California's Vested Interest in U.S. Trade Liberalization Initiatives

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Foreword

"Global California." It is a phrase representative of many examples but few with a locus of policy decisionmaking. Immigration policy is the responsibility of the federal government, yet Proposition 187, which sought to deny public services to undocumented immigrants and their children, was one of the most controversial initiatives in California history. Chinese and Indian entrepreneurs lead 24 percent of the firms in Silicon Valley, yet their entry into this country is subject to heated debate every year in the U.S. Congress. Tijuana is one of the fastest growing cities in Mexico, yet the management of the greater San Diego/Baja area's natural resources, transportation, and urban growth is made more complicated each year by the implementation of ever-more stringent policies of border control. Exotic species of algae—carried on ships serving global markets—threaten the ecology of California's coastline and bays, yet the policy domains for environmental regulation range from development controls by local government to guidelines for global climate change set by the Kyoto Protocol. The World Trade Organization lowered tariff and non-tariff barriers worldwide in the Uruguay Round Agreement, and California's firms benefited more than proportionately. Yet, the Free Trade Area of the Americas provides little benefit to California producers because they export very little to South America. Add to these examples and others the rapid change of globalism, as well as expanding electronic communication, and California finds itself in a whirlwind of a problem and policy mix unprecedented in its 150-year history.

In 1998, PPIC set out to take a thoughtful look at the phenomenon of Global California and its consequences for the future of the state's population and economy. One contribution to that effort is Jon Haveman's investigation into the emerging trade regimes on the world stage and their effect on California. This volume is the result of his efforts. Two of his findings are worthy of special note. First, even

though California accounted for almost 16 percent of all goods exported by the United States in 1998, exports were just under 10 percent of all the goods and services produced in the state. In other words, Global California is important to our economic future, but U.S. domestic consumption of our products is still the key to the state's economic stability and growth. Second, trade with Asia—especially with those nations covered by the Asia-Pacific Economic Cooperation (APEC) Forum—is the most important component of foreign trade for California. Reductions in trade barriers with Japan, Taiwan, Singapore, South Korea, and Hong Kong hold the greatest promise of economic gain for the state's firms and residents. Just as the East Coast is oriented toward Europe in its trade affiliations, California is strongly oriented toward the Pacific Rim.

Haveman concludes that reductions in trade barriers have served California interests well and that APEC negotiations should be of strong interest to the state and its leaders. Nevertheless, in spite of California's geographic size and economic strength, the policy domain lies in Washington, D.C., and at the bargaining tables throughout the world. As upbeat as Haveman's conclusions are about the consequences of past decisions, Californians have reason to be concerned about the shifting tides of policy. Californians will receive the benefits or pay the costs without having any real role to play in the policy negotiations. Nonetheless, at a minimum, state leaders should know how well we have done and what future outcomes may be in our interest. Jon Haveman has made the first and very important contribution to that understanding.

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Summary

The importance of international trade to producers in California is significant and growing. In 1998, producers in the state shipped more than $105 billion worth of goods to foreign countries. After growing at almost 10 percent per year since 1993, California's exports in 1998 accounted for almost 16 percent of the goods exported by the United States and represented just under 10 percent of all goods and services produced in California. For the United States as a whole, exports of goods amount to less than 8 percent of all goods and services produced.

Given the importance of international trade to the California economy, it is important to understand it. This report provides answers to the following questions: To whom are goods shipped? What sorts of goods are exported? How significant are the barriers that California exports face in other countries? We also evaluate the effect of recent and pending trade agreements on the ability of California exports to penetrate particular foreign markets.

Because trade liberalization endeavors are undertaken in the spirit of maximizing national welfare, there is no presumption that they reflect the most preferred policy outcome of any one state. Thus, we also assess the extent to which recent and future liberalization initiatives have served to disproportionately benefit or harm both consumers and industry in California. Among the most striking findings of this report are the following:

- California producers have a greater propensity to export than do producers elsewhere in the United States.
- California exports are disproportionately clustered in the high-technology sectors.
- California exports are more likely than those from the rest of the country to end up in Asia, especially Japan.

- The liberalization of foreign markets has provided a greater boost to California exports than to exports from most other states.
- The Asia-Pacific Economic Cooperation Forum has the potential to provide very significant benefits to California producers.
- Because California ships very little to South America, the Free Trade Area of the Americas does not provide much benefit to California producers.
- Because of the composition of California exports, some markets—in particular, Brazil, India, and China—are less open to California exports than to those from the rest of the country.
- The current liberalization agenda provides relief from 90 percent of the tariff barriers faced by California exports.

Our assessment of recent trade agreements looks specifically at those in the early to mid 1990s that improved export opportunities for California producers: the Uruguay Round, the North American Free Trade Agreement (NAFTA), and the Information Technology Agreement (ITA). Current negotiations include those with other countries in North and South America that are seeking to establish a Free Trade Area of the Americas (FTAA) and with countries bordering the Pacific Ocean and participating in the Asia-Pacific Economic Cooperation (APEC) Forum. Progress is also being made toward a second Information Technology Agreement, the ITA-II.

With respect to both recent and future liberalization initiatives, we find that California benefits more than does the rest of the nation. That is, the liberalization appears to be taking place with countries in which California has a significant export stake and in commodities that California exports. This is particularly true with regard to the APEC negotiations. California, more than any other state, relies very heavily on trade with members of the APEC Forum.

California producers have also come out ahead with respect to U.S. tariff barriers. Although the United States as a whole has seen a reduction in the protection provided by U.S. barriers to trade, this reduction has been smaller for California's industrial mix than for the

rest of the nation. Reductions in U.S. tariff barriers also have implications for consumers. The tariff reductions result in lower prices for many goods. We find that reductions in tariffs on consumer goods have been small relative to those on goods purchased by producers and used as intermediate inputs to production. That said, the reductions do appear to slightly favor consumers in California relative to those elsewhere in the United States.

It would appear that the recent reductions in global barriers to trade have served California interests fairly well. California exporters face markets that are relatively open; the protection of California industries, in the aggregate, has eroded to a smaller degree than it has for producers in other states; and consumers in California now face lower prices than in the early 1990s. As for the current liberalization initiatives, California exporters should pay close attention to the APEC negotiations. This agreement yields much larger benefits for California than does the FTAA.

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Acknowledgments

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1. Introduction

The 1990s can reasonably be described as a decade that brought about significant changes in international economic relations between the United States and some of its major trading partners. The completion of the Uruguay Round, the institution of the North American Free Trade Agreement (NAFTA), and progress in the Asia-Pacific Economic Cooperation (APEC) Forum have all brought about significant reductions in barriers to U.S. exports. These reductions have most assuredly contributed to the rapid growth of U.S. exports in recent years. Between 1993 and 1998, the nominal value of U.S. goods exports grew at an average annual rate of 9.3 percent. This is a growth rate significantly above that of the U.S. gross domestic product (GDP), which grew at an average annual rate of 6.9 percent.

California, in particular, seems to have reaped significant benefits from the recent liberalization and expansion of trade. Between 1993 and 1998, California exports expanded at an annual rate of 9.9 percent, while California output, or gross state product (GSP), grew at an average annual rate of only 6.4 percent. This yields a growth differential of 3.5 percentage points, as opposed to 2.4 percentage points for the United States as a whole. Thus, relative to GSP growth, California exports grew more quickly than did exports from other states. Accordingly, California producers also export a larger fraction of their production than do producers in other states. By 1998, the California economy was responsible for just under 16 percent of total U.S. exports of goods. This contrasts with the fact that economic activity in California constituted only 12.8 percent of U.S. GDP. Given its size and export propensity, California clearly has more at stake in the U.S. trade liberalization agenda than most other states.

There are many reasons for some states to experience faster export growth than others, but perhaps the most straightforward of the possible explanations relates to the pattern of trade liberalization among partner

countries. Because the commodity composition and geographic destination of individual states' exports vary significantly, it seems likely that the pattern of trade liberalization would benefit some states to a greater extent than others. It turns out that California exports commodities that have experienced an increasing share of world exports and exports them to countries that, until 1998, had been growing rapidly. Because these fast-growing countries have also been lowering their barriers to trade, there is probably a connection between the liberalization outside the United States and the fast growth rate of California exports.

Firms wishing to sell their products in foreign markets face myriad taxes and regulations imposed by foreign governments. These fees and regulations serve as barriers to trade, increasing the cost and complicating the act of exporting. They are generally categorized into tariff and non-tariff barriers (NTBs) to trade. Tariffs are generally straightforward—they are taxes that apply only to imported goods. Although they do not apply to domestically produced goods, the effect of the tariff is nonetheless to raise the price of all comparable goods in the domestic market. For instance, a 10 percent tariff on Hondas imported from Japan will also lead to a 10 percent increase in the price of similar model Ford or Chrysler products. This results from the lessening of competition that the tariff brings about: The 10 percent increase in the price of a Honda can be just matched by Ford.

NTBs to trade are also common impediments to the free flow of goods between countries. NTBs take a variety of forms, including quantitative restrictions, minimum prices at which the good can be sold in the foreign market, quality restrictions, and licensing requirements. This list encompasses the set of *formal*, or written barriers to trade. There is also a set of informal NTBs, or barriers that apply to trade generally, that we will not be able to quantify in this study. These barriers range from simply increased red tape and time delays associated with importing to the rules for valuing or inspecting goods at customs. For instance, a customs regime may adopt the practice of inspecting each and every unit of a shipment of goods rather than just a representative sample, as is the common practice. This can dramatically increase the time that a shipment sits at the dock or the customs clearance house, and

many importers are unable or unwilling to wait for the imports to clear customs. These customers will thus purchase equivalent items from a domestic source. Other than anecdotal evidence, it is unclear just how pervasive these barriers are. In this study, we address only the more concrete, or formal, non-tariff barriers to trade.[1]

This study investigates the extent to which California exporters and importers, both producers and consumers, have benefited from past liberalization, relative to exporters and importers in other states (referred to in the remainder of this report as Rest U.S.). We then assess the prospects for the future, given the stated liberalization agenda of the federal government. In the next chapter, we discuss the industrial composition and geographic destination of California exports relative to those from the rest of the country. Chapter 3 describes the liberalization agenda pursued in the 1990s and discusses some of the major liberalization initiatives that are likely to bear fruit over the next decade. Chapter 4 presents evidence on the extent to which recent liberalization by U.S. trading partners has been biased either in favor of or against California exports of goods. Chapter 5 investigates the extent to which reductions of U.S. barriers have occurred and whether or not there is a bias against California producers. In Chapter 6, we assess the extent to which proposed future liberalization is in the best interests of California exporters. In Chapter 7, the U.S. barriers imposed on consumer goods are used to assess the benefits for California consumers of final products relative to consumers elsewhere in the United States. Chapter 8 provides a summary of findings and concluding remarks.

The findings presented in the following chapters indicate that some barriers to California exports have recently fallen relative to barriers to exports from the rest of the country, which may explain the rapid growth of California exports during the 1990s. We also find that NAFTA has yielded fewer benefits to California exporters than to other exporters but that California stands to benefit relatively more from future liberalization initiatives than do other states.

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[1]For more on informal barriers and what the World Trade Organization is doing about them, see http://www.wto.org/english/thewto_e/whatis_e/tif_e/agrm0_e.htm.

2. Trade Patterns for California and the Rest of the United States

Because California is a large state with a wide variety of climates in productive zones, there is no inherent reason to expect its pattern of production to differ significantly from that of the rest of the nation. Indeed, with the exception of a higher concentration of production in high-technology sectors, the pattern of California production is similar to that of the rest of the country. However, California is differentiated from most other states by its location on the West Coast of the country. One might therefore anticipate that the composition and direction of California trade flows would differ significantly from those of the rest of the country and, indeed, they do.

Table 2.1 presents 1998 export and production shares for the 10 industry groups with the largest share of exports in California.[1] The exports and GSP figures are the share of total goods exported and goods produced, respectively. This table reveals a great deal about the relationship between trade and production in California and the rest of the United States. In particular, exports and production appear to be concentrated in a smaller number of industry groups in California than elsewhere. The two largest industries in California account for more than 54 percent of all trade. These same industries, electronic equipment and industrial machinery, account for only 30 percent of exports from the rest of the United States, and the two largest industries outside of

[1]Each row of the table presents one one- or two-digit industry according to the 1987 U.S. Standard Industrial Classification scheme. See Appendix B for further information on the sources used in this report. All goods-producing industries are presented in Appendix C.

Table 2.1

1998 Export and GSP Percentage Shares of Total Exports and Goods-Producing Industries for California and the Rest of the United States

	Exports		GSP	
Industry	California	Rest U.S.	California	Rest U.S.
Electronic equipment excluding computers	28.54	14.10	16.41	10.12
Industrial machinery and computers	25.57	17.09	13.89	9.21
Transportation equipment	11.18	20.59	6.24	9.90
Instruments and related products	8.85	5.65	7.84	3.55
Food and kindred products	5.15	4.12	7.65	7.33
Chemicals and allied products	4.23	11.04	4.76	9.54
Agricultural production	3.05	3.87	6.48	4.82
Fabricated metal industries	2.35	3.26	4.62	6.29
Miscellaneous manufacturing	1.94	1.63	2.01	1.60
Primary metal industries	1.78	3.85	1.28	3.29
Total	92.64	85.20	71.17	65.64

SOURCES: Aggregations of bilateral data from MISER and the Bureau of Economic Analysis web page on GSP.

NOTE: See Appendix C for a complete list of industries.

California, combined, still account for less than 38 percent of Rest U.S. exports.

These differences are highlighted in Table 2.2. In this table, a positive number indicates that California's share exceeds that of the rest of the United States, and a negative number signifies the opposite. In this table, the disproportionate dedication of California's manufacturing resources to high-technology goods is immediately apparent, as is the tendency for those goods to be exported from California. Between 1993 and 1998, this pattern became even more pronounced; as the production of transportation equipment in California declined significantly, the production of industrial machinery and computer equipment expanded. During this period, California's emphasis on agricultural products, both processed and unprocessed, also declined relative to Rest U.S.

The data in Table 2.3 highlight the similarities and differences in the geographic orientation of California and other U.S. exports. The top three trading partners are the same for both regions: Japan, Mexico, and Canada each receive a significant share of California and Rest U.S.

Table 2.2

Percentage Point Differences in Export and GSP Shares Between California and the Rest of the United States, 1998

Industry	Exports	GSP
Electronic equipment excluding computers	14.44	6.29
Industrial machinery and computers	8.47	4.68
Transportation equipment	–9.41	–3.66
Instruments and related products	3.20	4.29
Food and kindred products	1.03	0.32
Chemicals and allied products	–6.81	–4.77
Agricultural production	–0.83	1.66
Fabricated metal industries	–0.91	–1.68
Miscellaneous manufacturing	0.30	0.42
Primary metal industries	–2.07	–2.01

SOURCES: Aggregations of bilateral data from MISER and the Bureau of Economic Analysis web page on GSP.

NOTE: See Appendix C for a complete list of industries.

Table 2.3

Top Export Destinations in 1998

	Export Share (%)			Rank	
Country	California	Rest U.S.	Difference	California	Rest U.S.
Japan	13.80	7.59	6.21	1	3
Mexico	12.85	11.48	1.37	2	2
Canada	12.11	24.53	–12.42	3	1
Taiwan	5.66	2.14	3.53	4	10
United Kingdom	5.46	5.72	–0.27	5	4
Singapore	4.57	1.92	2.64	6	
Germany	4.54	3.78	0.76	7	5
South Korea	4.09	2.11	1.98	8	
Netherlands	3.78	2.65	1.13	9	7
Hong Kong	3.40	1.62	1.78	10	
France	2.36	2.66	–0.30		6
Brazil	1.28	2.44	–1.16		8
Belgium	1.26	2.21	–0.95		9

SOURCE: Aggregations of data from the MISER trade dataset for 1998.

NOTE: See Appendix C for 1993 export share figures.

exports. For California, Japan receives the most, with a 13.8 percent share; Mexico and Canada also import more than 12 percent of all exports originating in California. For Rest U.S., Japan plays a much smaller role, receiving only 7.6 percent of Rest U.S. exports, whereas Canada receives one-quarter of all Rest U.S. exports. In addition, seven of California's top ten export destinations are also among the top destinations for other U.S. exports; Singapore, South Korea, and Hong Kong are the lone exceptions.

Although these countries are ranked 6, 8, and 10, respectively, it is apparent that California trade is more concentrated in Asian countries than is trade for Rest U.S. Five of California's top ten trading partners are in Asia: Japan, Taiwan, Singapore, South Korea, and Hong Kong. These countries receive almost one-third of California's exports. For the rest of the United States, only two Asian countries—Japan and Taiwan—make the top ten list and are the destination of less than 10 percent of Rest U.S. exports. On the other hand, although European countries are a significant export destination for Rest U.S. exports, making up half of the top ten, only the United Kingdom and Germany are significant markets for California.

