplies of inexpensive raw materials. The United States is a leading producer of high-volume yarns and fabrics and home textiles, due to considerable investments over the years in high-speed, automated technology. The United States is also the world's largest importer of textiles and apparel. Taiwan's apparent consumption totaled $2.9 billion in 2001 while U.S. apparent consumption totaled $53.7 billion.

Although lower than the average U.S. textile wage of $11.35 per hour, Taiwan's average wage rate of $6.40 per hour[3] was significantly higher than wages in most other Asian markets.[4] Competition from low-cost suppliers has led to industry consolidation in both the United States and Taiwan. In 2001, 116 textile mills closed in the United States and several leading U.S. textile companies, including Burlington Industries, Guilford Mills, Malden Mills, CMI Industries, and Galey and Lord, filed for chapter 11 bankruptcy protection.[5] The number of Taiwan textile firms has fallen by about 9 percent since 1995. From 1995 to 2001, the number of textile workers in Taiwan decreased by 28 percent to 159,000, while the number of U.S. textile workers decreased by 25 percent to 473,000. According to industry sources, Taiwan's textile industry is increasing its offshore investments rapidly, but production of high-end textile goods is expected to remain in Taiwan.[6] Until the late 1990s, capital-intensive U.S. textile manufacturing had remained in the United States. However, trade preferences contained in the NAFTA, in combination with comparatively high U.S. wages, and the subsequent proliferation of apparel assembly facilities in Mexico, also have motivated U.S. textile producers to establish operations in Mexico.

Comparable measures of labor productivity between the United States and Taiwan are not readily available. However, during 1996-2001, according to labor productivity indexes compiled by the Taiwan Textile Federation, labor productivity in Taiwan's textile sector increased by almost 16 percent, which may be attributed in part to the industry's integrated production systems and technical expertise.[7] From 1997 to 2000, labor productivity in the U.S. textile industry rose by almost 6 percent, to $40,584 per worker. Business strategies implemented by U.S. textile firms to adjust to import competition in the domestic market may have influenced worker productivity. Specifically, many U.S. textile firms have restructured and consolidated operations, reduced employment levels, shifted production from commodity goods to value-added specialty goods, and formed quick response and just-in-time manufacturing and distribution systems.

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[3] Derived from data reported in *Statistics on Taiwan Textile and Apparel Industries, 2000,* Taiwan Textile Federation, Taipei, Taiwan.

[4] In 2001, the hourly wage rates for textile workers in China averaged $.69; in Thailand they averaged $1.18; in Indonesia $.32; and in Malaysia $1.13.

[5] American Textile Manufacturers Institute, "Strong Dollar Policy Devastates U.S. Textiles - Props Up and Supports Competitive Asian Currency Devaluations," found at Internet address http://www.atmi.org/, Feb. 2002, retrieved Mar. 12, 2002.

[6] "Taiwan Low Cost Production Boosts Raincoat Maker Tah Shin," found at Internet address http://just-style.com/news, Feb. 21, 2002.

[7] Kelly Hur, "At the Fiber of Fabrics," *Taipei Review,* Jan. 2002, p. 12.

U.S. imports of textiles from Taiwan accounted for $704 million, or 5.4 percent of total U.S. imports of textiles in 2001, whereas U.S. exports of textiles to Taiwan accounted for $34 million, or 0.3 percent, of total U.S. exports of textiles. From 1995 to 2001, the United States' trade deficit with Taiwan in textiles widened by 37 percent, partly due to a 59-percent decline in U.S. textile exports to Taiwan and a 23-percent increase in U.S. textile imports from Taiwan. Although Taiwan's currency declined by 28 percent against the U.S. dollar during this period, the currencies of other Asian countries, such as Thailand and Korea fell much more sharply, in part due to the 1997 Asian financial crisis. Pronounced devaluation enabled these countries to capture a greater share of U.S. textile imports, reducing Taiwan's relative importance in the U.S. textiles market.

Apparel[8]

Taiwan traditionally has been a major foreign supplier of apparel to the United States, ranking as the fifth-largest source of U.S. apparel imports by value as recently as 1998. The average ad valorem tariff for apparel in the United States is about 15 percent while that of Taiwan ranges from 11 percent to 19 percent. Taiwan's apparel industry is smaller in size than the U.S. apparel industry, but it is highly export oriented. In 2001, the Taiwan industry consisted of an estimated 2,000 firms with a workforce of 82,423 persons and shipments of almost $2.1 billion (table 5-2), while the U.S. industry consisted of about 14,000 firms with a workforce of about 515,000 persons and shipments of $43.2 billion. Taiwan exports a large share of its apparel shipments– estimated at more than 75 percent in 2001– compared with the United States which exported just 15 percent of its apparel shipments (or $6.5 billion) in 2001. Taiwan's apparel exports principally comprise shipments of completed garments to developed countries, led by the United States, Canada, Germany, the United Kingdom, and Japan, whereas a major portion of U.S. apparel exports consists of shipments of garment parts to Mexico and Caribbean Basin countries for assembly and re-export to the United States. Taiwan's apparent consumption of apparel totaled $582.3 million in 2001, whereas U.S. apparent consumption totaled $100.3 billion that year. Apparent consumption of apparel in Taiwan has been on the decline from 1995 to 2001, while U.S. apparent consumption of apparel increased steadily during the same period, before declining slightly in 2001.

The apparel industries in Taiwan and the United States have been declining in size and output due to competition from countries with lower labor costs. Between 1996 and 2001, Taiwan's apparel shipments fell by 34 percent from $3.8 billion to an estimated $2.5 billion,[9] while U.S. apparel shipments declined by 16 percent from $51.3 billion to $43.2 billion. The average hourly wage for apparel production workers in Taiwan

[8] For purposes of this report, data on U.S. shipments of apparel and apparel trade with Taiwan include goods covered by SIC codes 2311 through 2389, which consist of apparel and apparel accessories.

[9] Taiwan Textile Federation, *Statistics on Taiwan Textile and Apparel Industries, 2000*, table-2-3: Shipment Indexes, Taipei, Taiwan.

Table 5-2
Apparel: Selected industry data, 2001

Item	United States	Taiwan
Shipments *(million dollars)*	43,164	[1]2,079
Employment *(number of employees)*	515,000	82,423
Wages *(per hour)*	$9.47	$4.07
Number of firms	[2]14,000	[2]2,000
Labor productivity *(value added per employee)*	$49,000	([3])
Exports to all trading partners *(million dollars)*	6,537	[1]2,449
Imports from all trading partners *(million dollars)*	73,675	[1]952
Apparent consumption *(million dollars)*	110,302	582

[1] Taiwan trade and shipment data may not be directly comparable, as such data are compiled by two different ministries, are not reported on the same currency basis, and may not comprise the same product groups. In addition, production data is based, in part, on projections and may not include data for some small firms.
[2] Estimated.
[3] Not available.

Source: For the United States, compiled from official statistics of the U.S. Department of Commerce. For Taiwan, compiled from statistics of the Taiwan Textile Federation.

was $4.07 in 2001, less than half the average hourly wage of $9.47 earned by their U.S. counterparts, but substantially more than the average hourly wage of less than $1 earned by apparel workers in some of the world's top apparel exporting countries such as China, India, and Pakistan. Comparable measures of labor productivity between Taiwan and the United States are not readily available. A direct labor productivity index published by the Taiwan Textile Federation, indicates that labor productivity in Taiwan's apparel industry peaked in 1998, dropped by 4 percent to the 2000 level, before rebounding slightly in 2001.[10] Labor productivity in the U.S. apparel industry, as measured by the value added per employee, rose from $48,220 in 2000 to an estimated $49,000 in 2001.

The United States records an apparel trade deficit with Taiwan, which totaled approximately $1.9 billion in 2001. In the 1995-2001 period, Taiwan's exports to the United States peaked in 1998 at $2.2 billion before dropping to almost $1.9 billion in 2001. U.S. apparel exports to Taiwan peaked in 1997 at $19.7 million, but dropped to $13.9 million in 2001.

Due to the decrease in trade from 1998 to 2001, Taiwan went from being the fifth largest supplier of U.S. apparel imports to the 11th largest supplier of such imports. Taiwan has declined in relative importance in the U.S. apparel market during the past decade, largely due to rising operating costs, labor shortages, major currency devaluations in competing East Asian countries, and the relocation of Taiwan manufacturing facilities to other Asian apparel-producing countries, particularly China. Taiwan has been a small market for U.S. apparel exports, accounting for less than 0.5 percent of total U.S. exports by value from 1995 to 2001.

[10] Ibid., table 2-2: Direct Labor Productivity Indexes.

U.S. investment in the Taiwan apparel manufacturing industry is likely small or nonexistent. Many U.S. apparel firms have set up offshore assembly operations, particularly in Caribbean Basin countries and Mexico, which benefit from low-cost labor and preferential access to the U.S. apparel market. The proximity of these countries to suppliers and markets in the United States enables U.S. firms to have greater control over management and production and to obtain quicker turnaround than those firms that import from Asian countries. Taiwan investment in the U.S. apparel manufacturing industry appears to be relatively small.

Industrial Organic Chemicals[11]

The United States is the world's largest producer of chemicals, with domestic shipments estimated at more than $400 billion in 2001.[12] The U.S. chemical industry is composed of a broad spectrum of producers ranging from vertically integrated multinationals to small firms with highly specialized product lines. Taiwan tariff rates currently range from 0 to 14 percent ad valorem. On the other hand, the average U.S. tariff for dutiable industrial organic chemicals from Taiwan is about 6 percent. U.S. shipments of industrial organic chemicals totaled $85.3 billion in 2001 and accounted for approximately 21 percent of U.S. chemical industry shipments (table 5-3).[13] As Taiwan chemicals manufacturing is concentrated in downstream industry segments, which produce goods that often require less capital investment and are more labor intensive, there tend to be many small-scale factories in the Taiwan chemical industry, in addition to major multinational producers. The Taiwan chemical industry tends to import many raw materials and chemical intermediates, because it primarily produces consumer and industrial chemical end products. In 2000, shipments by the Taiwan industrial organic chemicals sector were approximately $7 billion, accounting for approximately 10 percent of Taiwan's total chemical shipments.[14] The Taiwan chemical industry reportedly is dependent on imports for materials, and in general

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[11] Industrial organic chemicals are synthetic organic intermediate chemicals produced directly from petroleum and gas (and sometimes coal) feedstocks. The most prominent materials in this grouping are organic acids and alcohols (and their esters, amines and other derivatives), synthetic perfumes and flavors, plasticizers, synthetic tanning agents, synthetic dyes and pigments, and natural gum and wood chemicals. These chemicals are generally used in the production of chemical products such as soaps and detergents, cosmetics, toiletries, agricultural chemicals, synthetic rubber and plastics, and pharmaceuticals. In general, industrial organic chemicals include those products covered under 1987 SIC codes 2865 (cyclic organic crudes and intermediates) and 2869 (industrial organic chemicals, NEC).

[12] *Chemical & Engineering News,* "Chemical Industry Should Post Modest Increases Next Year Against a Discouraging 2001," Dec. 17, 2001, p. 26 and *Chemical & Engineering News,* "As the Economy Slows Next Year, So Will the Chemical Industry," Dec. 11, 2000, p. 18.

[13] U.S. Department of Commerce, *Annual Survey of Manufactures, Value of Product Shipments, 2000,* February 2002, pp. 38-40 and U.S. Department of Commerce, *1997 Economic Census: Bridge Between SIC and NAICS,* found at Internet address *http://www.census.gov/epcd/ec97brdg/E97B2_28.HTM#D286.*

[14] Industrial Technology Research Institute, Hsin Chu, Taiwan, found at Internet address *www.itri.org.tw/english/techs/chemic.htm*, retrieved Mar. 22, 2002.

Table 5-3
Industrial organic chemicals: Selected industry data, 2001

Item	United States	Taiwan
Shipments *(million dollars)*	85,250	[1]70,000
Employment *(number of employees)*	117,000	[1]73,535
Wages *(per year)*	$56,150	[1]$38,703
Number of establishments	935	[2]14,950
Labor productivity *(dollar output per employee)*	707,346	951,928
Exports to all trading partners *(million dollars)*	15,665	[3]815
Imports from all trading partners *(million dollars)*	15,720	[4]3,836

[1] All chemical products.

[2] 1999 data for all chemical products.

[3] Taiwan exports of organic chemicals (1998) as reported in U.N. statistics. Exports of all chemical products in 2001, as reported by Taiwan in *Taiwan Statistical Data Book 2002*, were valued at $4.1 billion, an increase of 45 percent compared with exports for 1998.

[4] Taiwan imports of organic chemicals (1998) as reported in U.N. statistics. Imports of all chemical products in 2001, as reported by Taiwan in *Taiwan Statistical Data Book 2002*, were valued at $11.2 billion, an increase of 13 percent compared with imports for 1998.

Source: Compiled from official statistics of the U.S. Department of Commerce (1997 Census) and the Federal Reserve Board (production indices as published in *Chemical & Engineering News*, p. 45, June 25, 2001); Taiwan trade compiled from United Nations statistics database; other Taiwan industry statistics complied from the *Taiwan Statistical Data Book 2002*, Council for Economic Planning and Development.

does not compete in the same markets as the United States, particularly regarding certain chemical product areas.[15]

Of the more than 2,500 companies producing chemicals in the United States, about 700 firms (comprising about 935 establishments) produced industrial organic chemicals. Employment in the U.S. industrial organic chemical industry totaled approximately 117,000 in 2001, a decline of 19.8 percent since 1995. During the same period, the number of U.S. chemical industry jobs experienced an overall decrease of 1.6 percent.[16] In contrast, average hourly earnings in the U.S. industrial organic chemicals sector increased from $20.51 in 1999 to $21.90 in 2001.[17] Comparable data are not available regarding Taiwan for the industrial organic chemicals industry, but are available for the chemicals industry as a whole. In Taiwan, there were 14,950 registered chemical-producing factories in 1999.[18] Total chemical industry employment in Taiwan increased by 15 percent for a total of 75,992 workers from 1996 through 2000 but declined to 75,210 in 2001.[19] Total wages in the Taiwan chemicals industry increased at an average annual rate of 1.5 percent to $2.8 billion during 1996-2001.

[15] National Federation of Industries and the American Institute in Taiwan, interview by USITC staff, Taipei, Taiwan, May 23, 2002.

[16] *Chemical & Engineering News,* "Facts & Figures for the Chemical Industry," June 24, 2002, pp. 66-70; and U.S. Department of Labor, Bureau of Labor Statistics, National employment, hours, and earnings data, found at Internet address http://data.bls.gov/labjava/outside.jsp?survey=ee, retrieved Aug. 6, 2002.

[17] Ibid.

[18] Council for Economic Planning and Development, *Taiwan Statistical Data Book 2002*.

[19] Ibid.

U.S. labor productivity in the industrial organic chemicals sector increased by about 22 percent from 1995 to 2000,[20] but declined by 13 percent in 2001 to an output of $707,346 per employee, owing principally to a 14-percent decline in output.[21] The Taiwan chemical industry experienced a 36-percent increase in productivity during 1996-2001, to an output of $951,928 per employee, with the largest increase in 2001. This increase is likely a result of growth in Taiwan's production capacity for petrochemicals, all of which reflects an increased level of technology and increased production efficiencies.[22]

The U.S. trade surplus with Taiwan in industrial organic chemicals totaled nearly $534 million in 2001, having declined by 46 percent from $989 million in 2000. U.S. exports of industrial organic chemicals to Taiwan declined during 1995-2001, owing primarily to the growth of petrochemical industry in Taiwan and in other Asian nations. However, the United States remained a significant supplier of industrial organic chemicals to Taiwan, accounting for 29 percent of Taiwan imports of these products from 1995 through 98.[23] U.S. exports to Taiwan accounted for 4.1 percent of all U.S. exports of industrial organic chemicals in 2001.[24]

U.S. imports of industrial organic chemicals from Taiwan increased by 53 percent during 1995-2001, from $77 million to more than $118 million. In 2001, such imports accounted for less than 1 percent of total U.S. imports of these materials. Taiwan exports of industrial organic chemicals are small, as production in Taiwan's chemicals industry is concentrated on downstream products, such as plastics and plastics products.

Investment data are available only for the chemicals industry as a whole. U.S. direct investment in the Taiwan chemical industry is relatively small. The value of U.S. direct investment in the Taiwan chemical industry totaled $569 million as of 1999, whereas total U.S. foreign direct investment in the global chemical industry totaled $83.5 billion. U.S. investment in the Taiwan chemical industry was likely concentrated in the downstream chemical products industry. In general, Taiwan investments in the U.S. chemical industry also have been in the downstream chemical products area. Such investments have funded Taiwan-owned Mingtai Chemical's expansion into the U.S. food and pharmaceuticals industries.[25] Taiwan investment in the U.S. chemical industry through 2000 totaled $782 million.[26]

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[20] U.S. Department of Commerce, Bureau of Economic Analysis, International Accounts Data found at internet address: ftp://ftp.bls.gov/pub/special.requests/opt/dipts/oae3din.txt, *retrieved 5/1/02.*

[21] Ibid., and *Chemical & Engineering News,* "Productivity Boost for Chemical Firms," Mar. 18, 2002, pp. 15-16.

[22] *Chemical & Engineering News,*"World Chemical Outlook," Dec. 17, 2001, pp. 37-40.

[23] Derived from official United Nations. statistics.

[24] Derived from statistics of the U.S. Department of Commerce.

[25] *Chemical Market Reporter,*"Mingtai Chemical Launches U.S. Operations in Food, Pharma Move," Apr. 9, 2001, p. 16.

[26] U.S. Department of Commerce, Bureau of Economic Analysis, International Accounts Data found at internet address: http://www.bea.doc.gov/bea/di/di1usdbal.htm, retrieved 3/22/02.

Miscellaneous Plastic Products[27]

Miscellaneous plastics products (MPPs) include a wide range of finished industrial and consumer goods, such as pipe fittings and unions, floor and wall coverings, hardware, hospital ware, kitchenware, table and microwave ware, septic tanks, shutters and siding, swimming pool covers, trash containers, and window frames. MPPs account for about 60 percent of all fabricated plastics trade between the United States and Taiwan. In 2001, MPPs ranked as the 14th leading U.S. commodity imported from Taiwan. The majority of Taiwan's tariff rates on MPPs stand at 5 percent ad valorem, while U.S. tariffs on dutiable MPPs items imported from Taiwan averaged 4.2 percent over the period 1995-2001.

In 1997, the U.S. MPPs industry comprised about 7,500 companies utilizing 8,600 facilities (table 5-4). U.S. shipments of MPPs were valued at about $76 billion in 2001. Data on the number of firms and shipments in the Taiwan MPPs industry are unavailable. However, anecdotical evidence indicates that the Taiwan MPPs industry principally comprises medium- and small-size establishments, but also includes large firms such as the Formosa Group.[28] Approximately 556,000 U.S. workers were employed in the MPPs sector in 2000, whereas the total number of civilian employees

Table 5-4
Miscellaneous plastic products: Selected industry data, 2001

Item	United States	Taiwan
Shipments *(million dollars)*	[1]75,830	([2])
Employment *(number of employees)*	[1]555,604	175,961
Wages *(per year)*	[1]$12.03	$6.23
Number of firms	[3]7,522	([2])
Labor productivity (1997 = 100)	108.70	95.12
Apparent domestic consumption *(million dollars)*	76,102	([2])
Exports to all trading partners*(million dollars)*	7,006	[4]2,193
Imports from all trading partners*(million dollars)*	7,278	([2])

[1] Calendar year 2000 data.
[2] Not available.
[3] Calendar year 1997 data.
[4] Taiwan exports to the world (1997).

Source: United States: Compiled from official statistics of the U.S. Department of Commerce and the U.S. Department of Treasury. Taiwan: Council for Economic Planning and Development, accessed from website: *http://www.stat.gov.tw/main.htm*, and United Nations trade statistics, 1997.

[27] Miscellaneous plastics products covered under SIC code 3089, refer to establishments primarily engaged in manufacturing plastics products, not elsewhere classified. Excludes plastics pipe, bottles, unsupported profiles, sheet and film, various laminated profiles and flexible packaging, foams, certain plumbing fixtures, and custom compounds. Also excluded are plastics materials and synthetic resins (SIC 2821).

[28] U.S. Dept. of Commerce, *Census of Manufacturers 1997*, table 1-1d, General Summary, June 2001, p. 1-14.

in the Taiwan plastics products industry as a whole was 175,961 in 2001.[29] In 2000, the average hourly wage of production workers in the U.S. MPPs industry was $12.03,[30] compared to the average hourly wage of $6.39 in the Taiwan plastics products sector.[31] In 2001, U.S. global trade in MPPs was equally balanced between exports and imports at $7 billion. Taiwan's global exports of MPPs totaled $2.2 billion in 1997.

U.S. labor productivity increased by 9 percent between 1997-2000, due to a combination of improved management and process efficiencies, higher capacity utilization rates, and a strong economic climate. Following a rise of 10 percent during 1995-1997, labor productivity in Taiwan fell by 8 percent during 1997-2000, and was unchanged during 2000-2001. The 1997-2000 decline appears to be linked to management and workforce inefficiencies, and declining capacity utilization rates resulting from the Asian financial crisis and recent recessionary trends in the United States and Taiwan.[32]

In 2001, the U.S. trade deficit with Taiwan in MPPs totaled $451 million. U.S. MPPs exports to Taiwan increased by 56 percent during 1995-1999 to a record $94 million, before declining to $67 million in 2001. Likewise, U.S. MPPs imports from Taiwan increased by 13 percent during 1995-1999 to a record $551 million, before declining to $517 million in 2001. Contributing factors to the decrease in U.S.-Taiwan MPPs trade subsequent to 1999 include the strong U.S. dollar, rising energy rates, and recessions in both the United States and Taiwan. Taiwan's share of total U.S. MPPs exports declined from 2 percent in 1995 to 1 percent in 2001, while Taiwan's share of total U.S. MPPs imports declined from 11 percent in 1995 to 7 percent in 2001, due to rising U.S. imports from NAFTA countries and China.

Although quantitative data reflecting Taiwan direct investment in the U.S. MPPs sector are not available, anecdotal information suggests that there is a significant amount of Taiwan investment in this U.S. industry. Taiwan-owned facilities in the United States produce MPPs such as polypropylene (PP) corrugated board, polyvinyl chloride (PVC) plate, polyethylene shopping bags, and melamine dinnerware, as well as other plastics products such as plastics resins, biaxially oriented PP film, and stretch film. The Formosa Plastics Group, the largest plastics enterprise in Taiwan,[33] owns large manufacturing facilities in the United States,[34] including Formosa Plastics Corp. U.S.A.; Formosa Plastics Corp. America; Interplast Corp., TX; Nan Ya Plastics Corp.

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[29] U.S. Department of Commerce, *Annual Survey of Manufacturers 2000*, table 2, Feb. 2002, p. 19., and Council for Economic Planning and Development, *Taiwan Statistical Data Book 2002*. Taiwan plastics products statistics may include sectors in addition to MPPs.

[30] U.S. Department of Commerce, *Annual Survey of Manufacturers 2000*, table 2, Feb. 2002, p. 19.

[31] Conversion rate based on 31.26 Taiwan dollars per U.S. dollar.

[32] Bureau of Economic and Business Affairs, U.S. Dept. of State, *2001 Country Reports on Economic Policy and Trade Practices*, Feb. 2002, p. 2.

[33] Except for the Formosa Group, Taiwan authorities control the energy sector.

[34] Information Brochure, Formosa Plastics Group, Taipei, Taiwan, Dec. 2001, Formosa rigid PVC pipe (SIC 3084) accounts for 27 percent of the U.S. market, while rigid PVC film (SIC 3081) accounts for 30 percent.

U.S.A.; and Nan Ya Plastics Corp. America.[35] In addition, Tar-Hong Melamine Co., Ltd, a Taiwan-owned manufacturer of melamine dinnerware, has U.S. subsidiaries in California, including Tar-Hong Melamine U.S.A., Inc. and the Thunder Group.[36] Basell, a large multinational firm, has a presence in both Taiwan and the United States.[37] Basell holds a 35-percent stake in Taiwan Polypropylene Co., LTD, which operates a PP compounding line and a staple fiber plant in Taiwan.

U.S. firms such as Dow, GE, DuPont, Allied Signal, Monsanto, Anthony Ind., and Ticona[38] are major suppliers of engineering plastics products to the Taiwan market. Sales of MPPs by U.S.-owned affiliates in Taiwan are based on competitive pricing, good quality and performance, technical support, and prompt delivery.[39]

Industrial Fasteners[40]

U. S. imports of industrial fasteners are subject to tariffs up to 12.5 percent.[41] In 2001, the trade-weighted average rate of duty on industrial fasteners imported from Taiwan was 6.7 percent. Taiwan is the leading source of U.S. imports of industrial fasteners, as 37 percent of total U.S. imports of industrial fasteners, and more than half of all dutiable U.S. imports of such products, were imported from Taiwan in 2001.[42]

Apparent U.S. consumption of industrial fasteners was approximately $8 billion in 2001, exceeding domestic production by $525 million (table 5-5).[43] In contrast, Taiwan produced almost $2 billion of industrial fasteners in 2001 and consumed only $342 million.[44] In 2001, total U.S. imports of industrial fasteners dropped to just over $2 billion, declining 14 percent from a historical high of $2.3 billion in 2000.[45] Total U.S. exports of industrial fasteners dropped to $1.5 billion in 2001, declining 11 percent from a historical high of $1.7 billion in 2000.[46]

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[35] Information found at Internet addresses *http://www.fpcusa.com* and *http://www.npcusa.com*.

[36] *Melamine Institutional Dinnerware from China, Indonesia, and Taiwan,* Investigation Nos. 731-TA-741-743 (Final); pub. 3016, USITC, Feb. 1997.

[37] Basell is the leading producer of PP resins in both the United States and Taiwan. Shell Oil has a 50 percent ownership stake in Basell.

[38] U.S. Dept. of Commerce, International Trade Administration, Foreign Commercial Service and U.S. Dept. of State, *Industry Sector Analysis, Taiwan, Engineering Plastics*, July 1, 1999.

[39] USDOC, ITA, *Industry Sector Analysis, Taiwan, Engineering Plastics*, July 2, 2001, p. 6.

[40] Industrial fasteners comprise those products within SIC 3452, including metal bolts, nuts, screws, rivets, washers, formed and threaded wire goods, and special industrial fasteners such as aircraft fasteners. Industrial fasteners also comprise 50 discrete 10-digit article descriptions in the Harmonized Tariff Schedule of the United States (2002).

[41] Harmonized Tariff Schedule of the United States (2002).

[42] U.S. International Trade Commission, Trade Dataweb.

[43] U.S. Department of Commerce, Bureau of the Census, and U.S. Department of Commerce, International Trade Administration.

[44] Taiwan Industrial Fasteners Institute.

[45] U.S. International Trade Commission, Trade Dataweb.

[46] Ibid.

Table 5-5
Industrial fasteners: Selected industry data, 2001

Item	United States	Taiwan
Gross product *(million dollars)*	7,475	1,960
Employment *(full-time equivalent employees)*	55,000	(1)
Annual wages *(per employee)*	$38,000	(1)
Number of firms	1,000	463
Labor productivity *(per employee)*	$136,000	(1)
Exports to all trading partners *(million dollars)*	1,481	1,709
Imports from all trading partners *(million dollars)*	2,006	91
Apparent consumption *(million dollars)*	8,000	342
Apparent consumption *(percent of domestic production)*	107	17

[1] Not available

Sources: Official data of the U.S. Department of Commerce; U.S. Department of Labor; U.S. International Trade Commission; and Taiwan Industrial Fasteners Institute.

The 463 firms of the Taiwan Industrial Fasteners Institute produced an average of $4.2 million of industrial fasteners per firm in 2001. U.S. industrial fastener firms, which numbered slightly less than 1,000, produced an average of $7.5 million of industrial fasteners per firm. In 2001, industrial fasteners accounted for less than 0.1 percent of U.S. GDP.[47] Industrial fasteners contributed almost 0.5 percent to the estimated GDP of Taiwan in 2001.[48]

U.S. imports of industrial fasteners from Taiwan decreased by 1 percent to $734 million from 1995 to 2001. This decrease is likely the result of a 6.4-percent drop in the average unit value of U.S. imports of industrial fasteners from Taiwan, from $1.58 per kilogram in 1995 to $1.48 per kilogram in 2001. Industrial fasteners accounted for only 2.2 percent, by value, of total U.S. imports from Taiwan in 2001. However, as noted, Taiwan accounted for 37 percent of total U.S. industrial fastener imports during that year. Self-tapping steel screws comprised $222 million, or 30 percent, of U.S. industrial fastener imports from Taiwan in 2001, while steel nuts comprised $163 million, or 22 percent of such imports.[49]

U.S. exports of industrial fasteners to Taiwan nearly tripled during the period 1995-2001, from less than $5 million to more than $14 million. However, industrial fasteners accounted for less than 0.1 percent, by value, of total U.S. exports to Taiwan in 2001. Iron or steel bolts comprised 47 percent and iron or steel nuts comprised 15 percent of U.S. industrial fastener exports to Taiwan in 2001.[50] During 1995-2001, exports of these two products experienced particularly rapid growth, as U.S. exports of iron or steel bolts to Taiwan increased from $251,000 to $6.7 million, while exports

[47] U.S. Department of Commerce, Bureau of Economic Analysis.
[48] U.S. Central Intelligence Agency, *The World Factbook, 2001.*
[49] U.S. International Trade Commission, Trade Dataweb.
[50] Ibid.

of iron or steel nuts to Taiwan increased from $245,000 to $2.2 million. This increase is likely a result of a 14-percent increase in average unit value of U.S. exports of industrial fasteners to Taiwan, from $7.98 per kilogram in 1995 to $10.80 per kilogram in 2001. The average unit value of the largest export category, iron or steel bolts, increased by more than 68 percent, from an average value of $7.17 per kilogram in 1995 to $12.07 per kilogram in 2001.[51]

Anecdotal information suggests that neither the U.S. nor the Taiwan industrial fastener industries attract significant foreign investment. The lack of foreign investment is consistent with the relatively small size of the manufacturing firms, and the relative maturity of the industries in both countries. According to the National Federation of Industries, the Taiwan industrial fastener industry has faced major competition from China and other Asian countries in recent years. Production has been moving to China, and the number of producers in Taiwan is decreasing.[52]

Motor Vehicles[53]

Motor vehicles account for less than 1 percent of total trade volume between the United States and Taiwan. Most motor vehicles are subject to high Taiwan tariffs ranging from 30 percent to 60 percent ad valorem,[54] although there are some specific products with relatively low tariff rates. The U.S. ad valorem tariff rates on comparable products generally range from 2 to 25 percent. Taiwan also imposes a tariff-rate quota on its imports of motor vehicles, to be phased out by 2011.

The U.S. motor vehicle industry and market are much larger than those of Taiwan (table 5-6). U.S. production is more than 40 times that of Taiwan and annual sales in the United States are 50 times those of Taiwan. There are approximately 5.5 million motor vehicles on the roads in Taiwan--4.7 million passenger cars, 809,000 trucks, and 23,923 buses–while there are approximately 215 million motor vehicles in the U.S. vehicle fleet.

Despite the fact that vehicle production and sales are much smaller in Taiwan than in the United States, each economy hosts 11 passenger vehicle manufacturers.[55] All of Taiwan's producers are affiliated with foreign automakers, because the scale of Taiwan production is small and research and development funding and capabilities are limited.[56] Seven Taiwan automakers have joint ventures or licensing agreements

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[51] Ibid.

[52] National Federation of Industries, interview by USITC staff, Taipei, Taiwan, May 23, 2002.

[53] In general, motor vehicles encompasses those products covered by SIC codes 3711 and 3713. The corresponding NAICS codes are 33611, 33612, 336211, and 336213.

[54] For more information regarding Taiwan tariff rates, see Chapter 6.

[55] However, the United States has many more commercial vehicle (medium- and heavy-duty trucks and buses) manufacturers than Taiwan.

[56] Taiwan Auto Parts and Motorcycles Showcase, "Changing Focus," found at Internet address *http://autoparts.cetra.org.tw/industry.asp*, retrieved Feb. 13, 2002. However, there have been efforts led by Taiwan authorities to assist Taiwan's motor vehicle industry in increasing its R&D and design capabilities.

Table 5-6
Motor vehicles: Selected industry data, 2001

Item	United States	Taiwan
Production *(units)*	11,426,753	269,000
Exports to all trading partners *(million dollars)*	22,625	53
Imports from all trading partners *(million dollars)*	127,244	917
Apparent consumption *(units)*	17,640,847	312,307
Employment *(number of employees)*	[1]377,000	[2]120,000
Hourly wages *(per employee)*	[3]$24.03	([4])
Number of establishments	[5]1,300	([4])
Labor productivity *(number of worker days to assemble a vehicle)*	3.2	([4])

[1] Includes SIC 3711 and 3713.
[2] May include related industries such as auto parts manufacturing.
[3] Includes SIC 3711.
[4] Not available.
[5] Estimated by staff of the U.S. International Trade Commission.

Sources: Ward's Communications; U.S. Department of Commerce; Bureau of Labor Statistics; Scotia Economics; Taiwan Directorate-General of Budget, Accounting and Statistics; Taiwan Transportation Vehicle Manufacturers Association; Directorate General of Customs, Ministry of Finance; and European Union Sectoral and Trade Barriers Database.

with Japanese companies, and 70 percent of the 4.7 million passenger vehicles registered in Taiwan are Japanese models.[57] Moreover, in 2000, Japanese-affiliated Taiwan passenger car producers accounted for 82 percent of passenger car production in Taiwan.[58] In the United States, 5 of the 11 passenger vehicle makers are Japanese-owned, two are Japanese-U.S. joint ventures, and two, including Daimler-Chrysler, are German-owned. The remaining two automakers, General Motors and Ford, are U.S.-owned companies with a total of nine distinct divisions producing and selling vehicles in the United States. A total of 1,300 establishments in the United States produce passenger vehicles, trucks, buses, other on-road commercial vehicles, specialty vehicles, and bodies and chassis for these vehicles.

Because of the large number of Taiwan motor vehicle manufacturers and assemblers in relation to the size of the domestic market, the motor vehicle industry in Taiwan is not able to achieve economies of scale and the resultant productivity benefits. Taiwan's auto industry reportedly suffers from 50 percent overcapacity.[59] The U.S. motor vehicle industry has a relatively high productivity rate, and net capacity utilization reached 81 percent in 2001.[60]

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[57] U.S. Department of Commerce, U.S. and Foreign Commercial Service, *Auto Aftermarket and Accessories*, Market Reseach Report, Mar. 15, 2002.

[58] World Automotive Industry Trends, *WAIT Yearbook 2001* (Staffs, England: World Automotive Industry Trends, 2001), p. 115.

[59] Taiwan Auto Parts and Motorcycles Showcase, "Changing Focus," found at Internet address *http://autoparts.cetra.org.tw/industry.asp*, retrieved Feb. 13, 2002.

[60] "Production Capacity Falls for Sixth Straight Quarter," *Ward's Automotive Reports*, vol. 77, No. 7, Feb. 18, 2002, p. 1.

With the exception of an increase in 2000, U.S. exports to Taiwan have decreased each year from 1995 through 2001, falling from $887 million in 1995 to $72 million in 2001. The decrease in U.S. exports to Taiwan likely reflects general economic trends in Taiwan, such as effects of the Asian financial crisis; the growing demand for smaller, fuel efficient vehicles; the increased saturation of the domestic motor vehicle market; and the emigration of many affluent persons from Taiwan to mainland China. Other possible causes include shifts in the sourcing strategies of General Motors and Ford, which have increased their equity tie-ups with Asian partners from 1995 through 2001, and a shift in the focus of U.S. automakers toward mainland China with it's accession to the WTO and subsequent steps toward market liberalization.

U.S. imports from Taiwan have increased steadily from 1995 through 2001, with the exception of a decrease in 1998. Such imports totaled $46,499 in 1995 and increased to $3.2 million in 2001. In 2001, gasoline-powered pickup trucks accounted for half of all motor vehicle imports from Taiwan, followed by passenger vehicle bodies (26 percent) and passenger cars with engine displacement between 1,501 cc and 3,000 cc (23 percent). Most of the passenger cars and pickups imported from Taiwan are for commercial use and some are likely converted into various types of work vehicles.

Ford is the only U.S. automaker with an equity stake in a Taiwan-based manufacturing enterprise. Ford owns 70 percent of the Ford Lio Ho Motor Company Ltd., a joint venture with Taiwan automaker Lio Ho.[61] In 2000, Ford produced 58,258 vehicles in Taiwan. General Motors has a licensing agreement with the Taiwan-based Chinese Automobile Co. Ltd. to manufacture Opel Astras, but it is not an equity partner.

Auto Parts[62]

The auto parts industry consists of original equipment (OE) manufacturers and aftermarket producers,[63] and is affected by trends in the market for motor vehicles. Auto parts accounted for 2 percent of total U.S. trade with Taiwan in 2001. U.S. exports of auto parts are subject to high Taiwan tariffs, ranging from 5 percent to 60 percent ad valorem, whereas the U.S. ad valorem tariff rates on comparable products generally range from 0 to 3.5 percent.[64] The auto parts industry in the United States, like the motor vehicle market, is significantly larger than the Taiwan industry for such products. The U.S. auto parts industry consists of approximately 5,000 firms

[61] World Automotive Industry Trends, *WAIT Yearbook 2001* (Staffs, England: World Automotive Industry Trends, 2001), p. 306. The company was set up in 1972, and produces Ford and Mazda models.

[62] In general, the auto parts sector encompasses those products covered by SIC codes 3465, 3592, 3647, 3691, 3694, and 3714, or NAICS codes 3363 (except 33636 and 336391) and 335911.

