

The Emerging Integration of the California-Mexico Economies

• • •

Howard J. Shatz

Luis Felipe López-Calva

2004

Public Policy Institute of California
1994-2004

Library of Congress Cataloging-in-Publication Data

Shatz, Howard J.

The emerging integration of the California-Mexico economies /
Howard J. Shatz, Luis Felipe Lopez-Calva.

p. cm.

Includes bibliographical references.

ISBN: 1-58213-087-6

1. California—Foreign economic relations—Mexico. 2.
Mexico—Foreign economic relations—California. 3. North
America—Economic integration. I. Lopez-Calva, Luis Felipe. II.
Title.

HF1475.C2S53 2004

337.794072—dc22

2004012989

Copyright © 2004 by Public Policy Institute of California

All rights reserved

San Francisco, CA

Short sections of text, not to exceed three paragraphs, may be quoted without written permission provided that full attribution is given to the source and the above copyright notice is included.

PPIC does not take or support positions on any ballot measure or on any local, state, or federal legislation, nor does it endorse, support, or oppose any political parties or candidates for public office.

Research publications reflect the views of the authors and do not necessarily reflect the views of the staff, officers, or Board of Directors of the Public Policy Institute of California.

Foreword

Ten years have passed since the launching of the North American Free Trade Agreement (NAFTA). In that decade, and building on a substantial momentum from the 1980s, California and Mexico have enjoyed a significant increase in the integration of their two economies. Increased trade across the border was exactly what was expected after the historic approval of NAFTA. However, some aspects of the trade expansion present challenges for California's public policy decisionmakers and will continue to do so for decades to come.

In this report, Howard Shatz and Luis Felipe López-Calva document a growth of exports to Mexico from California in the range of 13 percent annually between 1988 and 2002. Imports to California from Mexico occurred on about the same scale. This trade growth is both positive for California's economy and troubling at the same time. First, three-quarters of the trade flow to Mexico has destinations in communities along the border with California. This growth has and will continue to put extraordinary demands on the environment, infrastructure, and delivery of public services in border communities.

Both the speed with which trade has increased at the border and the sheer scale of urban growth that will emerge in the coming decades present public policy challenges beyond business-as-usual. Immigration policy, water supply, air pollution, cross-border highways, air traffic, and port facilities are just some of the areas that will require judicious public policy planning—all complicated by the legal and cultural differences of two countries and multiple states.

In the 1980s, some scholars imagined a U.S.-Mexico growth pattern that would see a linear city and urban complex from Tijuana on the Pacific to Brownsville on the Gulf of Mexico. That vision is well under way on the California-Mexico section of the border, yet little has been done or planned to accommodate the growth from either a state or national perspective.

The second challenge presented by increased integration of the two economies is the nature of the trade. Shatz and López-Calva conclude that the bulk of the economic exchange is production-sharing—parts are made in California, assembled in Mexico, and shipped back to California to be consumed in the United States as final products. This has added to jobs along both sides of the border, but it is also the very kind of outsourcing that is now the subject of a national economic debate. Manufacturing jobs in California will increasingly drift to Mexico or eventually to countries around the Pacific Rim.

In a global economy, there is little that California public policy can do to reverse this trend. Nevertheless, a conscious effort to work with Mexico and the northern states of Baja, Chihuahua, Nuevo León, Sonora, and Tamaulipas on mutual problems and policy will go a long way toward taking advantage of integration on both sides of the border. This report by Shatz and López-Calva has documented the breadth and depth of the economic integration that has already taken place, and it provides the factual background necessary for working closely on common problems across an international border.