These general patterns have not changed significantly since 1993; however, the geographic concentration of exports has been changing. Particularly worthy of note is the declining importance of trade with Japan for both California and the rest of the United States; this trend is not surprising, given Japan's current economic woes.[2] Conversely, trade with Mexico and Canada has increased significantly for both groups. It is quite possible that NAFTA is in no small part responsible for both changes; evidence to this effect, however, is hard to come by.

In this chapter, we have seen that there are significant differences in both the pattern of production and trade for California relative to that of the rest of the United States. These differences help us to understand

[2]That trade between any two countries is sensitive to the level of economic activity in each country is well established in the economics literature; see Haveman and Hummels (2000) or Bergstrand (1985) for an early exposition. It therefore seems likely that an individual state's exports to a given country would be sensitive to changes in economic activity in that country. This seems particularly likely in the case of a state such as California, which plays such a large role in U.S. trade with Japan.

why California exports have grown so quickly and remain such a large fraction of output. California exports commodities whose share of world exports has been increasing, and exports them to countries that, until 1998, had been growing rapidly. From 1990 to 1997, imports among Asian countries had been growing at more than 9 percent per year. In 1998, imports into these same countries actually declined, leaving them with a collective import growth rate of 6.5 percent for the decade—a rate still higher than that in much of the rest of the world.[3] These differences provide the potential for liberalization—that undertaken by both foreign countries and the United States—to be biased either in favor of or against California producers.

[3]See World Trade Organization (1998, 1999).

3. Past and Present Liberalization Agenda

The second half of this century has seen a world of countries engaged in negotiations to reduce barriers to their exports. These negotiations have been both bilateral and multilateral and have focused primarily on eliminating taxes on imports: tariffs. In recent years, however, the issue of non-tariff barriers has also been brought into multilateral negotiations. NTBs include quantity restrictions, quality restrictions, price restrictions, and other administrative barriers to imports.

This is also an apt characterization of U.S. liberalization efforts in the early years of the 1990s. These efforts have resulted in significant agreements, both multilateral—under the auspices of the General Agreement on Tariffs and Trade (GATT)—and bilateral. The principal components of the 1990s liberalization package include NAFTA, the completion of the Uruguay Round of GATT negotiations, piecemeal liberalization through APEC, and the ITA. Each component contributes in a significant way to expanding opportunities for both U.S. importers and exporters. NAFTA, a regional agreement passed in 1993, is important insofar as it significantly reduces impediments to trade with two of the largest U.S. trading partners: Canada and Mexico. Although not producing cuts in barriers as deep as those resulting from NAFTA, the completion of the Uruguay Round, also in 1993, provides significant liberalization by reducing tariffs on a broad spectrum of goods in much of the world. APEC calls for deep liberalization, but to this point, that liberalization has been confined to a small number of sectors—in particular, toys, gems and jewelry, chemicals, medical equipment, environmental goods and services, and energy products.[1] Sectors currently under negotiation include civil aircraft, vehicle parts, fertilizers,

[1]See Council of Economic Advisers (1998), p. 233.

rubber, food, and chemicals. The ITA significantly reduces tariffs in the narrow information technology sector in 42 countries; these countries are the principal destination for U.S. exports of information technology products such as computers, telecommunications equipment, software, semiconductors, and printed circuit boards.[2]

Of the recently concluded initiatives, the NAFTA and Uruguay Round agreements provide the most significant liberalization. In particular, the Uruguay Round is an extremely broad agreement between the more than 100 countries accounting for the vast majority of world production and income.[3] Whereas previous agreements coming out of the GATT have focused primarily on tariff reductions, this agreement provides for liberalization or harmonization in several additional areas. In particular, it reduces non-tariff barriers to trade in agricultural products and textiles and clothing, and it provides a new agreement covering trade in services, practices designed to safeguard domestic producers from foreign competition, rules covering government preferences in procurement, and trade-related investment measures.

The Uruguay Round

For the purposes of this study, the most pertinent aspects of the Uruguay Round Agreement are those dealing with tariffs and non-tariff barriers. Of first importance are the "market access negotiations." As a result of these negotiations, individual countries have made binding commitments to reduce or eliminate specific tariffs and non-tariff barriers to merchandise trade. The individual country commitments to reduce these barriers are to be implemented in five equal rate reductions. As of 1998, these reductions were within one year of full implementation. When the agreement is fully implemented, developed countries will have reduced their tariffs on industrial goods from an average of 6.3 percent to 3.8 percent—a 40 percent reduction. In addition, the proportion of industrial products that enter developed-

[2]As reported by the U.S. Trade Representative (1997).

[3]Much of this discussion is derived from World Trade Organization (n.d. and 1994).

country markets under zero most favored nation (MFN)[4] duties will more than double—from 20 to 44 percent. Finally, the proportion of imports into developed countries that encounter tariffs above 15 percent will decline from 7 to 5 percent. In total, this amounts to significant liberalization by developed countries. The commitments made by developing countries are similar but are to be phased in over ten years rather than five.

A second important aspect of the Uruguay Round is its agreement on agriculture, particularly with respect to market access. Before the completion of the Uruguay Round, access to agricultural markets in many countries was heavily constrained by the presence of non-tariff barriers, especially quotas. The first important element of this agreement is its "tariffication" of non-tariff measures. That is, non-tariff barriers to the importation of agricultural products are to be replaced with tariffs that provide substantially the same level of protection. Furthermore, tariffs on agricultural products are to be reduced by an average of 36 percent by developed countries and 24 percent by developing countries. Again, these reductions are to be phased in over six years by developed countries and over ten years by developing countries. Other reforms include a 36 percent reduction in export subsidies, from $22.5 billion to $14.5 billion.[5] Finally, domestic support for agricultural producers is to decline by 18 percent, from $197 billion to $162 billion. Again, the sum total purpose of this agreement is to substantially unencumber very heavily regulated markets.

NAFTA, APEC, and the Free Trade Area of the Americas

NAFTA, the other major trade accomplishment in the early 1990s, also includes significant liberalization.[6] Although not providing the breadth of country coverage of the Uruguay Round, it provides deeper

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[4]The term "Most Favored Nation" is one that has been used for most of this century by the international community. Note that this term is equivalent to the term "Normal Trading Relations" now in use by the U.S. government.

[5]The European Union alone accounts for about one-half of this total.

[6]Much of this discussion is derived from U.S. Trade Representative (1997).

liberalization between the countries that are included: the United States and the countries it trades with most—Canada and Mexico. Perhaps the most significant feature of NAFTA is its broad scope of liberalization. On January 1, 1994, the date the agreement came into force, many U.S. exports became eligible for duty-free treatment in Mexico. All remaining tariffs were also scheduled for elimination, with either five-, ten-, or fifteen-year phase-out periods. Other important features include strict rules on non-tariff barriers, such as technical barriers to trade, in addition to opening government purchasing regimes to firms in all three countries. The agreement also addresses issues surrounding direct foreign investment, trade in services, border crossing for business people, and intellectual property rights.

The origin of NAFTA stems from displeasure with the progress, or lack thereof, in the Uruguay Round negotiations. It represents an aggressive change in the U.S. government's attitude toward liberalization initiatives. Other current initiatives are also representative of this change in focus: both APEC and FTAA are regional, rather than global. It was believed at the time that the mere initiation of these alternative negotiations would promote renewed vigor and willingness on the part of other countries to conclude the Uruguay Round negotiations. It was hoped that other parties to the Uruguay Round negotiations would perceive that the United States was detaching itself from these multilateral talks and developing serious regional alternatives should the Uruguay Round negotiations fall apart. German policymakers have reportedly stated that this was part of their motivation for prevailing on their European Union (EU) partners to make certain concessions that allowed the negotiations to be successfully concluded in December 1993.[7] Nonetheless, regional initiatives—APEC and FTAA in particular—form the cornerstone of ongoing U.S. liberalization activities.

The APEC Forum was developed with the ultimate goal of eliminating tariffs in APEC member countries on terms generally referred to as "open regionalism."[8] There is no clear consensus on the

[7]See Council of Economic Advisers (1998), p. 230.

[8]See Bergsten (1997) for more on this term.

meaning of the term open regionalism, but the most optimistic interpretation is that barriers will be eliminated on imports from all countries of the world, not just on imports from APEC members. There has been movement in that direction, but much yet remains to be done.

Established in 1989, APEC is still relatively young. However, the commitment of its member countries to broad liberalization is clear. Between 1988 and 1996, the average tariff level (unweighted) declined from 15.4 percent to 9.1 percent—a 40 percent reduction.[9] Further, the incidence of non-tariff measures declined from 10 percent of import coverage to 5 percent by 1993.[10] The target for APEC countries is free trade—zero tariffs and the absence of non-tariff barriers—by the year 2010 for developed countries and 2020 for developing countries.[11]

The FTAA, a more recent initiative, has the goal of concluding the negotiation of a comprehensive free trade agreement no later than 2005.[12] The United States has championed this initiative and remains actively engaged in it as a means of fostering closer political and economic ties and further trade liberalization in the Americas. This initiative is less ambitious than the APEC Forum in that tariff reductions will probably be preferential in nature, applying only to imports originating in the Americas.

APEC and the FTAA are the most significant of the liberalization initiatives currently under way. Although liberalization negotiations under the World Trade Organization have recently begun, the scope and depth of the negotiations is yet to be determined. In Tables 3.1 and 3.2, therefore, we provide an indication of the extent of trade between California and the countries in the FTAA and APEC regions and between the rest of the country and those regions. No doubt as a result of its location, California has significantly more at stake in the APEC negotiations than in the FTAA negotiations. Goods trade with APEC

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[9]See Council of Economic Advisers (1998), p. 232.

[10]Bergsten (1997). Note that these measures of protection are simple rather than trade-weighted averages.

[11]Bergsten (1997).

[12]See Council of Economic Advisers (1998).

Table 3.1

Share of Exports Bound for APEC Countries, 1998

Country	California	Rest U.S.	Difference
Japan	13.80	7.59	6.21
Mexico	12.85	11.48	1.37
Canada	12.11	24.53	–12.42
Taiwan	5.66	2.14	3.53
Singapore	4.57	1.92	2.64
South Korea	4.09	2.11	1.98
Hong Kong	3.40	1.62	1.78
Australia	2.51	1.63	0.88
China	2.32	2.04	0.28
Malaysia	2.31	1.16	1.15
Philippines	1.40	0.93	0.48
Thailand	1.19	0.70	0.49
Share of trade	66.21	57.85	
— without Japan	52.41	50.26	
— without the top three	25.45	14.25	

SOURCE: Aggregations of data from the MISER trade dataset for 1998.

NOTES: Countries receiving more than 1 percent of California's exports. See Appendix C for a complete list of APEC member countries and their trade with the United States.

countries accounts for nearly 70 percent of all California exports and for 60 percent of exports for the rest of the country. Conversely, exports to FTAA countries amount to less than 30 percent of California exports but in excess of 40 percent of exports from the other 49 states.

The relative importance of these agreements reveals itself clearly in the last column of the two tables, indicating the difference between the share of California and Rest U.S. exports going to each country. The APEC differences are generally positive, indicating that a higher share of California trade is concentrated in each of these countries, whereas the FTAA differences are almost uniformly negative, indicating the opposite. With the exception of Canada, Russia, and several small countries, a larger share of California's exports go to every country in the APEC region than from the rest of the United States. The story is reversed, with the exception of Mexico, for trade with the FTAA countries.

Table 3.2

Share of Exports Bound for FTAA Countries, 1998

Country	California	Rest U.S.	Difference
Mexico	12.85	11.48	1.37
Canada	12.11	24.53	–12.42
Brazil	1.28	2.44	–1.16
Argentina	0.60	0.93	–0.33
Chile	0.36	0.63	–0.27
Venezuela	0.24	1.09	–0.85
French Guiana	0.23	0.00	0.23
Colombia	0.19	0.80	–0.61
Peru	0.15	0.33	–0.18
Costa Rica	0.13	0.38	–0.24
Guatemala	0.10	0.32	–0.22
Share of trade	28.24	42.93	
— without the top two	3.28	6.92	

SOURCE: Aggregations of data from the MISER trade dataset for 1998.

NOTES: Countries receiving more than 0.1 percent of California's exports. See Appendix C for a complete list of FTAA member countries and their trade with the United States.

Two countries—Canada and Japan—play a major role in generating these differences across agreements. Japan, in particular, plays a large role in generating the relative importance of the APEC agreement for California. The share of California exports going to Japan is some six percentage points greater than is the share of exports originating elsewhere in the United States. Canada, on the other hand, is the only major country to which California exports a smaller share, a share roughly half that of the rest of the country. With regard to the FTAA, Mexico and Canada constitute the vast majority of U.S. trade with FTAA countries. Once these two countries have been accounted for, export shares with the remaining countries are collectively in the single-digit range: just over 3 percent for California and just under 7 percent for Rest-U.S. It remains the case, however, that California trade with APEC countries is much larger than with FTAA countries.

A third initiative, the ITA-II, is a series of negotiations designed to extend country and product coverage relative to the original ITA and eliminate NTBs in the targeted information technology sectors. To date, it is unclear which products will be affected and which countries will participate in the negotiations, but the U.S. government has published a preliminary list of products from which we draw expectations regarding the scope of the agreement.[13] However, the negotiations were scheduled for conclusion during the summer of 1998, a date that has long since passed, so it is unclear just when a negotiated agreement might take effect.

The liberalization that has been achieved in the 1990s encompasses all manner of liberalization schemes. Combined with the liberalization agenda now under way, these efforts represent significant steps toward the elimination of tariffs and, to a lesser extent, non-tariff barriers to international trade. In the following chapters we analyze the results of final agreements and the potential of proposed liberalization.

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[13]See the attachment to a January 1, 1998, letter from U.S. Trade Representative Charlene Barshefsky to the U.S. International Trade Commission: http://www.ustr.gov/reports/itc_all1.pdf.

4. California and Foreign Barriers to Trade

Economists have generally struggled to find adequate measures of the barriers that one country erects against imports from another. This endeavor is complicated by the wide variety of barriers that exist, as mentioned above, as well as by more fundamental economic characteristics of economies. This second complication arises from the simple fact that preferences and circumstances differ not only across commodities but across countries. In the United States, for instance, demand for Sport Utility Vehicles (SUVs) appears to be fairly high and growing. It might be the case that a 10 percent tariff on imported SUVs would have little if any effect on the demand for SUVs in the United States. In Europe, on the other hand, preference for the SUV is not as strong. Thus, a 10 percent tariff on imports of SUVs might affect European imports of SUVs more significantly.[1] The point is that even a simple tariff of 10 percent in one economy is not precisely the same as a simple tariff of 10 percent in another economy.

Given the infeasibility of constructing a single measure that indicates the cumulative size of all existing impediments to trade, it has become conventional to present statistics for tariffs and NTBs separately. Below, we provide an indication of the extent to which U.S. exporters encounter such barriers in foreign markets. We also examine the extent to which the size of tariffs and the incidence of NTBs fell between 1993 and 1998.

Table 4.1 presents standard measures of these barriers in the rest of the world. Tariffs are reported as the average tax that is paid on each dollar of exports from California or the rest of the United States. NTBs are reported as how often a single dollar of trade is encumbered by the

[1]See Haveman, Nair-Reichert, and Thursby (1998) for evidence on the differential effect of tariff barriers across commodities.

existence of an NTB; this measure is called a coverage ratio. (For example, in Table 4.1, 15.48 percent of California's exports faced NTBs in 1993.) Thus, these measures are not directly comparable. That is, it might be tempting to say that because the tariff figure in the table for California is 7.11 percent, the effect of nontariff barriers, which is reported to be 15.48 percent, is greater than the effect of tariffs. As these statistics fundamentally capture different things, we cannot make this comparison. We could, in principle, report coverage ratios for tariffs in the same way that we have for NTBs,[2] but this is a much less precise measure of tariff barriers and we have therefore chosen to stick with convention. Note that it is not possible to construct a measure of NTBs that is comparable to the reported measure of tariffs.

More specifically, tariffs are measured as a weighted average of the tariffs faced by U.S. exports in foreign markets. That is, the tariffs imposed by countries that import relatively more from the United States are given extra weight in calculating the average, and countries that import relatively little are given less weight. It is important to note that this measure is imperfect. In particular, imports—the weights used to construct the average tariff—are determined by the tariffs. The

Table 4.1

Aggregate Trade Barriers Faced by U.S. Exporters

	Tariffs[a] (%)		Non-Tariff Barriers[b] (%)	
Year	California	Rest U.S.	California	Rest U.S.
1993	7.11	6.97	15.48	17.47
1998	4.32	5.17	9.37	13.75

SOURCES: The TRAINS dataset, the Longitudinal Research Database, and MISER trade data.