[63] OE manufacturers supply parts for use in the assembly of motor vehicles or for dealers' service operations, whereas aftermarket producers generally supply replacement parts to retail and non dealer service outlets. Although there is some overlap of these two segments, producers or individual plants generally focus on one market.

[64] For more information regarding Taiwan tariff rates, see Chapter 6.

(table 5-7), 500 of which are affiliates of Japanese, European, and Canadian manufacturers.[65] The U.S. industry is dominated by approximately 100 large manufacturers, which account for the majority of sales.[66] However, as the industry continues to consolidate, the number of firms in the U.S. auto parts industry will likely decline. The Taiwan industry consists of approximately 2,000 small- and medium-sized auto parts manufacturers, 85 percent of which produce for the aftermarket.[67] The industry is organized on a "central-satellite" manufacturing structure that encourages specialized production of specific parts and components for assembly in a central factory.[68] In 2001, the value of U.S. shipments of auto parts was more than 50 times greater than Taiwan shipments of such products.

Given the wide range of products manufactured by U.S. and Taiwan auto parts producers, productivity in this industry is difficult to measure. However, the value of U.S. shipments has increased at a greater rate than the number of production workers, indicating continuous productivity improvements in the U.S. auto parts industry. Taiwan auto parts manufacturers are considered to be highly skilled in certain industry segments, such as auto body parts.[69]

During 1995-2001, total auto parts trade between the United States and Taiwan grew at an average annual rate of 6.6 percent, reaching $938 million in 2001, while the

Table 5-7
Auto parts: Selected industry data, 2001

Item	United States	Taiwan
Shipments *(million dollars)*	[1]197,000	3,715
Exports to all trading partners *(million dollars)*	41,256	2,320
Imports from all trading partners *(million dollars)*	41,137	1,375
Apparent consumption *(million dollars)*	196,881	2,770
Employment (*number of production workers*)	[1]604,000	[2]120,000
Hourly wages *(per employee)*	[1]$19	([3])
Number of firms (*1,000*)	5	2
Labor productivity (*dollar output per employee)*	326,159	([4])

[1] Estimated.
[2] May include all employees for related industries such as auto manufacturing.
[3] Not available.
[4] Not a meaningful measure since discrete employment data for the Taiwan auto parts industry are unavailable.

Source: U.S. Department of Commerce, Taiwan Transportation Vehicle Manufacturers Association, Taiwan Directorate-General of Budget, Accounting and Statistics, and European Union Sectoral and Trade Barriers Database.

[65] USDOC, International Trade Administration, "Automotive Parts," *U.S. Industry and Trade Outlook 2000*, 2001, p. 37-1.
[66] Ibid.
[67] USDOC, International Trade Administration, U.S. and Foreign Commercial Service, Market Research Reports, "Auto Aftermarket and Accessories," Mar. 15, 2002, found at Internet address *http://www.stat-usa.gov/*, retrieved Mar. 15, 2002.
[68] China External Trade Development Council (CETRA), "Promising Road Ahead," found at Internet address *http://autoparts.cetra.org.tw/autoparts.asp*, retrieved Feb. 26, 2002.
[69] Gerry Ou, "Taiwan Auto Body Parts Makers Highly Skilled," *Trade Winds' Industry Weekly*, Nov. 8, 1999 found at Internet address *http://proquest.umi.com/*, retrieved Feb. 21, 2002.

U.S. trade deficit with Taiwan in this industry grew at an average annual rate of 8.7 percent, reaching $779 million in 2001. The United States is the leading market for Taiwan exports of auto parts, accounting for $858 million, or 37 percent, of such exports in 2001. However, development of new markets in Southeast Asia and decreasing U.S. demand for aftermarket products,[70] which comprise the majority of Taiwan's auto parts production, may diminish the industry's dependence on the United States.[71] Taiwan accounted for 2.1 percent of U.S. auto parts imports in 2001.

The Taiwan market for U.S.-produced auto parts is relatively small, as Taiwan accounted for less than 1 percent of total U.S. exports of auto parts from 1995 through 2001. U.S. exports of auto parts to Taiwan decreased at an average annual rate of 1 percent for the same period, from $83 million in 1995 to $80 million in 2001, mirroring a similar trend in U.S. exports of motor vehicles.

Some U.S. auto parts suppliers, such as Dana Corp. and TRW, have established manufacturing facilities in Taiwan. However, because Ford is the only Big Three automaker with production facilities in Taiwan[72] and Japanese companies have a strong position in the market, there is little incentive for U.S. companies to establish Taiwan affiliates. Foreign-owned affiliates have a substantial presence in the U.S. auto parts industry, accounting for 10 percent of total firms, but as noted, such companies are generally Japanese-, European-, or Canadian-owned. Taiwan auto parts makers have not made significant investments in U.S. facilities.

Measuring, Testing, Controlling, and Analytical Instruments[73]

U.S. tariffs on measuring instruments generally range from 0 to 5 percent ad valorem, whereas Taiwan's ad valorem tariff rates on comparable products range from 0 to almost 20 percent. The United States is the world's largest producer of measuring, testing, controlling, and analytical instruments (measuring instruments). U.S. dominance stems from several factors, including significant capital expenditures by domestic producers on research and development.[74] In 2001, Taiwan's shipments

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[70] Decreasing demand for aftermarket products in the United States is due, in part, to an increase in consumer lawsuits against insurers that require the use of aftermarket rather than OE automotive parts.

[71] Quincy Liang, "Exporters Turn to Asia for Growth," China Economic News Service, 2001, found at Internet address *http://www.cens.com/linerpt/20010530064.html*, retrieved Feb. 21, 2002.

[72] Ford Lio Ho Motor Co. exports parts and components to Indonesia for the Tierra LS sedan.

[73] Measuring testing, controlling, and analytical instruments are devices that make calibrated measurements of physical, electrical, or chemical quantities. These instruments operate mechanically, pneumatically, or electronically. Often the name describes the function for which the instrument was designed, such as flow meter, revolution counter, speedometer, voltage meter, and process control system. The principal users of measuring instruments are appliance manufacturers, installers of electronic equipment, inspection and maintenance facilities, science laboratories, and research and development (R&D) facilities. Measuring, testing, controlling, and analytical instruments correspond to the following SIC codes: 3822, 3823, 3824, 3825, 3826, 3827 (pt.), and 3829 (pt.). Measuring, testing, controlling, and analytical instruments also correspond to the following NAICS codes 334512, 334513, 334514, 334515, and 334516.

[74] U.S. industry official, telephone interview by USITC staff, Mar. 7, 2002, and the USDOC, Industrial and Analytical Instruments, *U.S. Industry and Trade Outlook $99*, pp. 23-1 to 23-2.

of measuring instruments ($10 billion) were about one-fifth the size of U.S. shipments of such products ($55 billion). Due in part to tax and research and development incentives, the output of Taiwan's measuring instrument industry is expected to increase at an average annual rate of 10 percent during the next several years.[75]

Measuring instruments are produced in the United States by approximately 3,235 firms. These firms range in size from small operations specializing in a single or few products, to large, vertically integrated multinational corporations producing a diverse line of products.[76] The U.S. industry employed about 245,000 production workers during 2001 (table 5-8). Taiwan's measuring instrument industry is about one-tenth the size of the U.S. industry in terms of the number of firms and over one-third the size of U.S. industry employment.

Table 5-8
Measuring, testing, controlling, and analytical Instruments: Selected industry data, 2001

Item	United States	Taiwan
Shipments *(million dollars)*	55,000	10,000
Exports to all trading partners *(million dollars)*	15,712	270
Imports from all trading partners *(million dollars)*	11,806	1,400
Apparent consumption *(million dollars)*	51,094	11,130
Employment *(number of employees)*	245,000	97,740
Wages *(per hour)*	$15.50	$5.67
Number of firms	3,235	325
Labor productivity *(output per employee)*	$224,489	$102,312

Source: United States data (with the exception of wages) are estimated from information published by the U.S. Census Bureau and the USITC publication, Shifts in U.S. Merchandise Trade 2000. Wages obtained from U.S. Bureau of Labor Statistics, found at Internet address *http://bls.gov/pub/suppl/empsit.ceseeb15.txt,* retrieved Mar. 7, 2002. Taiwan data are estimated from information published in the U.S. Department of State, FY 2001 Country Commercial Guide: Taiwan; National Statistics of Taiwan, found at Internet address *http://www.stat.gov.tw/main.htm*, retrieved Mar. 8, 2002; *The Development of Taiwan Electrical and Electronic Industry* publication; and from U.S. industry sources.

The United States is the world's top consumer of measuring instruments, largely due to high demand from domestic industries such as electronic product and capital equipment manufacturing and construction. To satisfy increasing demand in its industrial, commercial, and technology sectors, the United States relies upon measuring instruments from Japan, Germany, and affiliated operations in both Canada and Mexico. In 2001, Taiwan consumption of measuring instruments was 22 percent of U.S. consumption in value terms. Taiwan's ongoing transition from a labor intensive economy to a capital/technology intensive economy continues to strengthen

[75] U.S. Department of Commerce, International Trade Administration, US&FCS Market Research Reports, *Analytical Instruments,* p. 1.

[76] U.S. industry official, telephone interview by USITC staff, Mar. 7, 2002; and USDOC, Industrial and Analytical Instruments, *U.S. Industry and Trade Outlook $99*, pp. 23-1 to 23-2.

demand for high-tech measuring instruments.[77] Taiwan relies heavily on imports from the United States, Japan, Germany, and the United Kingdom to meet measuring instrument demand.[78]

For the 1995-2001 period, annual output per employee in the U.S. measuring instrument industry increased at an average yearly rate of 4.1 percent, reaching $224,489 per employee in 2001.[79] The steady growth in labor productivity largely reflects the use of high-tech manufacturing equipment and a highly skilled workforce. Labor productivity in Taiwan's measuring instrument industry posted an overall decline of approximately 10 percent during 1995-98, but recorded a 10-percent increase in labor productivity during 1999-2000, reaching $102,312 per employee. The increase in labor productivity likely reflects an overall shift toward modernizing production equipment and increased hiring of highly skilled workers.

The United States is a net exporter of measuring instruments to Taiwan and Taiwan's largest foreign supplier of measuring instruments. Measuring instruments from the United States accounted for approximately 50 percent of Taiwan imports of such products in 2001.[80] U.S. exports to Taiwan grew by almost 50 percent to $561 million during 1995-2001. These exports principally consisted of cathode-ray oscilloscopes; multimeters; instruments designed for telecommunication; parts and accessories for instruments used to measure or detect ionizing radiations; and other instruments and apparatus for measuring or checking electrical quantities. Product design, quality, reliability, and state-of-the art technology were the principal factors motivating Taiwan's demand for U.S. products. In addition, U.S. suppliers have developed long-term marketing strategies through Taiwan-based agents and distributors who expand sales and provide after-sales service to customers in that country.[81]

The United States is Taiwan's principal export market for measuring instruments, accounting for approximately 30 percent of such exports in the 1995-2001 period. Taiwan exports to the United States rose by 25 percent to $152 million during the same period, consisting largely of oscilloscopes, spectrum analyzers, instruments for checking the flow of liquids and gases, and instruments for chemical analysis. Measuring instruments from Taiwan generally maintain a price advantage in the U.S. market largely due to Taiwan's relatively lower labor costs. Inspection by U.S.-affiliated agents in Taiwan generally assures the purchaser that the imported product meets quality expectations.[82]

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[77] U.S. Department of Commerce, International Trade Administration, US&FCS Market Research Reports, *Analytical Instruments,* pp. 1-3.

[78] U.S. Department of Commerce, International Trade Administration, *Analytical Instruments, Taiwan, 05/16/2001*, p. 1.

[79] U.S. Department of Labor, Bureau of Labor Statistics: *Annual Percent Change in Output Per Hour and Related Series: Manufacturing Industries, 1990-99 and 1998-99.* Data presented are for measuring and controlling devices.

[80] U.S. Department of Commerce, International Trade Administration, US&FCS Market Research Reports, *Analytical Instruments,* p. 6.

[81] U.S. industry official, telephone interview by USITC staff, Mar. 11, 2002.

[82] U.S. industry official, telephone interview by USITC staff, Mar. 13, 2002.

Semiconductors[83]

In 2001, semiconductors accounted for 12.9 percent, by value, of total trade between the United States and Taiwan. This high level of trade reflects both the size of these markets as well as the strong relationship between the U.S. and Taiwan semiconductor industries. Imports of semiconductors enter free of duty in both the United States and Taiwan.

The United States and Taiwan are respectively the largest and fourth largest markets for semiconductors in the world,[84] with U.S. consumption exceeding Taiwan consumption by more than four times (table 5-9). Consumption patterns for both trading partners are similar, as the computer industry is the dominant end user of semiconductors in both economies. However, the second-largest end user of finished semiconductors in the United States is the telecommunications equipment industry, while in Taiwan, the consumer electronics industry is the second-largest end-user of such products.[85]

Table 5-9
Semiconductors: Selected industry data, 2001

Item	United States	Taiwan
Shipments *(million dollars)*	86,400	15,600
Exports to all trading partners *(million dollars)*	33,455	14,702
Imports from all trading partners *(million dollars)*	30,016	17,965
Apparent Consumption *(million dollars)*	82,961	18,863
Employment *(number of employees)*	283,875	97,000
Wages *(per year)*	[1]$38,750	[2]$13,748
Number of firms	[3]1,020	276
Labor productivity *(output per employee)*	$304,359	$160,825

[1] Data are for 2000.
[2] Taiwan wages are an average of all electrical and electronic machinery industries.
[3] Data are for 1999.

Source: USITC DataWeb; Directorate General of Customs, Ministry of Finance; Bureau of Labor Statistics, U.S. Department of Labor; Statistics of U.S. Businesses, U.S. Bureau of the Census; U.S. Department of Commerce; Industrial Technology Intelligence Services; Semiconductor Industry Association; Taiwan Semiconductor Industry Association; National Statistics of Taiwan.

The United States and Taiwan are two of the world's largest semiconductor producers, and the semiconductor industry ranks among the top manufacturing sectors in both economies. However, the U.S. industry is substantially larger. There are approximately four times as many semiconductor firms in the United States, employing almost three times as many people. Total U.S. chip production in 2001 was $86.4

[83] Semiconductors encompasses those products covered by SIC code 3674 and NAICS code 334413.
[84] Reed Electronics Research, *The Yearbook of Electronics Data, 2002*, vol. 4, p. 17.
[85] Industry representative, telephone interview by USITC staff, Feb. 22, 2002.

billion,[86] as compared to $15.6 billion in Taiwan.[87] Shipments from both U.S. and Taiwan manufacturers fell significantly from 2000 levels, decreasing by 19.8 and 26.2 percent, respectively, due to a severe drop in U.S. and global semiconductor demand.[88]

There are distinct differences between the U.S. and Taiwan semiconductor industries, in addition to the size disparity. U.S. companies produce a wide variety of semiconductors and have been leaders in the development and manufacture of innovative products for decades. The industry in Taiwan is much less mature, having risen to prominence only in recent years. Prior to the most recent year's decline, Taiwan chip production grew by 226.2 percent in the 1995-2000 period,[89] while U.S. manufacturers' shipments of semiconductors rose by only 43.3 percent over the same period.[90] Moreover, while there are some traditional, integrated producers in Taiwan, a large percentage of the industry is made up of firms that are dedicated specifically to the tasks of fabrication or assembly.[91] Taiwan is a worldwide leader in the assembly phase of production, and output from assembly-only facilities makes up a larger percentage of total semiconductor output in Taiwan than in the United States.[92] Because the assembly step is usually more labor-intensive and adds less value than the fabrication stage, labor productivity in the semiconductor industry is lower in Taiwan than in the United States. U.S. shipments per employee in 2001 measured $304,359, while shipments per employee in Taiwan were $160,825.[93]

U.S. firms frequently outsource fabrication and/or assembly to dedicated Taiwan manufacturers, either to supplement their capacity in times of higher-than-anticipated demand, or to concentrate their focus solely on design and marketing. These outsourcing arrangements between U.S. and Taiwan semiconductor firms are critical to the industry and have created the frequent need to ship materials and products

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[86] U.S. Department of Commerce data, as referenced in Daryl Delano, "Electronic Business Online Report: Shipments/Orders," *Electronic Business*, Mar. 12, 2002, found at Internet address *http://www.e-insite.net/eb-mag/index.asp?layout=article&articleId=CA200997*, retrieved Mar. 28, 2002.

[87] Industrial Technology Intelligence Services data, as referenced in "Taiwan IC Industry in Year 2001 - Retrospect and Prospect," *Computex Online*, Jan. 24, 2002, found at Internet address *http://www.computex.com.tw/show_Special.asp?id=232*, retrieved Feb. 25, 2002; and Representative of Taiwan Semiconductor Industry Association (TSIA), electronic correspondence received by USITC staff, Mar. 29, 2002.

[88] Daryl Delano, "Electronic Business Online Report: Shipments/Orders," *Electronic Business*, Mar. 12, 2002.

[89] Reed Electronics Research, *The Yearbook of Electronics Data, 2002*, vol. 2, p. 203; and Reed Electronics Research, *The Yearbook of Electronics Data, 1998*, vol. 2, p. 201.

[90] U.S. Department of Commerce, U.S. Census Bureau, *Current Industrial Reports: Semiconductors, Printed Circuit Boards, Other Electronic Components 2000*, Sept. 2001.

[91] Semiconductors are manufactured in three basic steps: design, fabrication, and assembly. During fabrication the circuit designs are transcribed in large volume onto silicon wafers in a capital-intensive, high-precision process. The final step of assembly takes the silicon wafer and cuts it into chips that are attached to lead frames and encapsulated in plastic.

[92] Industrial Technology Intelligence Services data, as referenced by Taiwan Semiconductor Industry Association in electronic correspondence received by USITC staff, Apr. 16, 2002.

[93] Because chip production is a capital-intensive process, labor productivity can be a misleading indicator of competitiveness.

between the two markets, generating extraordinarily high levels of trade.[94] In most years from 1995 through 2001,[95] semiconductors were the top U.S. merchandise export to Taiwan in value terms, exceeding the second largest export by 50 percent or more in 1996, 1999, 2000, and 2001. U.S. exports of semiconductors to Taiwan increased from $1.7 billion in 1995 to $3.8 billion in 2000 before dropping to $3.0 billion in 2001. Due to the prominence of the production-sharing models, a large share of these U.S. exports are unfinished goods to be assembled in Taiwan. In 2001, almost 60 percent of U.S. semiconductor exports to Taiwan were in the form of unfinished goods, down from nearly 66 percent in 2000.[96]

Following fabrication and/or assembly in Taiwan, a large percentage of semiconductors manufactured through production-sharing arrangements are shipped back to the United States for consumption. Due to such arrangements, total U.S. semiconductor imports from Taiwan were high during the 1995-2001 period, rising from $3.0 billion in 1995 to $5.1 billion in 2000 before falling to $3.4 billion in 2001. Because U.S. exports to Taiwan, whether in the form of unfinished goods or product designs, typically have a lower value than the finished goods exported from Taiwan to the United States, the United States runs a trade deficit with Taiwan in semiconductors. This deficit ranged from $0.9 to $1.3 billion during 1995-2000 before falling to $0.4 billion in 2001. In March 2002, Taiwan removed longstanding restrictions on its semiconductor industry's investment in China.[97] Subsequently, several Taiwan firms have begun constructing new facilities on the mainland to take advantage of lower-cost production and the proximity to the growing Chinese end market.[98] It is unclear how the resulting shift in production will affect trade between the Taiwan and U.S. semiconductor industries.

Taiwan and U.S. semiconductor companies predominantly maintain relationships in the form of the outsourcing arrangements.[99] However, anecdotal evidence[100] suggests that companies from both economies have invested in the other's semiconductor industry. For example, U.S. firm Texas Instruments has established Texas Instruments Taiwan Ltd., and Taiwan Semiconductor holds a 99-percent stake in WaferTech, a U.S. manufacturer located in the state of Washington. In addition, many U.S. firms maintain sales offices in Taiwan, as do Taiwan companies in the United States.

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[94] In many cases a product can be counted twice in trade statistics: from the foundry to the assembly plant and from the assembly plant to the end-user.

[95] In 1998, U.S. exports of aircraft to Taiwan exceeded U.S. exports of semiconductors to Taiwan by a small margin.

[96] Official statistics of the U.S. Department of Commerce.

[97] Hung, Faith, and Drew Wilson, "Foundries prepare for new day in Taiwan-China saga," EBNOnline, Apr. 10, 2002, found at Internet address *http://www.ebnonline.com/story/OEG20020410S0028*, retrieved Jul. 17, 2002.

[98] Ibid.

[99] Taiwan Semiconductor Industry Association, interview with USITC staff, Chutung, Hsinchu, Taiwan, May 20, 2002.

[100] Specific data on U.S. investment in the Taiwan semiconductor industry and Taiwan investment in the U.S. semiconductor industry are unavailable.

Computers, Peripherals, and Parts[101]

In 2001, computers, peripherals and parts accounted for 19 percent, by value, of total trade between the United States and Taiwan. This high level of trade reflects the strong relationship between the U.S. and Taiwan computer hardware industries. Imports of computers, peripherals and parts enter free of duty in both the United States and Taiwan. The United States is the world's top producer of computer hardware, whereas Taiwan was the world's third-largest computer hardware manufacturer from 1995 through 1999[102] before falling to fourth behind China in 2000.[103] During the 1995-2000 period, the value of computer equipment manufactured in the United States rose 62 percent to $135 billion, before declining by nearly 20 percent to $108 billion in 2001[104] due to a significant decline in U.S. and global demand (table 5-10). During 1995-2000, production of computers, peripherals and parts in Taiwan rose by approximately 38 percent to $23 billion.[105]

Table 5-10
Computers, peripherals, and parts: Selected industry data, 2001

Item	United States	Taiwan
Production *(million dollars)*	108,200	23,000
Exports to all trading partners *(million dollars)*	38,092	22,778
Imports from all trading partners*(million dollars)*	74,547	6,592
Apparent consumption *(million dollars)*	144,655	6,814
Employment *(number of employees)*	[1]215,000	[2]100,000
Hourly wages *(per employee)*	$18.43	([3])
Number of firms	1750	2900
Labor productivity *(dollar output per employee)*	503,256	230,000

[1] 2000 data.
[2] 1999 data.
[3] Not available.

Sources: U.S. Department of Commerce, Bureau of the Census, *Global Sources*, Taiwan Ministry of Finance.

U.S. computer manufacturing is focused largely on high value-added products,[106] while most peripherals and standard computers are imported.[107] High costs associated with domestic production have forced most U.S.-headquartered firms to shift part of their computer hardware production to overseas subsidiaries and/or

[101] In general, computers, peripherals, and parts encompasses those products covered by SIC codes 3571, 3575 and 3577 (NAICS code 33411).

[102] Government Information Office, *Yearbook - Taiwan 2001*, found at Internet address *http://www.gio.gov.tw/*, retrieved Mar. 11, 2002.

[103] Willie Teng. "MIC Releases Forecast for Taiwan PC Hardware Production in China," *DigiTimes dot-com*, Dec. 18, 2001, found at Internet address *http://www.digitimes.com*, retrieved Feb. 25, 2002.

[104] USITC estimates based on official data from the U.S. Department of Commerce.

[105] USITC estimates based on data from Reed Electronics Research, *The Yearbook of Electronics Data, 1998 and 2000*, (Reed Business Information: UK, 1998, 2000).

[106] U.S. Department of Commerce, Economics and Statistics Administration, "Digital Economy 2002," February 2002, p. vi.

outsourcing operations in order to maintain international competitiveness. Much of the growth in Taiwan's computer manufacturing industry is due to the fact that Taiwan firms have captured a large share of the computer outsourcing contracts offered by U.S.-headquartered, and later Japanese-headquartered computer companies.

However, in recent years, Taiwan companies have moved at least a portion of their production of items such as peripherals, parts, and desktop computers to mainland China where land and labor costs are even lower. Only notebook computer production in Taiwan has remained largely intact, due to Taiwan's ban on notebook manufacturing by Taiwan-headquartered companies on the mainland. This ban was lifted in late 2001, and much of Taiwan's notebook production is now expected to shift to China during the next few years.[108]

Available data suggest that labor productivity in computer equipment manufacturing is higher in the United States than Taiwan. Annual dollar output per employee is approximately $503,256 in the United States and $230,000 in Taiwan. However, the computer industries in both the United States and Taiwan benefit from efficient production methods, highly skilled research and development teams, an abundance of engineers, and a history of innovation.

The growth in outsourcing arrangements between U.S. and Taiwan computer companies has been the primary factor leading to the rise in the U.S. trade deficit with Taiwan. From 1995 through 2000, the U.S. bilateral trade deficit rose 130 percent to $9.6 billion, before decreasing by 18 percent to $7.9 billion in 2001 due to a significant decline in U.S. demand.[109] In 2001, Taiwan was the United States' fourth largest source of computer hardware imports, while the United States was Taiwan's largest export market for such items. U.S. computer imports from Taiwan increased 130 percent to $10.5 billion for the six-year period ending in 2000 before falling 17 percent to $8.7 billion in 2001.[110] During 1995-2001, U.S. imports from Taiwan shifted in terms of product mix as the share accounted for by peripherals and parts declined from 87 percent to 62 percent while the share accounted for by completed computers rose from 13 percent to 38 percent. Notebooks accounted for more than 90 percent of the computers imported from Taiwan in 2001,[111] but this number will likely fall as notebook production shifts to the mainland.[112]

U.S. exports of computer equipment to Taiwan have been relatively modest, reflecting the small size of Taiwan's market. In 2001, the United States was the fifth largest supplier of computer hardware to Taiwan, and Taiwan was the 14th largest market for

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[107] Reed Electronics Research, *The Yearbook of Electronics Data, 1998 and 2000*, (Reed Business Information: UK, 1998, 2000).

[108] As reported by Taiwan's Market Intelligence Center. Willie Teng, "MIC Releases Forecast for Taiwan PC Hardware Production in China," *DigiTimes dot-com*, Dec. 18, 2001, found at Internet address *http://www.digitimes.com*, retrieved Feb. 25, 2002; and USITC interview with the Taiwan Electrical and Electronic Manufacturer's Association, Taipei, Taiwan, May 22, 2002.

[109] USITC estimate based on official statistics of the U.S. Department of Commerce.

[110] Ibid.

[111] Ibid.

[112] Willie Teng. "Encouraged by Clients, Taiwan Firms Could Move 50% of Notebook Production to China," *DigiTimes dot-com,* Mar. 28, 2002, found at Internet address *http://www.digitimes.com*, retrieved Mar. 28, 2002.

U.S. computer exports.[113] U.S. computer hardware exports to Taiwan increased by 185 percent to $947 million for the 1995-2000 period, before falling 18 percent to $773 million in 2001.[114] U.S. exports to Taiwan shifted in terms of product mix that period, as the share accounted for by peripherals and parts declined from 90 percent to 77 percent while the share accounted for by completed computers rose from 10 percent to 23 percent.

Five of the six largest U.S.-headquartered computer companies have sales offices and/or customer service support facilities in Taiwan, and most of the large Taiwan computer hardware manufacturers have similar operations in the United States. In 1999, U.S. affiliates in Taiwan posted sales of $3.8 billion in computers and other electronic equipment.[115] In the same year, Taiwan's foreign affiliate sales of such products in the United States totaled $1.8 billion.[116]

Banking and Securities[117]

Trade in financial services accounts for 4.6 percent of total cross-border services trade between the United States and Taiwan.[118] The United States has the world's largest banking and securities markets. At the end of 2001, there were 8,080 commercial banks operating in the United States, reporting total assets of $6.6 trillion and total deposits of $4.4 trillion (table 5-11).[119] Foreign banks owned or controlled 423 bank agencies, branches, or subsidiaries in the United States, with total assets of $1.4 trillion. By comparison, there were 415 banks in Taiwan at year-end 2001, with total assets of $588.4 billion and total deposits of $464.6 billion. A total of 38 foreign-owned banks accounted for $46.4 billion of total assets.[120] Ten U.S. banks operate a total of 29 offices in Taiwan, accounting for 2.6 percent of Taiwan's total bank assets. However, U.S. banks account for 95 percent of credit cards in circulation and 12 percent of most foreign exchange business.[121]

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[113] USITC estimate based on official statistics of the U.S. Department of Commerce.

[114] Ibid.

[115] Computers and electronic products is a broader category that includes computer equipment as well as other electronic equipment. Source: Final results from 1999 benchmark survey, "U.S. Direct Investment Abroad," Bureau of Economic Analysis, U.S. Department of Commerce, 2001, tables III.F.4, III.F.7 and III.F.8.

[116] Reflects sales of computers and electronic products, which is a broad category that includes computer equipment as well as other electronic equipment. Source: Preliminary 1999 estimates, "Foreign Direct Investment in the United States," Bureau of Economic Analysis, U.S. Department of Commerce, 2001, table E-4.

[117] This sector includes those services included in numbers 6021 through 6289 of the SIC Classification System.

[118] USDOC, BEA, *Survey of Current Business,* November 2001, pp. 66-67, and 82-83.

[119] Federal Deposit Insurance Corporation, FDIC Statistics on Banking, found at Internet address *http://www.fdic.gov/bank/statistical/statistics/,* retrieved Mar. 12, 2002.

[120] Central Bank of China, "Financial Statistics Monthly," table 2 and table 9, found at Internet address *http://www.cbc.gov.tw/eng/,* retrieved Feb. 22, 2002.

[121] American Institute in Taiwan, email message to USITC staff, June 27, 2002.

U.S. securities markets rank first globally in terms of market value. At year-end 2000, total market capitalization was $12.4 trillion for the New York Stock Exchange, $3.6 trillion for the NASDAQ, and $124.9 billion for the American Stock Exchange (table 5-12).[122] There are 18 futures exchanges registered with the U.S. Commodity Futures Trading Commission, which trades futures contracts in agricultural commodities, metals, U.S. Treasury bonds, and other financial products. The oldest, the Chicago Board of Trade, was incorporated in 1848 and began trading futures contracts in 1865.[123] In addition, a daily average of 3,900 domestic securities and

Table 5-11
Banking and securities: Selected industry data, 2001

Item	United States	Taiwan
Gross product[1] *(billion dollars)*	1,936	70
Employment[2] *(number of employees)*	7,163,000	452,000
Labor productivity[1] *(value added per employee)*	$151,200	$103,200
Wages[2] *(average per employee)*	$69,600	$22,100
Number of banks	8,080	415
Total bank assets *(billion dollars)*	6,569.2	588.4
Total bank deposits *(billion dollars)*	4,391.6	464.6
Number of foreign banks	423	38
Total foreign bank assets *(billion dollars)*	1,388.9	46.4
Exports to all trading partners *(million dollars)*[3]	17,000	514
Imports from all trading partners *(million dollars)*[3]	4,500	708
Outbound foreign direct investment[4] *(billion dollars)*	241,900	7
Inbound foreign direct investment position[4] *(billion dollars)*	246,100	12,700

[1] Data for Taiwan reflect finance, insurance, real estate, and business services. Data for the United States reflect finance, insurance, and real estate. Data for both are for 2000.

[2] Data are for 2000.

[3] Data for the United States are for 2000. Data for Taiwan are for 2001.

[4] For the United States, includes depository institutions, financial services and insurance. Excludes holding companies and business franchising. U.S. data are for 2000. For Taiwan, includes banking and insurance. Taiwan data are for 2001.

Source: National Statistics of Taiwan; U.S. Department of Commerce, Bureau of Economic Analysis; calculations by the Commission; Federal Deposit Insurance Corp. (FDIC), FDIC Statistics on Banking; U.S. Federal Reserve Board; and Central Bank of China (Taiwan).

Table 5-12
Securities: Market data, 2000

	United States			Taiwan
	New York Stock Exchange	Nasdaq	American Stock Exchange	Taiwan Stock Exchange Corp.
Number of listed companies	2,862	5,222	765	532
Total market capitalization *(billion dollars)*	12,372.3	3,597.1	124.9	262.3
Number of foreign companies listed	434	488	51	1

Source: The Salomon Smith Barney Guide to World Equity Markets 2001.

[122] Salomon Smith Barney, *Guide to World Equity Markets 2001*, p. 537.

[123] Three of the designated futures exchanges are currently not operating. Two more have approvals pending before the Commodity Futures Trading Commission. Commodity Futures Trading Commission, found at Internet address *http://www.cftc.gov/dea/,* retrieved May 9, 2002.

126 foreign securities were traded over the counter in the United States during 2000.[124] Foreigners held $1.7 trillion in U.S. stocks at the end of 2000, and a total of $4.4 trillion in all types of U.S. securities.[125] About 7,900 securities firms were registered with the U.S. Securities and Exchange Commission in 2001, with assets of $3 trillion and total capital of $208 billion.[126]

The Taiwan Stock Exchange Corporation (TSEC), Taiwan's only stock exchange, registered a total market capitalization of $262.3 billion at year-end 2000, ranking Taiwan 16th among the world's securities markets. The exchange listed 532 companies, including one foreign firm. Participation by foreign investors in the TSEC reportedly is growing quickly. A small, over-the-counter market also operates in Taiwan, and serves as the primary bond trading arena. The Taiwan Futures Exchange was incorporated in September 1997, but the market is too small to attract significant interest from U.S. investors.[127]

The gross domestic product in the U.S. finance, insurance, and real estate (FIRE) sector totaled $1.9 trillion in 2000, reflecting average annual growth of 7.5 percent for the 1995-2000 period. Comparable data on gross domestic product for Taiwan is available only for a highly aggregated sector which includes finance, insurance, and real estate services (FIRE) and business services. Such data indicate that U.S. GDP in the FIRE plus business services sector increased at an average annual rate of 8.7 percent from 1995 through 2000 to $2.5 trillion, while Taiwan's GDP in these industries totaled $70.4 billion in 2000, following an average annual increase of 4.4 percent during the period.

The U.S. FIRE sector employed 7.2 million full-time equivalent workers in 2000, compared to 452,000 workers in Taiwan. However, during the 1995-2000 period, employment in the sector increased much more quickly in Taiwan, at 3.5 percent per annum, than in the United States, at 1.8 percent per annum. In the United States, average annual compensation per employee in the FIRE sector was almost $70,000 in 2000, following growth of 7.1 percent per annum between 1995 and 2000. This high growth rate reflects strong stock market growth and merger and acquisition activity in the United States during the 1990s, both important contributors to compensation in the securities industry in particular. In Taiwan, average annual compensation per employee was $22,000, reflecting Taiwan's lower wage scales. As measured in U.S. dollars, wages in the Taiwan FIRE sector declined at an average annual rate of 1.0 percent during 1995-2000.

U.S. exports of banking and securities services to Taiwan increased by 52.1 percent in 2000, to $219 million, significantly faster than the 17.3-percent average annual

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[124] Over the Counter Bulletin Board, found at Internet address *http://otcbb.com/dynamic/tradingdata/,* retrieved May 9, 2002.

[125] *2001 Securities Industry Fact Book* (New York: Securities Industry Association, 2001), p. 80.

[126] Securities and Exchange Commission (SEC), SEC 2001 Annual Report, found at Internet address *http://www.sec.gov/about/annrepo.shtml,* retrieved Feb. 22, 2002.

[127] Salomon Smith Barney Guide, *World Equity Markets 2001*, pp. 481-483; and American Institute in Taiwan, email message to USITC staff, June 27, 2002.

growth registered during the 1995-99 period. Political uncertainty in Taiwan led to a sharp downturn in the Taiwan Stock Exchange during 2000. The resulting loss in market confidence made it difficult for Taiwan's large corporations to raise funds in the domestic markets, so many of them turned to U.S. financial markets for funding through global depository receipts and corporate bonds. Many portfolio investors in Taiwan also turned to U.S. financial markets, which were perceived to be safer than the Taiwan market. U.S. investment bankers and stock brokers consequently increased their exports of financial services to corporations and portfolio investors in Taiwan.[128] Citigroup's acquisition of 15 percent of the Fubon Group, one of Taiwan's largest financial services conglomerates, also may have contributed to the increase.[129] Foreign asset management companies have gained control of more than 50 percent of the mutual fund management market in Taiwan through a series of acquisitions. U.S. imports of financial services from Taiwan increased by 55.0 percent in 2000 to $31 million, faster than the average annual growth rate of 35.1 percent during the 1995-99 period. When U.S. affiliates of Taiwan firms expand into the U.S. market, they often maintain existing relationships with financial service providers in Taiwan, accounting for the majority of U.S. financial services imports from that market.

In 2000, U.S. direct investment in Taiwan's financial sector– including the finance, insurance, real estate, and depository institutions industries–totaled $2.7 billion. U.S. investment in the Taiwan financial service sector increased at an average annual rate of 28.2 percent between 1995 and 2000. Taiwan investment in the U.S. financial services industry totaled $943 million in 2000,[130] following average annual growth of 16.5 percent during the period. Such investment is concentrated in depository institutions, and includes 12 U.S. affiliates of Taiwan-owned banks, with total assets of $15.9 billion.[131] Taiwan ranks among the leading investors in the U.S. financial services sector, after several European countries, Canada, Japan, and the offshore banking center of the U.K. Islands in the Caribbean.[132] Taiwan affiliates of U.S. finance and insurance corporations[133] recorded total sales of $5.3 billion in 1999, all to local customers in the Taiwan market.[134]

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[128] American Institute in Taiwan, email message to USITC staff, June 27, 2002.

[129] Citibank acquired a 15 percent equity stake in the Fubon Group in September 2000. See "Message to Shareholders," Fubon Bank, found at Internet address *http://www.fubonbank.com.tw/english/u_a01.htm,* retrieved Mar. 14, 2002; and "Citigroup and Taiwan's Fubon Group Announce Strategic Partnership," *Business Wire,* May 8, 2000, found at Internet address *http://www.kpmginsiders.com/,* retrieved May 9, 2000.