David W. Lyon
President and CEO
Public Policy Institute of California

Summary

California and Mexico have a complex relationship along many dimensions. Although economically quite different—California has a gross state product of \$39,285 per person, whereas Mexico has a gross domestic product of \$6,275 per person—the two regions share a common history, border, and culture, and their relationship includes migration and economic exchange. One great hope of Mexican policymakers, and many U.S. policymakers as well, is that Mexico can establish a growth path that will lead it to become more similar in income, economic structure, institutions, and quality of life to the advanced industrial countries, a process known as convergence. In the post–World War II era, developing countries that are converging with advanced countries are doing so in part through economic integration. Based on this pattern of economic development, cross-border policy in Mexico and the United States can be characterized as integrating economically to bring about Mexico’s convergence with advanced economies. A subtext of this policy is that Mexican growth will slow or stop the flow of illegal immigrants moving to the United States. California, with its large population of Mexican origin, its web of trade and investment relationships with Mexico, and its potential as a major consumer market for Mexican goods, plays an important role in this economic integration.

In the realm of economic integration, three areas merit particular attention: trade and goods movement, foreign direct investment (FDI) and joint production, and the economy of the border region. All are deeply influenced by the geography of California and Mexico. California and Mexico share only a very short border, about 145 miles, compared to 1,950 miles for the total U.S.-Mexico border (Figure S.1). In addition, California is relatively far from the center of Mexico and most Mexican border states. As a result, a large portion of the joint economic activity between California and Mexico focuses on the California-Mexico border area.



SOURCE: ESRI (2003).

Figure S.1—California, Mexico, and the Continental United States

California-Mexico Trade

Throughout the 1990s, trade between California and Mexico rose steadily. Some of it was pass-through trade: Goods were produced elsewhere in the United States and shipped to Mexico through California's ports or land border crossings, or goods were shipped from Mexico through California's ports or land border crossings and then sent to points east and north in the United States. Much of the increase, however, can be traced back to California producers in the case of exports and California buyers in the case of imports.

Goods exports to Mexico originating in California grew an average of 12.8 percent annually between 1988 and 2002, a quicker pace than

the growth of exports to the rest of the world originating in California, exports to Mexico originating in the rest of the United States, and exports to the rest of the world originating in the rest of the United States. During that time, Mexico changed from the third-largest destination for California exports to the largest, in 1999. In 2002, Mexico received 17.4 percent of all California exports, almost \$16.1 billion.

The majority of California's exports to Mexico constitute just two broad commodity classes—machinery, and electrical machinery and equipment. However, California exports to Mexico are more diverse across product classes than California exports to the rest of the world. In addition, they embody less skill than do California exports to the rest of the world, implying that trade with Mexico has provided greater opportunity to production workers, as opposed to executives, administrative assistants, and marketers, than has trade with the rest of the world. Between 2000 and 2002, more than 200,000 California workers each year produced exports to Mexico—17 percent of all export-related jobs in the state and about 1.3 percent of all California jobs. The number of jobs producing exports for Mexico rose by about 76,000 between 1996 and 2002.

Although export levels are high, their destinations are concentrated. More than three-quarters of all California-origin exports are shipped to border states, with the vast majority going to Baja California.

Just as exports from California to Mexico have grown dramatically, so have imports from Mexico to California. More precisely, the level of imports transported by land for which the person or business responsible for paying duties is a Californian has grown. Imports from Mexico by California-based importers more than doubled between 1995 and 2002, from \$9.1 billion to \$20.3 billion. The proportional growth was slightly larger than that of imports from Mexico to the rest of the United States.

Imports can have a number of benefits for an economy, but they can also force workers out of jobs or cause decreased wages or work hours. Between 1994 and the end of 2002, 5,700 California workers were certified as having been affected by imports from Mexico or from Mexico and Canada, with the actual source unidentified. This number constituted 3.5 percent of all such workers in the United States. This is

probably an underestimate, because unlike the export-related job figures cited above, it does not include linkages throughout the rest of the economy, nor does it include workers who were eligible for assistance programs but either did not apply or did not know to apply. Given those qualifications, the number of import-affected jobs may still be below the number of export-supported jobs, and both constitute only a tiny portion of the overall California labor market, which had 16.3 million jobs in December 2002.