[a]The tariff data are presented as import-weighted averages.

[b]The NTB data are presented as the fraction of the dollar value of imports that are subject to an NTB of any kind.

[2]To get a flavor for how this exercise might compare, we have calculated such a tariff coverage ratio for the United States. In the United States, tariffs were imposed on approximately 85 percent of all U.S. exports in 1993. This number had declined to 54 percent in 1998. Clearly, tariffs are more prevalent than are NTBs.

imposition of a tariff reduces trade flows to a level below what they would be in the absence of the tariff. This results in a statistic that differs from what we would ideally report. Given the relatively low level of global tariffs, the distortion here is not likely to change any of the elements of the picture that we paint with these numbers. As discussed above, non-tariff barriers are measured as coverage ratios. Although this is a generally accepted measure of the importance of NTBs generally, and in specific markets, it is also not without significant flaws. Despite the limitations inherent in these measures, however, they are both widely used and accepted and the best that we can hope to do.[3]

As shown in Table 4.1, California exporters faced tariff barriers that averaged 7.1 percent in 1993. By 1998, that number had fallen to just 4.3 percent. For exports originating outside California, average tariffs declined from just under 7 percent to 5.2 percent. This represents a 45 percent drop in tariffs faced by exports originating in California and a 26 percent decline for goods from non-California sources. Similarly, the incidence of non-tariff barriers—quotas, price restrictions, quality restrictions, and the like—also declined more significantly for California exports: 40 percent for California exporters compared to 22 percent for exporters in other states.[4]

The reductions presented in Table 4.1 could be the result of either reductions in imposed barriers or shifts in the pattern of trade flows across countries or goods. That is, some countries impose lower barriers to trade than do others and some goods are subject to generally lower barriers than are others. If the pattern of world tariffs remained unchanged, but U.S. goods were redirected to countries imposing lower barriers, or the United States exported goods subject to lower barriers, this could also account for the reductions presented in Table 4.1.

This can be illustrated with a simple example. Suppose that in 1993, Mexico had a zero tariff on supercomputers but did not purchase any

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[3]See Appendix A for more on the flaws of trade-weighted average tariffs and NTB coverage ratios.

[4]This decline is consistent with the various agreements that have been concluded by World Trade Organization countries. The extent to which this represents a significant decline in the actual impeding of trade brought about by NTBs is still an open question.

supercomputers. Suppose that Canada, on the other hand, had a 100 percent tariff on supercomputers, but still bought $1 million worth of supercomputers. We would then report that the tariff faced by U.S. exporters of supercomputers was 100 percent. If Mexican demand for these computers were to increase between 1993 and 1998, to say $1 million, and Canadian purchases remained unchanged, then the reported tariff faced by U.S. exporters would fall to 50 percent. Note that this change occurs without any change in foreign applied tariffs and results only from an increase in exports to Mexico.

To generate some insight into this problem, Table 4.2 decomposes the reductions observed in Table 4.1 into changes resulting from fluctuating trade patterns and imposed barriers. In each quadrant of the table, the shaded elements replicate the levels of protection reported in Table 4.1. The other elements hold either the trade flows or the imposed barriers constant while altering the other. For instance, reading down the first column of the table, one sees that if the tariffs imposed on California exports had not changed between 1993 and 1998, but trade flows did, the weighted average tariff would have remained roughly constant.[5] We can therefore attribute the reduction in observed tariff barriers to actual trade liberalization by foreign governments. Note

Table 4.2

Decomposition of Barriers Faced by California and Non-California Exporters

	Tariff Year		NTB Year	
Trade Year	1993	1998	1993	1998
California				
1993	7.11	4.92	15.48	10.47
1998	7.16	4.32	13.92	9.37
Rest U.S.				
1993	6.97	5.15	17.49	15.23
1998	7.17	5.17	15.27	13.75

SOURCES: The TRAINS dataset, the Longitudinal Research Database, and MISER trade data.

[5]See Appendix A for the details of this calculation.

that this result holds for tariffs but not for NTBs. In the case of NTBs, changes in trade flows played a significant role in reducing the apparent incidence of these barriers to U.S. exports; however, reductions in barriers are responsible for the majority of the decline experienced by California exporters.

Table 4.3 reports tariffs and NTBs country by country. With the exception of some of its largest trading partners (the European Union,[6] Canada, and Japan), the United States faced significant barriers to its exports in 1993.[7] In that year, more than half of the countries for which data are available imposed non-tariff barriers on more than 10 percent of all trade; more than one-third imposed NTBs on over 20 percent of exports from the United States; and some countries—for example, India, the Philippines—imposed NTBs at an even higher rate. In addition, tariff barriers in excess of 10 percent were levied by almost two-thirds of these same countries. However, by 1998, the number of countries imposing significant rates of NTBs and high tariffs had dropped by almost one-third. In fact, most countries reduced their tariffs in the intervening years; most notably, Mexican tariffs (as a result of NAFTA) declined by more than nine percentage points, Chinese tariffs declined by one-third, and Australia and New Zealand reduced their tariffs to about half of their already low 1993 levels.

As highlighted in Table 4.4, impediments to U.S. exports remain significant in some important markets. In particular, South Korea maintains tariffs that average almost 30 percent, and Brazil covers over 90 percent of California exports with some form of non-tariff barrier. India also maintains significant barriers of both forms, with tariffs that are higher on the products exported from California than on those from the rest of the country. China is another market in which California products face more significant barriers than exports from the rest of the

[6]The trade barrier data do not permit an independent analysis of the EU member countries.

[7]See Appendix B for a complete list of countries and their barriers.

Table 4.3

1998 Barriers to U.S. Exports in Important Markets
(Sorted by California export share)

	1993		1998	
Country	California	Rest U.S.	California	Rest U.S.
Tariffs				
Japan	5.47	5.59	2.48	4.32
Mexico	13.57	12.63	5.16	6.44
Canada	0.98	1.65	0.50	0.45
European Union	5.75	6.24	1.95	3.43
Taiwan	5.27	6.10	6.34	7.90
Singapore	0.75	0.45	0.00	0.00
South Korea	11.13	9.36	25.52	40.02
Hong Kong	0.00	0.00	0.00	0.00
Brazil	20.73	13.69	14.73	14.73
China	21.06	31.60	14.08	15.81
All countries	7.11	6.97	4.32	5.17
Non-Tariff Barriers				
Japan	27.21	48.88	25.37	48.90
Mexico	6.91	12.64	0.39	0.95
Canada	6.34	12.11	4.08	10.85
European Union	3.70	4.45	3.11	4.87
Taiwan	50.63	57.00	0.00	0.00
Singapore	13.72	18.92	17.95	22.25
South Korea	0.97	1.71	4.46	8.50
Hong Kong	27.90	20.83	0.00	0.00
Brazil	12.43	11.19	90.60	73.31
China	27.17	44.96	20.58	34.26
All countries	15.48	17.47	9.37	13.75

SOURCES: The TRAINS dataset, the Longitudinal Research Database, and MISER trade data.

NOTES: See Appendix C for a more comprehensive list of countries. The data presented in this table are the same as those presented in Table 4.1 but are calculated separately for each trading partner.

Table 4.4

Barriers to U.S. Exports in Individual Countries, 1998

Tariffs			Non-Tariff Barriers		
Country	California	Rest U.S.	Country	California	Rest U.S.
Most Protected Markets					
South Korea	25.52	32.69	Brazil	90.60	10.78
India	23.65	10.93	Argentina	77.31	42.50
Tunisia	20.64	7.26	Colombia	42.59	43.54
Brazil	14.73	17.80	Switzerland	32.13	45.12
China	14.08	6.45	India	28.43	33.14
Least Protected Markets					
Norway	1.52	1.27	New Zealand	0.21	0.04
Canada	0.50	0.45	Hong Kong	0.00	0.00
Hong Kong	0.00	0.00	Poland	0.00	0.00
Singapore	0.00	0.00	South Africa	0.00	0.00
Switzerland	0.00	0.00	Taiwan	0.00	0.00
Total	4.32	5.17		9.37	13.75

SOURCES: The TRAINS dataset, the Longitudinal Research Database, and MISER trade data.

NOTES: See Appendix C for a complete listing of barriers by country. The data presented in this table are the same as those presented in Table 4.1 but are calculated separately for each country.

country. The product mix of California exports evidently coincides with the more highly protected industries in China.[8]

As is evidently the case in Brazil, China, and India, the pattern of protection across industries varies widely, with some commodity groups receiving a great deal of protection globally and others less. Table 4.5 indicates the barriers imposed by other countries on goods in California's

[8]China's pending admission to the World Trade Organization should help significantly. China has committed to very significant reductions in its trade barriers to be phased in after its accession. The recent granting of permanent Normal Trade Relations with China by the U.S. Congress was crucial to enabling China to join the World Trade Organization.

Table 4.5

Barriers to U.S. Exports in Primary Export Industries,
1993 and 1998
(Sorted by California export)

Industry	1993		1998	
	California	Rest U.S.	California	Rest U.S.
	Tariffs			
Electronic equipment excluding computers	7.64	7.35	2.76	3.76
Industrial machinery and computers	5.49	6.22	2.28	3.25
Transportation equipment	6.30	7.12	2.66	3.25
Instruments and related products	5.72	5.53	2.54	2.74
Tobacco, food, and kindred products	12.33	20.12	9.78	17.80
Chemicals and allied products	6.93	6.75	3.58	4.44
Agricultural production	3.65	5.18	33.06	32.69
Fabricated metal industries	9.30	7.49	4.61	3.64
Miscellaneous manufacturing	7.77	6.91	3.93	3.88
Primary metal industries	6.66	5.62	4.00	3.35
All industries	7.11	6.97	4.32	5.17
	Non-Tariff Barriers			
Electronic equipment excluding computers	16.62	7.72	4.84	6.10
Industrial machinery and computers	4.06	4.35	4.14	7.75
Transportation equipment	7.72	20.26	6.78	15.37
Instruments and related products	12.25	7.42	9.60	6.82
Tobacco, food, and kindred products	50.12	44.08	42.98	42.50
Chemicals and allied products	27.00	20.88	20.05	18.99
Agricultural production	44.47	58.61	38.95	43.54
Fabricated metal industries	6.20	12.87	3.58	10.69
Miscellaneous manufacturing	9.00	12.09	7.76	12.82
Primary metal industries	2.23	12.19	4.24	11.04
All industries	15.48	17.47	9.37	13.75

SOURCES: The TRAINS dataset, the Longitudinal Research Database, and MISER trade data.

NOTES: See Appendix C for a complete exposition of barriers by industry. To avoid the disclosure of confidential information, the food and kindred products and tobacco industries have been combined. The data presented in this table are the same as those presented in Table 4.1 but are calculated separately for each commodity grouping.

ten largest exporting industries. In 1993, the average barriers imposed ranged from a low of 3.65 in the agricultural production sector to a high of 12.33 on tobacco, food, and kindred products. With the exception of agricultural production, these barriers fell between 1993 and 1998.

The staggering increases in agricultural tariffs is probably due to the negotiated translation of many agricultural quotas into tariffs as a result of the Uruguay Round. When negotiating reductions in non-tariff barriers, it is difficult to judge the concessions offered by each country. It was therefore decided that as a first step many agricultural NTBs—quotas in particular—would be translated into their tariff equivalents.[9] Future negotiations would then deal with these tariffs rather than the original NTB.

Also note that the barriers imposed on California and Rest U.S. exports differ even within a commodity group. This results primarily from differences in export markets but also from different product mixes within industry groups. For instance, California may export more industrial electrical equipment and less in the way of household appliances, both of which fall under the electronic equipment classification.

Among California's top ten exporting industries, the incidence of non-tariff barriers by commodity also fell almost uniformly between 1993 and 1998, with NTBs increasing only in the primary metal industries. Of the more noteworthy declines, NTBs facing California exports in the electronic equipment industry fell by more than 70 percent. However, NTBs facing exports from the rest of the country in this sector fell by only 21 percent. This is a nice example of how changes in the geographical pattern of trade can reduce barriers more than changes in the barriers themselves. Between 1993 and 1998, both Mexico and Canada reduced the incidence of NTBs on electronic equipment significantly. These reductions prompted exporters in both California and Rest U.S. to increase their exports of goods in this industry to both Canada and Mexico. The diversion of exports by

[9]See World Trade Organization (n.d.) for more on the "tariffication" of quantitative restrictions in the agricultural sector. Both tariffs and quotas, should they be binding, have the effect of reducing imports. For every quota, there is a tariff that will bring about the same reduction in imports. This is the equivalent tariff referred to in the text.

California producers away from other countries and toward Mexico was significantly larger than it was for exporters in other areas of the country. Therefore, the reduction in measured NTBs facing California exports in this industry is much greater than for exports from other parts of the country.

The high variance in barriers to trade across commodities persists in 1998. Table 4.6 presents the outlier industries in terms of both high and low tariffs and high and low NTBs. Table 4.4 showed that some countries imposed no tariffs or NTBs on goods. The same is not true when looking at industries. There are tariffs and NTBs imposed in every industry, if only by a handful of countries. Among the industries that receive the least amount of protection abroad are two of California's primary export products: instruments and related products and industrial machinery and computer equipment. On the other hand, agricultural production remains highly protected, with significant tariffs and NTBs around the world. The majority of California's exports fall in industries with intermediate levels of protection.

Table 4.7 presents the barriers faced by California and other U.S. exporters in the APEC and FTAA regions. Note that there is significant overlap because of the presence of Mexico and Canada in both regions. NTBs imposed by APEC countries were more common in 1993 but have declined significantly and resembled the average barrier worldwide in 1998. Tariff barriers imposed by APEC countries were comparable to barriers elsewhere in 1993 and exhibited a typical decline over the five-year period. Insofar as we are able to report them here, barriers in the FTAA countries are, on the whole, significantly lower than the average worldwide barrier. However, this result is driven by the large role that Canada plays in U.S. trade with FTAA countries. Although it has declined slightly in the aggregate, the incidence of NTBs has increased significantly in some FTAA countries. Argentina, Brazil, and Paraguay increased their NTBs considerably as a result of the development and

Table 4.6

1998 Barriers to U.S. Exports by Commodity

Tariffs			Non-Tariff Barriers		
Industry	California	Rest U.S.	Industry	California	Rest U.S.
Most Protected Industries					
Agricultural production	33.06	32.69	Bituminous coal and lignite mining	96.57	10.78
Apparel and other textile products	12.12	10.93	Tobacco, food, and kindred products	42.98	42.50
Leather and leather products	11.88	7.26	Agricultural production	38.95	43.54
Tobacco, food, and kindred products	9.78	17.80	Forestry, fishing, and hunting	33.64	45.12
Forestry, fishing, and hunting	8.71	6.45	Leather and leather products	31.93	33.14
Least Protected Industries					
Instruments and related products	2.54	2.74	Fabricated metal industries	3.58	10.69
Industrial machinery and computers	2.28	3.25	Rubber and miscellaneous plastic products	2.47	2.10
Nonmetallic minerals excluding fuels	1.81	0.98	Oil and gas extraction	2.28	24.02
Printing and publishing	1.58	0.80	Stone, clay, and glass products	0.91	2.23
Bituminous coal and lignite mining	0.02	0.08	Metal mining	0.25	0.60
Total	4.32	5.17		9.37	13.75

SOURCES: The TRAINS dataset, the Longitudinal Research Database, and MISER trade data.

NOTES: See Appendix C for a complete exposition of barriers by industry. To avoid the disclosure of confidential information, the food and kindred products and tobacco industries have been combined. The data presented in this table are the same as those presented in Table 4.1 but are calculated separately for each commodity grouping.

Table 4.7

Barriers to U.S. Exports in the APEC and FTAA Countries, 1993 and 1998

	Tariffs		Non-Tariff Barriers			
Country	California	Rest U.S.	California	Rest U.S.	APEC	FTAA
1993 Weighted Averages						
APEC	7.21	6.54	19.24	22.27		
FTAA	7.25	5.62	7.40	12.22		
1998 Weighted Averages						
APEC	4.78	5.05	9.55	14.12		
FTAA	3.59	3.64	7.17	12.42		
1998 Country Detail						
Japan	2.48	4.32	25.37	48.90	X	
Canada	0.50	0.45	4.08	10.85	X	X
Mexico	5.16	6.44	0.39	0.95	X	X
Taiwan	6.34	7.90	0.00	0.00	X	
Singapore	0.00	0.00	17.95	22.25	X	
South Korea	25.52	40.02	4.46	8.50	X	
Hong Kong	0.00	0.00	0.00	0.00	X	
Australia	2.33	3.31	8.57	6.36	X	
China	14.08	15.81	20.58	34.26	X	
Malaysia	4.41	9.82	18.13	22.12	X	
Philippines	4.94	7.84	0.44	0.80	X	
Brazil	14.73	14.73	90.60	73.31		X
Thailand	10.54	16.19	8.37	19.44	X	
Argentina	8.58	12.06	77.31	68.51		X
Chile	10.99	10.00	2.30	6.59	X	X
New Zealand	2.58	3.41	0.21	0.04	X	
Venezuela	9.02	9.70	3.69	6.64		X
Colombia	9.04	9.93	42.59	35.63		X
Peru	12.59	12.82	5.69	4.81	X	X
Paraguay	6.57	8.51	9.24	8.68		X

SOURCES: The TRAINS dataset, the Longitudinal Research Database, and MISER trade data.

strengthening of the Mercosur trading bloc.[10] Colombia, which is not a member of Mercosur, also increased its NTB coverage significantly.