[130] Does not include data for insurance, which was not available from BEA. In 1999, Taiwan's foreign direct investment position in the U.S. insurance industry was $8 million.

[131] Excludes representative offices of foreign banks, which do not hold assets. U.S. Federal Reserve Board, found at Internet address *http://www.federalreserve.gov/,* retrieved June 4, 2002.

[132] USDOC, BEA, *Survey of Current Business,* Sept. 2001, p. 53.

[133] Does not include depository institutions or real estate.

[134] Data for sales by U.S. financial services affiliates of corporations based in Taiwan was not available for 1999.

Educational Services[135]

In 2000, 10.2 percent of total U.S. exports of services to Taiwan consisted of education services exports. In comparison, education services accounted for 3.7 percent of total U.S. services exports to all trading partners in that year. However, education services accounted for a negligible share (0.03 percent) of U.S. imports of services from Taiwan in 2000.

The GDP in the U.S. education service industry totaled $78.6 billion in 2000 (table 5-13), accounting for 0.8 percent of total U.S. GDP.[136] In the same year, full-time equivalent employment in the U.S. education service industry stood at 2.2 million and average annual wages per full-time equivalent employee totaled $29,356.[137] During the 1999-2000 academic year, U.S. post-secondary educational institutions numbered 9,249, of which 4,084 were higher education institutions, chiefly universities and colleges.[138] Enrollment in U.S. higher education institutions totaled 14.8 million students during the 1999-2000 academic year.

Table 5-13
Education services: Selected industry data, 2000

Item	United States	Taiwan
Gross product *(million dollars)*	78,600	14,232
Employment *(number of FTE employees)*	2,152,000	306,000
Wages *(dollars per FTE employee)*	29,356	(1)
Number of institutions [2]	9,249	1,620
Labor productivity *(value added per FTE employee)*	$36,558	(1)
Exports to all trading partners *(million dollars)*	10,287	(1)
Imports from all trading partners *(million dollars)*	2,140	(1)
Number of students *(millions enrolled)*[3]	14.8	1.1

[1] Not available.
[2] Data include all post-secondary institutions.
[3] Data include enrollment in higher education institutions.

Note.–FTE=Full-time equivalent.

Source: U.S. data–U.S. Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business*, February 2002, p. 13; Jan. 2002, p. D-36; Nov. 2001, pp. 82-83; U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 2001*, table 5, p. 14, found at Internet address *http://nces.ed.gov/pubs2002/digest2001/tables/dt005.asp*, retrieved June 12, 2002; American Council on Education, *An International Visitors' Guide to U.S. Higher Education*, *1999*, p. 8. Taiwan data–Customs Territory of Taiwan, Ministry of Education, education statistics, found at Internet address *http://www.edu.tw/bicer/english*, retrieved Mar. 17, 2002; official of the Ministry of Education, e-mail to USITC staff, May 1, 2002; and Council for Economic Planning and Development, *Taiwan Statistical Data Book, 2001*, p. 275.

[135] In general, this sector corresponds to SIC codes 8211, 8221, 8222, 8231, 8243, 8244, 8249, and 8299. U.S. cross-border exports reflect the estimated tuition and living expenses of foreign residents enrolled in U.S. colleges and universities, while U.S. cross-border imports of education services represent the estimated tuition and living expenses of U.S. students who study abroad. The latter include only those U.S. residents studying abroad who receive academic credit from accredited U.S. institutions for such study abroad.

[136] U.S. Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business*, Feb. 2002, p. 13.

[137] USDOC, BEA, *Survey of Current Business*, Jan. 2002, p. D-36.

[138] U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 2001*, table 5, p. 14, found at Internet address *http://nces.ed.gov/pubs2002/digest2001/tables/dt005.asp*, retrieved June 12, 2002.

GDP in Taiwan's education and training service industry totaled $14.2 billion in 1999,[139] accounting for 5.0 percent of Taiwan's total GDP.[140] During the 1999-2000 academic year, full-time equivalent employment in Taiwan's education service industry totaled 305,681.[141] Data on annual wages per full-time equivalent employee for Taiwan are not collected, according to Taiwan authorities. During the 1999-2000 academic year, Taiwan post-secondary institutions–including colleges and universities, affiliated graduate program institutes, and junior colleges--numbered approximately 1,620,[142] of which 141 were higher education institutions.[143] Enrollment in higher education in Taiwan totaled 1.1 million students during the 1999-2000 academic year.[144] Each year, approximately 360,000 Taiwan students apply for only 260,000 available student slots in Taiwan's colleges and universities, prompting many to seek education overseas.[145] Many of Taiwan's post-secondary educational institutions, especially those at the vocational level, although numerous, are deemed by many to be inefficient or offer instruction in subjects other than those in prime demand in Taiwan.[146] Moreover, schools at all levels in Taiwan are widely perceived as needing to improve English-language instruction in order for Taiwan's workforce to become more competitive with workers elsewhere, such as in Singapore and Hong Kong, where workers are considered more proficient in the English language.[147]

Labor productivity in the U.S. education services industry, as measured by the GDP per full-time equivalent (FTE) employee, totaled $36,558 in 2000.[148] Growth in U.S. labor productivity in this industry increased at an average annual rate of 3.4 percent during 1995-2000, as the average annual growth rate of GDP (7.1 percent) exceeded that of FTE employment (3.7 percent). A contributing factor to U.S. labor productivity growth in this industry is believed to be that the ratio of students to nonprofessional staff

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[139] Official of the Customs Territory of Taiwan, Ministry of Education, e-mail to USITC staff, May 1, 2002. The information provided is the latest available.

[140] Ibid. and Council for Economic Planning and Development, *Taiwan Statistical Data Book 2001*, p. 43.

[141] Official of the Customs Territory of Taiwan, Ministry of Education, e-mail to USITC staff, May 1, 2002.

[142] Customs Territory of Taiwan, Ministry of Education, education statistics, found at Internet address *http://www.edu.tw/bicer/english*, retrieved Mar. 17, 2002.

[143] The total includes junior colleges, colleges, and universities, but does not include supplementary schools, schools for the handicapped, or institutions exclusively offering short-term training classes. Council for Economic Planning and Development, *Taiwan Statistical Data Book, 2001*, table 14-2, p. 276.

[144] Customs Territory of Taiwan, Ministry of Education, education statistics, found at Internet address *http://www.edu.tw/bicer/english*, retrieved Mar. 17, 2002, and official of the Customs Territory of Taiwan, Ministry of Education, e-mail to USITC staff, May 1, 2002.

[145] Official of the Council for Economic Planning and Development, interview by USITC staff, Taiwan, May 21, 2002.

[146] Andrew Huang, "Taiwan's (Worried) Class of 2002," *Topics Online Magazine*, American Chamber of Commerce in Taipei, Nov. 7, 2001, found at Internet address *http://amcham.com.tw*, retrieved Apr. 10, 2002.

[147] Official of the CEPD, interview by USITC staff, Taiwan, May 21, 2002.

[148] USDOC, BEA, *Survey of Current Business*, Feb. 2002, p. 13; Jan. 2002, p. D-36; June 2001, p. D-35; June 2000, pp. 41, D-35; and Apr. 2000, p. 83.

has decreased in recent years,[149] while the higher growth in part-time professional staff relative to full-time professionals accompanies the faster growth in associate degrees relative to baccalaureate degrees.[150] Moreover, international comparisons of public expenditures per student in 1998 show that the United States spent the most of any country on post-secondary education and also ranked among the leaders in expenditures on primary and secondary education.[151]

The United States has maintained a substantial surplus in education services trade with Taiwan for more than a decade. In 2000, U.S. exports of education services to Taiwan totaled $480 million, while U.S. imports of such services from Taiwan measured $1 million.[152] From 1995 through 2000, U.S. exports of education services to Taiwan decreased at an average annual rate of 0.4 percent.[153] Taiwan was the third largest U.S. export market for education services in 1995, accounting for 6.5 percent of U.S. education services exports, but fell to sixth by 2000, accounting for 4.7 percent of such exports.

In the 1999-2000 academic year, 54,668 Taiwan students studied abroad,[154] of which 53.5 percent, or 29,234 students, studied in the United States.[155] The number of Taiwan students studying abroad decreased at an average annual rate of 3.1 percent between the 1995-96 academic year and the 1999-2000 academic year.[156] Similarly, the number of Taiwan students studying in the United States experienced a 2.8-percent average annual rate of decrease between these same academic years. The number of Taiwan students (28,566) studying in the United States in the 2000-01 academic year was the lowest recorded since the 1980s.[157]

Of the 143,590 U.S. students who studied abroad and earned credit for study abroad from an accredited degree program at a U.S. college or university during the 1999-2000 academic year, only 169 students studied in Taiwan.[158] The Taiwan Ministry of Education reported that a total of 737 U.S. students studied in Taiwan that

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[149] U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 2001*, ch. 3, table 224, found at Internet address *http://nces.ed.gov/pubs2002/digest2001/*, retrieved June 12, 2002.

[150] U.S. Department of Education, National Center for Education Statistics, *The Condition of Education 2002*, p. 100, found at Internet address *http://nces.ed.gov/*, retrieved June 12, 2002.

[151] U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics, 2001*, ch. 6, table 414, found at Internet address *http://nces.ed.gov/pubs2002/digest2001/*, retrieved June 12, 2002.

[152] USDOC, BEA, *Survey of Current Business*, Nov. 2001, pp. 82-83.

[153] During 1995-2000, U.S. education services exports to Taiwan fluctuated on a year-to-year basis, decreasing in 1996, 1997, and 2000, and increasing in 1998 and 1999.

[154] Customs Territory of Taiwan, Ministry of Education, education statistics.

[155] Institute of International Education, *Open Doors 2000* (New York, NY: IIE, 2000), pp. 30, 34. By level of education, 50.9 percent of the Taiwan students in the United States were graduate students, which represented a higher percentage than the 43.8-percent graduate student representation among all foreign students studying in the United States in that year.

[156] Customs Territory of Taiwan, Ministry of Education, education statistics.

[157] Institute of International Education, *Open Doors 2001* (New York, NY: IIE, 2001), p. 30.

[158] Institute of International Education, *Open Doors 2000* (New York, NY: IIE 2000), p. 59.

academic year, representing 11.1 percent of the 6,616 non-Taiwan students studying in Taiwan.[159]

Data on U.S. investment and sales through affiliates in the Taiwan education services industry and Taiwan investment and sales through affiliates in the U.S. education services industry are not available but are believed to be negligible. As of 2000, no foreign entity had established a higher education facility in Taiwan. Little economic incentive exists for such facilities because Taiwan requires all schools to operate as nonprofit entities.[160] Participation by non-Taiwan providers in the Taiwan education services market has taken other forms. A U.S. entity reportedly is examining whether to participate in university education services in the Taiwan market, another U.S. entity partnered with a Taiwan entity to establish an English-language training school in Taiwan, and a third U.S. firm provides education certification and testing services in Taiwan.[161] There is no information as to whether Taiwan entities participate in the U.S. education services market.

[159] Customs Territory of Taiwan, Ministry of Education, education statistics. It is believed that methodological differences in the collection of data by U.S. and Taiwan sources account for the latter recording higher numbers of U.S. students studying in Taiwan than those reported by U.S. industry sources.

[160] U.S. Department of State telegram, "Taiwan's Market for Educational Services," message reference No. 02980, prepared by American Institute in Taiwan, Taipei, Sept. 18, 2000.

[161] Kenneth B. Hutman, President, KBH Global Enterprises, Ltd., hearing testimony before the Commission, May 13, 2002, pp. 101-102.

CHAPTER 6
Trade Barriers

Taiwan became a member of the WTO on Jan. 1, 2002. As part of its accession effort, and in response to complaints from its major trading partners (including the United States), Taiwan has reduced or eliminated many of its trade barriers and lowered barriers to foreign investment. The United States has been a member of the WTO since its inception in 1995, reduced many of its barriers in implementing the WTO agreements, and continues to reduce its own barriers to trade.[1] However, various barriers to trade between Taiwan and the United States were identified either in the course of Commission fieldwork, submissions made during the investigation, or in the Commission's literature search.[2] Most of these measures are general provisions that affect imports from all sources. Some more clearly appear to discriminate against imports, while others appear to be the result of domestic policies and regulations that apply to both domestic and imported goods and services. However, exporters contend that these measures create additional restrictions that adversely affect their product sales. They contend that certain measures originally adopted for health, safety, or environmental reasons, when applied to imports may have additional effects that increase the cost of imports or effectively limit market access. In addition, laws and regulations are subject to interpretation by those who administer them, and exporters contend that treatment for domestic and foreign producers is not always equitable. This chapter describes the principal barriers to trade between the United States and Taiwan. They include discriminatory measures, such as tariffs and quotas, and less well defined measures, such as standards.

Taiwan Barriers

Import Policies

This section covers import policies, which are restrictions that are applied to goods and services as they enter a country. These include financial policies, in the form of tariffs

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[1] United States Trade Representative, *2002 Trade Policy Agenda and 2001 Annual Report of the President of the United States on the Trade Agreements Program*, Mar. 2002, Sec. II, p. 12, found at Internet address *http://www.ustr.gov/reports/2002/Chapter%20II,%20WTO.pdf*, retrieved Jul. 15, 2002; and USTR, "The World Trade Organization Works For You," found at Internet address *http://www.ustr.gov/html/wto4you.html*, retrieved Jul. 15, 2002.

[2] Most measures reported in this chapter were identified by authorities or business representatives in either the United States or Taiwan as specifically applicable to U.S.-Taiwan trade. However, some of the measures described were identified through a literature search as raised by third-party sources, such as the European Commission. Though not specifically identified as impacting U.S.-Taiwan trade, they are included in the chapter because they are general provisions that may affect imports from multiple foreign sources, including Taiwan.

and other taxes incidental to the entry of goods, as well as quotas, customs procedures, and product classification issues.

Tariff Barriers

While individual tariff rates on some goods remain prohibitively high, Taiwan has reduced its average nominal tariff rate. The rate now stands at 7.1 percent (down from the preaccession rate of 8.2 percent), but will be lowered to 4.2 percent by 2007.[3] Most of the remaining high tariffs apply to agricultural products (table 6-1), due to vigorous opposition to tariff reduction from Taiwan farmers and food sector firms.[4] The average nominal tariff rate for agricultural products is 15.2 percent (down from the 20.0-percent preaccession rate), but is scheduled to be reduced to 12.9 percent by 2006.[5] Among key nonagricultural product sectors, those tariffs applied to motor vehicles and auto parts remain particularly high[6] (table 6-2).

TRQs

Taiwan maintains TRQs on several agricultural products (table 6-3) and passenger vehicles.[7] Upon its accession to the WTO, Taiwan had in place 21 TRQs for agricultural products, and three TRQs for industrial products, including fish products. Most of the agricultural TRQs scheduled by Taiwan apply to very specific, high-valued products (e.g., mangoes, dried shiitake mushrooms, deer velvet, and betel nuts), which are not items of export interest to the United States. However, Taiwan's TRQs for products such as chicken, pork offal, poultry offal, mackerel, carangid, and sardines likely will limit U.S. agricultural exports. Under Taiwan's WTO commitments, its TRQ on chicken will increase from the current level of 19,163 metric tons to 45,990 metric tons by 2004.

In 2002, Taiwan's TRQ on U.S. passenger car and light truck imports is 159,220 vehicles, which are assessed an in-quota tariff of 29.0 percent. By 2010, the quota will be raised to 684,617 vehicles, and the in-quota tariff will fall to 17.5 percent. Taiwan will eliminate the quota in 2011, and all U.S. passenger vehicles will be subject to 17.5 percent rate.

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[3] See U.S. Department of State, Bureau of Economic and Business Affairs, *2001 Country Reports on Economic Policy and Trade Practices: Taiwan*, February 2002, section 3, found at Internet address *http://www.state.gov/documents/organization/8172.pdf*, retrieved Mar. 27, 2002.

[4] U.S. Department of State, Bureau of Economic and Business Affairs, *2001 Country Reports on Economic Policy and Trade Practices: Taiwan*, February 2002, section 3.

[5] *Taipei Times Online*, "Liu Da-nien Talks on the WTO Challenge," found at Internet address *http://www.taipeitimes.com/news/2001/10/15/story/0000107273*, retrieved Apr. 2, 2002.

[6] American Chamber of Commerce in Taiwan, interview by USITC staff, Taiwan, Taipei, May 22, 2002.

[7] USTR, *2002 National Trade Estimate Report on Foreign Trade Barriers*, p. 396.

Table 6-1
Taiwan: Tariffs on selected agricultural products, 2002

Product description	Tariff
	Percent[1]
Rice	([2])
Wheat:	
Durum	6.5
Other	6.5
Red meat:	
Beef and veal	[3]NT$20-24/kg
Pork	15-60
Beef offal	20-35
Pork offal	25-35
Poultry:	
Whole	[4]NT$40/kg
Cuts	[5]NT$34-54/kg
Fish and shellfish:	
Fresh and frozen	0-70
Canned	0-70
Shellfish	0-50
Cured and other	0-70
Fresh deciduous fruit:	
Grapes	20
Apples	20
Pears (European pears)	10
Apricots	22.5
Cherries	7.5
Peaches and nectarines	20
Plums	20
Citrus fruits:	
Fruit, fresh or dried	15-42.5
Fruit, prepared or preserved	26
Juice	5-35
Peels	15
Jams, jellies, pureés, etc.	20
Selected processed foods:	
Milled products, malt, starches, wheat gluten	7.5-25
Preparations of cereals, flour, starch or milk; bakers' ware	5-30
Residues and wastes from food industries and animal feed	0-14
Other edible preparations	0-20

[1] Unless otherwise noted.
[2] Not applicable, as only imports within the scheduled import quota are allowed. See table 6-3.
[3] AVE = 15 percent.
[4] AVE = 121 percent.
[5] AVE = 158 percent.

Note.—Actual tariff is as quoted in the tariff schedule and excludes in-quota and out-of-quota tariffs. AVE is the ad valorem equivalent, which is the specific tariff divided by the U.S. export value for 2001.

Source: World Trade Organization, Ministerial Conference, Doha, Nov. 9-13, 2001, Annex I, Schedule CII for The Separate Customs Territory of Taiwan, Penghu, Kinmen, and Matsu, Part I, Section I-A.

Table 6-2
Taiwan: Tariffs on selected non-agricultural products, 2002

Product description	Tariff range
	Percent[1]
Apparel:	
Rubber and plastic gloves and apparel	5
All other apparel products	[1]11.6-19
Auto parts:	
Motor vehicle engines	[2]7-24
Certain motor vehicle engine parts	[3]5-27
Lead-acid batteries	6.3
Electrical equipment for motor vehicles	[4]5-25
Certain motor vehicle parts	[5]5-60
Computers, peripherals, and parts	0
Industrial fasteners of:	
Steel	5.0
Copper	5.0
Aluminum	5.0
Industrial organic chemicals	[6]0-14
Measuring instruments:	
Hydrometers, thermometers, pyrometers, and similar instruments	4-18
Instruments for physical or chemical analysis; instruments for checking viscosity, porosity, etc.,	0-18
Surveying instruments	0-5
Machines and appliances for testing hardness and strength	0
Instruments for checking the flow of gases or liquids	0
Instruments and apparatus for physical or chemical analysis	0
Gas meters, liquid meters, electricity meters, and parts	2-4
Revolution counters, production counters, taximeters, and the like	[7]2.4-19
Oscilloscopes, spectrum analyzers for measuring electrical quantities	4
Measuring instruments not elsewhere classified	2-2.5
Miscellaneous plastic products	[8]0-11.8
Motor vehicles:	
Buses	[9]39.6
Passenger vehicles	[10]60
Trucks[11]	[12]30-60
Semiconductors	0
Textiles	[13]1.9-18.5

[1] By 2004, selected tariff rates will be staged down, so that tariffs will range from 8 percent to 12.5 percent.
[2] Rates will be staged through 2004 and 2006 and final bound rates will range from 5 percent to 20 percent.
[3] Rates will be staged through 2004 and 2006 and final bound rates will range from 5 percent to 17.5 percent.
[4] Rates will be staged through 2004 and 2006 and final bound rates will range from 5 percent to 15 percent.
[5] Rates will be staged through 2004, 2006, 2008, and 2011 and final bound rates will range from 2.5 percent to 25 percent.
[6] In 2004, high rates fall to 6.5 percent.
[7] Rates will be staged through 2004 and final bound rates will range from 2 percent to 10 percent.
[8] In 2004, high rates fall to 6.5 percent.
[9] The rate for 8702.10 will be staged down to 35 percent in 2004 and 25 percent in 2008; the rate for 8702.90 will be staged in equal increments to 25 percent in 2008; the rate for 8706.00.20 will be staged to 35 percent in 2004, 30 percent in 2006, and 25 percent in 2008.
[10] Except for ambulances (8703.90.20), which have an applied tariff of 4 percent (bound at a final rate of 0 starting in 2004), and passenger vehicle bodies (8707.10.00), which have an applied tariff of 19 percent (bound at 15 percent in 2004). The implementation of concessions for passenger vehicles subject to tariff-rate quotas is as follows: 2002 to 2006 the out-of-quota rate is 60 percent, 2007 to 2010 the out-of-quota rate is 30 percent, and beginning in 2011 the TRQ system is replaced by a 17.5 percent duty.
[11] Includes pickup trucks.
[12] Except for cab assemblies of heavy vehicles (87079010), which have an applied tariff of 5 percent (bound at accession), and electric transport vehicles for sports apparatus (87049030), which have an applied tariff of 9.5 percent (bound at

Footnotes continued on next page.

Table 6-2-Continued
Taiwan: Tariffs on selected non-agricultural products, 2002

[12]—Continued

7.5 percent in 2004). The implementation of concessions for trucks subject to tariff-rate quotas is as follows: 2002 to 2006 the out-of-quota rate is 60 percent, 2007 to 2010 the out-of-quota rate is 30 percent, and beginning in 2011 the TRQ system is replaced by a 17.5 percent duty. Duties for trucks not subject to tariff-rate quotas will be reduced to 25 percent in 2004 or 2008 depending on the type of truck.

[13] Rates will be staged through 2004 and 2006 and final bound rates will range from 1.9 percent to 10 percent.

Source: Taiwan Customs & Trade Institute, *Tariff Schedules of Taiwan*, 2002; World Trade Organization, Ministerial Conference, Doha, Nov. 9-13, 2001, Annex I, *Schedule CLIII, Separate Customs Territory of Taiwan, Penghu, Kinmen and Matsu;* and the Asia-Pacific Cooperation Forum Web site.

Table 6-3
Taiwan: Tariff-rate quotas and absolute import quota on agricultural products scheduled with the WTO, 2002

	Quota	In-quota tariff	Over-quota tariff
	Metric Tons	*1,000 dollars*	
Tariff-rate quota category:			
Pork bellies	6,160	15	60
Chicken meat	19,163	25	NT$ 40/kg
Pork offals	10,000	25	310
Poultry offals	1,836.3	25	400
Deer Velvet	1.5	22.5	800
Liquid Milk	10,649	15	NT$ 18.40/kg
Peanuts	2,618	25	NT$ 49/kg
Red Bean	1,500	22.5	NT$ 27/kg
Garlic Bulbs	1,844		
For planting		Free	NT$ 32/kg
Fresh or chilled		22.5	NT$ 32/kg
Dried		22.5	NT$ 32/kg
Dried Shiitake Mushrooms	115	greater of 25% or NT$110/kg	NT$ 430/kg
Dried Day Lily	40	22.5	NT$ 68/kg
Young Coconut	8,000	greater of 15% or NT$0.9/kg	161
Betel Nuts	4,412	17.5	NT$ 950/kg
Bananas	5,335	12.5	134
Pineapples	9,548	15	204
Mangoes	5,120	25	71
Shaddocks	1,720	25	216
Fresh Pears (excluding European pears)	4,900	18	NT$ 58/kg
Persimmons	576	25	144
Dried logans and logan pulp	110	15	NT$ 103/kg
Sugar	120,000		
Raw sugar		12.5	168
Refined sugar		17.5	168
Mackerel	4,522.5	greater of 20% or NT$6.2/kg	101
Carangid	1,308	25	106
Sardine	1,906.5	greater of 20% or NT$38.1/kg	70
Absolute import quota category:			
Rice	144,720		
Rice		Free	[2]
Rice flour		25-30	[2]
Rice groats, meal, and pellets		0-25	[2]
Rolled or flaked		20	[2]
Other worked rice		20	[2]
Rice starch		15	[2]
Prepared food by the swelling of rice		20	[2]
Other rice products		25-30	[2]

[1] Unless otherwise noted.

[2] Not applicable.

Source: World Trade Organization, Ministerial Conference, Doha, Nov. 9-13, 2001, Annex I, Schedule CII for The Separate Customs Territory of Taiwan, Penghu, Kinmen, and Matsu, Part I, Section I-A and Section I-B.

Because Taiwan's TRQ system was implemented in January 2002, it is too early to assess how the administration of TRQs will affect key U.S. export products. Taiwan requires TRQ allocation certificates for products subject to TRQs.[8] TRQ certificates are freely transferable and tradeable, which likely will facilitate efficiency in filling the TRQ. Taiwan has designed three systems of TRQ allocation, two of which apply to U.S. exports.[9] U.S. exports subject to System 1 include chicken meat,[10] pork offal, poultry offal, and pork bellies. Taiwan allocates System 1 TRQs annually on a first-come, first-served (FCFS) basis. Mackerel, carangid, and sardines are subject to System 3, under which TRQ quantities are allocated in several segments each year.[11]

Quotas

Upon its accession to the WTO on Jan. 1, 2002, Taiwan formally lifted its ban on rice imports and instituted an absolute import quota. Under an absolute import quota, imports are prohibited beyond the quota level. Taiwan's import quota for 2002 stands at 144,720 metric tons on a rough rice basis (equivalent to 127,350 metric tons on a milled rice basis or 9 percent of 2001 consumption).[12] The in-quota tariff for rice is free, but imports of rice and rice products are subject to other fees, charges, and markups. Taiwan requires an import license for rice, applies mark-ups on in-quota tariffs, and applies special safeguard tariffs in addition to the in-quota tariffs.[13] These mark-ups cannot exceed US$0.71 per kilogram for rice and US$0.77 per kilogram for rice products.[14] Two-thirds of Taiwan rice imports are under state trading or government control, and the remaining one-third is imported by private sector entities. Rice is the only import category that is subject to an absolute import quota in Taiwan.[15]

Taxes

Taxes levied on imports can act as barriers to trade if they are not applied to domestic and foreign goods on an equally favorable basis, or if they are applied inconsistently

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[8] A TRQ recipient with a valid quota certificate will not be required to apply for a separate import license, and thus, TRQ certificates are automatic import licenses.

[9] See Communication WT/ACC/SPEC/TPKM/5/Rev.1 from Taiwan to the Working Party on the Accession of Taiwan, July 22, 1999.

[10] The Taiwan poultry TRQ reportedly is distributed via a lottery system. Any registered trader can apply for the poultry TRQ for 1,000 NTD (approximately $30). The lottery is held, and most applicants get the minimum 25 metric ton allotment. Those traders who have no intention to import poultry will then sell their quotas. Taiwan Council of Agriculture, interview by USITC staff, Taipei, Taiwan, May 23, 2002.

[11] See Responses to Questions Concerning WT/ACC/SPEC/TPKM/5 from Chinese Taipei to the Working Party on the Accession of Chinese Taipei, WT/ACC/SPEC/TPKM/7 Jan. 15, 1999.

[12] USDA, FAS, *Taiwan Grain and Feed: the Post-WTO Accession Rice Market*, Jan. 9, 2002, GAIN Report #TW2002.

[13] Chung Hua Institute for Economic Research, interview by USITC staff, Taipei, Taiwan, May 22, 2002.

[14] The tariff was converted from Taiwan currency (NT$) at the exchange rate in 2001 of NT$23.26 per US$1. USDA, FAS, *Taiwan Grain and Feed: the Post-WTO Accession Rice Market*, Jan. 9, 2002, GAIN Report #TW2002, p. 4,8. The average rice market price in Taiwan in 2000 was NT$33.61 per kilo; thus the mark up can amount to 69 percent. However, higher graded Taiwan rice sold from NT$60 to NT$100 per kilo; thus for the higher graded rice (comparable to top U.S. rice exports), the mark up can range from 23 to 39 percent. Ibid.

[15] Taiwan Council of Agriculture, interview by USITC staff, Taipei, Taiwan, May 23, 2002.

for different products. For example, prior to 2002, harbor construction dues[16] were assessed on an *ad valorem* basis, a method that favored low-value goods over high-value goods, regardless of their impact on harbor facilities. Furthermore, while the duty applied equally to imports and exports, it did not apply to inter-island trade.[17] Upon WTO accession, Taiwan authorities modified the application of this tax to 0.3 percent on the value of harbor services provided on goods not traveling by airfreight or parcel post, including inter-island trade.[18] This fee reportedly will be further reduced to 0.2 percent in the near future[19] and ultimately replaced by a charge assessed on cargo weight.[20] An additional charge of 0.0425 percent is also collected on the customs value of both exports and imports as a trade promotion service fee.

Taiwan imposes a commodity tax of 2 percent to 60 percent, which is levied at the time of importation, or upon a product's release from a domestic factory, on seven commodity categories.[21] In response to the claim that this tax discriminated against imports, as the taxable base of imports included transportation, customs, and other costs, the commodity tax was modified starting in 2002 to use selling price as the base.[22] An additional business tax is applied either as a general sales tax for select businesses or as a value-added tax (VAT). The VAT is applied to most industrial goods and is currently 5 percent.[23] Despite claims that the VAT is discriminatory towards imports, as the application of both the commodity tax and the VAT to the same product could result in double-taxation, Taiwan authorities indicate that the VAT is applied only to the actual value-added by the importer.[24]

Taiwan's taxes on motor vehicles, which are largely based on engine size, do not specifically discriminate against imports, but they do affect imports of motor vehicles that have comparatively large engines, such as U.S. motor vehicles. The commodity tax assessed on motor vehicles stands at 25 percent for vehicles with an engine displacement of 2,000 cc or less; and 35 percent for vehicles with engine displacement of 2,001 cc or more, to be lowered to 30 percent 5 years after WTO accession. U.S. automakers reportedly would prefer this commodity tax to be based on a vehicle's fuel economy, rather than on engine size.[25] The license plate tax ranges from $100 for

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[16] Harbor construction dues are intended to fund harbor expansion and maintenance.

[17] World Trade Organization, *Report of the Working Party on the Accession of the Separate Customs Territory of Taiwan, Penghu, Kinmen and Matsu*, WT/MIN(01)/4, Ministerial Conference Fourth Session, Doha, Nov. 9-13, 2001, pp. 17-18.

[18] U.S. Commercial Service (USCS), *Taiwan Country Commercial Guide FY2002*, p. 39, found at Internet address *http://www.usatrade.gov/Website/CCG.nsf/ShowCCG?OpenForm&Country=TAIWAN*, retrieved Mar. 14, 2002.

[19] Ibid., p. 41.

[20] WTO, *Report of the Working Party on the Accession of the Separate Customs Territory of Taiwan, Penghu, Kinmen and Matsu*, WT/MIN(01)/4, Nov. 11, 2001, p. 18.

[21] These products include rubber tires, cement, machine-made cool drinks, flat glass, oil and gas, certain electrical appliances, and motor vehicles. Ibid.

[22] Ibid., p. 19.

[23] Ibid.

[24] Ibid., pp. 19-20.

[25] American Chamber of Commerce in Taiwan, interview by USITC staff, Taipei, Taiwan, May 22, 2002.

vehicles with engine displacement of 500 cc or less to over $5,500 for passenger vehicles with displacement between 6,601 cc - 7,800 cc. The license plate tax on most U.S.-built passenger vehicles ranges from $400 to $2,500.[26]

Customs Procedures

Taiwan Customs authorities reportedly have not accepted the invoice price or transaction value on some products as the value for duty purposes in certain instances.[27] If Customs authorities consider an invoice's transaction value to be too low, they may value the item based on the actual transaction price of the same or similar products sold in Taiwan.[28] In addition, the method used to assess the dutiable value of certain imported products has been modified frequently and arbitrarily.[29] These practices have mitigated some recent tariff reductions because authorities can inflate a product's base value upon which the tariffs are applied. Taiwan representatives assert that their Customs Law is in conformity with the General Agreement on Tariffs and Trade (GATT) Customs Valuation Agreement. However, Taiwan has committed to the elimination of such practices as part of its accession agreement.[30]

Plants, animals, and agricultural products entering Taiwan are subject to inspection and quarantine and may require certificates of inspection from the country of origin.[31] In addition, certain industrial products must undergo testing for safety and energy efficiency before clearing Customs, and certain pharmaceuticals, medical devices, and cosmetics must be registered and approved by Taiwan regulatory authorities.[32] Despite recent efforts intended to streamline these testing and inspection processes, some U.S. products entering Taiwan reportedly have faced long delays due to inadequate capacity at testing facilities and inefficient and redundant procedures.[33]

Starting in January 2003, Taiwan will require importers of certain goods to submit a Registration of Product Certification (RPC) to Customs. Under the terms of the RPC procedures, foreign manufacturers of applicable products will be required to obtain ISO 9000 certification.[34] While the move to RPC procedures is welcomed as part of

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[26] U.S. Department of Commerce, Office of Automotive Affairs, "Report on Vehicle Import Requirements," found at Internet address *http://www.ita.doc.gov/td/auto/impreq.html*, retrieved Mar. 4, 2002.

[27] Director-General Trade, European Commission, *Market Access Sectoral and Trade Barriers Database, Taiwan*, p. 4, found at Internet address *http://mkaccdb.eu.int/mkdb/country.pl?COUNTRY=736*, retrieved Mar. 14, 2002.

[28] USCS, *Taiwan Country Commercial Guide FY2002*, p. 42.

[29] European Commission, *Market Access Sectoral and Trade Barriers Database, Taiwan*, p. 4.

[30] WTO, *Report of the Working Party on the Accession of the Separate Customs Territory of Taiwan, Penghu, Kinmen and Matsu*, WT/MIN(01)/4, Nov. 11, 2001, p. 27.

[31] USCS, *Taiwan Country Commercial Guide FY2002*, p. 42.

[32] Ibid, pp. 43-44.

[33] American Institute in Taiwan, joint interview with Directorate General of Customs, and USITC staff, Taipei, Taiwan, May 21, 2002; and USTR, *2002 National Trade Estimate Report on Foreign Trade Barriers*, p. 396.

[34] The RPC procedures are already in effect; however, importers have the option of fulfilling RPC requirements or undergoing batch-by-batch inspections. Passing the batch-by-batch inspections process does not require ISO 9000 certification, but Taiwan is terminating the process and moving to RPC procedures only.

the effort to streamline the certification process, few U.S. manufacturers are ISO 9000 certified, and obtaining the required certification before the procedures are put in effect is viewed both difficult and costly.[35] Products affected by the certification requirements include certain electronics, home appliances, fire-retardant and safety materials, and various mechanical items.[36] U.S. and Taiwan representatives are discussing a possible delay of the move to RPC until 2004.[37]

Licensing

A number of products are subject to various trade licensing and import permit restrictions in Taiwan. Currently, 1.3 percent of Taiwan's official product categories require special import permits from the Board of Foreign Trade, while 2.4 percent are restricted, effectively preventing U.S. exports of such products to Taiwan. The remaining 96.3 percent of import categories are exempt from controls, including 9.7 percent that before 2002 were regulated and required approval from relevant authorities prior to importation but are now free of controls.[38] For the regulated categories, Taiwan reduced its requirements upon becoming a WTO member, so that only those requirements that comply with the Agreement on Import Licensing Procedures and the Agreement on Technical Barriers to Trade remain.[39] Taiwan also has commenced the development of a Negative List program, which will replace all pre-existing licensing requirements and streamline the process, yielding an objective and transparent system for issuing licenses.[40]

Regulatory Regime

It is generally argued that Taiwan's WTO accession process has led to improvements in its regulatory regime. However, barriers proceeding from Taiwan's regulatory environment remain, including restrictions on foreign investment and standards, testing, labeling, and certification requirements that are viewed as unnecessarily burdensome.

Investment Barriers

Taiwan traditionally has encouraged and facilitated foreign direct investment, even offering a number of incentives for investors.[41] Establishing an office in Taiwan

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[35] Office of the Pacific Basin, Taiwan/Korea Division, International Trade Administration, U.S. Department of Commerce, electronic correspondence received by USITC staff, Mar. 14, 2002.

[36] Ministry of Economic Affairs, Bureau of Standards, Metrology and Inspection, "List of the Products Subject to Measures Governing Registration of Product Certification," found at Internet address *http://www.bsmi.gov.tw/english/rpc/5.html*, retrieved May 8, 2002.

[37] Office of the Pacific Basin, Taiwan/Korea Division, International Trade Administration, U.S. Department of Commerce, fax received by USITC staff, May 8, 2002.

[38] USCS, *Taiwan Country Commercial Guide FY2002*, p. 40.

[39] Ibid.

[40] WTO, *Report of the Working Party on the Accession of the Separate Customs Territory of Taiwan, Penghu, Kinmen and Matsu*, WT/MIN(01)/4, Nov. 11, 2001, p. 23.