A large part of California-Mexico trade is two-way trade within the same commodity class. This suggests extensive production-sharing, in which components are made in California, assembled or further processed in Mexico, and then shipped back to California. Top commodities for this type of trade include machinery, vehicles, instruments, and electric and electronic equipment (Table S.1).

Along with goods trade, California and Mexico also have services trade connections. Most notably these include travel and tourism, with California serving as an important destination for Mexican visitors and California serving as an important source of U.S. visitors to Mexico.

Aside from trade in goods and services produced by firms in California and Mexico, California also serves as a trade gateway for goods between Mexico and other U.S. states or other countries. In general, the land, sea, and air gateways of the four U.S. border states—Texas, New Mexico, Arizona, and California—serve as the major ports of entry for U.S.-Mexico trade. Between 1989 and 2002, on average 91 percent of U.S. exports entered Mexico and 88 percent of imports from Mexico

Table S.1
Important Commodities in California-Mexico Intracommodity Trade, 2002

Commodity	California Exports (\$ billions)	California Imports (\$ billions)
Machinery	2,808	3,308
Vehicles	511	758
Optical and medical instruments	669	1,021
Electric equipment	3,682	7,206

SOURCE: U.S. Department of Transportation (n.d.).

NOTE: Values are only for commodities shipped by land.

entered the United States through these states. Despite the importance of the border states, California gateways play a smaller role in total U.S. trade facilitation than do those in Texas. Rather, they serve mostly California trade, and the destination of exports through California gateways is highly concentrated in Baja California. In 2002, California gateways handled 13.7 percent of all U.S. imports from Mexico and 14.3 percent of all U.S. exports to Mexico.

Among California gateways, those used most heavily are along the border, rather than the seaports and airports in the Los Angeles and San Francisco Bay areas. The San Diego area ports of entry served as gateways for 11 percent of all U.S. exports going to Mexico, on average, from 1989 to 2002, and almost 13 percent of all U.S. imports coming from Mexico, on average, during the same period. These same ports of entry averaged about 88 percent of all U.S. exports to Mexico exiting through California and 92 percent of all imports from Mexico entering through California.

Besides the geographic concentration of port services in the United States and California, there is a modal concentration as well. Throughout the United States, from 1995 to 2002, more than 87 percent of all trade with Mexico moved by land. For California gateways, this was slightly higher, with more than 92 percent moving by land, by truck in particular. Between exports and imports moving through California gateways, this represented 91 percent of all exports and 93 percent of all imports moving by land. The vast majority of this land traffic moved through the commercial crossing at Otay Mesa, California, and Mesa de Otay, Baja California, Mexico.

Trade links between Mexico and California are deep, in the sense that the total value of traded goods is high, and broad, in the sense that many different types of goods are traded. There are other links, however, that bring the two economies closer.

California-Mexico FDI

The main driver of global integration in recent years has been the spread of multinational firms through FDI—cross-border investment used to establish or control a business. Data suggest a large rise in

Mexican investment into California in recent years (Figure S.2).

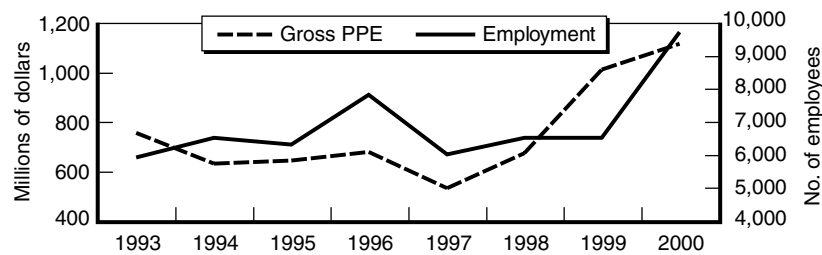
California investment into Mexico has remained a bit more level.