[10]Mercosur is the Southern Common Market. Its members include Argentina, Brazil, Paraguay, and Uruguay. In 1997, Bolivia and Chile were admitted as association members.

Tables 4.8 and 4.9 replicate Table 4.5 for the APEC and FTAA countries. These tables are useful not only because they indicate the reduction in barriers in these blocs, as presented in Table 4.7, but also because they illustrate the different patterns of protection in different markets. Two industries stand out in this regard. First, agricultural production is very heavily protected in APEC markets. Although the barriers to the importation of these products are above average in the FTAA countries, they are extreme in the APEC region. On the other hand, non-tariff barriers to the importation of industrial machinery and computer equipment are very high in the FTAA region relative to the APEC region. These differences could result from any number of

Table 4.8

Barriers to U.S. Exports in APEC Countries by Industry, 1998
(Sorted by California export share)

	Tariffs		Non-Tariff Barriers	
Industry	California	Rest U.S.	California	Rest U.S.
Electronic equipment excluding computers	2.80	3.57	4.58	5.03
Industrial machinery and computers	2.40	2.31	1.15	3.63
Transportation equipment	2.35	2.53	8.31	19.64
Instruments and related products	2.39	2.09	13.56	9.13
Tobacco, food, and kindred products	10.74	14.43	43.57	32.93
Chemicals and allied products	3.51	3.03	31.01	19.80
Agricultural production	37.84	43.15	38.63	43.86
Fabricated metal industries	4.59	2.96	3.72	11.74
Miscellaneous manufacturing	3.65	2.59	5.85	11.69
Primary metal industries	3.72	2.44	4.76	9.15
Weighted average	4.78	5.05	9.55	14.12
Weighted average in 1993	7.21	6.45	19.24	22.27

SOURCES: The TRAINS dataset, the Longitudinal Research Database, and MISER trade data.

NOTES: To avoid the disclosure of confidential information, the food and kindred products and tobacco industries have been combined. See Appendix C for a complete list of industries.

Table 4.9

Barriers to U.S. Exports in FTAA Countries by Industry, 1998
(Sorted by California export share)

	Tariffs		Non-Tariff Barriers	
Industry	California	Rest U.S.	California	Rest U.S.
Electronic equipment excluding computers	2.41	3.41	3.31	6.07
Industrial machinery and computers	2.48	3.76	11.33	13.14
Transportation equipment	1.48	1.58	10.48	16.80
Instruments and related products	2.68	3.00	4.62	4.59
Tobacco, food, and kindred products	7.54	12.16	10.96	26.34
Chemicals and allied products	4.55	3.90	10.88	17.13
Agricultural production	5.39	11.38	12.38	13.54
Fabricated metal industries	4.88	2.81	5.35	13.72
Miscellaneous manufacturing	5.14	3.74	5.75	15.93
Primary metal industries	4.22	2.56	0.61	6.96
Weighted average	3.59	3.64	7.17	12.42
Weighted average in 1993	7.25	5.62	7.40	12.22

SOURCES: The TRAINS dataset, the Longitudinal Research Database, and MISER trade data.

NOTES: To avoid the disclosure of confidential information, the food and kindred products and tobacco industries have been combined. See Appendix C for a complete list of industries.

factors, but the most likely include a desire to maintain or to develop productive capacity in particular markets.

Although the 1990s have seen significant declines in barriers—indeed, declines that favor California exports—much yet remains to be done. The reductions appear to have originated with the major purchasers of U.S. exports—Canada, Mexico, and the European Union. These are also countries that had relatively low barriers in 1993. It would seem that much could be accomplished by reducing the barriers in other countries. There are several markets—Brazil, China, and India—in which exports from California are subject to relatively more protection than are exports from the rest of the country.

5. California and U.S. Barriers to Trade

At the same time that foreign barriers have fallen, U.S. barriers to imports have also been significantly reduced. Between 1993 and 1998, tariffs imposed on U.S. imports declined by almost 42 percent from their already low level of 3.6 percent to just over 2.1 percent.[1] This suggests that, on average, the price of products competing with imported goods has fallen by just over 1.5 percent. Although this is not a change welcomed by all producers, many will find that their production costs have fallen as a result.

Although foreign barriers to U.S. exports are uniformly harmful to U.S. producers, domestic protection is a mixed bag. At the same time that U.S. tariffs protect domestic producers of goods that compete with imports, they raise the cost of obtaining intermediate inputs to production; these are materials used in the process of assembling the final product. Consider a tariff on some intermediate input, sheet metal, for instance. A tariff on imported sheet metal raises not only the domestic price of the imported metal but the price of the domestic product as well; the reduction of foreign competition gives domestic producers of sheet metal the ability to raise their prices. Domestic producers of other goods that use sheet metal in the production process, therefore, face a higher price for this input whether or not it is imported. Accordingly, we look not only at the barriers erected to protect domestic producers, but also at the barriers imposed on purchases of intermediate inputs by these same domestic producers.

The level of protection provided to producers in California's ten largest industries is presented in Table 5.1. Each line of the table

[1]The NTB data for 1993 and 1998 are not directly comparable to one another and are omitted from the analysis.

Table 5.1

U.S. Tariffs and the Extent of Protection Provided to Industries in California and the Rest of the United States, 1998
(Ten largest industries, sorted by share of California GSP)

	On Final Sales		On Intermediate Purchases	
Industry	California	Rest U.S.	California	Rest U.S.
Electronic equipment excluding computers	1.42	0.88	1.23	1.28
Industrial machinery and computers	1.10	0.75	0.70	1.21
Forestry, fishing, and hunting	0.09	0.09	1.10	1.10
Tobacco, food, and kindred products	2.06	5.45	1.62	24.55
Agricultural production	5.09	5.09	2.20	2.20
Instruments and related products	1.49	1.37	1.19	1.49
Printing and publishing	0.34	0.11	0.63	0.66
Transportation equipment	0.66	0.79	0.60	0.96
Chemicals and allied products	1.49	2.22	1.98	1.68
Fabricated metal industries	1.25	1.05	1.60	1.84
Total	1.59	1.71	1.37	3.31

SOURCES: The Longitudinal Research Database and TRAINS dataset.

NOTES: See Appendix C for a comprehensive list of industries. To avoid the disclosure of confidential information, the food and kindred products and tobacco industries have been combined.

presents first the level of protection afforded each industry and subsequently the average tariff paid by industry on intermediate inputs. The "Total" line is the average industry tariff, weighted by the industry share of production of all agricultural, mining, and manufacturing industries. Since 1993, the aggregate level of protection in the United States has fallen by almost one-quarter, from 2.2 to 1.7 percent, with a slightly greater decline for California than for other states.

Although the extent of protection declined significantly, the pattern of protection remained relatively unchanged, with goods in the textile, apparel, and leather products industry remaining heavily protected. The lone exceptions to this stability are agricultural and tobacco products, both of which experienced a dramatic increase in the tariff imposed on

imports. The bottom line of Table 5.1 indicates that California producers, on average, receive less protection than producers located elsewhere, but only slightly less.

Despite the fact that overall tariffs are low, a number of industries receive significant tariff assistance. Table 5.2 presents the five industries in California on which the United States levies the highest tariffs. Apparel and other textile products are still protected to the tune of almost 8 percent. That is, consumers pay and producers receive prices on these goods that are 8 percent higher as a result of the tariff. The other four industries also receive significant protection, but of the five, only the agricultural production sector is of much consequence to the California economy.

As mentioned above, there is a second piece of the protection puzzle. This piece involves tariffs imposed on intermediate products, which raise their price and hence the costs of domestic producers. Although the pattern of protection does not favor California's industries, the pattern of impediments to imports of vital intermediate inputs clearly does. The average tariff faced by California producers on their purchases of intermediate inputs was on the order of 1.4 percent in 1998, whereas the rest of the United States faced barriers of 3.3 percent. The interpretation of these numbers is that tariffs raised the costs of materials used in production by 1.4 percent for producers in California and 3.3 percent for

Table 5.2

Tariffs in the Five Most Heavily Protected Industries in California, 1998

	On Final Sales		On Intermediate Purchases	
Industry	California	Rest U.S.	California	Rest U.S.
Apparel and other textile products	7.82	7.42	6.17	7.91
Leather and leather products	6.01	2.87	1.85	1.90
Textile mill products	5.70	4.87	5.96	5.76
Agricultural production	5.09	5.09	2.20	2.20
Rubber and miscellaneous plastic products	3.96	2.57	2.08	2.00

SOURCES: The Longitudinal Research Database and TRAINS dataset.

NOTES: See Appendix C for a comprehensive list of industries.

producers outside California.[2] Note that it doesn't matter if the producer is actually using imported products. Tariffs raise the price of the import and because of reduced competition in the market for the domestically produced product, allows domestic producers to also raise their prices.

The average tariff on intermediate inputs declined between 1993 and 1998 by 0.76 percentage points for California and by 0.68 for the rest of the country. This larger decline for California is not because of directly differential treatment by the federal government, but rather because of significant differences in the pattern of production and hence purchases of intermediate goods. Note that the intra-industry comparisons can also be explained in this way. For example, the tariff "On Final Sales" in the fairly broad electrical equipment industry differs in Rest U.S. from that in California because of the product mix within this industry.

Comparing the first and third and second and fourth columns of Table 5.1 and 5.2 yields a crude indication of the effective rate of protection (ERP) offered by U.S. tariffs. The effective rate of protection provides a more accurate picture of the protection afforded any particular industry by taking into account not only the tariff on the final product but the increase in costs that an industry bears because of tariffs on its intermediate inputs. For example, suppose there were a 5 percent tariff on imports of automobiles into the United States. If the production of automobiles required only steel and there were also a 5 percent tariff on imports of steel, although it is true that the tariff on automobiles raises their price by 5 percent, the tariff on steel raises the costs of automobile producers by 5 percent. The net effect of both tariffs is to effectively offset the protective effects of the tariff on automobiles, leaving automobile producers no better off than if there were no tariffs at all. This example illustrates the notion behind the effective rate of protection. If there were a second material used in the production of automobiles, say rubber, and there were no tariff on rubber, then the

[2]These tariffs are calculated for each industry by using an industry-specific input-use matrix. The average tariff for each industry is calculated in the same way as the trade-weighted average tariff for exports, but the weights are derived from the use of each product in production.

effective rate of protection for automobiles would be greater than zero, but still less than 5 percent because of the tariff on steel.

In the aggregate, the tariffs on final goods and intermediate inputs are very similar for producers in California. For the rest of the country, the tariffs on intermediate inputs are more than double those on the final product. However, this difference results largely because of the enormous barriers to the importation of tobacco. Removing this industry from the equation leaves producers outside California in roughly the same position as those in California. This suggests that the effect of the barriers to imports of intermediate inputs is to offset the protection granted by the barriers to imports of the competing product. This is, as mentioned, only half the story. If equal, the tariffs on intermediate goods and those on the final product do not completely offset each other because the tariffs on intermediate goods are taxes imposed on only the materials inputs of these producers and not on other inputs such as capital, labor, and energy. In 1996, materials inputs in the manufacturing sector accounted for approximately half of the cost of producing. A crude measure of the effective rate of protection, then, involves dividing the tariff on intermediate inputs in half. This leaves some positive level of protection in the aggregate but about half the amount as measured by the tariff on final goods alone.

With the exception of agricultural production, mining, and furniture and fixtures, this pattern holds in most individual industries: tariffs on materials inputs are very close to those on the final product. In the agricultural production sector, tariffs on the final product are more than double those on intermediate inputs, insuring producers in that sector of some positive level of protection. Using our crude measure of ERP, this positive level of protection is equal to about three-fourths of the 5 percent tariff on the final product or, more precisely, 4 percent. In the other two sectors, however, the barriers on intermediate inputs exceed the barriers on the final product by one to two percentage points. For the mining sectors, tariffs on imports of mining products are almost zero. It is certainly the case, then, that their effective rate of protection is something less than zero. In the furniture and fixtures industry, tariffs on inputs are almost double those on the final product. It seems quite

plausible that here, too, the effective rate of protection is less than zero; indeed, our crude measure of ERP is –0.69 percent.[3]

In this chapter, we have discussed the pattern of U.S. barriers to protection and correlated them with the protection of intermediate inputs industry by industry. The principal message of this chapter is that U.S. tariffs imposed on imports are very low.[4] However, they are not uniformly low; several sectors remain relatively heavily protected, with tariffs in excess of 7 percent. At the same time, it is clear that tariffs in some industries are not providing much in the way of protection. When combined with the increased costs resulting from tariffs on intermediate inputs, the overall pattern of tariffs is raising the costs for some industries more than it is protecting them. Therefore, although tariffs are generally low, they are not always having the effect that policymakers might wish for.

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[3]See Tables C.11 and C.12 for the raw data used in this calculation.

[4]It is worth noting that the same cannot necessarily be said of non-tariff barriers. In the early 1990s, U.S. non-tariff barriers were quite common. According to Haveman, Nair-Reichert, and Thursby (1998), coverage ratios for the United States in the early 1990s were on the order of 24 percent. Therefore, although it is clear that tariffs do not pose nearly the problem that they once did, it cannot be said with any certainty that U.S. barriers do not pose significant impediments to imports.

6. Relative Benefits of Past and Future Liberalization

The past decade and the next give all appearances of yielding significant liberalization for the United States. In this chapter, we analyze the tariff reductions resulting from recently completed liberalization initiatives and the potential of those resulting from ongoing negotiations. The treatment of NTBs in these agreements is relatively vague and is hence omitted from the discussion. The results are decomposed into "but for" analyses. That is, "but for" NAFTA, what would the average tariffs have been for U.S. exports? "But for" the ITA and the ITA-II, what would the average tariffs have been for U.S. exports? These exercises provide an indication of the benefits that have resulted or will result from particular liberalization initiatives.

Past Liberalization: NAFTA, the Uruguay Round, and the ITA

The principal liberalization successes in the 1990s were NAFTA, the Uruguay Round, and early progress in APEC countries. The ITA, a 42-country agreement to reduce tariffs on information technology goods, was not signed until 1998 and does not yet reveal itself in the data. The extent of liberalization achieved by the first of these three agreements can be discerned from Table 6.1. The first row of the table presents the actual level of barriers facing U.S. exports in 1993 and 1998 in the 30 countries for which data are available.[1] Here we see the accumulated effects of these agreements, along with a smattering of unilateral liberalization by some of our trading partners.[2] Recall the larger decline

[1] See Table C.7 for a comprehensive list of countries.

[2] It should be mentioned that many other trade agreements were reached during this period and they will play a role here as well. The office of the U.S. Trade Representative

Table 6.1

Tariff Liberalization from NAFTA Countries

	1993		1998	
Regime	California	Rest U.S.	California	Rest U.S.
(1) Actual	7.11	6.97	4.32	5.17
Decline in Trade Barriers After 1983				
(2) Overall			2.79	1.80
(3) Decline due to NAFTA			1.16	1.21
(4) Decline due to other agreements			1.63	0.59
Deviations from "Actual" if				
(5) Canada imposes MFN	+0.43	+1.13	+0.25	+0.71
(6) Mexico imposes MFN	—	—	+0.70	+0.88
(7) Canada and Mexico impose MFN	+0.43	+1.13	+0.96	+1.60
(8) Canada imposes zero tariffs	–0.12	–0.46	–0.08	–0.13
(9) Mexico imposes zero tariffs	–1.34	–1.31	–0.70	–0.85
(10) Post-NAFTA	–1.46	–1.77	–0.77	–0.97

SOURCES: The TRAINS dataset, the Longitudinal Research Database, and MISER trade data.

NOTE: See Appendix A for methodology.

in barriers facing California exports than other U.S. exports, 2.79 percentage points and 1.80 percentage points, respectively.