[41] USCS, *Taiwan Country Commercial Guide FY2002*, p. 50.

reportedly is relatively easy, if sometimes bureaucratic, which is important since registration as a profit-seeking enterprise requires the maintenance of an address in Taiwan.[42] Taiwan does not impose minimum investment requirements, and regulations affecting foreign-invested enterprises are reportedly transparent and non-discriminatory. However, the current investment environment in Taiwan is not completely free of restrictions. While foreign investment limits have been reduced in many industries,[43] substantial limits still remain in the telecommunications, air transport, and independent power sectors.[44] Despite significant liberalization in the Taiwan securities industry, U.S. industry representatives maintain that it continues to be over-regulated and the risk of incurring penalties is high.[45] Further, foreign investment remains completely prohibited in certain industries, including agriculture, broadcasting, and liquor and cigarette production.[46] Most restrictions on capital flows have been removed for foreign institutional investors, but some restrictions remain for individual foreign investors.[47]

Taiwan restricts market access in some service industries—including accounting, architecture, engineering, and veterinary services—to natural persons having established an office that is not in the form of a company.[48] In other industries, including securities, Taiwan requires participants to have a commercial presence in its economy, which can be a burdensome requirement when a salesperson alone would be sufficient to serve the market.[49] Land used for agriculture, forestry, fishing, pasture, hunting, salt production, mines, and sources of water may not be transferred, encumbered, or leased to foreigners.[50] Finally, the employment of foreign

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[42] WTO, *Report of the Working Party on the Accession of the Separate Customs Territory of Taiwan, Penghu, Kinmen and Matsu*, WT/MIN(01)/4, Nov. 11, 2001, p. 12.

[43] Over the past decade, Taiwan has taken several steps to improve its investment climate. Taiwan's liberalization efforts have expanded the list of industries open to foreign investment to 99 percent of manufacturing sectors and 95 percent of service industries. Limits on foreign equity participation in a number of industries– including shipping, power generation, and telecommunication services– have been progressively relaxed, although foreign ownership limits still exist. In addition, the foreign ownership limit on companies listed on the Taiwan Stock Exchange and the Taiwan OTC Market was removed in 2000, with some exceptions for designated industries. BOFT, *Taiwan's Response to the 2002 National Trade Estimate Report on Foreign Trade Barriers*, p. 20; and U.S. Department of State, Bureau of Economic and Business Affairs, *2001 Country Reports on Economic Policy and Trade Practices: Taiwan*, Feb. 2002, Section 5.

[44] USCS, *Taiwan Country Commercial Guide FY2002*, p. 51.

[45] American Chamber of Commerce in Taiwan, interview by USITC staff, Taipei, Taiwan, May 22, 2002.

[46] U.S. Department of State, Bureau of Economic and Business Affairs , *2001 Country Reports on Economic Policy and Trade Practices: Taiwan*, Feb. 2002, Section 5.

[47] Ibid.

[48] WTO, General Agreement on Trade in Services (GATS), *The Separate Customs Territory of Taiwan, Penghu, Kinmen and Matsu, Schedule of Specific Commitments*, GATS/SC/136, Feb. 15, 2002.

[49] American Chamber of Commerce in Taiwan, interview by USITC staff, Taipei, Taiwan, May 22, 2002.

[50] WTO, GATS, *The Separate Customs Territory of Taiwan, Penghu, Kinmen and Matsu, Schedule of Specific Commitments*, GATS/DC/136, Feb. 15, 2002.

administrative personnel in foreign-invested firms is restricted, and work permits are not issued to people with less than 2 years experience in the relevant field.[51]

Standards, Testing, Labeling, and Certification

The U.S. Government does not consider Taiwan to be in full conformity with WTO norms regarding notification of changes to standards and labeling requirements, and views standards as often enforced arbitrarily.[52] Also, despite Taiwan's efforts to amend its laws, the 449 sanitary and phytosanitary standards applied to agricultural goods are often different from U.S. standards or those established by international regulatory bodies, and some phytosanitary standards are discriminatory in that they apply only to imported goods.[53] Taiwan does not accept results from overseas labs, which can result in additional burdens and costs for U.S. exporters due to the need for duplicate testing.[54] For certain industrial products, including air conditioning and refrigeration equipment, electric hand tools, and synthetic rubber gloves, redundant testing involves the costly destruction of samples.[55] As part of its WTO accession, Taiwan has committed to continue the improvement of its testing processes, and to eliminate all arbitrary denials of certification as well as any quarantine controls that do not provide adequate notification.[56]

Intellectual Property Rights Protection

Taiwan's accession to the WTO coupled with legislative changes have led to some reform of intellectual property rights (IPR) protection in that economy.[57] However, U.S. business interests indicate that enforcement remains a problem. They report that Taiwan's judicial system is not adequately addressing IPR issues, and often the procedures put in place to address these issues have become in themselves logistical barriers to trade.[58] They also allege that Taiwan's power of attorney requirements, which they claim are unnecessarily elaborate, make the pursuit of IPR violators difficult for U.S. companies.[59] Concerns with IPR issues prompted the USTR to upgrade Taiwan to its Priority Watch List in April 2001.[60]

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[51] American Chamber of Commerce in Taiwan, interview by USITC staff, Taipei, Taiwan, May 22, 2002; and U.S. Department of State, Bureau of Economic and Business Affairs , *2001 Country Reports on Economic Policy and Trade Practices: Taiwan*, Feb. 2002, Section 5.

[52] U.S. Department of State, Bureau of Economic and Business Affairs , *2001 Country Reports on Economic Policy and Trade Practices: Taiwan*, Feb. 2002, Section 5.

[53] WTO, *Report of the Working Party on the Accession of the Separate Customs Territory of Taiwan, Penghu, Kinmen and Matsu*, WT/MIN(01)/4, Nov. 11, 2001, pp. 39-41.

[54] USCS, *Taiwan Country Commercial Guide FY2002*, p. 49.

[55] U.S. Department of State, Bureau of Economic and Business Affairs , *2001 Country Reports on Economic Policy and Trade Practices: Taiwan*, Feb. 2002, Section 5.

[56] Ibid.

[57] Taiwan's Executive Yuan declared 2002 as the "Action Year for IPR Protection." Intellectual Property Office, Taiwan Ministry of Economic Affairs, interview with USITC staff, Taipei, Taiwan, May 23, 2002.

[58] American Chamber of Commerce in Taiwan, interview by USITC staff, Taipei, Taiwan, May 22, 2002; and USTR, *2002 National Trade Estimate Report on Foreign Trade Barriers*, p. 400.

[59] American Chamber of Commerce in Taiwan, *Topics: 2002 Taiwan White Paper*, p. 10.

[60] USTR, *2002 National Trade Estimate Report on Foreign Trade Barriers*, p. 399.

Trademarks, Patents, Copyrights, and Trade Secrets

Taiwan's copyright, patent, trademark, and trade secret laws are considered to meet most international standards.[61] However, owners of U.S. patents and trademarks reportedly have experienced difficulty in obtaining and enforcing rights in Taiwan.[62] Additionally, U.S. industry officials contend that the Taiwan judicial system has been deficient in handling technical IPR cases, and that the lines of bureaucratic authority are unclear, which has led to significant court delays.[63] In theory, copyrights need not be registered to be protected in Taiwan,[64] yet problems with pirated goods–particularly optical disks produced by the music, film, and software industries–reportedly are prevalent. The International Intellectual Property Alliance estimates that in 2001, trade losses of U.S. copyright industries due to piracy in Taiwan were $333.1 million.[65]

Taiwan authorities point out that several important steps have been taken to strengthen IPR enforcement, including the enactment of the Optical Disk Law in November 2001 and the establishment of stricter penalties for offenders.[66] Several agencies, including the Intellectual Property Office (IPO), are taking additional steps to increase public awareness and bring Taiwan's IPR protection to international standards.[67] Such measures include the development of training courses[68] on technical IPR issues for Taiwan police officers, prosecutors, and judges, as well as incentives schemes for police officers and other personnel who participate in the capture of counterfeit goods.[69] Furthermore, upon its accession to the WTO, Taiwan agreed to comply with the Trade-Related Aspects of Intellectual Property Rights (TRIPS) agreement.

While Taiwan authorities acknowledge the rights of intellectual property holders to protect their assets, they also claim that much of the piracy of certain goods results from unnecessarily high pricing by U.S. industries.[70] Taiwan's IPO has stated that more competitive pricing of products, particularly in the software industry, may help reduce piracy among those who believe that purchasing illegal copies is their only affordable option.[71]

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[61] USCS, *Taiwan Country Commercial Guide FY2002*, p. 17.

[62] Ibid., p. 53.

[63] USTR, *2002 National Trade Estimate Report on Foreign Trade Barriers*, p. 399.

[64] EC, *Market Access Sectoral and Trade Barriers Database, Taiwan*, p. 10.

[65] International Intellectual Property Alliance (IIPA), *2002 Special 301 Report, Taiwan*, p. 253, found at Internet address *http://www.iipa.com/rbc/2002/2002SPEC301TAIWAN.pdf*, retrieved May 29, 2002. This figure does not include additional losses due to Internet piracy or losses in other markets from pirated goods manufactured in Taiwan. Motion Picture Association of America, testimony before the USITC, May 13, 2002. See hearing transcript, "U.S.-Taiwan FTA: Likely Economic Impact of a Free Trade Agreement (FTA) between the United States and Taiwan," p. 96.

[66] IPO, Ministry of Economic Affairs, "Response to MPAA's Complaints on IPR Enforcement at a ITC Hearing on U.S.-Taiwan FTA," May 23, 2002, pp. 1-3.

[67] IPO, Ministry of Economic Affairs, interview by USITC staff, Taipei, Taiwan, May 23, 2002.

[68] These courses were developed in conjunction with U.S. officials and universities.

[69] IPO, Ministry of Economic Affairs, interview by USITC staff, Taipei, Taiwan, May 23, 2002.

[70] Ibid.

[71] Ibid.

Trade Dress

Inadequate protection of trade dress, which involves the packaging, configuration, and outward appearance of products, reportedly has allowed Taiwan producers to engage in widespread copying of U.S. company and other company product packaging and to mislead consumers by mimicking the appearance of successful products.[72] Such practices can reduce the value of the original brand, as consumers become unable to distinguish between the genuine product and the imitation, thus hindering the ability of firms producing and selling the genuine product to obtain the benefits of marketing investment and protect product reputation. According to U.S. industry groups, Taiwan's passage of the Fair Trade Law, intended to protect foreign companies from knockoffs, has not been effective.[73] Taiwan's trade dress laws are alleged to be discriminatory, because the rules differ for foreign and domestic companies.[74] In addition, the judicial resolution of specific technical cases has been marked by substantial delays.[75]

Government Procurement

Taiwan exercises substantial government procurement preferences and requirements that limit the importation of foreign goods and services, and members of the American Chamber of Commerce in Taiwan cite a lack of transparency in procurement as one of their top concerns.[76] U.S. firms wishing to contract with Taiwan authorities have encountered frequent and often arbitrary changes to specifications and cost, substantial liability requirements, expensive bond requirements, short leadtimes on offers, unclear payment schedules, and local licensing requirements.[77] Many tenders are open only to firms with a local presence, and procurement procedures often have been nontransparent, as foreign suppliers have had difficulty obtaining information in advance.[78] In addition, corruption is alleged to be particularly problematic in Taiwan's government procurement regime.[79]

Despite the enactment of Taiwan's Government Procurement Law in 1999, local companies reportedly continue to receive preferential treatment and Taiwan maintains no satisfactory mechanism for dispute resolution.[80] Taiwan's accession to the WTO and its efforts to enforce the WTO Government Procurement Agreement have improved this situation, but only slightly. In 2001, the United States and Taiwan

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[72] USCS, *Taiwan Country Commercial Guide FY2002*, p. 53.

[73] American Chamber of Commerce in Taiwan, *Topics: 2002 Taiwan White Paper*, p. 10.

[74] American Apparel & Footwear Association, correspondence to Section 301 Committee, Feb. 16, 2001, found at Internet address *http://www.americanapparel.org/data/ipr.html*, retrieved on Apr. 3, 2002.

[75] U.S. Department of State, Bureau of Economic and Business Affairs , *2001 Country Reports on Economic Policy and Trade Practices: Taiwan*, February 2002, section 7.

[76] American Chamber of Commerce in Taiwan, *2002 Business Confidence Survey*, May 2002, p. 31, found at Internet address *http://amcham.com.tw/dl/2002_business_survey_report.zip*, retrieved May 31, 2002.

[77] USCS, *Taiwan Country Commercial Guide FY2002*, p. 16.

[78] Ibid.

[79] For more information, see the following section on political interference and corruption.

[80] USCS, *Taiwan Country Commercial Guide FY2002*, p. 15.

signed an Understanding on Government Procurement, broadening the definition of a qualified supplier and establishing a procedure for post-award mediation of contract disputes. These measures will likely improve market mechanisms and encourage U.S. participation.[81]

Political Interference/Corruption

U.S. companies contend that they have had difficulty competing in several Taiwan industries known for corruption, including waste management, construction, and public advertising.[82] Specific events in recent years, including the seemingly arbitrary cancellation and subsequent reinstatement of a large nuclear power project in Taiwan, have called into question Taiwan's efforts to keep economic decisions free of political interference.[83] The elimination of corruption has been a top priority of President Chen's administration. According to the U.S. Commercial Service, the significant number of corruption prosecutions in 2001 reveals how serious the problem has been in the past, and the effect of these prosecutions will likely be reflected in considerable improvement during 2002.[84]

Reference Pricing

Reference pricing is the practice of valuing a new product at the price of a comparable, often older, good. This practice is common in healthcare and higher technology industries, in which innovative products frequently replace older ones. Taiwan authorities are the exclusive buyers of all medical products and services in that economy, including pharmaceuticals and medical devices. In an attempt to promote and develop local companies, Taiwan authorities often refuse to recognize the value of higher-quality U.S. imports by offering to purchase them only at the market prices for less-advanced products.[85] This practice has hindered market access for U.S. goods.[86] Despite calls from the United States for reform, USTR maintains that Taiwan has not yet taken adequate measures to ensure that the relative value of U.S. technology products is recognized.[87]

Anticompetitive Practices

In the energy sector two state-owned companies exert de facto monopoly power over vendors, demanding contract terms that many consider onerous.[88] Similar conditions

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[81] U.S. Department of State, Bureau of Economic and Business Affairs , *2001 Country Reports on Economic Policy and Trade Practices: Taiwan*, Feb. 2002, Section 5.

[82] USTR, *2002 National Trade Estimate Report on Foreign Trade Barriers*, p. 403.

[83] The Heritage Foundation, *The Index of Economic Freedom 2002: Taiwan (China, Republic of)*, found at Internet address *http://cf.heritage.org/index/country.cfm?ID=141*, retrieved May 29, 2002.

[84] USCS, *Taiwan Country Commercial Guide FY2002*, p. 7.

[85] USTR, *2002 National Trade Estimate Report on Foreign Trade Barriers*, p. 398.

[86] Ibid.

[87] Ibid.

[88] Ibid, p. 402.

exist in the mobile phone market, where a former monopoly power has stifled competition by subsidizing its low prices with profits from its fixed-line business unit, as well as the cable TV market, where Taiwan's two dominant operators reportedly collude to limit competition.[89]

Local Content Schemes

The last remaining local content requirements, which applied to automobiles and motorcycles, were lifted in 2002.[90] While these requirements were imposed on both imports and domestic goods, their removal will likely make it easier for U.S. automobile and motorcycle firms to compete in the Taiwan market.

Export Subsidies and Controls

In the past, Taiwan provided certain assistance to farmers, which effectively subsidized exports. As part of its WTO accession, Taiwan has committed to amend or abolish any practice not consistent with the WTO Agreement on Subsidies and Countervailing Measures.[91] However, while Taiwan has committed to bind its export subsidies at zero, support mechanisms remain in place for 16 agricultural products under Taiwan's Statute for Upgrading Industries.[92]

Licenses are required for the export of 1,170 items. Taiwan's justifications for maintaining export licenses include the implementation of quantitative restriction arrangements, the protection of intellectual property and endangered species, concerns over hygiene and health, and the implementation of trade and social policies.[93]

Industry-Specific Barriers

Table 6-4 lists industry-specific Taiwan nontariff measures (NTMs) that apply to specific goods and services. These measures were identified either by U.S. government reports or by specific industry groups. They include sanitary and phytosanitary (SPS) regulations that limit imports of peanuts and rice, subsidies and an absolute quota on rice, and lengthy import clearance procedures on wine imports. Taiwan's NTMs

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[89] Ibid.

[90] Board of Foreign Trade, email communication to USITC staff, Mar. 27, 2002; and U.S. Department of State, Bureau of Economic and Business Affairs , *2001 Country Reports on Economic Policy and Trade Practices: Taiwan*, Feb. 2002, Section 5.

[91] WTO, *Report of the Working Party on the Accession of the Separate Customs Territory of Taiwan, Penghu, Kinmen and Matsu*, WT/MIN(01)/4, Nov. 11, 2001, pp. 32-37.

[92] Ibid., p. 51.

[93] USCS, *Taiwan Country Commercial Guide FY2002*, p. 49.

Table 6-4
Taiwan laws, regulations and policies identified as potentially affecting U.S. producers and service providers

Industry	Type of policy	Description
Agricultural goods		
Food and beverages	Labeling	Taiwan authorities are inconsistent in the application of labeling requirements pertaining to food and beverages that are packaged in bulk; intended for hotel, restaurant or institutional (HRI) use; or are change packaged (own branded).
Peanuts	Sanitary and phytosanitary regulation	Taiwan does not permit the import of U.S. in-shell and shelled peanuts that have not been dried.
Live cattle and hog imports for breeding purposes	Import clearance procedure	Imports of live cattle and hogs for breeding purposes must be approved by the Taiwan Council of Agriculture, reportedly for management purposes.
Rice	Quota	Taiwan maintains an absolute quota on rice. The in-quota tariff is free, but rice imports are subject to other fees, charges, and mark-ups. These expenses cannot exceed US$0.71 per kilogram for rice and US$0.77 per kilogram for rice products.[1] Two-thirds of Taiwan rice imports are under state-trading or government control, and the remaining one-third is imported by private sector entities.
Rice	Sanitary and phytosanitary regulation	Taiwan imports of Japonica rice, a high quality medium grade rice, must meet the China National Standards. Taiwan also maintains standards for organically-grown rice. Taiwan has an extensive rice inspection system and labeling requirements.[2]
Rice	Subsidies	Taiwan provides extensive government subsidies to rice growers, generally amounting to 40-50 percent of farm level revenues.
Wine	Import clearance procedure	Taiwan maintains a lengthy documentation process for imported wine that causes delays in the entry of goods.
Nonagricultural goods		
Aluminum	Approval, testing, registration, and certification requirement	Taiwan requires special licensing and approval from the Department of Environmental Protection for the import of aluminum.
Copper	Approval, testing, registration, and certification requirement	Taiwan requires special licensing and approval from the Department of Environmental Protection for the import of copper waste and scrap.
Lead	Approval, testing, registration, and certification requirement	Taiwan requires special licensing and approval from the Department of Environmental Protection for the import of lead.
Medical goods	Government procurement/ reimbursement prices	The Taiwan Government, the principal purchaser of all medical goods and services in that economy, effectively discriminates against U.S. producers of advanced medical technologies through its reimbursement pricing practices.

See footnotes at end of table.

Table 6-4–*Continued*
Taiwan laws, regulations and policies identified as potentially affecting U.S. producers and service providers

Industry	Type of policy	Description
Medical goods	Approval, testing, registration, and certification requirement	U.S. manufacturers face substantial registration and approval requirements for imported medical goods.
Motor vehicles	Import prohibition	Taiwan prohibits imports of diesel vehicles (except Jeeps) and two-stroke engine cars.
Motor vehicles	Classification issues	There are reports of arbitrary changes to the customs code in Taiwan, affecting motor vehicles.
Motorcycles	Import prohibition	The import of motorcycles into Taiwan with engines larger than 150 cc is not permitted. U.S. manufacturers do not make motorcycles of less than 150 cc in displacement.
Recreational fishing boats	Quantitative restriction	The import of recreational fishing boats into Taiwan is regulated by the Council of Agriculture and is limited by the number of available berths.
Yachts	Approval, testing, registration, and certification requirement	The import of yachts into Taiwan requires the approval of the Ministry of Transportation and Communication.
Zinc	Approval, testing, registration, and certification requirement	Taiwan requires special licensing and approval from the Department of Environmental Protection for the import of zinc.
Services		
Accounting, auditing, and bookkeeping services	Market access	Only certified public accountants from Taiwan can provide accountant attestation services. Only natural persons who have established an office in Taiwan, other than in a form of a company, can provide accounting, auditing, and bookkeeping services.
Air transport services	Investment restriction	Foreign ownership of Taiwan airlines is limited to a 33-percent equity share.
Architectural services	Market access	Only licensed architects from Taiwan can provide services related to the architect certification practice. Foreign-licensed architects must receive approval from the Ministry of Interior to practice architecture in Taiwan. Only natural persons who have established an office in Taiwan, other than in the form of a company, can provide architectural services.
Audiovisual services	Market access	Taiwan maintains a quota on wireless, cable, and television broadcasts. Taiwan restricts the transfer of stock in radio and television companies to Taiwan nationals. Taiwan's two Multi-System Operators maintain monopoly control of upstream program distribution. Taiwan's cable distribution companies violate agreements by substituting locally-produced advertisements for advertisements already included in foreign programming that is aired in Taiwan.

See footnotes at end of table.

Table 6-4–*Continued*
Taiwan laws, regulations and policies identified as potentially affecting U.S. producers and service providers

Industry	Type of policy	Description
Banking and securities	Access to foreign exchange	Foreign investors face a number of restrictions on foreign exchange business: investment caps on foreign exchange brokerages and restrictions on checking accounts and certificates of deposit in foreign currency. Foreign currency loans are limited to domestic borrowers, and cannot be converted into Taiwan currency. Residents may convert up to $5 million per year from foreign currency into Taiwan dollars. Resident companies may convert up to $50 million per year from the local currency into foreign currency, with approval from the central bank. However, trade payments, technology transfer fees, payments to foreign construction companies and some other payments are permitted without limit.
Banking and securities	Market access	Taiwan permits citizens to open and use foreign currency accounts abroad, but the customer must work directly with the parent bank outside of Taiwan, and foreign banks are not permitted to advertise such accounts in Taiwan, or otherwise solicit such business. In order to establish a branch in Taiwan, a foreign bank must rank among the top 500 banks in the world by assets or capital, or have a total business volume of at least $1 billion with Taiwan banks or corporations in the previous 3 years, of which at least $180 million must have been granted as medium- or long-term credits. Securities firms are required to have a physical presence in Taiwan and transactions must take place through that presence. Much of the industry would prefer to centralize their operations in Asia, using regional headquarters in Hong Kong or Singapore for business in Taiwan, as Taiwan's market is not large enough for many firms to justify a stand-alone office. Each asset management firm is required to offer a Taiwan equity fund as its first fund. Only after that fund has reached a minimum size and a minimum number of initial shareholders is the firm permitted to register subsequent funds. Subsequent funds may invest outside of Taiwan, but the number of such funds is limited by a quota set by the Central Bank, which limits sales of outbound fund shares to $161 million per fund and $1.7 billion in the aggregate. Taiwan regulators prohibit shareholders from redeeming shares in mutual funds for the first 6 months after the establishment of the fund.

See footnotes at end of table.

Table 6-4–*Continued*
Taiwan laws, regulations and policies identified as potentially affecting U.S. producers and service providers

Industry	Type of policy	Description
Banking and securities–*continued*	Market access–*continued*	Mutual funds in Taiwan valued at more than $85.4 million (NT$3 billion) must have a local portfolio manager in Taiwan for each fund. New offshore mutual funds must receive approval from Taiwan regulators. This approval is often delayed. Taiwan regulators refuse to approve offshore investment funds that invest any funds in China. Mutual fund firms are not permitted to open branch offices. Every physical location of a firm must have its own license and individually register the funds with respect to which it can give advice. Regulatory approval to register a fund at a second location may take 4 to 6 months.
Banking and securities	National treatment	Individual foreigners are permitted to buy shares of Taiwan companies directly, up to a limit of $5 million annually. Corporate entities are permitted to invest up to $50 million, and corporations designated as qualified foreign institutional investors (QFIIs) may purchase shares up to a limit of $3 billion. A QFII may apply for an investment quota of up to $3 billion, remit funds for investment into Taiwan up to the quota amount, convert the funds into NT dollars, place the NT dollars with a custodian, then invest in the range of permitted investment instruments, including shares in Taiwan's stock exchanges, money market accounts and government bonds. Applications for such a quota must be approved by Taiwan's Securities and Futures Commission, and all quotas of more than $50 million must be approved by the Central Bank of China as well. Except for purchases and sales of government bonds, investments in time deposits, money market instruments, government bonds under repurchase agreements, and/or listed futures contracts are subject to certain limits, and may not exceed, in the aggregate, 30 percent of the funds remitted under each firm's investment quota. A QFII is not permitted to engage in margin borrowing or securities lending or to provide loans or guarantees.
Construction services	Government procurement	Municipal governments in Taiwan maintain arbitrary and non-transparent procedures when dealing with foreign contractors.
Construction services	Market access	In March 2000, Taiwan's Public Construction Committee announced a new regulation that requires chief managerial-level personnel employed by construction consulting firms to have a local professional engineer license.

See footnotes at end of table.

Table 6-4–*Continued*
Taiwan laws, regulations and policies identified as potentially affecting U.S. producers and service providers

Industry	Type of policy	Description
Distribution services	Market access	Taiwan does not permit the distribution of firearms and military equipment.
Education services	Market access	Taiwan does not permit establishment of military schools and police academies. Foreign education service providers must establish a physical presence in Taiwan, and all schools in Taiwan must be run as non-profit organizations. The provision of classes in Taiwan without prior approval from Taiwan authorities to establish a school violates the Private School Law and is punishable by fines and confiscation of facilities. Media such as radio/television broadcasting, Internet networks, and correspondence are permitted only in supplementary education, adult education, and training.
Education services	Market access/ movement of persons	The principal/president and chairman of the board[3] of a private school or educational institute must be Taiwan nationals, and the number of foreigners serving as directors may not exceed one-third of the board and five directors. Foreigners who provide training services in Taiwan must have residence permits.
Education services	National treatment/ acceptance of academic credit	Taiwan imposes restrictions on the acceptance of academic credits. Although joint degree programs between a foreign school and a Taiwan school are permitted, accepted credits cannot exceed one-third of the total number of credits required for a degree. Moreover, with the exception of distance learning programs, Taiwan's Ministry of Education does not recognize credits or degrees earned in Taiwan from foreign-owned or -operated facilities which are not physically established in Taiwan and have not been approved by the Ministry of Education.
Energy services	Investment restriction	Taiwan maintains investment restrictions on liquified natural gas terminals and in petroleum gas companies. Taiwan maintains investment restrictions in power generation, transmission, and distribution facilities.
Engineering services	Market access	Only natural persons having established an office in Taiwan, other than in the form of a company, can provide engineering services. Only licensed professional engineers from Taiwan can provide services related to the engineer certification practice.

See footnotes at end of table.

Table 6-4–*Continued*
Taiwan laws, regulations and policies identified as potentially affecting U.S. producers and service providers

Industry	Type of policy	Description
Environmental services	Market access	Waste imports may require authorization from Taiwan's Department of Environmental Protection and special licenses.
Insurance services	Domestic regulation	Insurance companies are required to report premium rates and policy clauses to regulators. Ministry of Finance approval is required for all rate formulas, policy clauses, insurance application forms, and other relevant materials prior to their use.
Insurance services	Market access	The official version of insurance policies may be issued in the English language, but a translation of the policy into the Chinese language must be attached. Solicitation and marketing activities in Taiwan by non-resident financial service suppliers are not allowed. Foreign insurance companies in Taiwan must operate through a locally-established branch, subsidiary, joint venture, or representative office. When a foreign mutual insurance company establishes a branch office in Taiwan, the parent company of the branch must have a net worth of at least NTD $2 billion. Except for marine adjusters, all foreign agents, brokers and adjusters who have set up branch offices in Taiwan must employ at least one individual who has secured a Taiwan agent, broker, or adjuster license. A foreigner who has obtained an agent, broker, or adjuster qualification certificate may not practice business in his or her own name.
Legal services	Market access	Only natural persons can act as foreign legal assistants or consultants assisting Taiwan lawyers or attorneys of foreign legal affairs. Only lawyers that have practiced for at least five years in their home jurisdiction can be recognized as attorneys of foreign legal affairs. Taiwan requires foreign lawyers to use the Chinese language in oral and written communications when practicing before the court or prosecutors, except when practicing foreign and international law. Access is restricted to natural persons having established a law office in the form of a sole proprietorship. Partnership in a law office is limited to persons registered as attorneys of foreign legal affairs.

See footnotes at end of table.

Table 6-4–*Continued*
Taiwan laws, regulations and policies identified as potentially affecting U.S. producers and service providers

Industry	Type of policy	Description
Legal services	National treatment	The firm name must indicate the title of "Attorney of Foreign Legal Affairs."
Maritime transport services	Market access	Under Taiwan's Maritime Transportation Law, foreign-flag vessels are not permitted to operate in the domestic market.
Maritime transport services	Market access/ movement of persons	The employment of foreign personnel aboard Taiwan ships is restricted to second-class seamen, at least half of whom must be Taiwan nationals.
Maritime transport services	Cargo preference laws	Taiwan cargo preference requirements pertaining to vessels that transport merchandise imports grant priority to cargo vessels which are constructed and/ or registered in Taiwan. However, Taiwan has reportedly passed no legislation to enforce these cargo preference requirements.
Telecommunication services	Investment restriction	Taiwan maintains restrictions on foreign investment in local telecommunication services suppliers, including its dominant telecommunications firm, Chunghwa Telecom.
Telecommunication services	Market access	The chairman and a majority of the board of directors of a telecommunications firm in Taiwan must be Taiwan nationals. Foreign firms can provide satellite-based mobile communications services only through commercial arrangements with Taiwan-licensed operators.
Travel and tourism services	Market access	Tourist guide services can only be provided by a travel agency or a tour operator.
Travel and tourism services	National treatment	A foreigner can apply for the travel guide examination only if he has obtained the alien resident certificate and has resided in Taiwan for more than six months.
Policies that do not specifically discriminate against imports but may affect bilateral trade		
Motor vehicles	Taxes	The Commodity Tax assessed on motor vehicles stands at 25 percent for vehicles with an engine displacement of 2,000 cc or less; and 35 percent for vehicles with engine displacement of 2,001 cc or more, to be lowered to 30 percent 5 years after WTO accession. According to the American Chamber of Commerce in Taiwan, U.S. automakers would prefer the commodity tax to be based on a vehicle's fuel economy, rather than on engine size. The License Plate Tax ranges from $100 for vehicles with engine displacement of 500 cc or less to over $5,500 for passenger vehicles with displacement between 6,601 cc - 7,800 cc. The License Plate Tax on most U.S.-built passenger vehicles is $400 - $2,500.

See footnotes at end of table.

Table 6-4–*Continued*
Taiwan laws, regulations and policies identified as potentially affecting U.S. producers and service providers

Industry	Type of policy	Description
Banking and securities	Market access	Investors that acquire more than 10 percent of an issue become "insiders," which subjects the investor to stringent reporting requirements, selling restrictions, and vulnerability to forced sale of stock on short term trades.
Education services	Market access	Taiwan does not permit establishment of military schools and police academies.
Energy services	Market access	Independent power producers are permitted to generate as much as 20 percent of Taiwan's electricity, but all power must be sold through the state-owned Taiwan Power Company (Taipower).
Telecommunication services	Market access	Taiwan maintains minimum paid-in capital requirements for investment in local telecom facilities. It is reportedly difficult for new fixed-line operators to negotiate interconnection to the network of Taiwan's dominant telecommunications carrier, Chunghwa Telecom. U.S.-invested mobile phone service providers contend that Chungwha Telecom maintains pricing practices that are unfair and predatory.

[1] The tariff was converted from Taiwan currency (NT$) at the exchange rate in 2001 of NT$23.26 per US$1. USDA, FAS, *Taiwan Grain and Feed: the Post-WTO Accession Rice Market*, Jan. 9, 2002, GAIN Report #TW2002, pp. 4,8. The average rice market price in Taiwan in 2000 was NT$33.61 per kilo; thus the mark up can amount to 69 percent. However, higher graded Taiwan rice sold from NT$60 to NT$100 per kilo; thus for the higher graded rice (comparable to top U.S. rice exports), the mark up can range from 23 to 39 percent. Chung Hua Institute for Economic Research, interview by USITC staff, Taipei, Taiwan, May 22, 2002.

[2] U.S. exporters have little experience in exporting rice to Taiwan, as Taiwan banned virtually all rice imports prior to its WTO accession on Jan. 1, 2002. Thus, it is unclear whether these measures will serve as barriers to U.S. exports.

[3] Taiwan's Ministry of Education has proposed an amendment to the Private School Law that would eliminate the criterion that the board chairman must be a Taiwan national. U.S. Department of State telegram, "WTO: Information on GATS Services Negotiations," message reference No. 01027, prepared by American Institute in Taiwan, Taipei, Taiwan, Mar. 21, 2002.

Source: USDA, FAS, Taiwan: Market Access Following WTO Accession," GAINS Report #TW1053, 12/21/2001, Appendix; Wine Institute, *International Wine Trade Barriers Report 2001*, prepared by JBC International; USDA, FAS, *Taiwan Livestock and Products Semi-Annual Gain Report*, Feb. 1, 2002; Advanced Medical Technology Association; USTR, *2002 National Trade Estimate Report of Foreign Trade Barriers*; USTR, *2001 National Trade Estimate Report on Foreign Trade Barriers*; Environmental Protection Administration, ROC, found at Internet address *http://www.meca.org/avecc/Chuang*; U.S. Environmental Protection Agency (EPA), *Proposed Rules: Control of Emissions from Nonroad Large Spark Ignition Engines*, *Recreational Engines (Marine and Land-Based),* Highway Motorcycles, 21 F.R. 236, Dec. 7, 2000; General Agreement on Trade in Services (GATS/SC/136), 2002; APEC-IAP, 2001; USTR, *2002 National Trade Estimate Report on Foreign Trade Barriers*; U.S. Department of Commerce, *Country Commercial Guide, 2002,* found at Internet address *http://www.stat-usa.gov*, retrieved Apr. 10, 2002.; State Dept. Cable, 01132, Apr. 5, 2001; and U.S. Department of Energy, Energy Information Administration, "Taiwan: Country Analysis Brief," Nov. 2001, found at Internet address *http://www.eia.doe.gov*, retrieved Apr. 10, 2002; and Trade association official, telephone interview by USITC staff, Mar. 13, 2002; USDA, ERS, *Estimates of Producer and Consumer Subsidy Equivalents*, 1990, p. 275; USDA, FAS, *Taiwan Grain and Feed: the Post-WTO Accession Rice Market*, Jan. 9, 2002, GAIN Report #TW2002, p. 7; American Institute in Taiwan, *Taiwan: Trade Policy Monitoring*, p. 15; World Trade Organization, General Agreement on Trade in Services, The Separate Customs Territory of Taiwan, Penghu, Kinmen and Matsu, *Schedule of Specific Commitments*, GATS/SC/136, Feb. 15, 2002; U.S. Dept. of State telegram, "Taiwan's Market for Educational Services," Sept. 18, 2000; American Chamber of Commerce in Taipei, "2002 Taiwan White Paper," *Topics*, May 2002, p. 10; U.S. Department of Commerce, Office of Automotive Affairs, "Report on Vehicle Import Requirements," found at Internet address *http://www.ita.doc.gov/td/auto/impreq.html*, retrieved Mar. 4, 2002; American Institute in Taiwan, interview by USITC staff, Taiwan, May 2002; U.S. Department of State official, e-mail communication to USITC staff, June 17, 2002; USDOT, MARAD, *Maritime Subsidies*, Sept. 1993, p. 152.

affecting trade in goods also include special licensing and approval requirements for the import of medical goods and certain metals; discriminatory procurement practices with respect to medical goods; allegedly arbitrary reclassification of certain motor vehicles; and various import policies on motorcycles, motor vehicles, yachts, and recreational fishing boats. In the services sector, NTMs maintained by Taiwan principally include market access and national treatment limitations that allegedly impede foreign service providers, but also include restrictions on foreign investment and access to foreign exchange, and other measures.

U.S. Barriers

Import Policies

Tariffs[94]

The United States maintains a relatively low average tariff rate of 2.8 percent.[95] With the exception of poultry products and citrus juices, key agricultural products are subject to relatively low ad valorem equivalent tariffs (table 6-5). However, a number of higher tariffs remain in several selected nonagricultural sectors, including textiles, apparel, and trucks (table 6-6). The tariffs on textiles and apparel are of particular importance to Taiwan, as these sectors represent more than 10 percent of total Taiwan exports.[96] While a number of these tariffs are scheduled for permanent reductions, Taiwan authorities remain concerned about their impact on the ability of Taiwan industries to compete.

TRQs

The United States applies TRQs to only a select number of products. During the Uruguay Round, the United States scheduled TRQs for approximately 11 sensitive agricultural commodity areas (table 6-7).[97] The United States administers a separate TRQ regime for each commodity area. For example, the raw sugar TRQ is prorated among approximately 40 sugar-exporting nations based on historical imports during the selected base period of 1975-81. Dairy TRQs are allocated on a country-specific

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[94] Further details on the United States' specific tariff rates can be found in the relevant commodity sections.

[95] The Heritage Foundation, *The Index of Economic Freedom 2002: United States*, found at Internet address *http://cf.heritage.org/index/country.cfm?ID=154*, retrieved May 29, 2002.

[96] Taipei Economic and Cultural Representative Office (TECRO), "Examples of Selected U.S. Barriers to Taiwan Exports," submission to the USITC, Apr. 2002.

[97] The United States also has individual TRQs for selected agricultural products in accordance with NAFTA, the U.S.-Israel Free Trade Agreement, and the U.S.-Jordan Free Trade Area Implementation Act.