As with trade, FDI between California and Mexico is in large part a border story, especially from the perspective of Mexican investors. More than 72 percent of Mexican-owned subsidiaries in California are in Imperial and San Diego Counties, and more than 47 percent of California-owned subsidiaries in Mexico are in the border states of Baja California, Chihuahua, Nuevo León, Sonora, and Tamaulipas. More than three-quarters of these are in Baja California.

The situation is similar regarding parent companies—the companies that own the subsidiaries in California or Mexico. Most Mexican parents are on the border, and nearly all of those border companies are in Baja California. California parents are less concentrated, but slightly more than a quarter are in the border counties of Imperial and San Diego. Almost 41 percent are in the South Coast counties of Orange, Los Angeles, and Ventura, and another quarter are in the Bay Area.

Many Mexican-owned subsidiaries in California are in wholesale and retail trade, 15 percent are in manufacturing, and 7 percent are in finance. In contrast, California-owned subsidiaries in Mexico lean heavily toward manufacturing, with more than 55 percent of them in this sector.

California firms also engage in FDI in Mexico through participation in Mexico’s maquiladora program, in which Mexican plants



SOURCES: California Business Investment Services (2003) and authors' estimates.
NOTE: PPE stands for property, plant, and equipment.

Figure S.2—Foreign Direct Investment from Mexico in California, 1993–2000

(maquiladoras) assemble or process foreign components largely for reexport. California ownership of maquiladoras as a proportion of all foreign-owned maquiladoras stayed steady throughout the decade 1993 through 2002. The vast majority of California maquiladora parents are in the southern border counties of San Diego and Imperial and the South Coast counties of Ventura, Los Angeles, and Orange, with a subtle shift toward the border over the last decade.

In large part, their maquiladoras are concentrated along the Mexican side of the border. California companies locate more than 80 percent of their maquiladoras in the one Mexican state that borders California, Baja California. In contrast, only about one-third of all maquiladoras in Mexico are in Baja California, with most of the rest in the Mexican states bordering Texas. California-owned maquiladoras are involved in a wide variety of industries—34 broad industry sectors at the end of 2002. They are concentrated mainly in six industries, however, with a focus on the electronic and electrical equipment manufacturing industry.

The Border Region

Trade and investment between Mexico and California involve the entire state but are concentrated at the California-Mexico border region. Border integration occurs along other dimensions as well. One example is the number of people crossing between the two countries. San Ysidro in San Diego is among the busiest ports of entry in the world and may be the busiest by certain measures. In 2002, San Ysidro was the busiest port of entry for personal vehicles entering the United States from Mexico, with 16.4 million crossings. California also handles a high proportion of pedestrian crossings. Although El Paso, Texas, was number one in 2002 with 9.3 million such crossings, San Ysidro was next with 7.9 million, and Calexico was third with 6.9 million. San Ysidro led all border crossings in the number of people entering, with 45.3 million in 2002, or 124,000 per day. Many of these crossings involve workers and managers who commute. The high level of border integration has also made Tijuana wages more responsive to U.S. wage changes than to wage changes in the interior of Mexico and has added to manufacturing employment along the U.S. border in response to the growth of export-oriented production in Mexico.

Beyond economics, the border relationship includes a variety of environmental issues, the challenge of coordinated infrastructure provision, and even homeland security. Area policymakers have taken steps toward planning for the region as a whole, rather than just for its separate jurisdictions.

Policy Options for an Integrating Region

California faces a number of options in its policy stance on economic integration with Mexico. First, as a political decision, it must decide whether it even wants closer economic integration. Any affirmative answer may require state resources that might have been used for other projects or programs, such as closer economic integration with Europe or Asia, or even improvements in California infrastructure, education, or health care facilities.

If California does favor closer economic ties with Mexico, three policy stances are possible, elements of which may build on each other. One policy stance is to focus on border infrastructure and environment but otherwise let private businesses develop the relationship on their own. A second stance is to work for Mexican economic development without gaining immediate benefits for California.