As NAFTA is arguably the most significant and controversial of the liberalizing agreements, our first endeavor is to understand its effect on barriers facing U.S. exports. We present statistics in row 3 of Table 6.1 that provide an indication of the change in tariffs resulting from NAFTA reductions as of 1998. This statistic is calculated by assuming that trade flows were as in 1998, but that the barriers imposed by Mexico and Canada were as imposed in 1993. As a result, these numbers are only indicative and suggestive. Note that the trade flow data are not adjusted for the implementation of NAFTA, which arguably biases the results in favor of reporting an *exaggerated* effect of NAFTA. This bias results from the fact that trade flows have likely reoriented themselves *toward* NAFTA countries in response to the tariff reductions as they happen. Had the tariff reductions not happened, the trade flows to Canada and Mexico

reports the completion of approximately 300 agreements by the Clinton administration. Not all of these agreements, however, were trade-liberating.

would have been lower than were reported in 1998. Therefore, the higher 1993 Mexican and Canadian tariffs are weighted more heavily when calculating the counterfactual tariff levels, presented in row 3, than they should be. It is unlikely, however, that the shift in trade toward the NAFTA countries was sufficient to overwhelm the general nature of the message contained in these figures. Nonetheless, these numbers are only indicative and suggestive.[3]

What we find is that Canadian and Mexican tariff reductions resulted in a 1.16 percentage point decline for California exports and slightly greater benefits for exports from Rest U.S. of 1.21 percentage points. This leaves a 1.63 percentage point decline for California and a 0.59 percentage point decline for Rest U.S., as given in line 4 of the table, to be explained by other agreements or changes in trade patterns. That is, had Canadian and Mexican tariffs remained at their 1993 levels, California and Rest U.S. tariffs would have declined by only 1.63 and 0.59 percentage points, respectively. This suggests that something in excess of two-thirds of the reduction in barriers facing California exports were from other agreements and liberalization—for example, the Uruguay Round or APEC. On the other hand, a much more significant proportion of the benefits to Rest U.S., something approaching two-thirds of the reduction for non-California exports, came about because of NAFTA.

In rows 5–7, we provide another way of looking at the NAFTA tariff reductions. In particular, another way in which the above benefits of NAFTA might be overstated is if Canada and Mexico have also reduced the tariffs that they impose more generally. These more general tariffs—tariffs that are imposed on goods imported from almost any other country—are termed MFN tariffs. In rows 5–7, we indicate the extent to which the removal of Canadian and Mexican preferences granted to U.S. exporters would have raised barriers in 1993 and 1998. In other words, the numbers presented there illustrate how much higher tariffs would have been in the absence of NAFTA and the 1989 U.S.-Canada

[3]Reporting the numbers in this way is preferred to adjusting trade flows in some arbitrary way because we understand the nature of the bias in this case. As the primary goal is to evaluate relative differences for California and Rest U.S., this should not pose a significant problem in interpreting the results.

Free Trade Agreement (FTA).[4] The previous exercise differs from this one in that it is attempting to explain changes in barriers facing U.S. exports over time rather than relative to what other countries face, which is the aim of this second exercise.

In 1993, Mexico *was* imposing MFN tariffs on U.S. goods, so there is no effect from this change. Canada, however, as a result of the U.S.-Canada FTA, was already providing preferences for U.S. goods at this time. Row 5 indicates that U.S. tariffs would have been significantly higher in the absence of these preferences. In 1993, the U.S.-Canada FTA lowered the aggregate trade-weighted average tariff faced by California exporters by 0.43 percentage points and those faced by other U.S. exporters by 1.13 percentage points. By 1998, these preferences were reduced to 0.25 and 0.71 percentage points, respectively. As the 1998 numbers are *smaller* than the 1993 numbers, this indicates that Canada reduced its MFN barriers by *more* than it lowered its barriers to imports from the United States. This suggests that the benefits of NAFTA that were listed in row 3 overstate the benefits that are directly attributable to the agreement. This is not because the United States failed to receive these benefits but because they were not a direct result of NAFTA: Much of the benefit in row 3 would have come about anyway.

Also in 1998, the benefits from Mexican preferences lowered the average tariffs by 0.70 and 0.88 percentage points for California and other exporters, respectively. Were both Canada and Mexico to impose their 1998 MFN barriers on U.S. imports, the average barrier faced by U.S. exporters would increase significantly, by 0.96 percent for California and by 1.60 percentage points for Rest U.S. This reiterates the notion that the majority of the benefits achieved in the 1990s for states other than California came from tariff reductions in Canada and Mexico.

The next three rows indicate the extent of liberalization that remains from Canada and Mexico under NAFTA. As is clear, there is very little tariff liberalization yet to come from Canada. Mexico, however, still has significant reductions scheduled for the next several years. Had Canada and Mexico fully liberalized with respect to the United States in 1998,

[4]Again, the figures present an overstatement of the benefits from NAFTA.

average tariffs would have been not greater than 3.55 and 4.20 for California and Rest U.S., indicating that significant benefits from NAFTA, and Mexico in particular, are yet to come. Unlike the earlier exercises, this one does not take into account the redirection of U.S. exports toward the NAFTA countries that would result from this extended liberalization. Therefore, these figures *understate* the additional liberalization remaining in NAFTA.

As presented in row 4 of Table 6.1, the remaining decline in tariffs, 1.63 percentage points for California exports and 0.59 percentage points for Rest U.S. exports, can be generally attributed to the Uruguay Round, APEC, and unilateral liberalization on the part of many countries. Disentangling the influence of each of these sources is not possible with the available data. It should also be noted that these numbers give us a lower bound on the benefits accruing from these other initiatives. The extent to which the changing composition and destination of U.S. exports have been influenced by NAFTA will be reflected in these numbers. If one could discern the trade changes that were brought about by NAFTA, the residual numbers would be larger and the numbers in row 3 would be bigger as trade likely shifted to where the barriers are the smallest. Regardless, it is clear that NAFTA provided the bulk of the liberalization benefits to Rest U.S., whereas California has realized greater benefits from the cumulative effect of other agreements.

Future Liberalization: FTAA, APEC, and ITA-II

Three major initiatives are currently on the negotiating table for the United States. These are the FTAA (free trade within the region), the APEC Forum (unilateral liberalization among countries that border the Pacific), and the ITA-II (the second agreement on information technology). The ITA-II will broadly expand the scope of goods covered in the original 1998 ITA. Each of these initiatives involves significant liberalization and benefits to both exporters and importers.

Our analysis of these agreements is carried out by using the 1998 barriers facing U.S. exports. Tariff reductions that are anticipated to result from each of these agreements are superimposed onto the 1998 trade flows and the resulting change in trade-weighted average tariff barriers is presented in the tables. Note that in Table 6.2, there is

Table 6.2

Potential of Future Liberalization

Regime	California	% Reduction	Rest U.S.	% Reduction
Current[a]	3.77		5.75	
Post-NAFTA	2.69		4.51	
Further Decline Resulting from				
FTAA	2.23	(17)	3.19	(29)
APEC	0.81	(70)	1.90	(58)
FTAA and APEC	0.43	(84)	0.70	(84)
Decline Relative to "Current" Resulting from				
ITA	3.21	(12)	5.56	(3)
ITA and ITA-II	3.02	(20)	5.40	(6)
All	0.27	(90)	0.63	(86)

SOURCE: GTIS and TRAINS database.

[a]Current refers to the level observed in 1998. This figure differs from that in the previous table because data are available for more countries in 1998 than in 1993.

additional liberalization from NAFTA. This is not because there are ongoing negotiations with NAFTA countries but instead because the NAFTA agreement is not yet fully implemented and further tariff reductions with Canada and Mexico can be anticipated quite independent of any success with the FTAA, APEC, or ITA-II. Average tariffs on goods from both California and Rest U.S. are projected to fall to a level more than 20 percent lower than the current rates with the full implementation of NAFTA. However, this is an understatement of the reduction resulting from NAFTA. It is clear from earlier tables that NAFTA is dramatically increasing the share of U.S. exports that are destined for Mexico. As tariffs imposed by Mexico on U.S. goods continue to decline, this trend can be expected to continue. As such, trade will be redirected from countries imposing barriers on U.S. goods toward Mexico, further reducing the calculated trade-weighted average tariffs.

Table 6.2 presents the tariff reductions that can be anticipated as a result of the FTAA and APEC. The figures in parentheses indicate the

percentage reduction relative to the post-NAFTA tariffs. These simulations assume the complete elimination of tariffs between the United States and the members of each group. From these figures, it is clear that California exporters have much more to gain from APEC liberalization than from the FTAA. In particular, once the residual NAFTA liberalization is accounted for, the FTAA yields a 17 percent decline in average tariffs faced by California exporters, whereas APEC reduces the average tariff by 70 percent. This is also true for Rest U.S., but to a much more limited extent: FTAA reduces average tariffs for Rest U.S. by 29 percent, and APEC results in a 58 percent decline. Combined, APEC and FTAA could serve to eliminate approximately 84 percent of the tariffs faced by U.S. exports. This leaves primarily tariffs in the EU countries, which are currently running at about 5 percent.

The subsequent rows indicate the liberalization resulting from the ITAs. Clearly, the liberalization provided by these agreements pales in comparison to that of the more extensive liberalization initiatives. This results from the limited scope of the agreements both in terms of the goods covered and the participating countries. Predictably, however, the effect is more significant for California than for Rest U.S. Their combined effect is to reduce tariffs for California producers by approximately 20 percent and by only 6 percent for other exporters. Once the rest of the liberalization agenda is factored in, the effect of these agreements on barriers is to reduce them by an additional 6 percent for California exporters and by only 2 percent for other exporters.

As the ITAs represent multilateral liberalization—that is, the United States and other countries are reducing their MFN tariffs on these products—we can assess their effect on domestic producers more generally.[5] Table 6.3 indicates what can be expected from the ITAs. As the first ITA has only recently come into force and the tariff reductions take place in stages, the results of the ITA liberalization do not reveal themselves in the 1998 trade barrier data, labeled “Pre-ITA” in the table.

[5]The hope is that APEC will lead to similar liberalization, in which case, we could do a similar analysis for APEC. However, the goal of APEC is total liberalization. The analysis is thus trivial: U.S. tariffs would be reduced to zero.

Table 6.3

Percentage Point Reductions in U.S. Tariffs Resulting from ITA

	Protection		Intermediate Costs	
	California	Rest U.S.	California	Rest U.S.
Pre-ITA	1.59	1.71	1.38	3.34
ITA	1.52	1.68	1.25	3.33
ITA-II	1.16	1.49	1.10	3.16
Reduction	0.53	0.22	0.28	0.18

SOURCES: TRAINS dataset and Longitudinal Research Database.

As is clear, the original ITA agreement was relatively narrow in scope. Although selected narrow sectors are slated for complete removal of tariffs, these reductions provide a minimal lowering of aggregate barriers to the importation of intermediate products. For California producers, barriers fall by only 0.13 percentage points and by only 0.01 percentage points for Rest U.S. producers. The difference arises from the composition of imported intermediate products, which results from the differences in the structure of production in California relative to that in the rest of the country. The overall reduction in protection for U.S. producers is somewhat larger than the reduction in barriers on intermediate inputs. The overall effect is, therefore, a decrease in the effective rate of protection (ERP) for all producers but relatively more for those in California. That these agreements do not reduce barriers to a greater extent is not surprising given that pre-ITA U.S. barriers to imports in the sectors covered by the agreement amounted to only 0.45 percent and the ITA lowers these barriers to only 0.26 percent. That is, the agreement eliminates or lowers barriers in sectors that already had minimal protection.

In the end, APEC, FTAA, and the ITA agreements provide tremendous potential for reducing barriers to U.S. exports. It must be remembered, however, that with the exception of the ITA and ITA-II, and possibly APEC, these initiatives are all preferential. As such, they do not provide the benefits to domestic consumers and producers that

would come from multilateral liberalization. The elimination of barriers with respect to a subset of potential source countries does not necessarily imply a reduction in the domestic price of the goods. Therefore, consumers do not necessarily benefit from these agreements.

It does not appear that California benefits disproportionately from the sum total of these agreements. It is clear, however, that California has, or should have, priorities within this agenda. In particular, the relative merits of the FTAA and APEC are clear. If only one agreement could be pursued, APEC is a clear choice. Much of the liberalization promised by the FTAA has already been accomplished through NAFTA. This notion is reinforced by Tables 3.1, 3.2, and 4.7, which make clear that despite higher average levels of protection in APEC countries, California trade with these countries is much higher than with FTAA countries. Unless one expects a tremendous response of California exports to FTAA countries following liberalization, it is clear that the APEC negotiations stand to bring with them larger benefits for California than do the FTAA negotiations.

7. The Benefits of Liberalization Initiatives for Consumers

The focus of this report has been the implications of tariffs and liberalization schemes for domestic producers, with little attention given to consumers. In this chapter, we analyze the effect on consumers. In Table 5.1, we learned that, excluding tobacco, tariffs paid for producer goods—intermediate inputs—were on the order of 1.7 percent. The numbers in Table 7.1 immediately indicate that barriers to imports of consumer goods are significantly higher than those imposed on intermediate inputs. The average trade barrier faced by consumers in the United States was on the order of 4.35 percent in 1993 and by 1998 it had fallen by 0.8 percentage points. The reason for the disparity between tariffs on consumer and producer goods is simple—consumers have no organized lobby encouraging the government to reduce these tariffs. In the markets for intermediate inputs, there is a tension between those producing the products and those making use of the product in production. The former request higher levels of protection, and the

Table 7.1

Relative Effect of Liberalization on Consumers: Average Tariffs on Imported Products

	California	Rest U.S.
1993 actual	4.35	4.33
1998 actual	3.53	3.58
1998 with ITA	3.51	3.58
1998 with ITA-II	3.45	3.52

SOURCES: Consumer Expenditure Survey, Bureau of the Census, and the TRAINS dataset.

NOTE: These tariffs are calculated as weighted averages where the weights are indicative of the goods share in consumption.

latter request that barriers be reduced. In the market for consumer products, there is only the former effect and barriers are consequently higher.

The table indicates the benefits for consumers of only the ITAs. Again, as the other agreements are preferential, consumers do not necessarily benefit from the reduction in barriers. If, at the margin, the goods are still imported from countries not receiving the preferential treatment, the domestic prices of goods will not fall. As the ITAs eliminate barriers on all imports, we can evaluate their effect. The final two rows of Table 7.1 indicate that these agreements provide little in the way of benefits to consumers. For California consumers, there is a decline of 0.08 percentage points, and other consumers benefit by a similarly small 0.06 percentage point decline. This table makes clear that consumers do not play a significant role in the driving force behind tariff liberalization.

8. Concluding Remarks

Although California contributes only 12.8 percent of U.S. GDP, the state accounts for almost 16 percent of the total U.S. exports of goods. As such, California has more at stake in the U.S. trade liberalization agenda than almost any other state. California exports are distinct in many other ways as well. In particular, relative to exports from other states, California's are concentrated in Asia and in the industrial and electrical machinery industries. Therefore, California's interests can be best served by initiatives that reduce barriers to trade in these countries and these industries.

This study highlights the fact that barriers to international trade have recently been reduced throughout much of the world. It also illustrates the likelihood that these reductions have disproportionately benefited California exporters relative to exporters in the rest of the United States, in terms of both reduced tariffs and non-tariff barriers to trade. This bias stems from the fact that the most aggressive liberalization in recent years has taken place primarily among the APEC member countries, an important destination for California exports. Although NAFTA did provide significant liberalization for some California markets, the bulk of the tariff reduction between 1993 and 1998 resulted from other agreements or unilateral liberalization. The opposite is true for the rest of the United States, where two-thirds of the tariff reductions were the result of NAFTA.

The United States has also broadly reduced tariffs imposed on U.S. imports. These reductions have two distinct and opposite influences on domestic firms. First, lower tariffs reduce the extent to which domestic industries are protected from international competition. Second, lower tariffs reduce the costs for producers who purchase intermediate goods that are subject to a tariff. The first effect can harm domestic industries and the second can enhance their competitive position relative to foreign producers; if foreign producers have duty-free access to intermediate

inputs but domestic firms must pay a higher tariff distorted price, the domestic producers may suffer from a cost disadvantage. As we have seen, tariffs on both final and intermediate products are relatively low and provide some net protection for domestic industries. Here, on net, California firms appear to receive more protection than do firms in the rest of the country. Again, this is not likely the result of any predisposition toward favoring California on the part of the federal government but more likely a reflection of the mix of goods that California produces.

In the future, the best interests of California exporters can be best served by significantly emphasizing success in the APEC Forum. Eliminating the barriers targeted by the Forum will result in the most significant benefits for the California economy. Conversely, the FTAA provides relatively small benefits for California, offering a little more than one-quarter of the benefits to California that APEC provides. In addition, the ITA provides benefits for California producers that are twice those provided to the rest of the country, with the ITA-II promising to further increase these relative benefits.

It should also be noted that California goods face higher tariff barriers in some markets than do goods exported from the rest of the country. In particular, Brazil, India, and China all impose barriers that are significantly higher on California exports than on other U.S. exports. It is not that these countries target California but more likely that they have chosen to protect markets for goods that weigh heavily in California's export basket. This suggests yet another way in which the interests of producers in California could well be served: the promotion of liberalization initiatives for these products. This really amounts to little more than a further expansion of the ITAs or the promotion of similar agreements.