Table 6-5
United States: Tariffs on selected agricultural products, 2002

Product description	Actual tariff	AVE[1]
	Percent[2]	
Rice	0.44-2.1 cents/kg; 11.2	3
Wheat:		
Durum	0.65 cents/kg	0
Other	2.8; 0.35 cents/kg	0
Red meat:		
Beef and veal	4-26.4	0
Pork	0-1.4 cents/kg	2
Beef offal	0	0
Pork offal	0	0
Poultry:		
Whole	8.8 cents/kg	89
Cuts	17.6 cents/kg	18
Fish and shellfish:		
Fresh and frozen	0-15; 1.1 cents/kg	0
Canned	0-15	2
Shellfish	0-7.5	0
Cured and other	0	0
Fresh deciduous fruit:		
Grapes	0-$1.80/m	0
Apples	0	0
Pears (European pears)	0-0.3 cents/kg	0
Apricots	0.2 cents/kg	0
Cherries	0	0
Peaches and nectarines	0-0.2 cents/kg	0
Plums	0-0.5 cents/kg	0
Citrus fruits:		
Fruit, fresh or dried	0.8; 1.5-2.5 cents/kg	1
Fruit, prepared or preserved	0-14; 0.28-11.3 cents/kg	0
Juice	3.4-7.9 cents/kg	30
Peels	0-1.6 cents/kg	0
Jams, jellies, pureés, etc.	3.5-11.2	3
Selected processed foods:		
Milled products, malt, starches, wheat gluten	0-12.8; 0.9-0.56 cents/kg	0
Preparations of cereals, flour, starch or milk; bakers' ware	0-17.5	1
Residues and wastes from food industries and animal feed	0-1.4; 0.12-0.56 cents/kg	0
Other edible preparations	0-14.9; other mixed tariffs	1

[1] AVE is the ad valorem equivalent,consisting of duties collected divided by customs value for 2001.
[2] Unless otherwise noted.

Note.—Actual tariff is as quoted in the HTS (2002).

Source: Tariff and trade data compiled from the U.S. Department of Commerce, the U.S. Treasury, and the U.S. International Trade Commission.

Table 6-6
United States: Tariffs on selected non-agricultural products, 2002

Product description	Tariff range
	Percent
Apparel	[1]0.9-32.5
Auto parts:	
Motor vehicle engines	0-2.5
Certain motor vehicle engine parts	0-2.5
Lead-acid batteries	3.5
Electrical equipment for motor vehicles	0-3.1
Certain motor vehicle parts	0-2.5
Computer equipment, peripherals, and parts	0
Industrial fasteners:	
Steel	0–12.5
Copper	1.4-3.0
Aluminum	4.7-6.0
Industrial organic chemicals	0-10
Measuring instruments:	
Balances	3.9
Surveying equipment	0-3
Machine for testing the hardness of wood, metal, and other material	1.7
Hydrometers and similar floating instruments	0-2.9
Instruments for checking the flow, level, pressure of liquid or gases	0
Instruments and apparatus for physical or chemical analysis	0-3.5
Revolution counters, production counters, speedometers, etc.	0-6
Oscilloscopes, spectrum analyzers, and other similar instruments	0-1.7
Measuring or checking instruments, nspf; profile projectors; and parts	0-3.5
Automatic regulating or controlling instruments and apparatus	1.7
Other parts and accessories	0-4.4
Miscellaneous plastic products	0-8.4
Motor vehicles:	
Buses	2
Bus bodies and bus chassis	4
Passenger vehicles, bodies, and chassis	2.5
Trucks[2]	25
Road tractors for semi trailers, truck bodies, and truck chassis	4
Semiconductors	0
Textiles	[3]0.2-27.2

[1] Duties on cotton apparel typically range between 9 percent and 18 percent while duties on apparel made of wool and man-made fabrics typically range between 15-28 percent.

[2] Includes pickup trucks.

[3] Rates will be staged down through 2004, final bound rates will and range from 0.2 percent to 25 percent.

Source: Harmonized Tariff Schedule of the United States (2002).

Table 6-7
United States: Tariff-rate quotas on agricultural products scheduled with the WTO, 2002

	Quota	In-quota tariff	Over-quota tariff
	Metric Tons[1]		*Percent*[1]
Tariff-rate quota category:			
Beef	[2]696,621	4-10; 4.4 cents/kg	26.4
Dairy:			
Fluid Milk	11,356,236 liters	0.43 cents/liter	1.5 cents/liter
Milk and cream	6,694,840 liters	3.2 cents/liter	77.2 cents/liter
Butter, and fresh or sour cream	6,977	12.3 cents/liter	$1.54/kg
Dried milk	8,682	3.3-6.8 cents/kg	86.5-109.2 cents/kg
Milk or cream, condensed or evaporated	6,857	2.2-3.9 cents/kg	31.3-49.6 cents/kg
Dried milk, dried cream, dried whey	296	3.3 cents/kg	87.6 cents/kg
Miscellaneous dairy products	4,105	17.5	46.3 cents/kg + 14.9
Butter substitutes	6,081	10	$1.865/kg + 8.5
Selected cheeses	127,939	6.5-25	$1.055-$2.269/kg
Ice cream	5,667,846 liters	20	50.2 cents/kg + 17
Infant formula	100	17.5	$1.035/kg + 14.9
Green olives	4,400	[3]3.7-5.5 cents/kg	[3] 5.9-8.8 cents/kg
Peanuts:			
Peanuts	52,906	6.6-9.35 cents/kg	131.8-163.8
Peanut butter and peanut paste	20,000	Free	131.8
Sugar:			
Raw sugar	1,117,195	[4]1.4606 cents/kg	33.87 cents/kg
Refined sugar	22,000	[4]3.66 cents/kg	35.74 cents/kg
Sugar-containing products	64,709	6	33.6-33.9 cents/kg + 5.1
Blended syrups	0	6	33.9 cents/kg + 5.1
Cocoa powder containing sugar	2,313	10	33.6 cents/kg
Satsumas in airtight containers	40,000	Free	0.28 cents/kg
Mixes and doughs	5,398	10	42.3 cents/kg + 8.5
Mixed condiments and mixed seasonings	689	7.5	30.5 cents/kg + 6.4
Animal feed containing milk	7,400	7.5	80.4 cents/kg + 6.4
Tobacco	150,700	Free-97 cents/kg	350
Cotton:			
Cotton, not carded or combed	73,207	Free-4.4 cents/kg	31.4 cents/kg
Card strips made from cotton	3,335	Free	7.8 cents/kg
Cotton fibers	2.5	5	31.4 cents/kg

[1] Unless otherwise noted.
[2] There is no limit on imports from Canada and Mexico.
[3] On a drained weight.
[4] Minus 0.020668 cents/kg for each degree under 100 degrees (and fractions of a degree in portion) but not less than 0.943854 cents/kg for raw sugar and 3.143854 cents/kg for refined sugar.
Source: Harmonized Tariff Schedule of the United States, 2002.

basis as well as a first-come, first-served (FCFS) basis. Country-specific dairy TRQs require import licenses according to historical, non-historical, and other designated categorizations. The peanut TRQ[98] is allocated almost entirely to Argentina (i.e., Argentina holds 83 percent of the rights to export peanuts to the United States), with the remainder allocated on a FCFS basis.[99] In recent years, Taiwan has been a minor exporter of agricultural products to the United States, and thus, U.S. agricultural TRQs do not serve as significant barriers to Taiwan exports. Economists from Taiwan indicate that TRQs on dairy products and peanuts remain the most significant.[100]

Quotas

Taiwan authorities contend that U.S. quotas on textiles and apparel act as barriers to trade in such products. While all remaining U.S. quotas on textile and apparel imports from Taiwan are scheduled to be phased out by 2005 under the terms of the WTO Agreement on Textiles and Clothing, many Taiwan exporters fear that U.S. producers will work to delay implementation of the phaseouts with calls for trade relief.[101]

Taxes

The United States imposes various taxes on goods imported into the country, including a harbor maintenance tax (currently at 0.125 percent ad valorem) and a merchandise processing fee (0.21 percent ad valorem), with dollar limits per entry. According to TECRO, there have been complaints that these fees discriminate against imports, as there are several potential exemptions for U.S. shippers, and that the tax is based on the value of goods entered rather than the actual services rendered.[102] Taiwan exporters are particularly concerned about a proposed change to U.S. tax law that would force Taiwan shipping companies and air carriers to pay tax on certain income, including that derived from U.S. inland transportation services, which would result in double taxation.[103]

The United States maintains a luxury tax of 3 percent on cars valued over $40,000 (slated for elimination in 2003), and a gas guzzler tax ranging from $1,000 to $7,700 on cars not meeting the current fuel economy standard of 22.5 miles per gallon (mpg) set by the Environmental Protection Agency (EPA). These taxes are applied equally to vehicles produced both in the United States and abroad.

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[98] The United States maintains a separate TRQ on peanut butter and peanut paste (table 6-7).

[99] Israel is allocated a separate TRQ for peanuts through 2002 as an adjunct to the U.S.-Israel Free Trade Agreement.

[100] Chung Hua Institution for Economic Research, interview by USITC staff, Taipei, Taiwan, May 22, 2002.

[101] Ibid.

[102] TECRO, "Examples of Selected U.S. Barriers to Taiwan Exports," information provided to USITC staff, Apr. 2002.

[103] Ibid.

Rules of Origin

Taiwan authorities assert that the application of U.S. rules of origin act as a barrier to Taiwan exports. They contend that the United States has modified rules of origin unilaterally, notably in the textiles and apparel area. They also have expressed concern over U.S. monitoring and enforcement of transshipment mechanisms, which are closely tied to rules of origin questions, as well as to quota and visa administrative procedures.[104]

Trade Remedy Laws

Application of U.S. trade remedy laws are among the concerns most frequently raised by Taiwan exporters to the United States. In a study conducted by Taiwan's National Federation of Industries (NFI), antidumping measures reportedly were the only major U.S. trade barrier cited by Taiwan exporters.[105] Taiwan authorities indicate that many foreign parties have criticized these measures as anticompetitive and inconsistent with WTO rules. Taiwan concerns regarding the effects of trade remedies reportedly have been heightened since the passage of the Byrd Amendment, which allows the distribution of antidumping and countervailing duties to certain firms that have sought protection under trade remedy laws.[106]

Taiwan authorities state that the Taiwan industries which have been most affected by U.S. trade remedy laws include steel, chemicals, some electrical products, some communication equipment, optical media, textiles, and bicycles.[107] However, Taiwan authorities contend that U.S. antidumping, countervailing duty, and safeguard laws act as significant barriers for all Taiwan exports, as the potential for action in any industry creates a high level of uncertainty for exporters.[108] They claim that these U.S. laws are particularly discouraging to small- and medium-sized Taiwan businesses, which comprise a significant portion of Taiwan's economy.[109] For example, according to an official of the Taiwan Semiconductor Industry Association (TSIA), the threat of antidumping actions has necessitated significant expenditures on manpower and legal expertise, which can hurt the competitiveness of small- and medium-sized semiconductor companies trying to do business in the United States.[110]

Other Customs Procedures

Taiwan authorities claim that certain customs regulations, particularly those applied to textiles and clothing, are overly complex and require unnecessary information.[111]

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[104] TECRO, "Examples of Selected U.S. Barriers to Taiwan Exports," information provided to USITC staff, Apr. 2002.

[105] National Federation of Industries (CFI), interview by USITC staff, Taipei, Taiwan, May 23, 2002.

[106] TECRO, "Examples of Selected U.S. Barriers to Taiwan Exports," information provided to USITC staff, Apr. 2002.

[107] CFI, interview by USITC staff, Taipei, Taiwan, May 23, 2002.

[108] Ibid.

[109] Ibid.

[110] TSIA, interview by USITC staff, Chutung, Hsinchu, Taiwan, May 20, 2002.

[111] Ibid.

Additional customs barriers, including user fees and excessive invoicing requirements, add costs to imports and, thus, have an affect similar to that of tariffs.[112]

Regulatory Regime

Standards, Testing, Labeling, and Certification

Taiwan exporters contend that complexities in the U.S. regulatory system have resulted in additional costs and difficulties at the border.[113] Taiwan authorities claim that the various product standards, testing, and labeling requirements enforced by the United States inhibit Taiwan exports without doing much to protect the health and safety of U.S. consumers.[114] They also argue that the holding of shipments whose test results are pending results in spoilage and other costs.[115] Taiwan exporters contend that the FDA enforces standards on many products–including certain agricultural goods such as starfruit, litchi, and several other fruits–in a manner that inhibits Taiwan exports of these goods.[116] The United States currently bans the entry of Taiwan orchids under these regulations, but the removal of this ban is currently under discussion.[117] In addition, Taiwan exporters of certain products must conduct tests to conform to U.S. electromagnetic radiation standards. The standards reportedly are developed by private institutions in a nontransparent manner, and the tests are costly and redundant, as they often differ from international norms.[118] Because of these testing requirements, products made to comply with international standards cannot be directly imported into the United States.[119] Taiwan authorities have called for mutual recognition of standards in order to alleviate these inefficiencies.[120]

The labeling of retail packages also remains an area of concern for many Taiwan companies, especially small- and medium-sized enterprises that cannot easily absorb the costs associated with such labeling. Taiwan exporters contend that U.S. rules for marking packages are often onerous, and that nutrition labeling requirements in particular differ from international norms and are developed by private bodies in a nontransparent manner, creating a disadvantage for Taiwan firms.[121]

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[112] European Commission, *Market Access Sectoral and Trade Barriers Database, United States*, p. 4.

[113] TECRO, "Examples of Selected U.S. Barriers to Taiwan Exports," information provided to USITC staff, Apr. 2002.

[114] Ibid.

[115] Ibid.

[116] Council for Economic Planning and Development, interview by USITC staff, Taipei, Taiwan, May 21, 2002; and Council of Agriculture (COA), interview by USITC staff, Taipei, Taiwan, May 23, 2002.

[117] COA, interview by USITC staff, Taipei, Taiwan, May 23, 2002.

[118] Both industrial and phytosanitary standards were reported to differ from international standards. Ibid.

[119] EC, *Market Access Sectoral and Trade Barriers Database, United States*, p. 4.

[120] TECRO, "Examples of Selected U.S. Barriers to Taiwan Exports," information provided to USITC staff, Apr. 2002.

[121] Ibid.

Investment Barriers

In general, the United States is viewed as open to foreign investment: most industries are free from restrictions, and foreign investors are not required to register with or seek approval from the government.[122] Persons interviewed by Commission staff did not identify U.S. investment laws and policies as significant barriers to Taiwan investment in the United States.

Excise taxes can be imposed in connection with property transfers to foreign entities, as well as on the investment income of some foreign foundations.[123] Certain foreign enterprises established in the United States are not eligible for Overseas Private Investment Corporation (OPIC) insurance and loan guarantees, and Trade and Development Agency financing is limited to U.S. citizens and businesses that are incorporated in the United States and more than 50-percent owned by U.S. citizens.[124] U.S. immigration laws were cited as preventing Taiwan investors from developing projects that require short-term assignments for Taiwan employees in the United States, as visas for such employees can be difficult to obtain.[125] In addition, restrictions on the ownership and purchase of land by noncitizens and the initial sale of certain federally owned land exist in some states.[126]

Intellectual Property Rights Protection

Taiwan authorities have expressed concern that the U.S. section 337 statute,[127] under which products that violate U.S. intellectual property laws can be barred from entering the United States, violates GATT provisions.[128] Other IPR concerns expressed are in the areas of government use of patents, appellations of origin, geographical indications, copyrights, and trademarks.[129]

Government Procurement/Local Content Schemes

As of June 2002, Taiwan was negotiating accession to the WTO Government Procurement Agreement (GPA), and anticipated acceptance as a signatory later that year.[130] As a signatory to this agreement, Taiwan will be exempt from certain U.S. programs that limit access to U.S. government procurement markets such as the Buy

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[122] The Heritage Foundation, *The Index of Economic Freedom 2002: United States*.

[123] WTO, GATS, *The United States of America - Schedule of Specific Commitments*, GATS/SC/90, Apr. 15, 1994, p. 10.

[124] Ibid., pp. 10-11.

[125] TECRO, "Examples of Selected U.S. Barriers to Taiwan Exports," information provided to USITC staff, Apr. 2002.

[126] WTO, GATS, *The United States of America - Schedule of Specific Commitments*, GATS/SC/90, Apr. 15, 1994, pp. 7-8

[127] Section 337 of the Tariff Act of 1930 (19 U.S.C. § 1337).

[128] TECRO, *U.S. Trade Barriers Report*, June 24, 2002, p. 17.

[129] Ibid., p. 6.

[130] *Yahoo! Singapore Finance*, "Taiwan to Sign WTO's Government Procurement Agreement," Feb. 18, 2002, found at Internet address *http://sg.biz.yahoo.com/020218/1/2ic6w.html*, retrieved June 4, 2002.

America Act, which stipulates that, in certain industries, only U.S.-made products are eligible for government purchase.[131]

According to TECRO, opportunities for Taiwan firms to bid on U.S. government procurement projects are limited by small business and minority set-aside schemes, which are allowed under the GPA.[132] Taiwan exports to the United States also are limited by specific national security provisions, under which certain goods sold to the U.S. Department of Defense cannot contain material such as fibers and yarns that originate in a foreign economy.[133] Despite the opportunity to negotiate waivers, such waivers are subject to review and can be revoked. Further, various state and local government procurement programs, financed by the U.S. Department of Transportation, require purchases to meet certain buy-local rules.[134] Under the conditions of these programs, purchases not containing a minimum percentage of domestic content will face significant price penalties. Local content requirements also affect Taiwan's steel exports to the United States, since many individual states have exempted steel from their GPA commitments.[135]

TECRO also cites the U.S. Jones Act, which limits foreign participation in the U.S. maritime industry to ships built and flagged in the United States and owned and crewed by U.S. citizens.[136] Separate legislation restricts certain commercial marine activities in U.S. waters and limits the carriage of government-generated and military cargo to U.S. vessels.[137]

Extraterritoriality[138] */ Unilateralism*

In order to protect its national security and foreign policy interests, the United States has established a comprehensive system of export controls that prevent exports of certain dual-use products to various destinations.[139] Taiwan authorities contend that these export controls inhibit Taiwan exports and investment, especially with respect to mainland China.[140] Taiwan authorities also have expressed concern over U.S. targeted sanctions or retaliation against countries thought to violate U.S. trade policy, particulary "carousel" retaliation. This program[141] requires the United States Trade

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[131] See Buy America Act of 1933, 41 USC 10; and Buy America Act of 1988, (P.L. 100-418).

[132] TECRO, "Examples of Selected U.S. Barriers to Taiwan Exports," information provided to USITC staff, Apr. 2002.

[133] Ibid.

[134] Ibid.

[135] Ibid.

[136] Ibid. See also U.S.C. 883; 19 CFR 4.80 and 4.80 (b).

[137] See Cargo Preference Acts of 1904 and 1954 (P.L. 83-664).

[138] Extraterritoriality is the application of domestic laws on companies and individuals overseas, of which re-export controls are one form.

[139] U.S. Department of Commerce, Bureau of Industry and Security,"Fact Sheet: BSI's Primary Programs, Dual-Use Licensing," found at Internet address *http://www.bxa.doc.gov/factsheets/dualuse.htm*, retrieved Jul. 2, 2002.

[140] TECRO, "Examples of Selected U.S. Barriers to Taiwan Exports," information provided to USITC staff, Apr. 2002.

[141] See Trade and Development Act of 2000 (P.L. 106-200).

Representative to revise the list of products subject to retaliation in WTO dispute settlements every six months.[142] Taiwan exporters worry about the potential impacts of this rotating list.[143]

Dispute Resolution

According to Taiwan authorities, the procedures in place for resolving business disputes between Taiwan and U.S. companies are time-consuming and cause delays.[144] Disputes generated during commercial activities are handled largely by arbitration bodies in both economies, and must be approved by courts in both markets before the resolutions are put into effect.[145]

Industry-Specific Barriers

Table 6-8 lists U.S. laws, regulations and policies cited by various sources, including non-Taiwan sources, that apply to trade in particular goods and services, and that may act as nontariff barriers to trade between the United States and Taiwan or other countries. These include U.S. sanitary and phytosanitary (SPS) regulations and laws, regulations, and policies relating to trade in apparel, motor vehicles, and textiles and to the services sector.

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[142] Lenore Sek, "Trade Retaliation: The 'Carousel' Approach," Congressional Research Service, Mar. 5, 2002, found at Internet address *http://fpc.state.gov/documents/organization/9099.pdf*, retrieved Jun. 30, 2002.

[143] TECRO, "Examples of Selected U.S. Barriers to Taiwan Exports," information provided to USITC staff, Apr. 2002.

[144] TECRO, *U.S. Trade Barriers Report*, June 24, 2002, p. 22.

[145] Ibid. Taiwan authorities have pointed to bilateral arbitration agreements signed by the United States and other third parties as models for effective dispute resolution between Taiwan and the United States.

Table 6-8
U.S. laws, regulations and policies identified as potentially affecting Taiwan producers and service providers

Industry	Type of policy	Description
Agricultural goods		
Food products	Sanitary and phytosanitary (SPS) regulations	The U.S. Food and Drug Administration (FDA) regularly holds food shipments pending results of laboratory tests.
Rice	Financial assistance	The United States operates a rice support program, under which market prices can fluctuate.
Plant products	Sanitary and phytosanitary (SPS) regulations	The U.S. Food and Drug Administration (FDA) and the Agricultural Plant and Animal Health Inspection Service (APHIS) enforce standards and regulations at the border in a manner which inhibits the import of certain plant products– such as sphagnum moss, litchi, mangoes, wax apples, citrus, orchids, and starfruit– into the United States from Taiwan.
Non-agricultural goods		
Apparel	Quotas	During 2001, the United States imposed quotas on about 40 categories and subcategories of apparel products from Taiwan, and 10 of these quotas were filled by more than 50 percent.
Apparel	Customs procedures/ Lack of transparency	U.S. Custom Service regulations pertaining to apparel are complex.
Apparel	Government procurement	The "Berry Amendment," requires U.S. military procurement of uniforms and other articles, with some exceptions, to be domestic goods.
Apparel	Rules of origin/ lack of transparency	U.S. rules of origin have been modified and applied unilaterally in the apparel area.
Shipbuilding	Market access	Vessels used for the U.S. coastwise traffic must be built in the United States
Textiles	Quotas	Quotas reportedly rank among the chief U.S. barriers to imports from Taiwan. In 2001, the group quota covering denim, printcloth, sateen, and other fabrics was close to filling. Although these quotas are scheduled to be eliminated in January 2005, many Taiwan exporters fear that U.S. producers will try to delay or disrupt quota elimination with calls for trade relief.
Textiles	Rules of origin/ lack of transparency	In the past the United States has modified its rules of origin unilaterally in the textiles area.
Textiles	Customs procedures/lack of transparency	Customs regulations on textiles are considered exceptionally complex.
Textiles	Government procurement	The national security provisions of the U.S. Department of Defense's procurement regulations, effectively prevent the use of Taiwan-origin fibers and yarns by U.S. mills that produce fabrics for the Department of Defense. Although waivers can be negotiated, the annual review requirement creates legal uncertainties.

See footnotes at end of table.

Table 6-8-*Continued*
U.S. laws, regulations and policies identified as potentially affecting Taiwan producers and service providers

Industry	Type of policy	Description
Services		
Accounting, auditing, and bookkeeping services	Market access	Sole proprietorships or partnerships are limited to persons licensed as accountants, except in Iowa where accounting firms must incorporate under state law. U.S. citizenship is required in order to be licensed as accountants, auditors, and bookkeepers in North Carolina. Other U.S. states require that licensed accountants, auditors, and bookkeepers maintain an in-state office.
Air transport services	Investment restriction	The Federal Aviation Act of 1958 prohibits foreign investors from taking more than a 49-percent stake in a U.S. air carrier and restricts the holding of voting stock to 25-percent.
Air transport services	Market access	U.S. cabotage restrictions prohibit foreign-owned airlines from flying between two U.S. cities without a flight originating in, ending in, or transiting a foreign country. U.S. law prohibits a foreign-owned airline from leasing aircraft operated by its own crew (i.e., wet-leasing) to a U.S. company for operation within the United States.
Architectural services	Market access	Two-thirds of the officers of an architectural firm must be licensed in Michigan as architects, professional engineers, and/or land surveyors.
Audiovisual services	Market access	The United States maintains limitations on foreign ownership of newspapers, radio and/or television broadcast stations serving the same local market. U.S. citizenship is required to obtain radio and television licenses.
Distribution services	Market access	The United States does not permit the retail sale of alcoholic beverages, firearms, and military equipment.

See footnotes at end of table.

Table 6-8-*Continued*
U.S. laws, regulations and policies identified as potentially affecting Taiwan producers and service providers

Industry	Type of policy	Description
Banking and securities[1]	Market access	The offer of new financial services or products is subject, on a non-discriminatory basis, to relevant institutional and juridical form requirements. All directors of a national bank must be citizens unless a national bank is an affiliate or subsidiary of a foreign bank, in which case only a majority of the board need be citizens. Foreign ownership of Edge Act corporations is limited to foreign banks and U.S. subsidiaries of foreign banks, while domestic non-bank firms may own such corporations. Federal and state laws do not permit a credit union, savings bank, home loan, or thrift business in the United States to be provided through branches of corporations organized under a foreign country's law. U.S. citizenship is required for incorporators or organizers of depository financial institutions organized under state law. Residence within a state may also be required for directors, incorporators, organizers, or executive committee members of depository financial institutions organized under state law. Establishment in the United States of a foreign-owned branch of a securities firm is legally possible, but not practical in fact, since such firms would be required to register in the United States and become subject to Securities and Exchange Commission regulation. Foreign mutual funds have been unable to make public offerings in the United States because SEC conditions make it difficult for a foreign fund to register under the U.S. Investment Company Act of 1940. (According to the Investment Company Institute, the trade group representing the U.S. mutual fund industry, foreign fund managers can easily set up business in the United States, and register with the SEC as an investment advisor.)
Distribution services	Labeling	The United States maintains requirements on the marking and labeling of textile and leather retail packages that are reportedly burdensome.
Education services	Market access	The total number of licenses for cosmetology schools in Kentucky is limited to 48, with a total of 8 licenses allowed per congressional district.

See footnotes at end of table.

Table 6-8-*Continued*
U.S. laws, regulations and policies identified as potentially affecting Taiwan producers and service providers

Industry	Type of policy	Description
Education services	National treatment	For adult education and other education services, the United States reserves the right to limit scholarships and grants to U.S. citizens and/or residents of particular states. In some cases, such scholarships and grants may only be used within certain U.S. jurisdictions or at certain institutions in a state.
Education services	Market access/ national treatment	The United States also reserves the right to place restrictions on the foreign provision of primary, secondary, and higher education services.
Energy services	National treatment	Foreign entities may not acquire rights-of-way for oil or gas pipelines, or pipelines carrying products refined from oil and gas, across onshore federal lands.
Engineering services	Market access	U.S. citizenship is required in order to be licensed as an engineer in the District of Columbia. In-state residency is required in order to be licensed as an engineer in Idaho, Iowa, Kansas, Maine, Mississippi, Nevada, Oklahoma, South Carolina, South Dakota, Tennessee, Texas, and West Virginia.
Insurance services	National treatment	A federal excise tax of one percent on life insurance premiums and four percent on non-life premiums is imposed on the cross-border supply of insurance from foreign companies covering U.S. risks. For maritime vessels built under federally guaranteed mortgage funds and insured by a foreign company, the insured must demonstrate that the risk was first offered in the U.S. market.
Legal services	Market access	Legal services practiced as or through a qualified lawyer must be supplied by a natural person. Certain U.S. states require that natural persons providing legal services have in-state or U.S. residency, and maintain restrictions on the scope of services provided by foreign legal consultants (FLCs). Partnership in a U.S. law firm is limited to persons licensed as lawyers. U.S. citizenship is required to practice law as an attorney in the U.S. Patent and Trademark Office.

See footnotes at end of table.

Table 6-8-*Continued*
U.S. laws, regulations and policies identified as potentially affecting Taiwan producers and service providers

Industry	Type of policy	Description
Legal services	Market access	Certain U.S. states and the District of Columbia require that licensed attorneys maintain in-state offices. Partnerships consisting of foreign legal consultants (FLCs) and local lawyers are not permitted in Ohio.
Maritime transport services	Domestic regulation	The Jones Act (section 27 of the Merchant Marine Act of 1920) reserves the transport of cargo between U.S. ports to ships that are built and registered in the United States, and that are owned and operated by U.S. citizens. Thus, the Jones Act prohibits foreign vessels from transporting freight in U.S. coastal waters, as well as between U.S. lakes and inland waterways. The Passenger Service Act of 1886 stipulates that ocean passengers traveling between U.S. ports must be transported on ships that are U.S. built, U.S.-owned, and U.S.-operated.
Maritime transport services	Cargo preference laws	U.S.-flag vessels must carry at least 50 percent of government-owned cargo and all military cargo. U.S.-flag vessels must be used to transport foreign assistance cargo shipped by the U.S. Department of Agriculture and the Agency for International Development (AID). U.S.-flag vessels must be used to transport freight generated in connection with loans from the Export-Import Bank. Exports of Alaskan crude oil must be transported on U.S.-flagged and U.S-owned vessels.
Rail transport services	Market access	In order to own stock in a railroad company incorporated under Vermont law, foreign railroads must be incorporated in Vermont or in a neighboring state.
Telecommunication services	Market access/ licensing requirements/ investment restrictions	Foreign firms in the U.S. mobile services sector face barriers to market access, including lengthy proceedings for spectrum allocation and licensing, investment restrictions, and lack of access to frequencies for third generation technologies.
Travel and tourism services	Market access	Official tourism offices with diplomatic or official status are not permitted to operate on a commercial basis in the United States or to act as agents or principals in commercial transactions. The number of concessions available for commercial operations in U.S. federal, state, and local facilities is limited.

See footnotes at end of table.

Table 6-8-*Continued*
U.S. laws, regulations and policies identified as potentially affecting Taiwan producers and service providers

Industry	Type of policy	Description
Policies that do not specifically discriminate against imports but may affect bilateral trade		
Animal products, including beef and pork	Sanitary and phytosanitary (SPS) regulations	Consistent with the WTO Agreement on the Application of Sanitary and Phytosanitary Measures, U.S. regulations generally do not permit imports of animal products, including fresh, chilled, or frozen beef and pork, from countries that have not been certified by the Office International Des Epizooties (OIE) as FMD free. Taiwan lost FMD-free status in 1997, and is not expected to regain FMD-free status in the near future.
Poultry	Sanitary and phytosanitary (SPS) regulations	U.S. imports of poultry meat are subject to health and sanitary regulations that require imports of poultry meat to be healthful, wholesome, and fit for human consumption, and to comply with any standards, rules, and regulations that apply to like domestic products. Imported poultry must originate in countries and plants approved to export to the United States, and is restricted to countries certified to be free of various poultry and poultry-borne diseases. As of July 2001, the only countries approved to export poultry meat to the United States were Canada, France, Hong Kong, and Israel.
Apparel	Labeling	Rules for marking and labeling apparel products often are complex and costly, especially for small- and medium-size companies.
Textiles	Labeling	Current U.S. rules for marking and labeling retail packages are viewed as onerous and costly.
Motor vehicles	Taxes	The United States maintains a luxury tax on passenger vehicles. In 2002, the luxury tax stands at 3 percent on the amount of the vehicle selling price in excess of $40,000. This tax slated to expire in 2003. The United States maintains a gas guzzler tax ranging from $1,000 to $7,700 on cars not meeting the current fuel economy standard of 22.5 miles per gallon (mpg) set by the Environmental Protection Agency (EPA).
Motor vehicles	Corporate Average Fuel Economy (CAFE) requirements	Corporate Average Fuel Economy requirements state that an automaker's or importer's passenger car fleet must reach an average fuel economy of 27.5 mpg and that its light truck fleet must reach an average fuel economy of 20.7 mpg. Civil penalties are levied if these averages are not met.
Motor vehicles	Labeling	The American Automobile Labeling Act stipulates that each new passenger vehicle must be labeled with five items of information that indicate country of origin and content information.

See footnotes at end of table.

Table 6-8-*Continued*
U.S. laws, regulations and policies identified as potentially affecting Taiwan producers and service providers

Industry	Type of policy	Description
Telecommunication services	Market access/lack of transparency	Universal service and access charge regimes in the United States reportedly require clarification to ensure that foreign consumers are not subsidizing universal service obligations in the United States.

[1] According to Taiwan's General Chamber of Commerce, there are no significant barriers in the U.S. financial services market. General Chamber of Commerce, interview by USITC staff, Taipei, Taiwan, May 20, 2002.

Source: USITC staff meeting with Taipei Economic and Cultural Representative Office, Washington, DC, Mar. 19, 2002; General Agreement on Trade in Services (GATS/SC/90), 1994; Council of Agriculture, interview by USITC staff, Taipei, Taiwan, May 23, 2002; EU Market Access Database; NAFTA reservations (42 U.S.C. §§ 2133, 2134); NAFTA reservations (30 U.S.C. §§ 181, 185(a)); NAFTA reservations (10 U.S.C. § 7435); General Agreement on Trade in Services (GATS/SC/90/Suppl.3) 1998; and the U.S. Department of Transportation; and USDA, ERS, "Rice: Background and Issues for Farm Legislation," July 2001, p. 9; USDA, Animal and Plant Health Inspection Service, found at Internet address ht*tp://www.aphis.usda.gov/ppq/permits/fruits_veg/index.html*; TSIA, *interview with USITC staff, Chutung, Hsinchu, Taiwan, May 20, 2002;* Study performed by officials of the Government of Taiwan, obtained by interview with Commission staff*, Mar. 15, 2002;* General Agreement on Trade in Services (GATS), United States of America, *Schedule of Specific Commitments* (GATS/SC/90), Apr. 1994; 46 U.S.C. 883; 19 CFR 4.80 and 4.80 (b); 46 U.S.C. 289; 19 CFR 4.80 (a); Food Security Act of 1985 (P.L. 99-198); Cargo Preference Acts of 1904 and 1954 (P.L. 83-664); Public Resolution No. 17. USDOT, MARAD, Maritime Subsidies, Sept. 1993, pp. 162-163; and Alaska Power Administration Asset Sale and Termination Act of 1995 (P.L. 104-58).

CHAPTER 7
Analysis of Eliminating Existing Trade Barriers

Introduction

This chapter investigates the likely economic effects of a preferential elimination of trade barriers between the United States and Taiwan, using two approaches. First, a computable general equilibrium (CGE) model and its corresponding database are used to illustrate the possible effects on a number of economic measures, including the volume of trade in goods and services between the two economies and, for each economy, the GDP, sectoral output, wages and employment across industry sectors, and the final prices paid by consumers.[1, 2] Second, a qualitative assessment is offered on the likely impact of removing nonquantifiable barriers to trade between the United States and Taiwan.

Summary of Findings

The Commission found that, following the implementation of a U.S.-Taiwan FTA in 2005, total U.S. exports and imports are each estimated to be approximately 0.2 percent higher than if the FTA had not been implemented. At the bilateral level, U.S. exports to Taiwan would likely increase from about $21.8 billion to $25.3 billion, a 16 percent increase, while U.S. imports from Taiwan would likely increase from about $39 billion to $46 billion, an 18 percent increase. At the sectoral level, the estimated impacts are relatively large for those sectors with high initial trade barriers and low initial trade volumes. The analysis suggests that following FTA implementation, several U.S. sectors would experience increases in exports exceeding 100 percent–including

[1] Economic simulation models, such as the one used here, are useful tools in addressing questions such as economic effects of trade agreements. Such models reflect key economic and trade relationships in the U.S. and world economy and they help to organize analysis. Model results should be interpreted as illustrative as to what might occur given the assumptions of the model and the focus on trade-related changes. Economic, political, and natural events unrelated to the trade agreement should also be expected to affect the economic variables of interest to this study.

[2] In the GTAP data, "consumer expenditures" are equivalent to the BEA's personal consumption expenditures (see Ann M. Lawson, Benchmark Input-Output Accounts for the U.S. Economy, 1992, Survey of Current Business 77:36-82, Nov. 1997) and transactions are valued in producer prices (i.e., for each commodity, consumers have a separate demand for marketing services). Thus, even though consumer prices for commodities do not capture changes in the prices of marketing services associated with each commodity, the sum of consumer expenditures and its price index reported here do capture all price changes, including those of marketing services.

motor vehicles and parts, rice, fish, and other foods. In the other direction, U.S. sectors with import increases exceeding 100 percent include dairy; textiles, wearing apparel, and leather; and other crops.

Full preferential trade liberalization has a minimal impact on U.S. production and a larger impact on Taiwan production. The overall U.S. GDP impacts are estimated to be negligible, while Taiwan GDP is projected to increase by about 0.3 percent as a result of the FTA. The textiles, apparel, and leather sector–the most affected sector–is estimated to shrink by about 0.4 percent in the United States and to grow by about 8 percent in Taiwan. U.S. output of vegetables, fruits, and nuts is projected to increase by about 0.3 percent, while U.S. motor vehicle output would grow by 0.1 percent. Taiwan output of oilseeds is estimated to grow by 0.4 percent, while the production of other crops would increase 1.6 percent. Taiwan would experience a decline in production in several sectors, including motor vehicles and parts (1.6 percent), vegetables, fruits, and nuts (1.7 percent), and electronics (1 percent).

The impacts of the U.S.-Taiwan FTA were also simulated under alternative assumptions about the response of trade to the FTA and the link between factor productivity and economic openness. Model results suggested that if factor productivity in Taiwan increased due to more trade openness towards the United States, the economic benefits of the FTA would be substantially larger for Taiwan and slightly larger for the United States.