A caveat to these results is in order. The tariff reductions discussed in the text, although computationally correct, probably overstate the extent to which trade has been and will be liberalized as a result of this liberalization agenda. This is due to the unclear treatment of NTBs in most trade liberalization initiatives. An NTB exercise similar to those performed in this report could be carried out, but it seems less clear that this would be a plausible representation of the agreements. Not only are

the data less reliable, but the treatment of NTBs in the agreements, if they are given any treatment at all, is very difficult to discern from the data that are available. In particular, some agreements will specify that quotas should be relaxed. The data will only indicate the presence of a quota but cannot indicate that it now permits a greater volume of imports. As such, the treatment of NTBs has been omitted from the exercise.

Appendix A

Methodology

Underlying Theoretical Construct

Within the study of international economics, a variety of models, or theoretical constructs, can be used to gain insight into an issue or set of issues. The simplest of these models is one of homogeneous products and perfect competition—one in which products within industries are very similar and there are a great many producers of each product. Other models add complexity along one or more dimensions. For example, they may take into account the fact that there are a variety of different types of automobiles available for purchase; such a model might be classified as a model with "differentiated products." Other models may take into account the small number of producers in a given market; these would be models with imperfect competition.

Given the broad scope of the current manuscript, we have chosen to present results and thought experiments that have as an underlying construct a model with homogeneous products and perfect competition. Furthermore, most of the conjectures regarding benefits are from a partial equilibrium approach to the issue, that is, one that permits the examination of industries in isolation. A general equilibrium approach would address the issues in a broader context, taking into account the interlinkages among industries. We have also limited ourselves to thinking of the United States as a "small" country. This approach affords the greatest clarity in analyzing the issues of interest here. Although it does not address a number of important features of individual markets, it permits the painting of a clear picture of the forest while not focusing too closely on the trees.

As much of the text concerns itself with tariff reductions that result from preferential tariff negotiations, it is worth discussing them here. Preferential tariff liberalization, such as that taking place under NAFTA, grants tariff preferences to a country or set of countries while maintaining

higher tariffs on imports from other countries. For any particular industry, this can have one of two distinctly different effects. The first and, indeed, the most likely, is no effect. That is, domestic prices will remain unchanged, but more will be imported from the country obtaining the preferences. The second, and generally considered to be less likely, effect is to reduce the domestic price of the good. This will happen only if our imports of this good are now entirely supplied by the country or countries receiving the benefits: Canada or Mexico in the case of NAFTA. In the former case, the only real change is that now money that would have been collected in tax revenues by the U.S. government is collected by Mexican exporters in the form of higher prices. That is, Mexican producers now get to raise their prices in the same way that U.S. producers are able to. Domestic consumers do not realize any drop in price.

Statistics

Calculation of the Fundamental Statistics

Three fundamental types of statistics are presented in this report. The first type of statistic is a trade share. These shares can be the share of California trade with a particular country or trade in goods from a particular industry. In either case, they are calculated as follows:

$$\text{SHARE}_I = \frac{\sum_{j=1}^{m} X_{I,j}}{\sum_{i=1}^{n}\sum_{j=1}^{m} X_{i,j}}$$

where $X_{i,j}$ represents the exports of a particular good to a particular country; i represents a particular country, and j represents a particular industry if we are calculating a country trade share, or i represents an industry and j a country when calculating an industry share.

The second type of statistic is a trade-weighted average tariff. This statistic is calculated as follows:

$$\text{Ave Tariff} = \frac{\sum_{i=1}^{n}\sum_{j=1}^{m} X_{i,j} * \tau_{i,j}}{\sum_{i=1}^{n}\sum_{j=1}^{m} X_{i,j}}$$

where $\tau_{i,j}$ is country i's tariff on imports in industry j. This calculation generates statistics such as those presented in Table 4.1—an aggregate measure of thee tariffs on all of California or Rest U.S. trade.

Alternatively, we have calculated average tariffs by industry and by country. In each of these cases, one summation is removed from the equation and the average tariff is calculated as follows:

$$\text{Ave Tariff}_{I} = \frac{\sum_{j=1}^{m} X_{I,j} * \tau_{I,j}}{\sum_{j=1}^{m} X_{I,j}}$$

In this case, if I is a country, we are calculating a bilateral average tariff—a measure of the tariff on California exports to any single country. Similarly, I could represent an industry, in which case we would be measuring the barriers to the export of a particular good to the rest of the world.

The final statistic is a coverage ratio. A coverage ratio is calculated in the same way as a trade-weighted tariff, with the exception that the value of τ is no longer a continuous variable. In the case above it was the percentage rate of a tariff but is now an *indicator* of the presence of a barrier. For countries i in which there is a non-tariff barrier imposed on imports of good j, $\tau_{i,j} = 1$, otherwise, $\tau_{i,j} = 0$. This calculation yields the fraction of exports that face some sort of a barrier but not the size or effect of the barrier.

As these latter two statistics contain two different components, the value of trade, X, and the presence and size of the barriers, τ, both of which can change over time, we have also provided a decomposition of these statistics. That is, we have performed calculations that indicate the extent to which changes in these statistics over time are due to changes in

trade flows or trade barriers. This merely involves recalculating these numbers and mixing and matching the different values for trade and barriers. For instance, a change in the trade-weighted average tariff between 1993 and 1998 can be calculated directly by taking the difference of the two statistics:

$$\text{Change in Ave Tariff} = \frac{\sum_{i=1}^{n}\sum_{j=1}^{m} X_{i,j}^{98} * \tau_{i,j}^{98}}{\sum_{i=1}^{n}\sum_{j=1}^{m} X_{i,j}^{98}} - \frac{\sum_{i=1}^{n}\sum_{j=1}^{m} X_{i,j}^{93} * \tau_{i,j}^{93}}{\sum_{i=1}^{n}\sum_{j=1}^{m} X_{i,j}^{93}}$$

or we can break this change up into two parts: the change resulting from changing trade flows and the change resulting from changing tariffs:

$$\text{Change from Trade Flows} = \frac{\sum_{i=1}^{n}\sum_{j=1}^{m} X_{i,j}^{98} * \tau_{i,j}^{93}}{\sum_{i=1}^{n}\sum_{j=1}^{m} X_{i,j}^{98}} - \frac{\sum_{i=1}^{n}\sum_{j=1}^{m} X_{i,j}^{93} * \tau_{i,j}^{93}}{\sum_{i=1}^{n}\sum_{j=1}^{m} X_{i,j}^{93}}$$

and

$$\text{Change from Barriers} = \frac{\sum_{i=1}^{n}\sum_{j=1}^{m} X_{i,j}^{93} * \tau_{i,j}^{98}}{\sum_{i=1}^{n}\sum_{j=1}^{m} X_{i,j}^{93}} - \frac{\sum_{i=1}^{n}\sum_{j=1}^{m} X_{i,j}^{93} * \tau_{i,j}^{93}}{\sum_{i=1}^{n}\sum_{j=1}^{m} X_{i,j}^{93}} .$$

The change in the average tariff is then the sum of the change resulting from trade flows and the change resulting from barriers. Or, as we presented in the text, we can omit the changes and ask what the average

barrier would have been in 1998 had trade flows remained the same as in 1993:

$$\frac{\sum_{i=1}^{n}\sum_{j=1}^{m} X_{i,j}^{93} * \tau_{i,j}^{98}}{\sum_{i=1}^{n}\sum_{j=1}^{m} X_{i,j}^{93}}$$

or what the average barrier would have been had trade flows changed but barriers had remained the same:

$$\frac{\sum_{i=1}^{n}\sum_{j=1}^{m} X_{i,j}^{98} * \tau_{i,j}^{93}}{\sum_{i=1}^{n}\sum_{j=1}^{m} X_{i,j}^{98}}.$$

One other type of statistic is presented in the text—the average tariff paid by an industry on its intermediate inputs. This statistic is very similar to the "average tariff" calculation above, except that the weights are the dollar value of purchases from a particular industry. That is, approximately the same formula is employed:

$$\text{Ave Tariff}_i = \frac{\sum_{j=1}^{m} X_{i,j} * \tau_{i,j}}{\sum_{j=1}^{m} X_{i,j}}$$

but $X_{i,j}$ is no longer imports but represents purchases of materials inputs from industry j by industry i. The "Total" line of Table 5.1 is then calculated according to the following formula:

$$\text{Total} = \frac{\sum_{j=1}^{m} X_i * \text{Ave Tariff}_i}{\sum_{j=1}^{m} X_i}$$

where X_i is now the share of California, or Rest U.S., production that is attributable to industry i.

Shortcomings of the Fundamental Trade Statistics

The trade-weighted average tariff and the coverage ratios are both statistics with significant flaws. However, they are both widely accepted

as measures of the significance of tariffs and non-tariff barriers. As they are conceptually and computationally different, their flaws are also different.

In particular, tariffs are flawed primarily because the weights used to construct the average tariff are determined by the tariffs. High tariffs in one export market will suppress exports to that market relative to those with lower tariffs. As an extreme case, a very high or prohibitive tariff will eliminate exports altogether. If exports are zero, then the weight on prohibitive tariffs will be zero and they will be excluded from the calculation, causing the statistic to underreport tariff barriers abroad. It is in principle possible for weighted average tariffs to rise over time not because imposed tariffs have increased but rather because tariffs decrease. If a prohibitive tariff is reduced but remains above the average of all other tariffs, exports will flow to that market and the calculated average tariff will rise. In this case, the average tariff will report an increase in protection when in fact protection has declined. At the same time, tariffs can be observed to fall when in fact they have become prohibitive in some markets. Neither phenomenon is believed to be pervasive, but it is generally possible that the lowering of high barriers can raise the weighted average tariff.

Non-tariff barriers are subject to this flaw and a host of others. First, NTBs that are quite different are treated as equivalent instruments. For example, two very common types of NTBs are quantity and quality restrictions. Quantity restrictions, or import quotas, put numerical limits on the amount of a given good that a country permits to be imported. Quality restrictions, on the other hand, serve to restrict the type or characteristics of imports rather than their quantity. As one can see, these barriers can have very different influences on trade flows but are treated equivalently in the computation of this statistic.

A second criticism stems from the fact that an NTB may be imposed in such a way as to have no effect on the level of imports. A quota, for instance, may be set at a level higher than imports would naturally be. In this case, the barrier has no practical effect but will influence the coverage ratio as commonly and feasibly reported.

Third, some NTBs will eliminate trade altogether. In this instance, as with the tariff measure, high barriers would be eliminated from the

statistic, causing the statistic to understate the *true* level of barriers in foreign markets.

Finally, coverage ratios are not influenced by the presence of multiple non-tariff barriers in a single market. If a country were to impose both a quantity and a quality barrier, the coverage ratio would be the same as if it imposed only one or the other of the barriers.

Another way to put all of this is that the dollar value, or the protective effect, of a given NTB plays very little role in the calculation of a coverage ratio. As it is generally the case that any two NTBs can affect trade in very different ways, this represents a serious problem in the interpretation of changes in measured coverage ratios. Despite these limitations, however, the measure is both widely used and accepted and is the best that we can hope to do.

Appendix B

Data Sources

Bilateral State Trade Data

The state-level trade data used in this study are from several different sources. MISER data are from the STAT-USA database. They include the 1993 and 1998 bilateral state trade data. These data are disaggregated to the two-digit 1987 SIC level.

The Longitudinal Research Database (LRD) is a dataset maintained by the Center for Economic Studies at the U.S. Bureau of the Census. The data used from this dataset are state multilateral exports disaggregated to the four-digit 1987 SIC level for 1992 and 1997. These data were used to disaggregate the bilateral trade data from MISER to the four-digit level.

The Global Trade Information Service (GTIS), in conjunction with the International Trade Division at the U.S. Bureau of the Census, has recently begun providing state bilateral trade data at the four-digit Harmonized System (HS) level. For the counterfactual analyses presented in Tables 6.1–6.3, 1998 trade data from a GTIS CD were used to calculate the weighted tariff barriers. See *www.gtis.com* for more information.

U.S. trade data are available in two different series. There is the "origin of movement" (OM) series and the "exporter location" (EL) series. The OM data are intended to reflect the location at which the product was produced, and the EL data likely refer to the location of a shipment or of the shipper. Although the data employed in this study are from the OM series, concerns persist that not all data are coded correctly. The source of the data is the Shippers Export Declaration, which asks for "the state where the product began its journey to the point of export." That state is not necessarily the state of manufacture or where the product was grown or mined. It may in some cases be the state of a broker or wholesaler or the state of consolidation of shipments.

This issue results in some inflation of exports for the major port states, such as California. Despite this limitation, these data are generally acknowledged as the best available on state exports.

Both datasets employed in this study, the MISER and GTIS, are subject to this potential bias. However, it is unlikely that this bias poses significant problems in the present study. First, even if some portion of California's measured trade represents California as a transit location rather than a production location, this does not make the relevant flows immaterial to California's welfare. Rather, the transportation industry located in California greatly benefits from its coastal transit location; reductions in trade hurt this industry even if within-California production is not affected. Second, U.S. exports are increasingly air-shipped (see Hummels, 2000), This decreases the importance of overland-to-California followed by sea shipping and limits the overcounting of California's exports. Finally, Cronovich and Gazel (2000) provide a detailed comparison of the MISER data with more limited Census data that more accurately identify the location of production and find that for most purposes the two are reasonable substitutes.

State GSP Data

The state GSP data were taken from the web page of the Bureau of Economic Analysis at theCensus Bureau: *http://www.bea.doc.gov/bea/regional/gsp/gsplist.htm.*

Trade Barrier Data

The data on trade barriers are from the UNCTAD Trade Analysis and Information System (TRAINS). The 1994 and 1999 versions of this CD-ROM provided the detailed data. Information on these data are provided at *http://www.unctad-trains.org/*.

Materials Use Data

The data on materials use that provide the basis on which the tariffs in Tables 5.1, 5.2, and 6.3 were calculated are from the 1992 Census of Manufacturing, by way of the Longitudinal Research Database (LRD).

These surveys provide detailed information, at the physical plant level, on material inputs at the six-digit SIC level of aggregation. The data are available by state. It was therefore possible to construct separate input use tables for California and the rest of the United States.

Appendix C

Comprehensive Tables

Table C.1

Trade and GSP Shares for California and the Rest of the United States

	California				Rest U.S.			
	1993		1998		1993		1998	
Industry	Trade	GSP	Trade	GSP	Trade	GSP	Trade	GSP
Agricultural production	4.12	7.45	3.05	6.48	5.16	5.54	3.87	4.82
Forestry, fishing, and hunting	0.27	5.12	0.15	5.15	0.73	2.62	0.38	2.71
Metal mining	0.02	0.19	0.01	0.07	0.22	0.37	0.18	0.30
Bituminous coal and lignite mining	0.00	0.00	0.00	0.00	0.80	0.79	0.54	0.70
Oil and gas extraction	0.01	2.17	0.05	1.73	0.15	4.95	0.21	4..63
Nonmetallic minerals excluding fuels	0.17	0.45	0.10	0.61	0.26	0.55	0.23	0.74
Food and kindred products	6.33	9.30	5.15	7.65	4.47	8.10	4.12	7.33
Tobacco manufactures	0.00	0.00	0.01	0.00	1.11	0.92	0.87	1.07
Textile mill products	0.31	0.45	0.46	0.56	1.26	1.94	1.25	1.54
Apparel and other textile products	1.52	2.83	1.28	2.55	1.24	2.08	1.58	1.53
Lumber and wood products	1.02	1.97	0.49	1.73	1.82	2.69	1.01	2.64
Furniture and fixtures	0.37	1.29	0.38	1.54	0.71	1.36	0.70	1.52
Paper and allied products	0.90	1.89	1.01	1.48	2.42	3.53	2.35	3.30
Printing and publishing	0.78	6.22	0.68	5.83	1.00	5.91	0.79	5.78
Chemicals and allied products	3.87	5.57	4.23	4.76	10.92	9.24	11.04	9.54
Petroleum and coal products	2.38	3.86	0.76	3.44	1.21	2.33	0.92	1.81
Rubber and misc. plastic products	1.37	2.11	1.32	2.12	2.12	3.13	2.49	3.30
Leather and leather products	0.31	0.14	0.17	0.13	0.39	0.35	0.34	0.26
Stone, clay, and glass products	0.50	1.62	0.48	1.88	0.98	1.99	0.94	2.53
Primary metal industries	2.26	1.19	1.78	1.28	4.66	3.24	3.85	3.29
Fabricated metal industries	2.29	4.08	2.35	4.62	3.33	5.53	3.26	6.29
Industrial machinery and computers	24.31	10.10	25.57	13.89	16.44	8.56	17.09	9.21
Electronic equipment exluding computers	24.77	12.83	28.54	16.41	11.74	9.11	14.10	10.12
Transportation equipment	12.42	10.04	11.18	6.24	19.57	9.95	20.59	9.90
Instruments and related products	7.82	7.60	8.85	7.84	5.55	3.64	5.65	3.55
Misc. manufacturing	1.87	1.53	1.94	2.01	1.73	1.57	1.63	1.60
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

SOURCES: The Longitudinal Research Database and MISER trade data.