The general equilibrium analysis summarized above does not fully take into account the potential impact of the removal of non-tariff measures (NTMs), which are difficult to measure. A qualitative assessment of those barriers and impediments suggested that the reduction of NTMs in key agricultural sectors would probably not result in large changes to U.S.-Taiwan trade. Regarding non-agricultural products, it is likely that after an initial increase in trade, the long-term impacts of removing NTMs would not be substantial. For the services sectors, however, it is expected that U.S. banks and asset management firms would expand their operations in Taiwan and increase revenues. It is also expected that U.S. education firms would experience a modest increase in revenues in Taiwan.

General Equilibrium Analysis

Database and Aggregation

The GTAP modeling framework, which serves as a basis for the present analytical exercise, consists of a comparative static computable general equilibrium (CGE) model and a global database on domestic markets and international trade.[3] In addition to

[3] For additional information, see T.W. Hertel (ed.), Global Trade Analysis: Modeling and Applications. (Cambridge: Cambridge University Press), 1997 and Dimaranan, Betina V. and Robert A. McDougall (2002). Global Trade, Assistance, and Production: The GTAP 5 Data Base, Center for Global Trade Analysis, Purdue University.

the data on trade in each of the commodities between each pair of economies or regions in the model, the model contains data on the domestic production and use of each commodity, including use in the production of other commodities; the supply and use of land, labor, and capital; and GDP. The database also contains information on tariffs, some nontariff barriers, and other taxes. An additional component of the data is the set of behavioral parameters which, in the context of the model's equations, determines behavioral responses to changes in price, among other things.[4] Appendix D presents a comprehensive discussion of the GTAP data, model, and simulations.

The GTAP database (version 5) divides the world into 66 economies or regions and has 57 commodity aggregates (or sectors) and five primary factors of production.[5] For the purpose of the present analysis, the database has been aggregated into 12 regions and 24 commodity groups (table 7-1). The commodity aggregation adopted here reflects the request by the Senate Committee on Finance to pay special emphasis to agricultural goods.

Table 7-1
Commodity and regional specification used in the general equilibrium analysis

Commodity aggregation	Regional aggregation
Paddy rice	USA
Other grains	Canada
Oilseeds	Mexico
Vegetables, fruits, and nuts	EU
Other crops	Japan
Livestock	Korea
Forestry	Taiwan
Fishing	Hong Kong
Coal, oil, gas, and other minerals	China
Meat products	ASEAN
Dairy products	Rest of Asia
Processed rice	Rest of world
Other processed foods	
Textiles, wearing apparel, and leather products	
Wood and paper products	
Petroleum and coal products	
Chemical, rubber, plastic products and other mineral products	
Metals and metal products	
Motor vehicles and parts	
Other transportation equipment	
Electronic equipment	
Other machinery and equipment	
Other manufactures	
Services[1]	

[1] The GTAP database contains only a highly aggregated representation of the services sector. Unlike the other sectors in the database, services are not fully tradable and the border measures captured in the GTAP protection data do not represent the actual restrictions to trade in services.

Source: GTAP database.

[4] The Commission simulated the U.S.-Taiwan FTA under alternative assumptions about the response of trade to policy changes and the link between factor productivity and economic openness. The sections "Gross Domestic Product and Productivity" and "Results Sensitivity" include discussion of selected results.

[5] Dimaranan, Betina V. and Robert A. McDougall. Global Trade, Assistance, and Production: The GTAP 5 Data Base, Center for Global Trade Analysis, Purdue University, 2002.

Simulation Design

The Senate Committee on Finance requested a static and dynamic analysis of the effect of bilateral trade liberalization. The analysis conducted by the Commission incorporates both approaches in a single analysis, employing a static framework with a dynamic element where macroeconomic variables are changing over time.[6] The effects of the FTA are examined by means of a series of comparative static analyses extending out to 2013.[7] The comparative static GTAP model is solved sequentially so as to approximate a dynamic process in which the world's economies change over time. In this framework, the modeled changes include 1) a projection of changes that are likely to occur irrespective of the studied policy changes (i.e., the projected baseline), 2) the policy changes (i.e., the reciprocal trade liberalization between the United States and Taiwan), and 3) the affected economies' responses to the policy changes. In essence, the analysis presented here addresses the following question: if an FTA were established between the United States and Taiwan, how would the time paths of the relevant variables differ compared to the projected baseline?

The modeling technique employed in this study produces results that can be visualized in a manner consistent with figures 7-1 and 7-2.[8] The figures show the estimated evolution of a variable of interest (bilateral trade between the United States and Taiwan, in this case) over a given time period (1997 to 2013). The projected baseline (thin line in figures 7-1 and 7-2) illustrates how the variable is estimated to evolve if the studied FTA were not implemented.[9] The FTA (bold line) shows the evolution of the variable under implementation of the FTA. Figure 7-1 shows that the agreement would likely increase U.S. exports to Taiwan. Figure 7-2 shows that the agreement would likely increase U.S. imports from Taiwan. In this chapter, the vertical distance between the two lines is reported for a number of variables, and is interpreted as the estimated impact of the U.S.-Taiwan FTA for each variable.

Projected Baseline

The standard GTAP database (Version 5) is based on 1997 data, including trade flows, trade barriers, and other data for that year. Data are expressed in 1997 U.S. dollars. To build the projected baseline, data and forecasts of population growth, capital growth, and GDP growth from the World Bank are applied to all economies in the model to describe economic conditions in 2001 and expected economic conditions at 2005, 2009, and 2013.[10] Table 7-2 reports the projected annual growth rates for

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[6] A similar methodology was applied by the Commission in U.S.-Korea FTA: The Economic Impact of Establishing a Free Trade Agreement (FTA) Between the United States and the Republic of Korea, Inv. No. 332-425, USITC Publication 3452, September 2001.

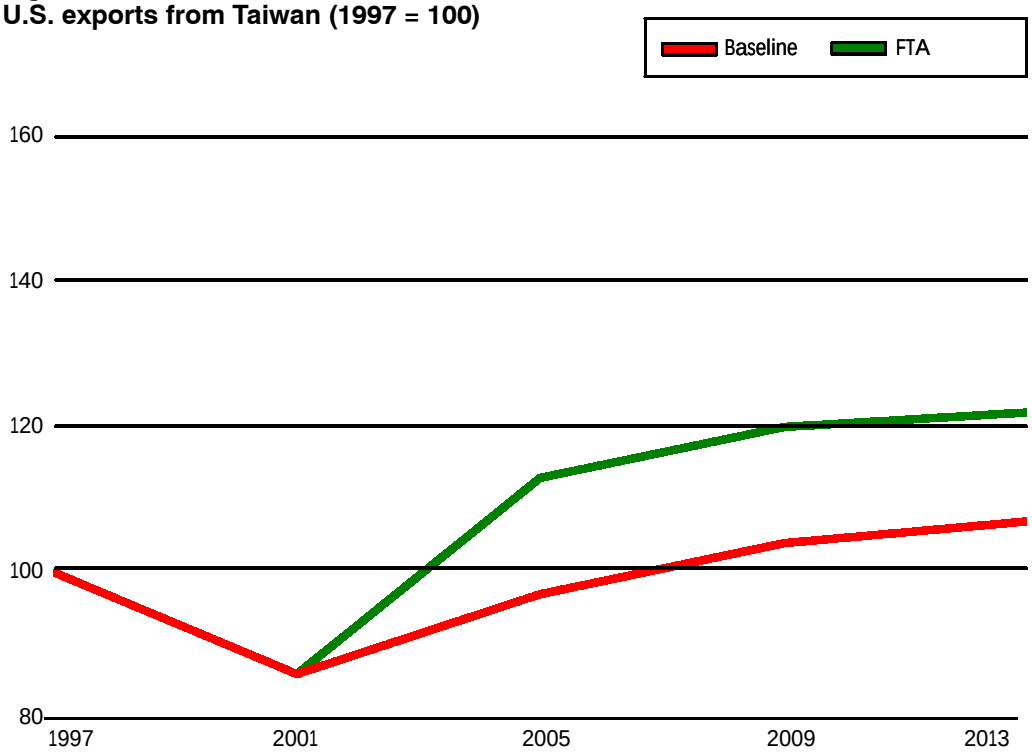
[7] In the simulations that follow, beginning of period dates are used to characterize time. Thus, the appearance of the date, 2013, signifies the beginning of 2013, not the end.

[8] The data presented in Figures 7-1 and 7-2 are simulation results.

[9] The methodology used to build the projected baseline is discussed in the next section.

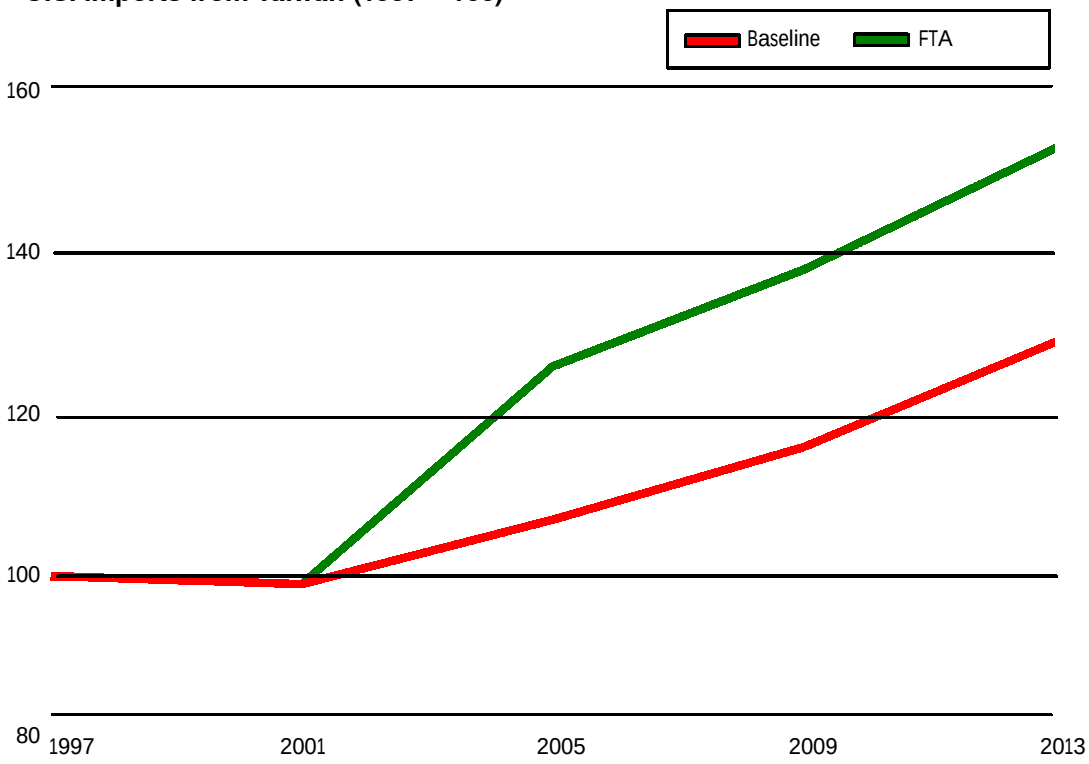
[10] For the year 2001, recent data from the Official Statistics of the U.S. Department of Commerce are used to match bilateral trade flows between the United States and Taiwan.

Figure 7-1
U.S. exports from Taiwan (1997 = 100)



Source: GTAP simulation and USITC calculations.

Figure 7-2
U.S. imports from Taiwan (1997 = 100)



Source: GTAP simulation and USITC calculations.

Table 7-2
Projected average annual growth rate, 1997-2013

Region	GDP	Capital	Labor
		Percent rate growth	
United States	2.71	4.50	0.83
Taiwan	5.11	2.78	0.82

Sources: The World Bank data and USITC calculations.

the whole 1997-2013 period for GDP, capital stock and labor supply for the United States and Taiwan. According to the World Bank, Taiwan's economy is projected to grow by 5.11 percent per year during the period under consideration, while the U.S. annual growth is projected at 2.71 percent.[11]

In addition to the growth data, for each of the four time intervals comprising the projected baseline, the protection database is adjusted to reflect the phasing-in of the trade policy measures ratified under the Taiwan and China WTO accessions, and the Agreements on Agriculture and on Textiles and Clothing (ATC) of the Uruguay Round.[12] Thus, economic conditions in 2001 reflect reductions in export subsidies and import tariffs for food and agricultural products and expansion of quotas for textiles and clothing agreed at the Uruguay Round and the accession of China and Taiwan to the WTO.[13] The data for 2005 reflect further reductions in trade policies for food and agricultural products on the part of developing countries and removal of the remaining quotas for textiles and clothing as well as continuing trade policy reform in China and Taiwan as part of their WTO accession. The data for 2009 and 2013 reflect the remaining WTO accession of China and Taiwan. Table 7-3 shows the protection rates for the United States and Taiwan for the year 2001. Entering Taiwan, United States exports face substantial trade barriers in several sectors, including vegetables, fruits, and nuts; other foods; motor vehicles and parts; fisheries; meats; and rice. In the

[11] See table D-3 in appendix D for projected growth rates for GDP, capital, and population for all economies in the model.

[12] As noted in chapter 2, Taiwan entered the World Trade Organization as part of a customs territory–The Separate Customs Territory of Taiwan, Penghu, Kinmen, and Matsu. Thus the projected baseline projection reflects the entry of Taiwan and mainland China into the WTO, including the gradual phase-in of sector specific tariff concessions.

[13] Data for 1997 reflect partial trade liberalization under the Uruguay Round in the food and agricultural sector. For developed countries the data reflect 50 percent of the agreed liberalization and for developing countries only 33 percent. The 2001 baseline data used in the model reflect import tariffs for food and agricultural products that are lower for both developed and developing countries. The import tariffs are 18 percent lower for developed countries and 8 percent lower for developing countries in 2001. The baseline data for 2005 reflect agriculture and food tariffs and export subsidies that are 8 percent lower than the 2001 rates for developing countries. Overall, the 2005 baseline data reflect 36 percent reductions in food and agriculture import tariffs and export subsidies for developed countries under the Uruguay Round and 24 percent reductions for developing countries. In the GTAP database, the direct impact of textiles and clothing quotas is modeled as an export tax. To model first the expansion and then the removal of those quotas, the relevant export taxes are reduced by 50 percent for 2001 and remaining export taxes are completely eliminated for 2005.

Table 7-3
Tariff equivalent of quantifiable U.S. and Taiwan import barriers, percent, 2001[1]

Sector	U.S. tariff equivalent	Taiwan tariff equivalent
Paddy rice	NT	NT
Other grains	0.60	2.06
Oil seeds	14.51	1.79
Vegetables, fruits, and nuts	3.84	35.71
Other crops	17.64	5.48
Livestock	0.49	1.00
Forestry	0.54	0.35
Fishing	0.27	31.06
Coal, oil, gas, and other minerals	6.56	4.88
Meat products	3.89	20.99
Dairy products	34.81	16.68
Rice, processed	4.38	15.61
Other foods	10.16	27.79
Textiles, wearing apparel, and leather products	[2]13.92	7.34
Wood and paper products	1.93	3.24
Petroleum and coal products	1.18	7.87
Chemical, rubber, plastic prods, and other minerals	4.40	3.96
Metals and products	4.38	3.99
Motor vehicles and parts	2.13	23.89
Other transportation equipment	5.59	2.18
Electronic equipment	1.08	2.93
Other machinery and equipment	3.06	4.92
Other manufactures	3.55	4.30

[1] Trade barriers are captured to the extent they are reflected in the difference between the domestic price and the world price. There are no trade barriers on services in the GTAP database.

[2] The estimate of the U.S. import tariff on textiles, apparel, and leather does not capture the direct price impact of quotas for textiles and apparel. In the GTAP data, the impact of those quotas is captured as an export tax for U.S. imports of textiles, apparel, and leather from Taiwan; in 1997, the corresponding export tax rate is about 1 percent; in 2001, the tax rate is less than 1 percent.

NT: non-traded commodity. Trade in paddy rice between the United States and Taiwan, and international trade in general, is negligible. In most cases, it is not economical to import paddy rice and paddy rice is processed on site.

Sources: Dimaranan, Betina V. and Robert A. McDougall (2002). *Global Trade, Assistance, and Production: The GTAP 5 Data Base*, Center for Global Trade Analysis, Purdue University; Wang, Zhi, "The Impact of China's WTO Accession on Patterns of World Trade," Paper presented at ASSA Annual Meeting, Atlanta, Georgia, January 2002; Wang, Zhi, "WTO Accession, *Greater China* Free Trade Area and Economic Relations across the Taiwan Strait," Economic Research Service, U.S. Department of Agriculture, April 2002; and USITC staff calculations.

United States, Taiwan exports face substantial trade barriers in several sectors, including dairy products; other crops; oilseeds; and the aggregated textiles, wearing apparel, and leather products sector.[14]

[14] The estimate of the U.S. import tariff on textiles, apparel, and leather does not measure the direct price impact of quotas for textiles and apparel. In the GTAP data, the impact of those quotas for 1997 is captured as an export tax for U.S. imports of textiles, apparel, and leather from Taiwan; the corresponding export tax rate is about 1 percent.

Policy Experiment

The next step in this approach is to define the policy experiment–or the shock–that would reflect the formation of the hypothetical trade arrangement. In the current study, it is assumed that the contemplated trade arrangement between the United States and Taiwan takes the form of an elimination of all tariffs on qualifying goods and some quantifiable nontariff barriers between the two economies, effective 2001.[15] Absent the proposed rules of origin and underlying industry information, we assume that all trade couldqualify for pertinent FTA benefits. The model ignores the impact of rules of origin by implicitly assuming that one economy's imports are not re-exported to another economy.

Simulation Results

This section presents the estimated general equilibrium effects of a U.S.-Taiwan FTA on selected economic aggregates, including the volume of trade in goods and services between the United States, and Taiwan and, for each economy, the GDP, sectoral output, wages and employment across industry sectors, and the final prices paid by consumers.

Trade Volumes

Trade agreements are generally designed to increase trade flows between the participating economies. Indeed, the results of the general equilibrium analysis suggest that U.S.-Taiwan bilateral trade would increase as a result of the FTA. Removing trade barriers in a preferential manner can generate increased trade through trade creation and/or trade diversion. Trade creation refers to the substitution of imports for higher-priced domestically produced goods. Trade diversion refers to the displacement of imports from non-member economies.

The general equilibrium analysis indicates that four years following the implementation of a U.S.-Taiwan FTA in 2001, U.S. exports to Taiwan would likely increase from about $21.8 billion to $25.3 billion, a 16 percent increase (table 7-4), while U.S. imports from Taiwan would likely increase from about $39 billion to $46 billion, an 18 percent increase over the projected baseline (table 7-5). Total U.S. exports are estimated to be approximately 0.2 percent ($2 billion) higher and imports to be 0.2 percent ($3 billion) higher, than if the FTA had not been implemented.

[15] According to WTO provision of Regional Integration Arrangement, "a free trade area shall be understood to mean a group of two or more customs territories in which the duties and other restrictive regulation of commerce... are eliminated on substantially all trade between the constituent territories in products originating in such territories" (Article XXIV of General Agreement on Tariffs and Trade (GATT), 8(b)).

Table 7-4
Effects on U.S. exports, 2005-13 (relative to baseline)

Sector	U.S. exports to Taiwan[1]				U.S. total exports to the world			
	2005	2005	2009	2013	2005	2005	2009	2013
	Million dollars	*Percent*			*Million dollars*	*Percent*		
Paddy rice	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Other grains	0	0	0	0	-27	0	0	0
Oil seeds	0	0	0	0	-16	0	0	0
Vegetables, fruits, and nuts	164	55	55	57	139	2	2	1
Other crops	36	16	15	16	11	0	0	0
Livestock	29	12	12	12	17	0	0	0
Forestry	0	1	1	1	-2	0	0	0
Fishing	17	140	136	136	10	1	1	1
Coal, oil, gas, and other minerals	19	25	25	25	13	0	0	0
Meat products	56	58	58	59	36	0	0	0
Dairy products	12	53	53	53	10	1	1	1
Rice, processed	0	111	146	187	-2	0	0	0
Other foods	520	109	107	108	454	1	1	1
Textiles, wearing apparel, and leather products	86	61	61	60	108	1	1	0
Wood and paper products	9	2	2	2	-31	0	0	0
Petroleum and coal products	15	24	24	24	9	0	0	0
Chemical, rubber, plastic prods, and other minerals	300	11	11	11	205	0	0	0
Metals and products	76	14	14	14	57	0	0	0
Motor vehicles and parts	629	392	315	323	560	1	1	1
Other transportation equipment	199	14	15	16	173	0	0	0
Electronic equipment	307	7	7	7	334	0	0	0
Other machinery and equipment	868	17	17	17	709	0	0	0
Other manufactures	16	14	14	14	3	0	0	0
Services	69	2	2	2	-326	0	0	0
All sectors	3427	16	15	15	2442	0	0	0

[1] These U.S. export figures are valued at U.S. market prices, and do not include insurance and freight. They differ slightly from reported Taiwan imports from the United States (table 7-7), which are valued at c.i.f. prices–meaning the imports include the cost of insurance and freight.

[2] Nontraded commodity.

Source: GTAP database and USITC calculations.

Accordingly, while the U.S. trade deficit with Taiwan increases by about $4 billion, the overall U.S. trade deficit increases by $1 billion.[16]

[16] In the general equilibrium model, and absent net interest payments from abroad, changes in the trade balance (i.e., exports less imports) are equal to changes in national savings less investment (i.e., the capital balance). Furthermore, global savings (which are not expected to change much due to the FTA) determine the global availability of investment funds. The regional distribution of those investment funds, however, is expected to change because capital productivity would change across economies due to the FTA (for additional discussion of the macroeconomic closure, see Chapter 2, pp. 52-54 in T.W. Hertel, editor, Global Trade Analysis: Modeling and Applications, Cambridge: Cambridge University Press). In this case, the FTA causes an increase in investment in the United States and Taiwan, which causes a deterioration in the trade balance in the United States and Taiwan.

Table 7-5
Effects on U.S. imports, 2005-13 (relative to baseline)

Sector	U.S. imports from Taiwan[1]				U.S. total imports from the world			
	2005	2005	2009	2013	2005	2005	2009	2013
	Million dollars	*Percent*			*Million dollars*	*Percent*		
Paddy rice	([2])	([2])	([2])	([2])	([2])	([2])	([2])	([2])
Other grains	0	3	3	3	2	0	0	0
Oil seeds	1	81	81	80	1	0	0	0
Vegetables, fruits, and nuts	1	22	22	21	16	0	0	0
Other crops	25	103	103	102	18	0	0	0
Livestock	1	2	2	2	4	0	0	0
Forestry	0	1	1	2	0	0	0	0
Fishing	0	1	1	1	8	0	0	0
Coal, oil, gas, and other minerals	1	41	42	42	-14	0	0	0
Meat products	0	16	17	17	2	0	0	0
Dairy products	1	264	265	265	1	0	0	0
Rice, processed	1	20	20	20	1	0	0	0
Other foods	198	57	57	57	119	1	1	1
Textiles, wearing apparel, and leather products	3273	126	126	126	1104	1	1	1
Wood and paper products	59	5	5	5	53	0	0	0
Petroleum and coal products	4	4	4	4	0	0	0	0
Chemical, rubber, plastic prods, and other minerals	441	16	16	16	229	0	0	0
Metals and products	705	21	21	21	353	1	1	1
Motor vehicles and parts	188	19	18	18	191	0	0	0
Other transportation equipment	531	64	64	63	252	1	1	1
Electronic equipment	610	3	3	3	292	0	0	0
Other machinery and equipment	866	14	14	14	460	0	0	0
Other manufactures	190	16	17	17	62	0	0	0
Services	-106	-4	-4	-3	27	0	0	0
All sectors	6991	18	18	19	3181	0	0	0

[1] These U.S. import figures are valued at c.i.f. prices–meaning they include the cost of insurance and freight. The figures may differ slightly from reported Taiwan exports to the United States (table 7-6), which are valued at Taiwan domestic market prices, and do not include insurance and frieght.

[2] Nontraded commodity.

Source: GTAP database and USITC calculations.

Trade responses to FTAs are generally large in sectors facing substantial trade barriers, because the FTA-led market access improvement tends to be larger in those sectors (tables 7-4 and 7-5). Given that agriculture is among the most protected sectors in Taiwan, its liberalization would lead to a substantial import response on goods from the United States. The results suggest that U.S. exports of rice, fish, meats, dairy, vegetables and fruit, and other foods would increase by more than 50 percent. The removal of Taiwan's import protection in motor vehicles and parts would result in U.S. exports of motor vehicles and parts to Taiwan increasing by more than 300 percent. Note these large percentage increases are from relatively small bases, given that the initial level of trade in those sectors tend to be small, partly due to high initial trade barriers.

U.S. sectoral imports from Taiwan would also increase following the FTA, with the exception of the services sector. Given that the dairy and textiles, apparel, and leather

sectors have the highest incidences of barriers imposed on imports from Taiwan, these two sectors exhibit the largest import responses in percentage terms. In 2005, dairy imports would be 264 percent higher, and textiles, apparel, and leather 126 percent higher than if the FTA had not been signed. Other sectors projecting significant percentage increases in U.S. imports from Taiwan include oilseeds, other crops, other foods, other transportation equipment, and vegetables, fruits, and nuts.[17]

Preferential trade agreements, by definition, involve some degree of discrimination with respect to nonparticipating economies. The preferential nature of a U.S.-Taiwan FTA would give U.S. firms cost advantages over their competitors from other economies in catering to the Taiwan market and would enhance the attractiveness of exporting to Taiwan, both in absolute terms and relative to exporting to other regions.[18] The model results indicate that the increase in U.S. exports to Taiwan occurs at the expense of exports to other trading partners: U.S. exports to Taiwan increase by $3 billion (16 percent), but U.S. exports to all other economies decline by $1 billion in 2005 (0.1 percent), i.e., there is a small trade diversion effect.

Because the FTA involves preferential liberalization of the U.S. market with respect to qualifying imports from Taiwan, it should also improve the market access of Taiwan firms in both absolute and relative terms. That is, the direction of trade should change as imports from Taiwan become relatively cheaper, encouraging U.S. consumers to substitute these for local production (trade creation) and for imports from other regions (trade diversion). Model results indicate that at the aggregate level, increased imports from Taiwan displace imports from other regions (i.e., trade diversion). For 2005, global U.S. imports increase by about $3 billion (table 7-5) but U.S. imports from Taiwan increase by about $7 billion (table 7-5), which implies that imports from the rest of the world decline by about $4 billion (a -0.3 percent decline).

An FTA would raise total Taiwan exports by about 2 percent (or $3 billion) relative to the baseline in 2005 (table 7-6), while total imports would be 2 percent (or about $3 billion) higher relative to the baseline (table 7-7). The former effect is almost entirely driven by a 18 percent (about $7 billion) rise in Taiwan exports to the United States as Taiwan firms would take advantage of the improved access to the U.S. market. At the sectoral level, overall Taiwan exports substantially increase in textiles, wearing apparel, and leather; oilseeds; other crops; and other foods (tables 7-6).

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[17] The aggregated data and model used in this analysis show the United States and Taiwan exporting to and importing from each other in all sectors. Thus, it is not inconsistent to conclude, for example, that the United States would export to and import from Taiwan more dairy products due to the FTA. Such a result should be interpreted that U.S. exports consist of different dairy products that those found in U.S. imports of dairy products.

[18] For a fixed amount of resources available to one given economy, an increase in exports to another economy would, everything else equal, mean a decrease in either domestic sales, or exports to other economies.

Table 7-6
Effects on Taiwan exports, 2005-13 (relative to baseline)

Sector	Taiwan exports to the United States [1]				Taiwan total exports to the world			
	2005	2005	2009	2013	2005	2005	2009	2013
	Million-dollars	*Percent*			*Million-dollars*	*Percent*		
Paddy rice	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Other grains	0	3	3	3	0	1	1	1
Oil seeds	1	81	81	80	1	16	16	15
Vegetables, fruits, and nuts	1	22	22	21	4	3	3	3
Other crops	23	103	103	102	22	8	7	6
Livestock	1	2	2	2	-2	0	0	0
Forestry	0	1	1	2	-1	-3	-2	-1
Fishing	0	1	1	1	-4	-1	-1	-1
Coal, oil, gas, and other minerals	1	41	42	42	-1	-1	0	0
Meat products	0	16	17	17	-7	-1	-1	-1
Dairy products	1	264	265	265	0	1	1	1
Rice, processed	1	20	20	20	1	4	3	3
Other foods	182	57	57	57	161	6	6	5
Textiles, wearing apparel, and leather products	3104	126	126	126	2476	11	10	10
Wood and paper products	54	5	5	5	-25	-1	-1	-1
Petroleum and coal products	4	4	4	4	2	0	0	0
Chemical, rubber, plastic prods, and other minerals	414	16	16	16	112	0	0	0
Metals and products	666	21	21	21	225	1	1	0
Motor vehicles and parts	181	19	18	18	101	3	2	2
Other transportation equipment	504	64	64	63	226	3	3	3
Electronic equipment	599	3	3	3	-247	-1	-1	-1
Other machinery and equipment	836	14	14	14	152	0	0	0
Other manufactures	180	16	17	17	49	0	0	0
Services	-106	-4	-4	-3	-413	-3	-3	-3
All sectors	6645	18	18	18	2831	2	1	1

[1] These Taiwan export figures are valued at Taiwan market prices, and do not include insurance and freight. They differ slightly from reported U.S. imports from Taiwan (table 7-5), which are valued at c.i.f. prices–meaning the imports include the cost of insurance and freight.

[2] Nontraded commodity.

Source: GTAP database and USITC calculations

Model results indicate that at the aggregate level, increased imports in Taiwan from the United States would displace imports from other regions (i.e., there is trade diversion). For 2005, global Taiwan imports increase by about $3 billion (table 7-7) but Taiwan imports from the United States increase by about $4 billion (table 7-7), which implies that imports from the rest of the world decline by about $1 billion.

Table 7-7
Effects on Taiwan imports, 2005-13 (relative to baseline)

Sector	Taiwan imports from the United States [1]				Taiwan total imports from the world			
	2005	2005	2009	2013	2005	2005	2009	2013
	Million-dollars	*Percent*			*Million-dollars*	*Percent*		
Paddy rice	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Other grains	0	0	0	0	0	0	0	0
Oil seeds	0	0	0	0	0	0	0	0
Vegetables, fruits, and nuts	183	55	55	57	135	26	25	24
Other crops	37	16	15	16	36	4	4	4
Livestock	30	12	12	12	64	8	8	8
Forestry	0	1	1	1	-1	0	0	0
Fishing	18	140	136	136	10	4	4	4
Coal, oil, gas, and other minerals	21	25	25	25	23	0	0	0
Meat products	59	58	58	59	39	13	13	13
Dairy products	11	53	53	53	8	2	2	2
Rice, processed	0	111	146	187	0	8	11	14
Other foods	549	109	107	108	292	9	9	9
Textiles, wearing apparel, and leather products	90	61	61	60	328	7	7	7
Wood and paper products	10	2	2	2	34	1	1	1
Petroleum and coal products	16	24	24	24	13	1	1	1
Chemical, rubber, plastic prods, and other minerals	313	11	11	11	322	2	2	2
Metals and products	78	14	14	14	133	1	1	1
Motor vehicles and parts	639	392	315	323	314	8	7	6
Other transportation equipment	202	14	15	16	138	4	4	4
Electronic equipment	313	7	7	7	-27	0	0	0
Other machinery and equipment	891	17	17	17	446	2	2	2
Other manufactures	17	14	14	14	25	2	2	2
Services	69	2	2	2	252	2	2	2
All sectors	3547	16	15	15	2585	2	2	2

[1] These Taiwan import figures are valued at c.i.f. prices–meaning they include the cost of insurance and freight. The figures may differ slightly from reported U.S. exports to Taiwan (table 7-4), which are valued at U.S. domestic market prices, and do not include insurance and freight.

2 Nontraded commodity.

Source: GTAP database and USITC calculations.

Domestic Production

The changes in trade flows have different impacts on output at the sectoral and aggregate level in both economies. Generally, an increased incentive to export would lead to an increase in the output of a sector. Conversely, increased competition taking the form of a higher volume of imports may shrink domestic production in a sector, at least in the short term.[19] As the incentives to produce in a particular sector change,

[19] The long-run impacts of the FTA might be different from those in the short run, especially if the FTA enhances productivity and competition. The possibility of productivity enhancements due to the FTA and their implications are briefly discussed in the section "Gross Domestic Product and Productivity" in this chapter.

productive resources are reallocated across sectors, and cross-sectoral demands for different factors of production are altered. Because the supply of factors of production is constrained at any given time, expansion of one sector usually means contraction of another. Generally then, membership in an FTA has implications for almost all parts of the economy with some sectors expanding while others contract.

The results of the simulations indicate that changes in domestic sectoral production, following the FTA implementation, are generally small in percentage terms, especially for the United States (table 7-8). These results are not unexpected, given that U.S. trade with Taiwan is small relative to total U.S. trade and total U.S. production. For the United States, the FTA-led increase in vegetables and fruit exports to Taiwan would expand production in those sectors by about 0.3 percent in 2005. The textiles, apparel, and leather aggregate sector experiences the largest negative impact, with output declining by 0.4 percent. This drop is driven by the sharp increase in imports from Taiwan, which decreases incentives for domestic production; and the expansion of other U.S. sectors, which squeezes factors of production out of the textiles, apparel, and leather sector.

The reverse would occur in Taiwan (i.e., those sectors likely would expand).[20] Production in the textiles, apparel, and leather sector would increase by 8.2 percent in 2005, while production would decline in most of the remaining sectors, with the exception of oilseeds, other crops, livestock, processed rice, petroleum and coal products, chemical, rubber, and plastic products and other transportation equipment. However, Taiwan would experience very small increases in sector output in these sectors. Factors of production move into the textiles, apparel, and leather aggregate sector and out of the other sectors, as textiles, apparel, and leather exports increase following preferential trade liberalization by the United States.

Industrial Employment and Rate of Return

The effects of the FTA on sectoral output would induce small changes in the demand for labor in the United States and Taiwan. General equilibrium results indicate that for each sector the impact of the FTA is almost identical for skilled and unskilled labor in both economies (table 7-9). In the absence of technological development, changes in demand for the different factors of production should be closely related to changes in the incentives to produce. It is, therefore, not surprising that the effect of the FTA on demand for labor, in general, tends to be very similar to the impact on sectoral output reported earlier.

Changes in demand for the different primary factors of production would affect their real rate of return (i.e., the payment made to the factor's owner). In general, an output expansion in a particular sector is accompanied by an increase in the returns to the

[20] Furthermore, the effects of the FTA on Taiwan sectoral output would be significantly larger than those for the United States because Taiwan exports to the United States a larger share of it's output than the share of U.S. output exported to Taiwan.

Table 7-8
Effects on sectoral output in the United States and Taiwan, 2005-13 (relative to baseline)

Sector	U.S. Output			Taiwan Output		
	2005	2009	2013	2005	2009	2013
	Percent change					
Paddy rice	0.0	0.0	0.0	0.0	0.0	0.0
Other grains	0.0	0.0	0.0	-0.4	-0.4	-0.4
Oil seeds	0.0	0.0	0.0	0.4	0.6	0.9
Vegetables, fruits, and nuts	0.3	0.2	0.2	-1.7	-1.6	-1.5
Other crops	-0.1	-0.1	0.0	1.6	1.7	1.6
Livestock	0.0	0.0	0.0	0.1	0.1	0.1
Forestry	0.0	0.0	0.0	-1.1	-0.8	-0.5
Fishing	0.1	0.0	0.0	-0.2	-0.1	-0.1
Coal, oil, gas, and other minerals	0.0	0.0	0.0	-0.5	-0.3	-0.2
Meat products	0.0	0.0	0.0	-0.4	-0.3	-0.3
Dairy products	0.0	0.0	0.0	-0.6	-0.6	-0.5
Rice, processed	-0.1	-0.1	-0.1	0.1	0.1	0.1
Other foods	0.1	0.1	0.1	-0.2	-0.2	-0.2
Textiles, wearing apparel, and leather products	-0.4	-0.4	-0.5	8.2	8.0	7.8
Wood and paper products	0.0	0.0	0.0	-0.7	-0.7	-0.6
Petroleum and coal products	0.0	0.0	0.0	0.3	0.3	0.3
Chemical, rubber, plastic products, and other minerals	0.0	0.0	0.0	0.2	0.1	0.1
Metals and products	0.0	0.0	-0.1	-0.5	-0.4	-0.4
Motor vehicles and parts	0.1	0.1	0.1	-1.6	-1.2	-0.8
Other transportation equipment	0.0	0.0	-0.1	0.9	1.0	1.3
Electronic equipment	0.1	0.1	0.1	-1.0	-1.1	-1.2
Other machinery and equipment	0.1	0.1	0.1	-0.8	-0.9	-0.9
Other manufactures	-0.1	-0.1	-0.1	-0.1	-0.1	-0.2
Services	0.0	0.0	0.0	-0.1	-0.1	-0.1

Sources: GTAP database and USITC calculations.

factors that are intensively used in that sector, and a decrease in returns to factors less intensively used. Simulation results indicate that the FTA would cause real wages for both unskilled and skilled labor to increase in Taiwan, while in the United States, the effect on wages would be negligible.

In Taiwan's textiles, apparel, and leather industry, according to the model, the increased demand for unskilled labor raises real wages by 1.2 percent and for skilled labor real wages rise by 1.1 percent in 2005 (table 7-10). Given that agriculture uses land intensively, the rental rate on land is 3.2 percent lower in Taiwan when the sector is opened up to U.S. imports. Conversely, the return to land increases by 0.1 percent in the United States (table 7-10). The declining output in the mineral and metal products sector leads to a downward pressure on the returns to natural resources (used mainly in mining) in both economies.

Table 7-9
Effects on demand for labor, by sector, 2005 (relative to baseline)

Sector	United States		Taiwan	
	Unskilled	Skilled	Unskilled	Skilled
	Percent change			
Paddy rice	0.0	0.0	-0.3	-0.3
Other grains	0.0	0.0	-0.8	-0.7
Oil seeds	0.0	0.0	0.4	0.4
Vegetables, fruits, and nuts	0.3	0.3	-2.1	-2.1
Other crops	0.0	0.0	1.4	1.4
Livestock	0.0	0.0	-0.2	-0.2
Forestry	0.0	0.0	-1.0	-1.0
Fishing	0.1	0.1	-0.3	-0.3
Coal, oil, gas, and other minerals	0.0	0.0	-0.5	-0.5
Meat products	0.0	0.0	-0.4	-0.3
Dairy products	0.0	0.0	-0.6	-0.5
Rice, processed	-0.1	-0.1	0.1	0.2
Other foods	0.1	0.1	-0.3	-0.2
Textiles, wearing apparel, and leather products	-0.4	-0.4	7.9	8.1
Wood and paper products	0.0	0.0	-0.7	-0.6
Petroleum and coal products	0.0	0.0	0.2	0.3
Chemical, rubber, plastic products, and other minerals	0.0	0.0	0.1	0.2
Metals and products	0.0	0.0	-0.5	-0.4
Motor vehicles and parts	0.1	0.1	-1.3	-1.2
Other transportation equipment	0.0	0.0	0.9	1.1
Electronic equipment	0.1	0.1	-1.2	-1.0
Other machinery and equipment	0.1	0.1	-1.0	-0.8
Other manufactures	-0.1	-0.1	-0.2	0.0
Services	0.0	0.0	-0.2	-0.1

Source: GTAP database and USITC calculations.

Figure 7-10
Effects on real rate of return on primary factors in the United States and Taiwan, 2005 (relative to baseline)

Factor	United States[1]			Taiwan		
	2005	2009	2013	2005	2009	2013
			Percent change			
Land	0.1	0.1	0.1	-3.2	-2.8	-2.4
Unskilled labor	0.0	0.0	0.0	1.2	1.1	1.1
Skilled labor	0.0	0.0	0.0	1.1	1.0	1.0
Capital	0.0	0.0	0.0	1.1	1.0	1.0
Natural resources	0.0	0.0	0.0	-1.2	-1.0	-0.8

[1] In CGE analyses, one of the prices remains constant because only relative prices are relevant. In the CGE simulations performed in this report, the price that remains constant is the income-weighted average of U.S. primary factor returns. Thus, on average, primary factor returns do not change in the United States.

Source: GTAP database and USITC calculations.

The CGE results suggest that both savings and investment increase in Taiwan under the FTA. Because the percentage change in savings (0.5 percent) is smaller than the percentage change in investment (1.4 percent) for 2005, it is implied that net capital flows into the Taiwan economy would increase further due to the FTA. The modeling framework used here, however, focuses on bilateral merchandise trade and thus it does not provide information about investment variables such FDI from Taiwan into neighboring economies, such as mainland China. Because this analysis suggests that the Taiwan economy would become more efficient due to the FTA and because it would grow, it would be expected that FDI from Taiwan into neighboring economies would generally expand.

Prices Paid by Consumers[21]

The bilateral tariff eliminations associated with the FTA affect the domestic market prices in each economy through various channels. Given that the price paid by consumers for imported goods is equal to a good's international price plus any trade taxes, the removal of a trade barrier on that good should decrease its domestic price. At the same time, a policy change that leads to an increase in the demand for (or a decrease in the supply of) a particular imported good tends to increase its price. Furthermore, consumers in each economy consume a mix of imported and domestic products, with the prices of domestic products changing in the same direction as the prices of imported goods but not by the same magnitude. The effects of the FTA on the domestic prices depend on the relative strength and interaction between those offsetting forces. Simulation results indicate that the consumer price changes triggered by the FTA in the United States are very small–an average decrease of 0.02 percent in 2005. In Taiwan, the FTA would result in a 0.56 percent average increase in consumer prices.

As one could expect from the magnitudes of the sectoral changes just reported, the effects of the U.S.-Taiwan FTA on each economy's economic welfare are very small, especially for the United States (Table 7-11). In particular, simulation results show that following the implementation of the FTA in 2005, economic welfare in Taiwan (as measured by equivalent variation) would increase by less than 0.3 percent (about $1 billion), most of which arises from improvements in Taiwan's terms of trade.[22] Thetotal welfare change in the United States is negligible (about $0.2 billion), most of which also comes from a positive change in the U.S. terms of trade. As the United States and Taiwan remove bilateral trade barriers on goods, the two economies demand more of each other's goods and reduce the supply of goods to third economies, thus raising the price of these goods. The estimated allocative efficiency impacts are negligible and equivalent to GDP impacts expected after the implementation of an FTA.

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[21] "Prices" and "consumers" are defined on page 7-1.

[22] The equivalent variation of a policy change consists of several components. In this case, the most significant components are gains due to improvements in allocative efficiency and gains due to improved terms of trade. Gains due to allocative efficiency arise from a better allocation of resources due to the policy change; terms of trade gains arise from an improvement in the prices received from an economy's exports relative to the prices paid for its imports (see K.J. Hanslow, A General Welfare Decomposition for CGE Models, GTAP Technical Paper No. 19, January 2000).

Table7-11
Effects on welfare (equivalent variation)[1], by region, 2005 (relative to baseline)

Region	Total Welfare Gains	Total Welfare Gains	Allocative Efficiency Gains[2]	Terms of Trade Gains[2]
	Percent	*Billion dollars*		
United States	0.0	0.2	0.0	0.2
Taiwan	0.3	1.0	0.0	1.2

[1] The equivalent variation measures the welfare impact of a policy change in monetary terms and it is defined as the amount of income that would have to be given to (or taken away from) the economy *before* the policy change to leave the economy as well off as the economy would be *after* the policy change. A positive figure for equivalent variation implies that the policy change would improve economic welfare (see H.R. Varian, *Intermediate Microeconomics: A Modern Approach*, Fifth Edition, W. W. Norton & Company, New York, 1999, pp. 252-253).

[2] Welfare gains due to improvements in allocative efficiency and in the terms of trade are the most significant components of total welfare gains.

Source: GTAP database and USITC calculations.

Gross Domestic Product and Productivity

Recent econometric literature generally supports the view that the openness of an economy enhances total factor productivity (TFP) growth.[23] Recently, Dessus found that there is a statistically significant relationship between TFP growth and the proportion of imported intermediate inputs relative to total intermediate inputs in Taiwan.[24] To investigate the significance of TFP growth caused by the U.S.-Taiwan FTA, the Commission simulated the impacts of the FTA, coupled with TFP growth for Taiwan. Using Dessus' estimates and the simulated FTA impacts in this chapter, the Commission estimated that the FTA would cause TFP in Taiwan to increase by 0.38 percent in 2005, 0.35 percent in 2009, and 0.30 percent in 2013. Simulations of the FTA, coupled with such TFP growth in Taiwan, suggest that the FTA is more beneficial to both Taiwan and the United States than without TFP growth. Because it was assumed that TFP would be affected by the FTA only in Taiwan, the benefits from the FTA are substantially larger for Taiwan. For 2005, welfare gains from the FTA increase from $1 billion without considering TFP growth to $4.2 billion with TFP growth. The corresponding welfare gains for the United States increase from $0.21 billion to $0.22 billion.

[23] See O. Havrylyshyn, "Trade Policy and Productivity Gains in Developing Countries: A Survey of the Literature," The World Bank Research Observer, vol. 5, No. 1, pp. 1-24, 1990; and A. Harrison, "Openness and growth: A time-series, cross-country analysis for developing countries," Journal of Development Economics, vol. 48, No. 2, pp. 419-447, 1996.

[24] See S. Dessus, "Total Factor Productivity and Outward Orientation in Taiwan: What is the Nature of the Relationship?" Organization for Economic Cooperation and Development, Paris, France, 1999.

Results Sensitivity

The CGE results reported in this chapter are based on assumptions about the Armington elasticities, which determine the ease with which economies can change their bilateral trading patterns in response to changed trade policies.[25] To investigate the significance of these assumptions, the Commission simulated the impacts of the FTA under a set of Armington elasticities that are 50 percent higher than the elasticities used to derive the results reported in this chapter.[26] Simulations of the FTA under higher Armington elasticities suggest that the FTA in 2005 is slightly more beneficial to Taiwan and slightly less beneficial to the United States than under the default Armington elasticities. Welfare gains for Taiwan increase from $1 billion to $1.1 billion; welfare gains for the United States decline from $0.2 billion to $0.1 billion.

Model Limitations

Any modeling effort necessarily abstracts from reality and is limited in its ability to reflect the degree of complexity evident in the real world; thus, a number of caveats are in order regarding this modeling framework. First, the standard GTAP database is based on the year 1997. Trade flows and barriers, assumptions about parameters and structural relationships refer to the world in that year. A second limitation stems from a bias found in virtually any quantitative analysis of economic data that arises from the process of data aggregation. In particular, international trade occurs in thousands of different products and services. For data collection and reporting purposes, the United States collects trade data under about 17,000 statistical categories and some 10,000-plus tariff rate-lines. For most general equilibrium analysis, these groupings represent far too much detail to be tractable computationally. Furthermore, analysis and comparison of data collected from different economies require that data be aggregated into categories that are generally comparable from one economy to another. This reduction and aggregation process introduces two general sources of bias into a modeling exercise.

One source of bias involves the calculation of tariffs for aggregated product categories. In this study, trade-weighted average tariffs were calculated, using the value of trade in a tariff line to weight the tariff in that line. This procedure tends to mask the importance of those products within the aggregate that have particularly high tariffs, and which therefore present a greater barrier to imports than would be the case

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[25] For a discussion of the Armington assumption and parameters in the CGE model used in this report, see Chapters 2 and 4 in T.W. Hertel, editor, Global Trade Analysis: Modeling and Applications, Cambridge University Press, 1997.

[26] The trade substitution elasticities used in this analysis are those in the GTAP default database. These elasticities are based on estimates from the 1970s when quantitative trade restrictions limited opportunities for substitution between foreign and domestic varieties of the same commodity (see pp. 91-99 in P. Jomini, J. Zeitsch, R. McDougall, A. Welsh, S. Brown, J. Hambley, and J. Kelly, SALTER: A General Equilibrium Model of the World Economy, vol.1, Model Structure, Database and Parameters, Industry Commission, Canberra, 1991). Thus, it is possible that these estimates are biased downward. To consider the implications of the possibility that foreign products are better substitutes for domestic products than in the base case, the Commission simulated the FTA under higher elasticities of substitution.

if all goods within the aggregation had the same average tariff. The relationship between the level of an import-weighted average tariff and the effects of the individual tariffs that comprise the group depend on the correlation between the level of these tariffs and the price responsiveness of final demand for the goods in question.[27] As a result, modeling the reduction of an aggregate average tariff would tend to understate the effect of reducing the tariff of a high-tariff component of the aggregate.

Another source of aggregation bias is due to the likelihood that goods within an aggregate may not be close substitutes for one another. In particular, imported goods of a particular category may be quite dissimilar to an economy's domestic product in that category. However, when the price of an import falls, for example, the trade model may indicate a certain amount of substitution of that import for the domestic product when, in fact, they are not close substitutes. In this case, the model would overstate the impact of a given average tariff reduction.[28]

A number of further caveats apply to the dynamic analysis, which requires some additional assumptions about the timing and nature of the economies' responses to the proposed policy shocks. First, the static model makes no specific assumptions about the speed with which changes affect the relevant economies. Because the modeling technique applied here requires a time frame to the adjustment process, assumptions about adjustment times are necessary. Second, the model assumes a single macroeconomic time path, and so does not allow for consideration of unexpected macroeconomic events such as recessions or large currency movements. Assumptions about the path of the projected baseline can affect estimates of the impact of the FTA. Finally, because there is no information about how input-output relationships are expected to evolve over time, the model assumes no changes in the economies' input-output structures, so that economic or technical changes that lead an industry to substitute one input for another are not considered.

Despite these limitations, the GTAP modeling framework, and the simulations performed here, can be quite useful in providing insights on the effects of an FTA on a number of economic measures. The model presents a unified theoretical framework in which to assess the likely effects of the policy. Tying the proposed trade policy framework to a time line that includes expected future economic changes allows estimation of the economic effects in the future.

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[27] See James E. Anderson and J. Peter Neary, "Measuring the Restrictiveness of Trade Policy," World Bank Economic Review, vol. 8, No. 2, May 1994, pp. 151-169.

[28] This type of bias is reduced in empirical trade models, like the GTAP model, that apply the Armington assumption, which treats goods produced in different economies as imperfect substitutes.

[29] The underlying assumption of this section is that these barriers will be eliminated. No attempt is made to assess the probability that the elimination of these barriers would be included in a prospective FTA.

Qualitative Assessment of the Effects of Removing Non-Tariff Measures

A number of barriers and other impediments to trade between the United States and Taiwan that were discussed in chapter 6 are difficult to measure and, for the purposes of this report, do not lend themselves to a quantitative analytical approach. The general equilibrium analysis above does not fully take into account the potential impact of the removal of such barriers and impediments. This section offers a qualitative assessment of the probable additional impact of the removal of non-tariff measures (NTMs) that were not taken into account in the previous section.[29] An FTA could involve the reduction of both the tariff and quota measures analyzed in the model above, and the selected NTMs described below.

Agricultural Goods

The reduction of NTMs in key agricultural sectors would probably not result in large changes to U.S.-Taiwan trade beyond the changes caused by tariff and quota changes. The modeling section estimated that U.S. exports of rice to Taiwan likely would increase substantially (by more than 100 percent) if Taiwan's absolute import quota was removed. This is very likely given that U.S. rice sells at roughly half the Taiwan domestic price. However, the removal of other NTMs in agricultural products probably would not have significant additional impacts on U.S.-Taiwan trade. For example, NTMs on poultry, such as SPS issues and other technical measures (e.g., labeling, packaging, and shelf life requirements) have not been raised as concerns by U.S. poultry exporters and, it is unlikely that the removal of these few existing impediments to trade would have a significant impact on U.S. exports. The removal of NTMs affecting trade in beef, pork, and fresh deciduous fruit likely would have little or no direct impact on U.S.-Taiwan trade in such products, as the United States currently meets all Taiwan inspection and sanitary requirements on beef and pork, and U.S. imports of beef and pork from Taiwan are not competitive with either U.S. production or imports from other suppliers. Similarly, U.S. exports of fresh, deciduous fruit currently comply with Taiwan's phytosanitary regulations–the only NTMs that currently apply to U.S. fresh, deciduous fruit exports to Taiwan– and Taiwan does not export such products to the U.S. market.

Non-Agricultural Goods

Non-agricultural goods are also subject to both tariff and non-tariff trade barriers. In the case of the textile and apparel sectors, the removal of NTMs might result in significant changes to US.-Taiwan trade which are in addition to the effects of tariff and quota reduction analyzed above. However, it should be noted that the relative importance of U.S.-Taiwan trade in textile and apparel has been declining due to intense competition from lower-cost suppliers, such as China and other Asian economies, and competition for labor from other Taiwan manufacturing sectors. In

fact, Taiwan authorities recently reported that Taiwan is not highly competitive in textiles because the industry is relatively labor intensive.[30] Consequently, it is likely that after an initial increase in trade activity, the long-term additional effect of removing NTMs would not be substantial.

Removal of Taiwan's NTMs may increase access to the Taiwan market for U.S.-built vehicles. However, U.S. automakers interested in penetrating the Taiwan market are most likely to do so through local or regional manufacturing bases, rather than through extensive exports from the United States, and Taiwan is a small and relatively saturated market that is already dominated by Japanese vehicle producers. Thus, the potential gains for the U.S. motor vehicles and parts industry–in addition to those reported in the modeling section—are likely small. Although there are differing opinions within Taiwan as to the potential effect of a free trade agreement on the Taiwan motor vehicle and parts industry,[31] the removal of U.S. NTMs would likely have little to no effect on Taiwan exports of motor vehicles and parts to the United States. Taiwan is not a major world producer, and U.S. imports from Taiwan are minimal for reasons other than U.S. NTMs.[32]

Services

According to one observer, a U.S.-Taiwan free trade agreement is likely to benefit financial services more than any other U.S. industry.[33] Most of these benefits would derive from the reduction of NTMs, and are thus not captured by the general equilibrium analysis of tariff and quota reduction.

Taiwan is an important market for financial services,[34] and U.S. firms are perceived to be efficient and flexible, with many beneficial new products.[35] U.S. asset management firms would expect to increase their sales in Taiwan, if barriers that limit the value of their operations in the Taiwan market were removed.[36] In the event of a free trade agreement, U.S. banks also would expect to increase sales of services to Taiwan banks and U.S. exporters operating in Taiwan.[37] One observer estimated that the annual

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[30] Chii-ming Yiin, Vice Minister, Ministry of Economic Affairs and Heinz L.T. Chien, Director, Outward Investment Division, interview with Commission staff, May 24, 2002.

[31] Council for Economic Planning and Development, interview by USITC staff, Taipei, Taiwan, May 21, 2002; and Ministry of Economic Affairs, interview by USITC staff, Taipei, Taiwan, May 24, 2002.

[32] For example, the vehicles produced there are largely to the standards and consumer preferences of Taiwan and neighboring economies, and are intended for sale locally and/or regionally.

[33] Chung Hua, Institution for Economic Research, interview by USITC staff, Taipei, Taiwan, May 22, 2002.

[34] Taiwan's consumer finance market alone is estimated at $804 billion, second only to Japan in Asia. Private email communication, Council for Economic Planning & Development, Taipei, Taiwan. For more information in the Taiwan financial services market, see chapter 5.

[35] The competition may prove beneficial for Taiwan's domestic banks as well. For instance, many young people train at Citibank or another U.S. bank in Taiwan, and are subsequently hired by a local bank at higher pay. General Chamber of Commerce, interview by USITC staff.

[36] Written communication from industry representatives, Mar. 14, 2002.

[37] Wachovia Bank, written submission to the U.S. International Trade Commission, in connection with Investigation No. 332-438, "U.S.-Taiwan FTA: Likely Economic Impact of a Free Trade Agreement (FTA) Between the United States and Taiwan."

market potential for U.S. financial services firms in Taiwan would equal several hundred million dollars under a free trade agreement.[38] In contrast, U.S. imports of banking and securities services from Taiwan are limited by the size and scope of Taiwan financial services firms, and there is no evidence to suggest that U.S. trade barriers have had a significant impact on these imports. Therefore, removal of the remaining U.S. measures would likely have a minimal effect on U.S. imports of banking and securities services from Taiwan.

The effects of removing NTMs that specifically apply to bilateral trade in education services between Taiwan and the United States are likely to be minimal, as there are no significant NTMs that impede cross-border transactions in this industry. However, the removal of Taiwan's restrictions on the establishment of for-profit schools by non-local education service providers may result in modest opportunities for U.S. education services firms.

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[38] John Tkacik, Jr., Heritage Foundation, statement submitted to the International Trade Commission in connection with the hearing for investigation No. 332-438, U.S.-Taiwan FTA, May 13, 2002.

APPENDIX A
Request Letter From the U.S. Senate Committee on Finance and Letter From Fourteen Members of the House Ways and Means Committee

United States Senate

COMMITTEE ON FINANCE

WASHINGTON, DC 20510–6200

January 17, 2002

The Honorable Stephen Koplan
Chairman
U.S. International Trade Commission
500 E Street, SW
Washington, DC 20436

Dear Mr. Chairman:

We are writing to request that the Commission conduct an assessment of the economic effects of the establishment of a free trade agreement between the United States and Taiwan.

Last year the United States agreed to the launch of a new round of multilateral negotiations with the other members of the World Trade Organization (WTO). In agreeing to be the leading participant in these talks, we marked another step in our country's longstanding policy of opening world markets to U.S. goods and services wherever possible. A strong system [illegible]ternational trade rules supports this policy of trade promotion.

In addition to promoting trade through the multilateral system, we have pursued efforts to open markets through regional and bilateral trading arrangements. Regionally, we are seeking to open markets in our hemisphere in the Free Trade Agreement of the Americas (FTAA). Bilaterally, in addition to our existing free trade agreements (FTA's) with Israel, Canada, Mexico and Jordan, we are actively negotiating comprehensive trade agreements with Chile and Singapore.

While we pursue these regional and bilateral agreements, the world's other major trading nations are moving to conclude preferential trade arrangements to favor their own industries. These arrangements include not only a variety of formal agreements already in place, but also a range of preliminary undertakings announced in the recent past. Many of these agreements and preliminary commitments are sub-regional, involving, for example, China and the ASEAN nations. Others cross geographic boundaries, such as Mexico's FTA with the European Union. Market-opening arrangements which exclude the United States can undermine our consistent efforts to expand trade and, in some cases, U.S. interests.

The recent accession of Taiwan to the WTO will strengthen its role in international commerce by bringing it into the multilateral trading system. The United States already enjoys a strong trade and investment relationship with Taiwan. Total bilateral trade this year is estimated to have exceeded $50 billion. We sell more merchandise to Taiwan than we do to the PRC, France or Brazil. We have billions of dollars invested in Taiwanese manufacturing and service industries. As part of the WTO accession process, Taiwan agreed to a range of measures which liberalized its trade regime. U.S. producers, like their competitors from other WTO members, will have the opportunity to benefit from lower tariffs and declining market barriers that were part of these market-opening moves. These benefits can be of substantial commercial consequence.

Taiwan has been one of the most rapidly developing economies of the Asia Pacific region, with growth averaging about eight percent over the past three decades. Traditional labor-intensive industries are steadily being moved offshore and replaced with more capital-and technology-intensive industries. Because of its conservative financial approach and its entrepreneurial strengths, Taiwan suffered little compared with many of its neighbors during the Asian financial crisis in 1997-98. The measures undertaken as part of the WTO accession process indicate the ability of Taiwan to negotiate trade policy reforms which open the growing T ıese market to the goods and services of its trading partners.

In light of the continued activity in negotiating bilateral FTA's, and given the opportunities presented by Taiwan's expanded role in the global trade system, the Finance Committee would be interested in obtaining the Commission's assessment of the likely economic mpacts of a free trade agreement between the United States and Taiwan. To that end, we request hat the Commission undertake an investigation under section 332(g) of the Tariff Act of 1930, s amended, to examine these impacts.

As part of the report, the Committee requests that the Commission provide, to the extent ossible, the following:

- A general overview of the Taiwanese economy;
- An overview of the current economic relationship between the United States and Taiwan, including a discussion of the important industry sectors in each;
- An inventory and analysis of the barriers (tariff and non-tariff) to trade between the United States and Taiwan;

- To the extent data are available, the estimated economic effects of eliminating all quantifiable trade barriers (tariff and non-tariff), with special attention to agricultural goods, on:
  - the volume of trade in goods and services between Taiwan and the United States;
  - sectoral output and Gross Domestic Product for both trading powers;
  - wages and employment across industry sectors for each; and
  - final prices paid by the consumers in Taiwan and the United States.
- A qualitative assessment of the economic effects of removing non-quantifiable trade barriers

The Commission should provide its completed report no later than 9 months from the receipt of this request. We would also ask that you undertake, to the maximum extent possible, a dynamic, as well as a static, analysis of the economic effects of removing barriers to trade between the United States and Taiwan.

Sincerely,

Max Baucus Chuck Grassley

Congress of the United States

Washington, DC 20515

June 10, 2002

The Honorable Stephen Koplan
Chairman
U.S. International Trade Commission
500 E St, SW
Washington, DC 20436

332-438

000017

DOCKET

Dear Chairman Koplan:

We are writing to express our interest in and support for the International Trade Commission's (ITC) effort to assess the economic impact of establishing a free trade agreement (FTA) between the United States and Taiwan if such an agreement were to be established. In particular, we are interested in learning, to the extent data are available, the estimated economic effects of eliminating all quantifiable trade barriers on:

- The volume of trade in goods and services between Taiwan and the United States;
- Sectoral output and Gross Domestic Product for both trading powers;
- Wages and employment across industry sectors for each; and
- Final prices paid by consumers in Taiwan and the United States.

Taiwan is an important trading partner of the United States. The recent accession of Taiwan to the World Trade Organization will heighten its role in international commerce. Furthermore, the United States will benefit as Taiwan opens its market and further eliminates trade barriers.

We welcome the opportunities to further open world markets for American farmers, workers, and businesses. We urge the ITC to carry out an independent and thorough assessment of the economic effects of establishing an FTA between the United States and Taiwan.

We ask that you provide us with a copy of the assessment report once it is completed. Thank you for your consideration.

Sincerely,

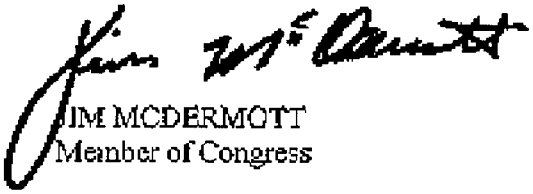
JENNIFER DUNN
Member of Congress

CHARLES RANGEL
Member of Congress

PHIL CRANE
Member of Congress

SANDER LEVIN
Member of Congress

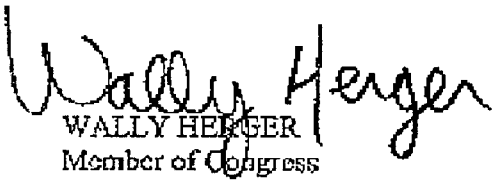
E. CLAY SHAW
Member of Congress



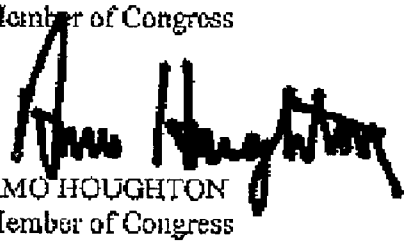
JIM MCDERMOTT
Member of Congress

JIM RAMSTAD
Member of Congress

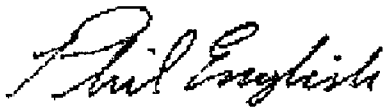
MICHAEL MCNULTY
Member of Congress



WALLY HERGER
Member of Congress



AMO HOUGHTON
Member of Congress



PHIL ENGLISH
Member of Congress

J.D. HAYWORTH
Member of Congress

MARK FOLEY
Member of Congress

KEVIN BRADY
Member of Congress

APPENDIX B
Federal Register Notice

Washington, DC 20436. Hearing-impaired individuals are advised that information on this matter can be obtained by contacting the Commission's TDD terminal on 202–205–1810. Persons with mobility impairments who will need special assistance in gaining access to the Commission should contact the Office of the Secretary at 202–205–2000. General information concerning the Commission may also be obtained by accessing its Internet server (*http://www.usitc.gov*). The public record for this investigation may be viewed on the Commission's electronic docket (EDIS-ON-LINE) at *http://dockets.usitc.gov/eol/public.*

Authority: This investigation is being terminated under authority of title VII of the Tariff Act of 1930; this notice is published pursuant to section 207.40 of the Commission's rules (19 CFR 207.40).

Issued: February 5, 2002.
By order of the Commission.

Marilyn R. Abbott,

Acting Secretary.

[FR Doc. 02–3196 Filed 2–8–02; 8:45 am]

BILLING CODE 7020–02–P

INTERNATIONAL TRADE COMMISSION

[Investigation 332–438]

U.S.-Taiwan FTA: Likely Economic Impact of a Free Trade Agreement (FTA) Between the United States and Taiwan

AGENCY: United States International Trade Commission.

ACTION: Institution of investigation and scheduling of public hearing.

EFFECTIVE DATE: February 4, 2002.

SUMMARY: Following receipt of a request on January 17, 2002, from the Senate Committee on Finance (Committee), the Commission instituted investigation No. 332–438, U.S.-Taiwan FTA: Likely Economic Impact of a Free Trade Agreement (FTA) Between the United States and Taiwan, under section 332(g) of the Tariff Act of 1930 (19 U.S.C. 1332(g)), to assess the likely impact of a free trade agreement between the United States and Taiwan. As requested by the Committee, the Commission plans to submit its report by October 17, 2002.

As requested by the Committee, in its report the Commission will provide to the extent possible:

- A general overview of the Taiwan economy;
- An overview of the current economic relationship between the United States and Taiwan, including a discussion of the important industry sectors in each;
- An inventory and analysis of the barriers (tariff and nontariff) to trade between the United States and Taiwan;
- A dynamic, as well as a static, analysis of the economic effects of eliminating all quantifiable trade barriers (tariff and nontariff), with special attention to agricultural goods, on:
- The volume of trade in goods and services between Taiwan and the United States;
- Sectoral output and gross domestic product for Taiwan and the United States;
- Wages and employment across industry sectors for each; and
- Final prices paid by consumers in Taiwan and the United States.
- A qualitative assessment of the effects of removing nonquantifiable trade barriers.

FOR FURTHER INFORMATION CONTACT: Information may be obtained from Soamiely Andriamananjara, Project Leader (TEL: 202–205–3252; e-mail: *soamiely@usitc.gov*), Office of Economics, or Jennifer Baumert, Deputy Project Leader (TEL: 205–3450; e-mail: *jbaumert@usitc.gov*), Office of Industries, U.S. International Trade Commission, Washington, DC 20436. For information on the legal aspects, contact William Gearhart (TEL: 202–205–3091; e-mail: *wgearheart@ustic.gov*), Office of the General Counsel. The media should contact Peg O'Laughlin, Public Affairs Officer (TEL: 202–205–1819). Hearing impaired individuals are advised that information on this matter can be obtained by contacting the TDD terminal on (202) 205–1810. Persons with mobility impairments who will need special assistance in gaining access to the Commission should contact the Office of the Secretary at 202–205–2000. General information concerning the Commission may also be obtained by accessing its Internet server (*http://www.usitc.gov*). The public record for this investigation may be viewed on the Commission's electronic docket (EDIS–ON–LINE) at *http://dockets.usitc.gov/eol/public.*

Background:

In its letter to the Commission, the Committee noted that other major trading nations are moving to conclude preferential trade arrangements that favor their own industries. The Committee also stated that the recent accession of Taiwan to the WTO will strengthen its role in the multilateral trading system, and that Taiwan has one of the most rapidly developing economies in the Asia Pacific region.

Public Hearing

A public hearing in connection with the investigation will be held at the U.S. International Trade Commission Building, 500 E Street SW., Washington, DC, beginning at 9:30 a.m. on May 13, 2002. All persons shall have the right to appear, by counsel or in person, to present information and to be heard. Requests to appear at the public hearing should be filed with the Secretary, United States International Trade Commission, 500 E Street SW., Washington, DC 20436, no later than 5:15 p.m., April 30, 2002. Any prehearing briefs (original and 14 copies) should be filed no later than 5:15 p.m., May 7, 2002; the deadline for filing post-hearing briefs or statements is 5:15 p.m., May 23, 2002. In the event that, as of the close of business on April 30, 2002, no witnesses are scheduled to appear at the hearing, the hearing will be canceled. Any person interested in attending the hearing as an observer or nonparticipant may call the Secretary of the Commission (202–205–1806) after April 30, 2002, to determine whether the hearing will be held.

Written Submissions

In lieu of or in addition to participating in the hearing, interested parties are invited to submit written statements (original and 14 copies) concerning the matters to be addressed by the Commission in its report on this investigation. Commercial or financial information that a submitter desires the Commission to treat as confidential must be submitted on separate sheets of paper, each clearly marked "Confidential Business Information" at the top. All submissions requesting confidential treatment must conform with the requirements of section 201.6 of the Commission's Rules of Practice and Procedure (19 CFR 201.6). All written submissions, except for confidential business information, will be made available in the Office of the Secretary of the Commission for inspection by interested parties. The Committee has requested that the Commission prepare a public report (containing no confidential business information). Accordingly, any confidential business information received by the Commission in this investigation and used in preparing the report will not be published in a manner that would reveal the operations of the firm supplying the information. To be assured of consideration by the Commission, written statements relating to the Commission's report should be

submitted to the Commission at the earliest practical date and should be received no later than the close of business on May 23, 2002. All submissions should be addressed to the Secretary, United States International Trade Commission, 500 E Street SW., Washington, DC 20436. The Commission's rules do not authorize filing submissions with the Secretary by facsimile or electronic means.

List of Subjects

Taiwan, International trade, Free trade agreement, Tariffs, and Non-tariff Barriers.

By order of the Commission.
Issued: February 5, 2002.

Marilyn R. Abbott,

Acting Secretary.

[FR Doc. 02–3198 Filed 2–8–02; 8:45 am]

BILLING CODE 7020–02–P

DEPARTMENT OF JUSTICE

Office of Justice Programs

Agency Information Collection Activities: Proposed Collection; Comment Request

ACTION: Notice of information collection under review census of law enforcement training academies.

The Department of Justice, Office of Justice Programs, Bureau of Justice Statistics, has submitted the following information collection request for review and clearance in accordance with the Paperwork Reduction Act of 1995. Office of Management and Budget approval is being sought for the information collection listed below. This proposed information collection was previously published in the **Federal Register** on November 1, 2001, volume 66, page 55205, allowing for a 60-day public comment period.

The purpose of this notice is to allow an additional 30 days for public comment until March 13, 2002. This process is conducted in accordance with 5 CFR 1320.10.

Written comments and/or suggestions regarding the item(s) contained in this notice, especially regarding the estimated public burden and associated response time, should be directed to the Office of Management and Budget, Office of Information and Regulatory Affairs, Attention: Department of Justice Desk Officer, Washington, DC 20530. Additionally, comments may be submitted to OMB via facsimile to (202) 395–7285. Comments may also be submitted to the Department of Justice (DOJ), Justice Management Division, Information Management and Security Staff, Attention: Department Deputy Clearance Officer.

Written comments and/or suggestions from the public and affected agencies concerning the proposed collection of information should address one or more of the following points:

(1) Evaluate whether the proposed collection of information is necessary for the proper performance of the function of the agency, including whether the information will have practical utility;

(2) Evaluate the accuracy of the agency's estimate of the burden of the proposed collection of information, including the validity of the methodology and assumptions used;

(3) Enhance the quality, utility, and clarity of the information to be collected; and

(4) Minimize the burden of the collection of information on those who are to respond, including through the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, e.g., permitting electronic submission of responses.

Overview of This Information

(1) *Type of information collection:* New collection.

(2) *The title of the form/collection:* Census of Law Enforcement Training Academies.

(3) *The agency form number, if any, and the applicable component of the Department sponsoring the collection:* The form number is CJ–52, Bureau of Justice Statistics, United States Department of Justice.

(4) *Affected public who will be asked or required to respond, as well as a brief abstract: Primary:* State, Local or Tribal Government.

(5) *An estimate of the total number of respondents and the amount of time estimated for an average respondent to respond/reply:* It is estimated that 800 respondents will complete a one hour survey form CJ–52.

(6) *An estimate of the total public burden (in hours) associated with the collection:* The total hour burden to complete the survey is 800 annual burden hours.

If additional information is required contact: Mrs. Brenda E. Byer, Deputy Clearance Officer, United States Department of Justice, Information Management and Security Staff, Justice Management Division, Suite 1600, 601 D Street, NW, Washington, DC 20530.

Dated: February 5, 2002.

Brenda E. Dyer,

Department Deputy Clearance Officer, United States Department of Justice.

[FR Doc. 02–3219 Filed 2–8–02; 8:45 am]

BILLING CODE 4410–18–M

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

[Notice 02–016]

Notice of Agency Report Forms Under OMB Review

AGENCY: National Aeronautics and Space Administration (NASA).

SUMMARY: The National Aeronautics and Space Administration, as part of its continuing effort to reduce paperwork and respondent burden, invites the general public and other Federal agencies to take this opportunity to comment on proposed and/or continuing information collections, as required by the Paperwork Reduction Act of 1995 (Public Law 104–13, 44 U.S.C. 3506(c)(2)(A)). The purpose of this collection is to measure the effectiveness of interventions and improvements in general aviation safety

DATES: All comments should be submitted within 60 calendar days from the date of this publication.

ADDRESSES: All comments should be addressed to Ms. Mary Connors, Mail Stop 262–4, NASA Ames Research Center, Moffett Field, California 94035–1000.

FOR FURTHER INFORMATION CONTACT: Ms. Nancy Kaplan, NASA Reports Officer, (202) 358–1372.

Title: National Aviation Operations Monitoring Service.

OMB Number: 2700–0099.

Type of Review: Extension.

Need and Uses: The information developed by the National Aviation Operations Monitoring Service will be used by NASA Aviation Safety Program managers to evaluate the progress of their efforts to improve aviation over the next decade.

Affected Public: Individuals or households.

Number of Respondents: 8,000.

Responses Per Respondent: 1.

Annual Responses: 8,000.

Hours Per Request: Approximately ½ hour.

Annual Burden Hours: 5,455.

Frequency of Report: Quarterly; annually.

David B. Nelson,

Deputy Chief Information Officer, Office of the Administrator.