NOTE: GSP figures are for goods-producing industries only.

Table C.2

Differences in Trade and GSP Shares Between California and the Rest of the United States

	1993		1998	
Industry	Trade	GSP	Trade	GSP
Agricultural production	–1.04	1.92	–0.83	1.66
Forestry, fishing, and hunting	–0.46	2.50	–0.23	2.44
Metal mining	–0.19	–0.17	–0.16	–0.23
Bituminous coal and lignite mining	–0.80	–0.79	–0.53	–0.70
Oil and gas extraction	–0.14	–2.78	–0.17	–2.90
Nonmetallic minerals excluding fuels	–0.09	–0.10	–0.14	–0.13
Food and kindred products	1.87	1.20	1.03	0.32
Tobacco manufactures	–1.10	–0.92	–0.87	–1.07
Textile mill products	–0.95	–1.49	–0.79	–0.98
Apparel and other textile products	0.28	0.74	–0.30	1.20
Lumber and wood products	–0.80	–0.72	–0.52	–0.91
Furniture and fixtures	–0.34	–0.07	–0.32	0.02
Paper and allied products	–1.52	–1.64	–1.34	–1.82
Printing and publishing	–0.22	0.31	–0.10	0.05
Chemicals and allied products	–7.05	–3.67	–6.81	–4.77
Petroleum and coal products	1.17	1.53	–0.15	1.64
Rubber and misc. plastic products	–0.75	–1.03	–1.17	–1.18
Leather and leather products	–0.08	–0.21	–0.16	–0.13
Stone, clay, and glass products	–0.48	–0.37	–0.46	–0.65
Primary metal industries	–2.40	–2.05	–2.07	–2.01
Fabricated metal industries	–1.04	–1.45	–0.91	–1.68
Industrial machinery and computers	7.86	1.54	8.47	4.68
Electronic equipment exluding computers	13.03	3.72	14.44	6.29
Transportation equipment	–7.16	0.09	–9.41	–3.66
Instruments and related products	2.27	3.95	3.20	4.29
Misc. manufacturing	0.14	–0.04	0.30	0.42

SOURCES: The Longitudinal Research Database and MISER trade data.

Table C.3

California's Top 10 Export Destinations

	1993			1998		
Country	California	Rest U.S.	Difference	California	Rest U.S.	Difference
Japan	14.84	9.56	5.27	13.80	7.59	6.21
Mexico	9.37	8.98	0.40	12.85	11.48	1.37
Canada	10.95	23.26	–12.31	12.11	24.53	–12.42
Taiwan	6.76	2.95	3.81	5.66	2.14	3.53
United Kingdom	4.90	5.73	–0.83	5.46	5.72	–0.27
Singapore	5.37	2.01	3.35	4.57	1.92	2.64
Germany	5.06	3.91	1.15	4.54	3.78	0.76
South Korea	5.66	2.64	3.03	4.09	2.11	1.98
Netherlands	3.03	2.76	0.28	3.78	2.65	1.13
Hong Kong	4.34	1.74	2.60	3.40	1.62	1.78

SOURCES: The Longitudinal Research Database and MISER trade data.

Table C.4

Rest U.S. Top 10 Export Destinations

	1993			1998		
Country	California	Rest U.S.	Difference	California	Rest U.S.	Difference
Canada	10.95	23.26	–12.31	12.11	24.53	–12.42
Mexico	9.37	8.98	0.40	12.84	11.48	1.37
Japan	14.84	9.56	5.27	13.80	7.59	6.21
United Kingdom	4.90	5.73	–0.83	5.46	5.72	–0.27
Germany	5.06	3.91	1.15	4.54	3.78	0.76
France	3.18	2.78	0.40	2.36	2.66	–0.30
Netherlands	3.03	2.76	0.28	3.78	2.65	1.13
Brazil	0.95	1.39	–0.44	1.28	2.44	–1.16
Belgium	0.91	2.11	–1.20	1.26	2.21	–0.95
Taiwan	6.76	2.95	3.81	5.66	2.14	3.53

SOURCES: The Longitudinal Research Database and MISER trade data.

Table C.5

Share of Exports from California and the Rest of the United States Bound for APEC Countries

	1993			1998		
Country	California	Rest U.S.	Difference	California	Rest U.S.	Difference
Australia	2.43	1.70	0.73	2.51	1.63	0.88
Brunei	0.07	0.11	–0.04	0.05	0.01	0.04
Canada	10.95	23.26	–12.31	12.11	24.53	–12.42
Chile	0.37	0.60	–0.24	0.36	0.63	–0.27
China	2.21	1.82	0.39	2.32	2.04	0.28
Hong Kong	4.34	1.74	2.60	3.40	1.62	1.78
Indonesia	0.98	0.53	0.45	0.33	0.34	–0.01
Japan	14.84	9.56	5.27	13.80	7.59	6.21
Malaysia	2.16	1.16	1.00	2.31	1.16	1.15
Mexico	9.37	8.98	0.40	12.85	11.48	1.37
New Zealand	0.39	0.25	0.15	0.35	0.26	0.08
Papua New Guinea	0.02	0.01	0.01	0.02	0.01	0.01
Peru	0.12	0.25	–0.13	0.15	0.33	–0.18
Philippines	1.52	0.63	0.89	1.40	0.93	0.48
Russia	0.31	0.71	–0.40	0.41	0.56	–0.15
South Korea	5.66	2.64	3.03	4.09	2.11	1.98
Singapore	5.37	2.01	3.35	4.57	1.92	2.64
Taiwan	6.76	2.95	3.81	5.66	2.14	3.53
Thailand	1.60	0.68	0.92	1.19	0.70	0.49
Vietnam	0.00	0.00	0.00	0.05	0.04	0.02
Share of trade	69.47	59.59		67.94	60.02	

SOURCES: The Longitudinal Research Database and MISER trade data.

Table C.6

Share of Exports from California and the Rest of the United States Bound for FTAA Countries

	1993			1998		
Country	California	Rest U.S.	Difference	California	Rest U.S.	Difference
Anguilla	0.00	0.00	0.00	0.00	0.00	0.00
Antigua	0.00	0.02	–0.02	0.00	0.02	–0.01
Argentina	0.58	0.87	–0.29	0.60	0.93	–0.33
Aruba	0.01	0.07	–0.05	0.09	0.05	0.04
British Virgin Islands	0.00	0.01	–0.01	0.00	0.01	–0.01
Bahamas	0.02	0.18	–0.16	0.02	0.14	–0.11
Barbados	0.01	0.04	–0.03	0.01	0.05	–0.04
Belize	0.00	0.03	–0.03	0.00	0.02	–0.02
Bermuda	0.02	0.07	–0.05	0.03	0.06	–0.03
Bolivia	0.01	0.05	–0.04	0.01	0.07	–0.05
Brazil	0.95	1.39	–0.44	1.28	2.44	–1.16
Canada	10.95	23.26	–12.31	12.11	24.53	–12.42
Cayman Islands	0.00	0.05	–0.04	0.01	0.07	–0.06
Chile	0.37	0.60	–0.24	0.36	0.63	–0.27
Colombia	0.17	0.80	–0.63	0.19	0.80	–0.61
Costa Rica	0.07	0.39	–0.32	0.13	0.38	–0.24
Dominica	0.00	0.01	–0.01	0.00	0.01	–0.01
Dominican Republic	0.07	0.59	–0.53	0.06	0.69	–0.63
Ecuador	0.07	0.27	–0.20	0.07	0.28	–0.21
El Salvador	0.08	0.21	–0.13	0.06	0.25	–0.19
Falkland Islands	0.00	0.00	0.00	0.00	0.00	0.00
French Guiana	0.46	0.00	0.45	0.23	0.00	0.23
Grenada	0.00	0.01	–0.01	0.00	0.01	–0.01
Guadeloupe	0.00	0.01	–0.01	0.00	0.01	–0.01
Guatemala	0.07	0.32	–0.26	0.10	0.32	–0.22
Guyana	0.00	0.03	–0.03	0.00	0.02	–0.02
Haiti	0.00	0.06	–0.06	0.00	0.09	–0.09
Honduras	0.03	0.22	–0.20	0.02	0.40	–0.38
Jamaica	0.02	0.28	–0.27	0.02	0.22	–0.20
Martinique	0.00	0.01	0.00	0.00	0.00	0.00
Mexico	9.37	8.98	0.40	12.85	11.48	1.37
Montserrat	0.00	0.00	0.00	0.00	0.00	0.00
Netherland Antilles	0.03	0.13	–0.10	0.07	0.12	–0.05
Nicaragua	0.01	0.04	–0.03	0.01	0.05	–0.04

Table C.6 (continued)

	1993			1998		
Country	California	Rest U.S.	Difference	California	Rest U.S.	Difference
Panama	0.12	0.28	–0.16	0.18	0.27	–0.09
Paraguay	0.03	0.13	–0.10	0.02	0.14	–0.12
Peru	0.12	0.25	–0.13	0.15	0.33	–0.18
St. Christopher-Nevis	0.00	0.01	–0.01	0.00	0.01	–0.01
St Lucia	0.00	0.02	–0.02	0.00	0.02	–0.01
St. Pierre and Miquelon	0.00	0.00	0.00	0.00	0.00	0.00
St. Vincent	0.00	0.01	–0.01	0.01	0.05	–0.03
Suriname	0.00	0.03	–0.03	0.00	0.03	–0.03
Trinidad and Tobago	0.01	0.13	–0.13	0.01	0.17	–0.16
Turks and Caicos	0.00	0.01	–0.01	0.00	0.01	–0.01
Uruguay	0.02	0.06	–0.04	0.05	0.10	–0.05
Venezuela	0.26	1.12	–0.86	0.24	1.09	–0.85
Share of trade	23.93	41.04		29.02	46.36	

SOURCES: The Longitudinal Research Database and MISER trade data.

NOTE: The data presented in this table are the same as those presented in Table 4.1 but are calculated separately for each trading partner.

Table C.7

Barriers to U.S. Exports in Individual Countries

	Non-Tariff Barriers				Tarriffs			
	1993		1998		1993		1998	
Country	Cal.	Rest U.S.	Cal.	Rest U.S.	Cal.	Rest U.S.	Cal.	Rest U.S.
Argentina	3.77	5.43	77.31	68.51	13.45	11.64	8.58	12.06
Australia	11.59	7.94	8.57	6.36	5.13	7.24	2.33	3.31
Brazil	12.43	11.19	90.60	73.31	20.73	13.69	14.73	14.73
Canada	6.34	12.11	4.08	10.85	0.98	1.65	0.50	0.45
Chile	50.20	40.70	2.30	6.59	10.99	10.43	10.99	10.00
China	27.17	44.96	20.58	34.26	21.06	31.60	14.08	15.81
Colombia	0.00	0.00	42.59	35.63	8.01	9.88	9.04	9.93
European Union	3.70	4.45	3.11	4.87	5.75	6.24	1.95	3.43
Hong Kong	27.90	20.83	0.00	0.00	0.00	0.00	0.00	0.00
Hungary	0.00	0.02	5.42	9.12	9.24	13.64	9.68	10.34
India	76.40	65.14	28.43	33.10	49.69	47.11	23.65	23.10
Japan	27.21	48.88	25.37	48.90	5.47	5.59	2.48	4.32
Malaysia	16.57	13.95	18.13	22.12	10.90	12.80	4.41	9.82
Mexico	6.91	12.64	0.39	0.95	13.57	12.63	5.16	6.44
New Zealand	0.02	0.10	0.21	0.04	5.08	5.96	2.58	3.41
Norway	16.39	15.69	13.77	9.52	5.01	4.23	1.52	1.27
Oman	9.43	4.20	7.56	4.21	4.98	10.99	4.99	8.91
Paraguay	0.00	0.00	9.24	8.68	15.93	12.30	6.57	8.51
Peru	5.53	1.08	5.69	4.81	15.83	16.01	12.59	12.82
Philippines	71.16	75.18	0.44	0.80	14.69	15.07	4.94	7.84
Poland	0.00	0.00	0.00	0.00	9.86	9.31	12.93	26.15
Singapore	13.72	18.92	17.95	22.25	0.75	0.45	0.00	0.00
South Africa	9.37	30.71	0.00	0.00	4.57	7.40	2.37	6.78
South Korea	0.97	1.71	4.46	8.50	11.13	9.36	25.52	40.02
Sri Lanka	49.68	61.38	11.18	4.42	15.84	20.07	12.09	13.50
Switzerland	24.80	40.27	32.13	50.46	0.00	0.00	0.00	0.00
Taiwan	50.63	57.00	0.00	0.00	5.27	6.10	6.34	7.90
Thailand	4.65	9.73	8.37	19.44	34.47	31.56	10.54	16.19
Tunisia	58.63	74.87	2.61	9.67	21.51	20.60	20.64	21.86
Venezuela	13.85	14.38	3.69	6.64	11.12	12.40	9.02	9.70
Total	15.48	17.47	9.37	13.75	7.11	6.97	4.32	5.17

SOURCE: The TRAINS dataset, the Longitudinal Research Database, and MISER trade data.

NOTE: The data presented in this table are the same as those presented in Table 4.1 but are calculated separately for each trading partner.

Table C.8

Barriers to U.S. Exports by Commodity

	Non-Tariff Barriers				Tarriffs			
	1993		1998		1993		1998	
Industry	Cal.	Rest U.S.	Cal.	Rest U.S.	Cal.	Rest U.S.	Cal.	Rest U.S.
Agricultural production	44.47	58.61	38.95	43.54	3.65	5.18	33.06	32.69
Forestry, fishing, and hunting	66.11	72.62	33.64	45.12	7.85	6.37	8.71	6.45
Metal mining	0.80	2.45	0.25	0.60	0.18	0.28	7.09	0.47
Bituminous coal and lignite mining	6.03	5.80	96.57	10.78	5.26	0.10	0.02	0.08
Oil and gas extraction	50.63	66.18	2.28	24.02	5.83	4.69	3.10	1.79
Nonmetallic minerals excluding fuels	7.45	4.66	8.73	1.41	1.31	1.08	1.81	0.98
Tobacco, food, and kindred products	50.12	44.08	42.98	42.50	12.33	20.12	9.78	17.80
Textile mill products	18.10	30.20	4.79	21.83	12.90	12.00	7.39	5.91
Apparel and other textile products	9.19	20.11	12.56	20.88	14.51	15.10	12.12	10.93
Lumber and wood products	15.50	33.17	4.02	22.08	10.71	3.58	5.69	1.71
Furniture and fixtures	5.85	7.17	5.71	6.06	10.23	8.56	5.17	3.31
Paper and allied products	5.89	4.22	7.06	3.50	4.88	4.77	2.94	3.12
Printing and publishing	3.20	3.36	6.00	2.90	1.65	1.29	1.58	0.80
Chemicals and allied products	27.00	20.88	20.05	18.99	6.93	6.75	3.58	4.44
Petroleum and coal products	29.08	22.95	23.02	11.48	7.16	5.79	3.33	2.77
Rubber and misc. plastic products	4.16	2.95	2.47	2.10	12.36	9.02	6.96	5.01
Leather and leather products	30.86	45.49	31.93	33.14	11.62	9.12	11.88	7.26
Stone, clay, and glass products	2.93	2.69	0.91	2.23	8.58	6.70	4.73	3.87
Primary metal industries	2.23	12.19	4.24	11.04	6.66	5.62	4.00	3.35
Fabricated metal industries	6.20	12.87	3.58	10.69	9.30	7.49	4.61	3.64
Industrial machinery and computers	4.06	4.35	4.14	7.75	5.49	6.22	2.28	3.25
Electronic equipment exluding computers	16.62	7.72	4.84	6.10	7.64	7.35	2.76	3.76
Transportation equipment	7.72	20.26	6.78	15.37	6.30	7.12	2.66	3.25
Instruments and related products	12.25	7.42	9.60	6.82	5.72	5.53	2.54	2.74
Misc. manufacturing	9.00	12.09	7.76	12.82	7.77	6.91	3.93	3.88
Total	15.48	17.47	9.37	13.75	7.11	6.97	4.32	5.17

SOURCE: The TRAINS dataset, the Longitudinal Research Database, and MISER trade data.

NOTES: To avoid the disclosure of confidential information, the food and kindred products and tobacco industries have been combined. The data presented in this table are the same as those presented in Table 4.1 but are calculated separately for each commodity grouping.

Table C.9

Barriers to U.S. Exports in the APEC Countries

	Non-Tariff Barriers				Tarriffs			
	1993		1998		1993		1998	
Country	Cal.	Rest U.S.	Cal.	Rest U.S.	Cal.	Rest U.S.	Cal.	Rest U.S.
Australia	11.59	7.94	8.57	6.36	5.13	7.24	2.33	3.31
Canada	6.34	12.11	4.08	10.85	0.98	1.65	0.50	0.45
Chile	50.20	40.70	2.30	6.59	10.99	10.43	10.99	10.00
China	27.17	44.96	20.58	34.26	21.06	31.60	14.08	15.81
Hong Kong	27.90	20.83	0.00	0.00	0.00	0.00	0.00	0.00
Japan	27.21	48.88	25.37	48.90	5.47	5.59	2.48	4.32
Malaysia	16.57	13.95	18.13	22.12	10.90	12.80	4.41	9.82
Mexico	6.91	12.64	0.39	0.95	13.57	12.63	5.16	6.44
New Zealand	0.02	0.10	0.21	0.04	5.08	5.96	2.58	3.41
Peru	5.53	1.08	5.69	4.81	15.83	16.01	12.59	12.82
Philippines	71.16	75.18	0.44	0.80	14.69	15.07	4.94	7.84
Singapore	13.72	18.92	17.95	22.25	0.75	0.45	0.00	0.00
South Korea	0.97	1.71	4.46	8.50	11.13	9.36	25.52	40.02
Taiwan	50.63	57.00	0.00	0.00	5.27	6.10	6.34	7.90
Thailand	4.65	9.73	8.37	19.44	34.47	31.56	10.54	16.19
Total	19.24	22.27	9.55	14.12	7.21	6.45	4.78	5.05

SOURCE: The TRAINS dataset, the Longitudinal Research Database, and MISER trade data.

Table C.10

Barriers to U.S. Exports in the FTAA Countries

	Non-Tariff Barriers				Tarriffs			
	1993		1998		1993		1998	
Country	Cal.	Rest U.S.	Cal.	Rest U.S.	Cal.	Rest U.S.	Cal.	Rest U.S.
Argentina	3.77	5.43	77.31	68.51	13.45	11.64	8.58	12.06
Brazil	12.43	11.19	90.60	73.31	20.73	13.69	14.73	14.73
Canada	6.34	12.11	4.08	10.85	0.98	1.65	0.50	0.45
Chile	50.20	40.70	2.30	6.59	10.99	10.43	10.99	10.00
Colombia	0.00	0.00	42.59	35.63	8.01	9.88	9.04	9.93
Mexico	6.91	12.64	0.39	0.95	13.57	12.63	5.16	6.44
Paraguay	0.00	0.00	9.24	8.68	15.93	12.30	6.57	8.51
Peru	5.53	1.08	5.69	4.81	15.83	16.01	12.59	12.82
Venezuela	13.85	14.38	3.69	6.64	11.12	12.40	9.02	9.70
Total	7.40	12.22	7.17	12.42	7.25	5.62	3.59	3.64

SOURCE: The TRAINS dataset, the Longitudinal Research Database, and MISER trade data.

Table C.11

Barriers to U.S. Exports in APEC Countries by Industry

	Non-Tariff Barriers				Tariffs			
	1993		1998		1993		1998	
Industry	Cal.	Rest U.S.	Cal.	Rest U.S.	Cal.	Rest U.S.	Cal.	Rest U.S.
Agricultural production	47.62	69.87	38.63	43.86	3.32	4.92	37.84	43.15
Forestry, fishing, and hunting	68.37	79.74	34.59	50.74	7.77	5.86	8.86	6.35
Metal mining	0.60	3.00	0.25	0.81	0.08	0.31	7.19	0.64
Bituminous coal and lignite mining	10.42	12.49	96.57	26.07	9.10	0.23	0.02	0.17
Oil and gas extraction	50.83	67.75	1.88	23.70	5.85	4.79	3.10	1.76
Nonmetallic minerals excluding fuels	7.86	5.40	0.89	0.98	1.47	1.25	1.52	1.01
Tobacco, food, and kindred products	49.31	45.56	43.57	32.93	13.37	13.39	10.74	14.43
Textile mill products	21.76	42.50	4.59	24.14	12.98	11.79	6.72	4.36
Apparel and other textile products	10.81	24.74	12.68	19.64	14.98	15.43	12.07	10.61
Lumber and wood products	16.62	31.95	4.02	26.92	11.57	3.70	6.13	1.77
Furniture and fixtures	6.70	8.23	7.10	6.72	10.73	8.58	5.42	2.71
Paper and allied products	6.28	5.18	7.12	3.67	4.92	4.01	2.80	2.30
Printing and publishing	3.99	4.01	7.14	3.04	1.61	0.95	1.54	0.51
Chemicals and allied products	42.69	29.31	31.01	19.80	6.62	5.40	3.51	3.03
Petroleum and coal products	29.06	24.84	24.81	8.63	6.95	6.19	3.50	2.45
Rubber and misc. plastic products	3.67	3.31	0.80	0.80	12.68	8.86	6.59	3.87
Leather and leather products	25.19	34.80	22.04	21.20	12.28	9.03	13.63	7.70
Stone, clay, and glass products	3.09	2.90	0.95	2.69	8.79	6.07	4.81	3.15
Primary metal industries	2.64	13.61	4.76	9.15	7.21	5.12	3.72	2.44
Fabricated metal industries	7.46	15.22	3.72	11.74	10.06	7.48	4.59	2.96
Industrial machinery and computers	5.84	5.52	1.15	3.63	5.73	5.66	2.40	2.31
Electronic equipment exluding computers	20.70	9.86	4.58	5.03	7.07	7.11	2.80	3.57
Transportation equipment	10.32	27.10	8.31	19.64	6.60	6.92	2.35	2.53
Instruments and related products	18.36	12.44	13.56	9.13	5.27	5.10	2.39	2.09
Misc. manufacturing	9.02	12.73	5.85	11.69	7.81	6.25	3.65	2.59
Total	19.24	22.27	9.55	14.12	7.21	6.45	4.78	5.05

SOURCE: The TRAINS dataset, the Longitudinal Research Database, and MISER trade data.

NOTES: To avoid the disclosure of confidential information, the food and kindred products and tobacco industries have been combined. The data presented in this table are the same as those presented in Table 4.1 but are calculated separately for each commodity grouping.

Table C.12

Barriers to U.S. Exports in FTAA Countries by Industry

	Non-Tariff Barriers				Tariffs			
	1993		1998		1993		1998	
Industry	Cal.	Rest U.S.	Cal.	Rest U.S.	Cal.	Rest U.S.	Cal.	Rest U.S.
Agricultural production	25.75	47.26	12.38	13.54	1.35	3.95	5.39	11.38
Forestry, fishing, and hunting	16.99	8.15	0.66	1.01	4.21	2.18	3.76	1.45
Metal mining	0.00	0.00	0.01	0.14	5.66	0.43	10.83	0.82
Bituminous coal and lignite mining	0.00	0.00	0.00	0.05	8.99	0.23	0.80	0.10
Oil and gas extraction	68.40	56.19	2.04	12.12	7.14	5.42	3.08	0.78
Nonmetallic minerals excluding fuels	1.94	3.38	22.85	1.68	1.88	1.64	4.35	1.56
Tobacco, food, and kindred products	15.84	24.70	10.96	26.34	8.55	6.09	7.54	12.16
Textile mill products	24.84	45.48	8.67	30.23	14.40	11.79	6.43	4.60
Apparel and other textile products	22.92	26.30	21.44	24.94	17.66	16.53	12.49	11.17
Lumber and wood products	19.96	27.27	3.37	19.98	13.41	2.96	6.82	0.86
Furniture and fixtures	11.06	8.56	10.51	7.45	11.91	8.98	5.29	3.07
Paper and allied products	0.95	3.82	0.58	1.60	4.92	3.79	2.58	2.67
Printing and publishing	0.65	0.41	0.97	1.45	1.31	0.86	1.40	0.51
Chemicals and allied products	19.34	10.25	10.88	17.13	8.06	4.96	4.55	3.90
Petroleum and coal products	26.14	26.19	3.35	6.09	7.40	4.23	2.76	2.65
Rubber and misc. plastic products	1.45	2.14	1.49	1.73	13.46	9.38	6.90	4.33
Leather and leather products	23.05	38.92	14.82	17.71	9.46	6.44	5.44	4.37
Stone, clay, and glass products	2.91	2.77	0.80	3.31	9.71	5.57	4.98	2.60
Primary metal industries	0.45	15.00	0.61	6.96	8.38	5.03	4.22	2.56
Fabricated metal industries	5.91	15.32	5.35	13.72	10.74	6.98	4.88	2.81
Industrial machinery and computers	2.84	3.39	11.33	13.14	5.77	5.66	2.48	3.76
Electronic equipment exluding computers	0.60	1.78	3.31	6.07	7.18	6.99	2.41	3.41
Transportation equipment	6.25	18.94	10.48	16.80	6.17	4.07	1.48	1.58
Instruments and related products	3.56	2.46	4.62	4.59	5.47	5.65	2.68	3.00
Misc. manufacturing	5.51	12.32	5.75	15.93	11.30	8.13	5.14	3.74
Total	7.40	12.22	7.17	12.42	7.25	5.62	3.59	3.64

SOURCE: The TRAINS dataset, the Longitudinal Research Database, and MISER trade data.

NOTES: To avoid the disclosure of confidential information, the food and kindred products and tobacco industries have been combined. The data presented in this table are the same as those presented in Table 4.1 but are calculated separately for each commodity grouping.

Table C.13

U.S. Tariffs and Extent of Protection Provided to Industries in California and the Rest of the United States

	Industry Share				Tariffs			
	1993		1998		1993		1998	
Industry	Cal.	Rest U.S.	Cal.	Rest U.S.	Cal.	Rest U.S.	Cal.	Rest U.S.
Agricultural production	7.46	4.99	6.98	5.03	0.57	0.57	5.09	5.09
Forestry, fishing, and hunting	12.05	7.10	11.55	7.18	0.16	0.16	0.09	0.09
Metal mining	0.20	0.38	0.10	0.37	0.23	0.23	0.00	0.00
Bituminous coal and lignite mining	0.00	1.00	0.00	0.86	0.00	0.00	0.00	0.00
Oil and gas extraction	2.16	5.31	2.77	5.53	0.00	0.00	0.00	0.00
Nonmetallic minerals excluding fuels	0.47	0.59	0.53	0.68	0.28	0.57	0.03	0.17
Tobacco, food, and kindred products	8.30	7.32	7.11	6.85	2.74	2.72	2.06	5.45
Textile mill products	0.41	2.00	0.46	1.61	7.67	6.23	5.70	4.87
Apparel and other textile products	2.61	1.90	2.70	1.52	7.46	7.75	7.82	7.42
Lumber and wood products	1.78	2.58	1.62	2.59	1.02	0.75	0.32	0.15
Furniture and fixtures	1.17	1.28	1.18	1.30	1.76	2.66	0.86	1.54
Paper and allied products	1.79	3.62	1.41	3.41	1.34	0.63	0.75	0.32
Printing and publishing	5.91	5.74	5.64	5.72	0.61	0.23	0.34	0.11
Chemicals and allied products	5.20	9.42	4.40	9.81	2.36	3.18	1.49	2.22
Petroleum and coal products	3.56	2.10	3.46	1.87	0.91	2.89	0.71	2.31
Rubber and misc. plastic products	1.94	3.09	1.96	3.15	5.16	3.45	3.96	2.57
Leather and leather products	0.13	0.35	0.12	0.30	7.01	4.84	6.01	2.87
Stone, clay, and glass products	1.44	1.85	1.43	2.02	3.65	2.77	2.32	2.54
Primary metal industries	1.08	3.25	1.24	3.32	2.03	2.37	0.85	1.29
Fabricated metal industries	3.82	5.48	4.21	5.96	3.08	2.56	1.25	1.05
Industrial machinery and computers	9.16	7.84	13.01	8.77	2.59	2.46	1.10	0.75
Electronic equipment exluding computers	11.34	7.87	14.24	8.51	3.23	2.66	1.42	0.88
Transportation equipment	9.21	8.97	5.18	8.24	1.76	2.00	0.66	0.79
Instruments and related products	7.38	3.21	6.96	2.79	4.04	3.83	1.49	1.37
Misc. manufacturing	1.43	1.53	1.73	1.41	4.31	4.05	2.05	2.08
Total	100.00	100.00	100.00	100.00	2.23	2.23	1.59	1.71

SOURCE: The TRAINS dataset, the Longitudinal Research Database, and MISER trade data.

NOTES: To avoid the disclosure of confidential information, the food and kindred products and tobacco industries have been combined. The data presented in this table are the same as those presented in Table 4.1 but are calculated separately for each commodity grouping.

Table C.14

U.S. Tariff Impediments to Purchases of Intermediate Inputs in California and the Rest of the United States

	Industry Share				Tariffs			
	1993		1998		1993		1998	
Industry	Cal.	Rest U.S.	Cal.	Rest U.S.	Cal.	Rest U.S.	Cal.	Rest U.S.
Agricultural production	7.47	4.99	6.97	5.03	2.15	2.15	2.20	2.20
Forestry, fishing, and hunting	12.05	7.10	11.55	7.18	1.47	1.47	1.10	1.10
Metal mining	0.20	0.38	0.10	0.37	2.67	2.67	1.49	1.49
Bituminous coal and lignite mining	0.00	1.00	0.00	0.86	1.63	1.63	1.09	1.09
Oil and gas extraction	2.16	5.31	2.77	5.53	0.64	0.64	0.37	0.37
Nonmetallic minerals excluding fuels	0.47	0.59	0.53	0.68	3.20	3.20	2.04	2.04
Tobacco, food, and kindred products	8.30	7.32	7.11	6.86	1.84	23.77	1.62	24.55
Textile mill products	0.41	2.00	0.46	1.61	8.42	7.84	5.96	5.76
Apparel and other textile products	2.61	1.90	2.70	1.52	4.91	3.04	6.17	7.91
Lumber and wood products	1.78	2.58	1.62	2.59	0.22	0.50	0.11	0.26
Furniture and fixtures	1.17	1.28	1.18	1.30	3.23	3.12	3.11	3.13
Paper and allied products	1.79	3.63	1.41	3.41	1.57	1.11	0.87	0.69
Printing and publishing	5.91	5.74	5.64	5.72	1.05	1.08	0.63	0.66
Chemicals and allied products	5.20	9.42	4.40	9.81	3.20	3.23	1.98	1.68
Petroleum and coal products	3.56	2.10	3.46	1.87	1.69	2.02	1.27	1.07
Rubber and misc. plastic products	1.94	3.09	1.96	3.15	2.52	2.55	2.08	2.00
Leather and leather products	0.13	0.35	0.13	0.29	2.13	2.34	1.85	1.90
Stone, clay, and glass products	1.44	1.85	1.43	2.02	0.91	1.56	0.75	1.36
Primary metal industries	1.08	3.26	1.24	3.32	1.32	1.13	1.01	0.85
Fabricated metal industries	3.82	5.48	4.21	5.96	2.07	2.31	1.60	1.84
Industrial machinery and computers	9.16	7.84	13.01	8.77	2.52	2.52	0.70	1.21
Electronic equipment exluding computers	11.34	7.87	14.24	8.51	2.61	2.51	1.23	1.28
Transportation equipment	9.21	8.97	5.18	8.24	1.62	1.62	0.60	0.96
Instruments and related products	7.38	3.21	6.96	2.79	2.90	3.04	1.19	1.49
Misc. manufacturing	1.42	1.53	1.73	1.41	2.32	1.99	1.61	1.30
Total	100.00	100.00	100.00	100.00	2.13	3.99	1.37	3.31

SOURCE: The TRAINS dataset, the Longitudinal Research Database, and MISER trade data.

NOTES: To avoid the disclosure of confidential information, the food and kindred products and tobacco industries have been combined. The data presented in this table are the same as those presented in Table 4.1 but are calculated separately for each commodity grouping.

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Jon Haveman is an economist in the Bureau of Economics at the Federal Trade Commission, where he studies the competitive effects of proposed mergers and provides economic support to the Bureau of Competition on matters of antitrust enforcement. His research interests include the effects of international barriers to trade, international competition policy, and the effects of changing trade patterns on labor. He is the author of more than 17 published articles in the area of international trade. These articles include *The Benefits of Market Opening, The Determinants of Long Term Growth*, and *The Effects of U.S. Trade Laws on Poverty in America*. He was previously on the faculty of the Economics Department at Purdue University, has served as the senior international economist on the President's Council of Economic Advisers, and has been a visiting fellow at the U.S. Bureau of the Census. He holds a B.A. in economics from the University of Wisconsin, Madison, and an M.S. and Ph.D. in economics from the University of Michigan, Ann Arbor.