[FR Doc. 02–3154 Filed 2–8–02; 8:45 am]

BILLING CODE 7510–01–P

APPENDIX C
List of Submissions and List of Hearing Participants

SITC Docket Report
332-TA-438 (Final)
(http://dockets.usitc.gov/eol/public/docketcards/332-438-final.html)

25-07-2000	Statement Filed by Laurin M Baker, Laurin Baker Group, on Behalf of Industrial Fasteners Institute
01-17-2002	Request Filed by Max Baucus and Chuck Grassley, United States Senate, on Behalf of United States Senate
02-05-2002	News Release Filed by Peg O Laughlin, Office of External Relations, on Behalf of Commission
02-05-2002	Institution of Investigation Filed by Marilyn R Abbott, Acting Secretary, on Behalf of Commission
02-11-2002	Comments Filed by Max Baucus, United States Senate, on Behalf of United States Senate
02-11-2002	Federal Register Notice Filed by Marilyn R Abbott, Acting Secretary, on Behalf of Commission
02-28-2002	Letter Filed by Carlos Moore, American Textile Manufacturers Institute, on Behalf of American Textile Manufacturers Institute
04-10-2002	Request to Appear Filed by Laurin M Baker, the Laurin Baker Group, on Behalf of Industrial Fasteners Institute
04-12-2002	Request to Appear Filed by Karen Rashid-lee, Motion Picture Association, on Behalf of Motion Picture Association
04-18-2002	Request to Appear Filed by Rupert J Hammond-chambers, U.S-Taiwan Business Council, on Behalf of U.S-Taiwan Business Council
04-25-2002	Request to Appear Filed by Mitchell J Cooper, Rubber and Plastic Footwear Manufacturers Association, on Behalf of Rubber and Plastic Footwear Manufacturers Association
04-25-2002	Statement Filed by Mitchell J Cooper, Rubber and Plastic Footwear Manufacturers Association, on Behalf of Rubber and Plastic Footwear Manufacturers Association
04-25-2002	Request to Appear Filed by Chien-Jen Chen, Taipei Economic and Cultural Representative Office, on Behalf of Taipei Economic and Cultural Representative Office
04-29-2002	Request to Appear Filed by Kenneth B Hutman, K B H Global Enterprises Limited, on Behalf of K B H Global Enterprises Limited
04-30-2002	Request to Appear Filed by John T Tkacik, the Heritage Foundation, on Behalf of the Heritage Foundation
04-30-2002	Request to Appear Filed by Melissa Ghiang, Taiwanese American CPA Association, on Behalf of Taiwanese American CPA Association

04-30-2002	Testimony Filed by John T Tkacik, the Heritage Foundation, on Behalf of the Heritage Foundation
05-07-2002	Pre-hearing Brief Filed by Chien- Jen Chen, Taipei Economic and Cultural Representative Office, on Behalf of Taipei Economic and Cultural Representative Office
05-10-2002	Comments Filed by Mei- Hui Chang, Taiwanese Chamber of Commerce of Miami, on Behalf of Taiwanese Chamber of Commerce of Miami
05-10-2002	Comments Filed by Winnie Pang, Florida Chinese Business Association, on Behalf of Florida Chinese Business Association
05-13-2002	Submission Filed by Lois H Sharp, Shi-Ching Chang, on Behalf of Shi-Ching Chang
05-13-2002	Submission Filed by Shi-Ching Chang, Shi-Ching Chang, on Behalf of Shi-Ching Chang
05-13-2002	Comments Filed by Max Baucus, United States Senate, on Behalf of Untied States Senate
05-13-2002	Letter Filed by Peter M Murray to Abbott, Clean Earth Technology Incorporated, on Behalf of Clean Earth Technology Incorporated
05-14-2002	Transcript Filed by Marilyn R Abbott Hearing, Secretary, on Behalf of Commission
05-14-2002	Comments Filed by Jackson Chang, Taiwanese Chamber of Commerce of Greater Houston, on Behalf of Taiwanese Chamber of Commerce of Greater Houston
05-16-2002	Hearing Material Filed by Carl J West, Office of the Secretary, on Behalf of Commission
05-17-2002	Comments Filed by Jack Lee, Jamco Aerospace Inc, on Behalf of Jamco Aerospace Inc
05-17-2002	Submission Filed by James Tzen, Maxxis International, on Behalf of Maxxis International
05-17-2002	Submission Filed by Dr Sue-ling Wang, Color Image Inc, on Behalf of Color Image Inc
05-17-2002	Submission Filed by Richard W Akam, Hooters of America Inc, on Behalf of Hooters of America Inc
05-20-2002	Comments Filed by Dr Manoj Jain, Bio Core Medical Technologies Incorporated, on Behalf of Bio Core Medical Technologies Incorporated
05-20-2002	Comments Filed by Robert Prieto, Parsons Brinckerhoff, on Behalf of Parsons Brinckerhoff
05-20-2002	Comments Filed by Peter C Yeh, Taiwanese Chamber of Commerce San Francisco Bay Area, on Behalf of Taiwanese Chamber of Commerce San Francisco Bay Area
05-20-2002	Comments Filed by William Shaw, Shinn Fu Company of America Inc, on Behalf of Shinn Fu Company of America Inc
05-20-2002	Comments Filed by Walter Huang, Huang International Inc China Dragon Enterprises Inc China Dragon Gourmet Enterprises Inc et al, on Behalf of Huang International Inc China Dragon Enterprises Inc China Dragon Gourmet Enterprises Inc et al

05-20-2002	Submission Filed by William Yeh, Computer Square Incorporated, on Behalf of Computer Square Incorporated
05-20-2002	Submission Filed by William Yeh, Monte Jade Science and Technology Association, on Behalf of Monte Fade Science and Technology Association
05-21-2002	Comments Filed by T H Tsiang, Sino Swearingen Aircraft Corporation, on Behalf of Sino Swearingen Aircraft Corporation
05-21-2002	Comments Filed by Joseph Liang, Naluco Inc, on Behalf of Naluco Inc
05-21-2002	Comments Filed by Spring C C Wu, Solar International Shipping Agency Inc, on Behalf of Solar International Shipping Agency Inc
05-21-2002	Comments Filed by Edmund S Muskie, First Union National Bank, on Behalf of First Union National Bank
05-21-2002	Letter Filed by Ron Shade to Abbott, Tiger Aircraft, on Behalf of Tiger Aircraft
05-21-2002	Comments Filed by Bob Jiang, Monte Jade Science and Technology Association Atlanta Chapter, on Behalf of Monte Jade Science and Technology Association Atlanta Chapter
05-21-2002	Comments Filed by Bob Jiang, a S I Corporation, on Behalf of a S I Corporation
05-21-2002	Comments Filed by Otto Huang, Taiwanese Chamber of Commerce of Northern California, on Behalf of Taiwanese Chamber of Commerce of Northern California
05-21-2002	Comments Filed by Bill Enersen, Top Innovations Incorporated, on Behalf of Top Innovations Incorporated
05-21-2002	Comments Filed by Mary Ann Wo, Maryland Department of Business and Economic Development, on Behalf of Maryland Department of Business and Economic Development
05-21-2002	Comments Filed by Jimmy Li, North Ameican Taiwanese Engineers Association, on Behalf of North American Taiwanese Engineers Association
05-21-2002	Comments Filed by Thomas a Zillner, Duracomm Corporation, on Behalf of Duracomm Corporation
05-21-2002	Comments Filed by Tim Hume, National Corn Growers, on Behalf of National Corn Growers
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05-22-2002	Comments Filed by Richard Looney, Avlex Corporation, on Behalf of Avlex Corporation
05-22-2002	Comments Filed by Jack Wu, Formosa Plastics Corporation, on Behalf of Formosa Plastics Corporation
05-22-2002	Comments Filed by Dr James Yoh, Galaxy Scientific Corporation, on Behalf of Galaxy Scientific Corporation

05-22-2002 Comments Filed by Thomas L Vogelsong, Photon Vision Systems Inc, on Behalf of Photon Vision Systems Inc

05-22-2002 Comments Filed by Henry Wang, Taiwan Commerce Association Portland, on Behalf of Taiwan Commerce Association Portland

05-22-2002 Comments Filed by Chris Pak, Molecular Targeting Technologies Inc, on Behalf of Molecular Targeting Technologies Inc

05-22-2002 Comments Filed by Eduardo F Palacio, E D O Defense Programs and Technologies Division, on Behalf of E D O Defense Programs and Technologies Division

05-22-2002 Comments Filed by Mark Powers, Northwest Horticultural Council, on Behalf of Northwest Horticultural Council

05-22-2002 Comments Filed by Frank Chiaino, Fibertech Networks, on Behalf of Fibertech Networks

05-22-2002 Comments Filed by Brian Wang, J-M Manufacturing Company Inc, on Behalf of J-M Manufacturing Company Inc

05-22-2002 Comments Filed by R Fashun Ku, Commissioner of Economic Development, on Behalf of City of Rochester

05-22-2002 Comments Filed by Jeffrey T Carlson, Deputy Mayor, on Behalf of City of Rochester

05-22-2002 Letter Filed by Seng C Chang to Abbott, Chinfon Investment U S a Corporation, on Behalf of Chinfon Investment U S a Corporation

05-22-2002 Comments Filed by Dale Spurgin, U S Grains Council, on Behalf of U S Grains Council

05-22-2002 Comments Filed by W J Cook, Missouri Food and Fiber Incorporated, on Behalf of Missouri Food and Fiber Incorporated

05-22-2002 Comments Filed by Dale R Ludwig, Missouri Soybean Association, on Behalf of Missouri Soybean Association

05-22-2002 Comments Filed by Robert Wexler, Congress of the United States, on Behalf of Congress of the United States

05-22-2002 Letter Filed by Otto P Huang to Abbott, Taiwanese American Chamber of Commerce Northern California, on Behalf of Taiwanese American Chamber of Commerce Northern California

05-22-2002 Comments Filed by Julie Wong, First Asian Bank, on Behalf of First Asian Bank

05-23-2002 Comments Filed by May Wan, Seatlte Chinese Chinatown Chamber of Commerce, on Behalf of Seattle Chinese Chinatown Chamber of Commerce

05-23-2002 Post-hearing Brief Filed by Laurin M Baker, Laurin Baker Group, on Behalf of Industrial Fasteners Institute

05-23-2002 Comments Filed by Thomas J Jeffers, Hill-rom Company Inc, on Behalf of Hill-rom Company Inc

05-23-2002 Comments Filed by Steven M Cowan, Six-2 Fastener Imports Incorporated, on Behalf of Six-2 Fastener Imports Incorporated

05-23-2002 Comments Filed by David R Brown, Sikorsky Aircraft Corporation, on Behalf of Sikorsky Aircraft Corporation

05-23-2002 Comments Filed by Lewis W Van Amerongen, Erickson Air-crane Incorporated, on Behalf of Erickson Air-crane Incorporated

05-23-2002 Comments Filed by Charlie Tsai, Universal Channel Inc, on Behalf of Universal Channel Inc

05-23-2002 Comments Filed by Wen S Wu, K T F Auto Body Depot, on Behalf of K T F Auto Body Depot

05-23-2002 Comments Filed by Gregg Krebsbach, South Dakota Wheat Commission, on Behalf of South Dakota Wheat Commission

05-23-2002 Comments Filed by Sandra K Toro, Omniviral Therapeutics, on Behalf of Omniviral Therapeutics

05-23-2002 Comments Filed by Michael Shaw, Compal Electronics Inc, on Behalf of Compal Electronics Inc.

05-23-2002 Comments Filed by Tzong H Chen, Taiwanese Chamber of Commerce of Ohio, on Behalf of Taiwanese Chamber of Commerce of Ohio

05-23-2002 Comments Filed by James Wu, the Taipei Economic and Cultural Representative Office, on Behalf of the Taipei Economic and Cultural Representative Office

05-23-2002 Submission Filed by Citi Cheng, Amstech Incorporated, on Behalf of Amstech Incorporated

05-23-2002 Letter Filed by Santo L Grillo to Abbott, Ruby Reef Incorporated, on Behalf of Ruby Reef Incorporated

05-23-2002 Comments Filed by Laura E Jones, United States Association of Importers of Textiles and Apparel, on Behalf of United States Association of Importers of Textiles and Apparel

05-23-2002 Comments Filed by Steve Chabot, Congress of the United States, on Behalf of Congress of the United States

05-23-2002 Comments Filed by Robert Wexler, Congress of the United States, on Behalf of Congress of the United States

05-23-2002 Comments Filed by Bob S Liu, Taiwan Benevolent Association of Greater Washington D C, on Behalf of Taiwan Benevolent Association of Greater Washington D C

05-23-2002 Comments Filed by Linda Lee, the District of Columbia Chamber of Commerce, on Behalf of the District of Columbia Chamber of Commerce

05-23-2002 Comments Filed by Alfred Liu, Taiwanese Chamber of Commerce of Greater Washington D C, on Behalf of Taiwanese Chamber of Commerce of Greater Washington D C

05-23-2002 Letter Filed by Rita Lee, H S M S Incorporated, on Behalf of H S M S Incorporated

05-23-2002 Statement Filed by Liu Jui Tu, the Taiwan Textile Federation, on Behalf of the Taiwan Textile Federation

05-23-2002 Statement Filed by Frank Z Kung, Taiwan Footwear Manufacturers Association, on Behalf of Taiwan Footwear Manufacturers Association

05-23-2002 Comments Filed by John Wu, Taiwan Industrial Fasteners Institute, on Behalf of Taiwan Industrial Fasteners Institute

05-24-2002 Letter Filed by Doug Bereuter to Koplan, Congress of the United States, on Behalf of Cognress of the United States

05-24-2002 Letter Filed by Doug Bereuter to Koplan, Congress of the United States, on Behalf of Congress of the United States

05-24-2002 Comments Filed by Chang Yang Wang, Taiwanese Chamber of Commerce of Greater Chicago, on Behalf of Taiwanese Chamber of Commerce of Greater Chicago

05-24-2002 Comments Filed by John Chen, Con Tek International Corporation, on Behalf of Con Tek International Corporation

05-24-2002 Submission Filed by James Wu, Taipei Economic and Cultural Representative Office, on Behalf of Taipei Economic and Cultural Representative Office

05-24-2002 Submission Filed by Min H Kao, Garmin International, on Behalf of Garmin International

05-28-2002 Submission Filed by Jack Chen, De Amertek Corporation Incorporated, on Behalf of De Amertek Corporation Incorporated

05-28-2002 Letter Filed by James Yoh to Abbott, Monte Jade Science and Technology Association, on Behalf of Monte Jade Science and Technology Association

05-28-2002 Letter Filed by William O Cullom to Abbott, Greater Miami Chamber of Commerce, on Behalf of Greater Miami Chamber of Commerce

05-29-2002 Letter Filed by Paul Shen to Abbott, Via-cyrix Incorporated, on Behalf of Viz-cyrix Incorporated

05-29-2002 Letter Filed by Michael Lanier to Abbott, Solar International Shipping Agency Incorporated, on Behalf of Solar International Shipping Agency Incorporated

05-29-2002 Submission Filed by Jimmy Li, North America Taiwanese Engineers Association, on Behalf of North America Taiwanese Engineers Association

05-29-2002 Submission Filed by Jinn Wu, Xeno Biotic Laboratories Incorporated, on Behalf of Xeno Biotic Laboratories Incorporated

05-29-2002 Letter Filed by Sancho Lin, Everlight U S a Incorporated, on Behalf of Everlight U S a Incorporated

05-29-2002 Letter Filed by John J Wallace to Abbott, Nova Biomedical Corporation, on Behalf of Nova Biomedical Corporation

05-29-2002 Letter Filed by Gary Martin to Abbott, North American Export Grain Association Incorporated, on Behalf of North American Export Grain Association Incorporated

05-29-2002 Submission Filed by Doughlas M Kolodny-hirsch, Meta Morphix Incorporated, on Behalf of Meta Morphix Incorporated

05-30-2002 Response Filed by Lettie J Bien, Coral Gables Chamber of Commerce, on Behalf of Coral Gables Chamber of Commerce

05-31-2002 Letter Filed by Mitchell B Jacoby to Abbott, Jacoby Development Incorporated, on Behalf of Jacoby Development Incorporated

05-31-2002 Letter Filed by Johnson Young, Taiwanese Chamber of Commerce of Greater Orlando, on Behalf of Taiwanese Chamber of Commerce of Greater Orlando

05-31-2002 Letter Filed by Thomas J Harrold to Abbott, Miller and Martin, on Behalf of

05-31-2002 Letter Filed by Johnson Young, Taiwanese Chamber of Commerce of Greater Orlando, on Behalf of Taiwanese Chamber of Commerce of Greater Orlando

05-31-2002 Comments Filed by Johnson Young, Taiwanese Chamber of Commerce of Greater Orlando, on Behalf of Taiwanese Chamber of Commerce of Greater Orlanda

05-31-2002 Letter Filed by Wayne Lu to Koplan, Taiwanese Chamber of Commerce of Honolulu, on Behalf of Taiwanese Chamber of Commerce of Honolulu

06-04-2002 Comments Filed by Baker Evans, Thomson Prometric, on Behalf of Thomson Prometric

06-04-2002 Comments Filed by Y T Tsai, Regitar USA Inc, on Behalf of Regitar USA Inc

06-04-2002 Comments Filed by Ken Flick, Omega Research and Development Inc, on Behalf of Omega Research and Development Inc

06-04-2002 Comments Filed by Lotta Danieisson Murphy, U S Taiwan Business Council, on Behalf of U S Taiwan Business Council

06-04-2002 Comments Filed by Josephine Lu, Taiwanese Chamber of Commerce of Orange County, on Behalf of Taiwanese Chamber of Commerce of Orange County

06-04-2002 Comments Filed by Alan T Tracy, U S Wheat Associates, on Behalf of U S Wheat Associates

06-04-2002 Comments Filed by Josie Hsiao, Southern California Chinese Computer Association, on Behalf of Southern California Chinese Computer Association

06-04-2002 Comments Filed by Eric Kung, Taiwanese Chamber of Commerce of Greater Detroit, on Behalf of Taiwanese Chamber of Commerce of Greater Detroit

06-04-2002 Comments Filed by David Callahan, Market Source International, on Behalf of Market Source International

06-04-2002	Comments Filed by Robert J Wolfgang, Boston International Trade Group Inc, on Behalf of Boston International Trade Group Inc
06-04-2002	Comments Filed by Melissa Chiang, Taiwanese American CPA Association, on Behalf of Taiwanese American CPA Association
06-05-2002	Comments Filed by Cheng-Fan Lo, Taiwanese Chamber of Commerce of Oregon, on Behalf of Taiwanese Chamber of Commerce of Oregon
06-05-2002	Comments Filed by Doug Bereuter, Congress of the United States, on Behalf of Congress of the United States
06-06-2002	Comments Filed by Andrew F Flores, Global Marketing Advisors Llc, on Behalf of Global Marketing Advisors Llc
06-06-2002	Comments Filed by David Owen, South Dakota Chamber of Commerce and Industry, on Behalf of South Dakota Chamber of Commerce and Industry
06-10-2002	Comments Filed by Steve Lamar, American Apparel and Footwear Association, on Behalf of American Apparel and Footwear Association
06-12-2002	Letter Filed by Stephen Koplan to Bereuter, Chairman, on Behalf of Commission
06-12-2002	Letter Filed by Stephen Koplan to Wexler, Chairman, on Behalf of Commission
06-18-2002	Comments Filed by Jennifer Dunn Phil Crane Charles Rangel and Sander Levin, Congress of the United States, on Behalf of Congress of the United States
07-01-2002	Letter Filed by Lei Ahu Isa, House of Representatives, on Behalf of House of Representatives
07-05-2002	Letter Filed by Reuben S F Wong, Chinese Chamber of Commerce of Hawaii, on Behalf of Chinese Chamber of Commerce of Hawaii
07-10-2002	Submission Filed by James Wu, Taipei Economic and Cultural Representative Office, on Behalf of Taipei Economic and Cultural Representative Office
07-11-2002	Comments Filed by Juliana M Cofrancesco, Howrey Simon Arnold and White, on Behalf of Tile Council of America Incorporated
07-24-2002	Letter Filed by Deanna Tanner Okun to Ahu Isa, Chairman, on Behalf of Commission
07-29-2002	Letter Filed by Rod Tam, State of Hawaii, on Behalf of State of Hawaii
08-01-2002	Letter Filed by James C Tollefson, the Chamber of Commerce of Hawaii, on Behalf of the Chamber of Commerce of Hawaii

Public Hearing

Those listed below appeared as witnesses at the United States International Trade Commission's hearing:

Subject: U.S.-Taiwan FTA: Likely Economic Impact of A Free Trade Agreement (FTA) Between the United States and Taiwan

Inv. No.: 332-438

Date and Time: Monday, May 13, 2002 - 9:30 a.m.

Sessions were held in connection with the investigation in the Main Hearing Room, 500 E St., SW Washington, D.C.

Organization and Witness

Taipei Economic and Cultural Representative Office in the United States
Chien-jen Chen, Representative

KBH Global Enterprises Limited
Lotta Danielsson Murphy, Director

KBH Global Enterprises Limited
Kenneth B. Hutman, President

The Heritage Foundation
John J. Tkacik, Jr., Research Fellow

Motion Pictures Association of American, Inc.
Bonnie Richardson, Vice President, Trade and Federal Affairs

Taiwanese American CPA Association
Melissa Chiang

Law Offices of Mitchell J. Cooper, Washington, D.C.
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Maclean Vehicle Systems and Chairman, Industrial Fastners Institute
Timothy Taylor, President

Economic Consulting Services, Inc.
Bruce Malashevich, President

APPENDIX D
Technical Appendix

APPENDIX D

The discussion that follows focuses on the quantitative analysis incorporated in this report--the computable general equilibrium analysis presented in chapter 7.

The GTAP Model

In general, the dynamic questions that are of interest to policymakers involve the ways in which the trade policy under consideration interacts with other changes that are expected in the economies of interest. In this report, the Commission used a sequential version of the standard static Global Trade Analysis Project (GTAP) model that was adjusted to address those specific issues.[1] This appendix details the procedures used to adapt the standard GTAP model in order to assess the likely impacts of a FTA between the United States and Taiwan. First, the basic features of the static GTAP model are introduced. Second, the adjustments made to the standard database are discussed. The third and fourth sections present various aspects of the baseline construction and solution techniques.

The Standard GTAP Model[2]

The GTAP model is a static general equilibrium model consisting of a documented global database on international trade, country and regional interindustry relationships, national income accounts, and a standard modeling framework to organize and analyze the data. It allows for comparisons of the global economy in two environments: one in which the base values of policy instruments such as tariffs or export restrictions are unchanged, and another in which these measures are changed, or shocked, to reflect the policies that are being studied. A change in policy makes itself felt throughout the countries or regions depicted in the model. The static model by design does not produce information about the speed with which changes occur, about what happens to various dimensions of the economies in the meanwhile, or what may have happened to change some of the underlying dynamic structures of the economies, such as specific patterns of foreign direct investment or technological changes that may alter the future growth pattern of economies.

Results from the GTAP model are based upon established global trade patterns. This means that the model is unable to estimate changes in trade in commodities that historically have not been traded. That is to say, if zero trade now exists between two

[1] Other important issues such as adjustment costs and anticipated versus unexpected policies are not addressed here.

[2] For further information, see T.W. Hertel (ed.), Global Trade Analysis: Modeling and Application. (Cambridge: Cambridge University Press, 1997).

countries for a particular commodity, the model will assume that there will always be no trade in that commodity.[3] Furthermore, patterns of trade may exist for such reasons as the distance between countries or cultural preferences, which are imperfectly captured by Armington elasticities. The GTAP model does not directly account for historical or cultural factors as determinants of trade patterns. The model assumes that these factors are unaffected by the trade policy change. The model will tend to show smaller effects of policy changes operating on smaller trade flows, and larger effects on larger flows.

In the GTAP model, domestic products and imports are consumed by firms, governments, and households. Product markets are assumed to be perfectly competitive (implying zero economic profit for the firm), with imports as imperfect substitutes for domestic products (i.e., consumers are aware of the source of the products and may distinguish between them based on the foreign or domestic origin), and sectoral production determined by global demand and supply of the output.

Updating the GTAP Database

The current version of the GTAP database (version 5) covers trade in 57 commodity aggregates, or GTAP sectors, among 66 countries and regions.[4] For the purpose of the present analysis, the database has been aggregated into 12 regions and 24 commodity groups (D-1). The commodity aggregation adopted here reflects the request by the Senate Committee on Finance to pay special attention to agricultural goods.

In addition to the data on trade in each of the commodities between each pair of countries or regions in the model, data are incorporated on the domestic production and use of each commodity (including use in the production of other commodities), the supply and use of land, labor, capital, the population, and GDP. The database also contains information on tariffs, some nontariff barriers, and other taxes. Information on the services sector is limited and highly aggregated. An additional component of the data is a set of parameters which, in the context of the model's equations, determine its behavior. These are principally a set of elasticity values that determine, among other things, the extent to which imports and domestically produced goods are substitutes for one another.

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[3] This shortcoming does not affect the analysis here because the sectoral specification, shown in table D-1, is quite aggregated. At that level of aggregation, there is trade for almost all sectors. The only sector where trade between the United States and Taiwan is negligible is paddy rice. In most cases, however, it is not economical to import paddy rice. Paddy (or rough) rice is the whole grain taken off the plant at harvest. The white rice grain we eat makes up less than three-quarters of the weight of a paddy rice grain which also includes the hull and bran. Thus most paddy rice is milled before it is exported. In some cases, however, the milling industry prefers to import paddy rice to maintain capacity and cover fixed costs. The United States and Argentina are the world's only significant exporters of paddy rice.

[4] Betina V. Dimaranan and Robert A. McDougall (2002). Global Trade, Assistance, and Production: The GTAP 5 Data Base, Center for Global Trade Analysis, Purdue University, 2002.

Table D-1
Commodity and regional aggregation

Commodity aggregation	Regional aggregation
Paddy rice	USA
Other grains	Canada
Oilseeds	Mexico
Vegetables, fruits, and nuts	European Union
Other crops	Japan
Livestock	Korea
Forestry	Taiwan
Fishing	Hong Kong
Coal, oil, gas, and other minerals	China
Meat products	ASEAN
Dairy products	Rest of Asia
Processed rice	Rest of world
Other processed foods	
Textiles, wearing apparel, and leather products	
Wood and paper products	
Petroleum and coal products	
Chemical, rubber, plastic products and other mineral products	
Metals and metal products	
Motor vehicles and parts	
Other transportation equipment	
Electronic equipment	
Other machinery and equipment	
Other manufactures	
Services[1]	

[1] The GTAP database contains only a limited and highly aggregated representation of the services sector. Unlike the other sectors in the database, services are not fully tradable and the border measures captured in the GTAP protection data do not represent the actual restrictions to trade in services.

Source: GTAP database.

The current standard GTAP data is based on the year 1997–i.e., trade flows and barriers, and other data refer to the world in that year. For the purpose of the present study, the standard data set was updated to reflect 2001, using data from the World Bank for three variables (population, GDP, and capital stock), as well as U.S.-Taiwan bilateral trade flows. The trade protection data set also was adjusted to represent a policy environment in which all policy measures ratified under the Agreement on Agriculture and the Agreement on Textiles and Clothing (ATC) of the Uruguay Round and, and scheduled to be implemented by 2001, are in place. This updated data set is used as the base data for the current analysis.

Construction of the Counterfactual Projected Baseline

In an effort to approximate a dynamic process in which the world's economies change over time, the impacts of the FTA are measured against an 8-year projected baseline

(from 2001 to 2013) constructed using data from the World Bank.[5] In order to produce the projected baseline, the model takes into account expected growth in both resources (factors of production) and in the efficiency of the productive technology in each of the regions under consideration.

GTAP has five factors of production (capital, skilled labor, unskilled labor, land, and natural resources). In creating the projected baseline, the land and natural resource endowments were assumed to remain fixed, while both types of labor and capital are allowed to grow. Estimates of growth in the capital stock were assumed to be in line with the World Bank forecasts.[6] Growth rates of skilled and unskilled labor were assumed equal to the forecasts of population growth rates.[7] The projected growth rates for the whole 2001-2013 period for output and labor are reported in table D-2.

The World Bank data do not report expected growth in total factor productivity (TFP), a variable that represents the growth of economic efficiency in each country. However, the implicit rate of TFP growth can be derived from model simulations that estimate the efficiency gains that would allow the projected growth in inputs to produce the expected growth in output.[8] In order to determine the baseline growth in TFP, the GTAP model is adjusted so that it addresses this, using forecasts of labor, capital, and GDP. The additional efficiency needed to produce the forecast change in output then becomes an input into the projected baseline.[9]

For each time interval of the counterfactual baseline, the protection data are changed to reflect the phasing-in of the trade policy measures ratified under the Taiwan and China WTO accessions, and the Agreements on Agriculture and on Textiles and Clothing (ATC) of the Uruguay Round.[10] Thus, economic conditions in 2001 reflect

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[5] This eight-year period is divided into two intervals (beginning of 2001 to beginning of 2005 and beginning of 2005 to beginning of 2009). Forecast data include projections of population and GDP.

[6] In the development of the baseline data from 1997 to 2013, regional investment in new capital goods was made consistent with the capital stock growth rates from the World Bank forecasts.

[7] The World Bank forecasts supply estimates of population growth, but do not project how the composition of the population changes over time. There are likely to be changes over time in the rate of unemployment, the share of workers that could be considered skilled, and the productivity of the average worker. Without projections on these variables, they are assumed fixed over time.

[8] Solving the model to produce TFP growth rates is equivalent in concept to the growth accounting approach typically used in simple calculations. In growth accounting, 3 percent growth in GDP and 2 percent growth in inputs (capital and labor) implies a 1 percent (3 - 2 = 1) increase in TFP. Because the mathematical structure of the GTAP model is more complicated than the model used in growth accounting, we could not use growth accounting, though the estimates calculated in growth accounting would be quite similar to those calculated within the model. Because the purpose of the exercise is to eventually replicate the GDP forecast exactly, TFP growth must be forecast within the context of the model.

[9] Economies undergo several kinds of technological change over time. These assumptions capture only the average change in an economy's ability to change a given bundle of inputs into output. One aspect of technical change is how the nature of an economy's input-output structure changes over time. For example, as a developing economy grows, it may begin to use a larger share of capital (tractors) in agricultural production. These projections assume no change in input-output structures over time.

[10] As noted in chapter 2, Taiwan entered the World Trade Organization as part of a customs territory–The Separate Customs Territory of Taiwan, Penghu, Kinmen, and Matsu. Thus the projected baseline projection reflects the entry of Taiwan and mainland China into the World Trade Organization (WTO), including the gradual phase-in of sector specific tariff concessions.

Table D-2
Projected growth rates for GDP, population, and capital stock, 1997 to 2001, 2005, 2009, and 2013

	1997-2001	1997-2005	1997-2009	1997-2013
	Percent			
GDP growth:				
United States	12.04	23.73	36.45	49.94
Canada	10.49	23.18	36.64	51.22
European Union	10.35	22.55	35.35	49.08
Japan	-2.84	5.25	14.49	24.24
Korea	4.60	28.36	56.97	89.49
Taiwan	14.47	37.03	64.04	96.37
Hong Kong	0.72	24.18	51.86	83.32
China	31.32	75.37	129.40	193.13
ASEAN	-2.03	21.47	49.53	81.67
Mexico	14.83	36.83	62.79	91.57
Rest of Asia	21.08	47.50	76.75	109.90
Rest of the world	8.03	26.89	48.55	72.45
Population growth:				
United States	3.64	7.00	10.44	14.00
Canada	3.76	7.07	10.42	13.90
European Union	0.52	0.46	0.33	0.20
Japan	0.91	1.46	1.96	2.46
Korea	3.22	6.14	9.10	12.15
Taiwan	2.86	6.19	9.63	13.18
Hong Kong	1.79	2.63	3.35	4.08
China	3.49	6.49	9.51	12.63
ASEAN	6.23	12.29	18.66	25.47
Mexico	7.01	13.77	20.92	28.61
Rest of Asia	7.26	14.42	22.04	30.27
Rest of the world	7.53	15.46	24.10	33.50
Capital stock growth:				
United States	23.5	46.6	71.5	102.3
Canada	26.1	53.9	86.0	127.0
European Union	9.0	19.8	32.7	47.1
Japan	4.8	10.1	16.1	22.5
Korea	7.6	19.0	34.7	52.3
Taiwan	11.60	24.55	38.99	55.12
Hong Kong	17.9	40.2	69.8	106.5
China	59.4	135.4	249.4	435.1
ASEAN	11.8	26.5	46.9	70.5
Mexico	20.8	48.4	86.3	135.5
Rest of Asia	45.3	95.8	161.9	257.2
Rest of the world	10.1	24.0	42.1	63.0

Source: World Bank and USITC calculations.

reductions in export subsidies and import tariffs for food and agricultural products and expansion of quotas for textiles and clothing agreed at the Uruguay Round and the accession of China and Taiwan to the WTO.[11] In particular, it is assumed that the 1997

[11] The accession of Taiwan and China into the WTO is included in the baseline with gradual phase-ins of tariff reductions for each sector in the model.

data reflect a portion of the food and agriculture trade liberalization agreed at the Uruguay Round--50 percent for developed countries and 33 percent for developing countries. The 2001 baseline data show food and agriculture import tariffs and export subsidies which are 18 percent lower than the 1997 rates for developed countries, and 8 percent lower for developing countries. The 2005 baseline data reflect agriculture and food tariffs and exports subsidies which are 8 percent lower than the 2001 rates for developing countries. Thus, the 2005 baseline data reflect for food and agriculture import tariffs and export subsidies agreed at the Uraguay Round of 36 percent for developed countries and 24 percent for developing countries. Regarding textiles and clothing, in the GTAP database, the direct impact of textiles and clothing quotas is modeled as an export tax. To model the expansion and then the removal of those quotas, the relevant export taxes are reduced by 50 percent for 2001. The remaining export taxes are removed completely for 2005. Furthermore, the data for the year 2005 reflect continuing trade policy reform in China and Taiwan as part of their WTO accession. The data for 2009 and 2013 reflect the remaining WTO accession of China and Taiwan.

Solution Techniques

A typical experiment conducted in the standard GTAP framework measures the long-term effects of a one-time, full implementation of an agreement.[12] It is assumed in the model that sufficient time is allowed to let the full effect of the agreement work its way through the economy. Reported figures show the effects of a trade policy shock as it would have appeared in the base year of the data. Such estimates require no assumptions about the time required for full adjustment. The primary disadvantage of the static approach is that it does not account for expected changes in the economy over time.

In the present counterfactual analysis, the baseline described earlier is assumed to represent a reasonable estimate of the likely evolution of the relevant variables in the absence of the U.S.- Taiwan FTA or other trade policy changes.[13] The modeling approach is a sequential simulation of the static GTAP model, with an updating procedure that allows key macroeconomic variables in the model to match the World

[12] See, for example, USITC, The Impact on the U.S. Economy of Including the United Kingdom in a Free Trade Arrangement with the United States, Canada, and Mexico, USITC pub. 3339, August 2000, or USITC, Overview and Analysis of the Economic Impact of U.S. Sanctions with Respect to India and Pakistan, USITC pub. 3236, September 1999.

[13] It should be stressed that the projected baseline is not intended as a forecast, but as a projection that relies on average expected growth rates. Unexpected events may lead the actual macroeconomic evolution of the variables of interest to differ substantially from the projected baseline. The projected baseline is simply the Commission's best estimate of how these variables are expected to evolve, given the inputs from the World Bank forecasts of input and output growth.

Bank forecasts of these variables.[14] This framework allows for changes in the productive resources (capital and labor) available in each region, as well as their productivity, so that the changing trade pattern can be affected both by the tariff cuts and by projected changes in inputs and in economy-wide output. The effects of the agreement at a given point in time are estimated by; 1) calculating baseline data by shocking the model with cumulative (from 2001) increases in labor, capital and TFP, 2) solving the model once again using the FTA liberalization, and 3) reporting the results of the modeling. This procedure is done for each solution point (2005 and 2009). In absence of information to the contrary, it is assumed that all trade barrier elimination take place at once, in 2001, with no gradual phase-in provision. Thus, the same FTA liberalization is used for each solution point. Economic agents portrayed in the model are not able to link the periods of time when they make their decisions.[15] Thus, the decision makers are neither forward- nor backward-looking, they simply act in each period as the relevant resource constraints bind them to do.

Measuring the Impacts of the FTA

The probable effects of the U.S.- FTA reported are simply the deviations of the relevant variables from their levels in the projected baseline, at any given solution point. Reported deviations in economic variables like production, trade, and income, indicate the likely degree to which the policy causes the modeled economies to deviate from their expected paths. Changes in the variables of interest are measured in percentage terms, relative to the projected baseline, 4 years (and then 8 years) after the FTA goes into effect. This assumes that full adjustment to a trade policy shock occurs in 4 years. The effects of the 2001 trade liberalization measured on the United States in 2005 are reported and discussed in chapter 5. Because differences from the baseline are quite similar across years, the full results for 2009 and 2013 are quite similar to those reported for 2005. This result is not very surprising, given that they measure the effect of the same policy experiment, and that no dramatic changes have been applied to the baseline data.[16]

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[14] The inclusion of time-specific data forces the analyst to make specific assumptions about the timing of economic adjustment to the proposed tariff cuts. In this case, it is assumed that the economic adjustments to each proposed tariff cut will be completed within a four-year period following each round of cuts. The 4-year adjustment period used in this modeling exercise is sufficiently long to make such assumptions plausible.

[15] In this sense, the model is not quite as rigorous as some dynamic CGE models, which allow the agents the possibility to consider future outcomes when making current decisions.

[16] The similarity of the 2005 and 2009 results show that the long-run impact of the FTA is generally unaffected by the baseline year in which the shocks are applied. As a result, measured long-run changes estimated in the dynamic analysis (the results estimated for 2009) are almost exactly equivalent to the long-run estimates that would have been estimated in a static exercise that contained no updated baseline. The solution procedures and economic forces that act in the dynamic analysis are exactly those that operate in a static analysis. The only differences between the results of dynamic and static analyses result from the policy shocks being applied to updated data. In general, these differences are quite small.