A third stance is to develop more active policies toward increased economic integration, including setting up institutions to encourage more two-way trade and investment and working with the national U.S. government to develop policies or institutions that will help Mexico reform and modernize. These policies may bring benefits but they may also bring sacrifices to California. Such policies, if they are to help spur convergence, must be accepting of Mexican imports into California and California investment and production shifts into Mexico.

At the state level, California can restart some of the California-Mexico policy offices that were closed under the 2003–2004 budget. It can also set up programs to encourage cross-border trade and investment, by coordinating already-existing services, convening business people in new programs, or subsidizing certain activities, such as export finance. At the national level, California can work with the federal government to expand financial aid to Mexico that will help compensate people hurt by reforms that will jointly benefit Mexico and the United States, that will

complement private investment, and that will be conditional on specific policy reforms. Such compensatory, complementary, and conditional aid could be channeled through a restructured North American Development Bank. Given federal and state budget realities, deciding whether to engage in these policies will involve very difficult choices.

Whichever route the state chooses, devoting more attention to the border is a worthy starting point because much statewide California-Mexico economic activity has effects there. California's endowment of Mexican-born residents may also make expanding trade and investment a policy that will be easier to carry out than others. Because of the level of Mexico's development, that country does not present the varied economic opportunities that Europe or developing Asia present. However, with the right policies, a bit of help from north of the border, and a little luck, it might one day.

Contents

Foreword	iii
Summary	v
Figures	xvii
Tables	xix
Acknowledgments	xxi
1. INTRODUCTION	1
Cyclical Politics, Permanent Ties	4
Convergence and Integration	5
The Economies of California and Mexico	12
The Scope of This Report	14
2. MODES OF INTEGRATION	19
Immigration	20
Trade	23
Investment and Finance	25
Summing Up Modes of Integration	34
3. TRADE	37
Export Trends and Export Commodities	40
Exports and Skill	42
Exports and Geography	44
Imports from Mexico	47
Intracommodity Trade	48
Trade and Its Effect on California Employment	51
Services Trade with Mexico	58
California as a Gateway for U.S. Trade with Mexico	62
California as a Gateway for California Trade with Mexico	67
Summing Up California Trade with Mexico	69
4. THE SPREAD OF MULTINATIONALS AND CROSS- BORDER PRODUCTION	73
Two-Way FDI Between California and Mexico	76
Mexican Parents and Their Subsidiaries in California	79
California Parents and Their Subsidiaries in Mexico	82

California and the Mexican Maquiladora Economy	84
FDI and Employment	92
Summing Up FDI and Cross-Border Production	95
5. THE BORDER	97
Physical Movements Across the Border	100
The Border in Full	105
The Jobs-Housing Balance	107
Transportation	107
Energy and Water Supply	108
Environment	108
Economic Development	110
Homeland Security	110
Summing Up the Border	111
6. POLICY OPTIONS FOR AN INTEGRATING CALIFORNIA-MEXICO ECONOMY	113
Mexico's Role in Its Own Fate	116
California's Policy Options	119
Appendix: Data Sources and Methods	129
Bibliography	135
About the Authors	151
Related PPIC Publications	153

Figures

S.1.	California, Mexico, and the Continental United States . . .	vi
S.2.	Foreign Direct Investment from Mexico in California, 1993–2000	x
1.1.	Hourly Compensation Costs for Manufacturing Production Workers, United States and Mexico	7
1.2.	The Ratio of U.S. to Mexican per Capita Gross Domestic Product, 1950–2000	9
1.3.	Share of Civilian Employment, 1990 and 2002	10
1.4.	California, Mexico, and the Continental United States . . .	14
1.5.	California Regions and Counties	16
1.6.	Mexican Regions and States	17
2.1.	The Growth of California Exports	24
2.2.	California Outward FDI in Mexico, 2000	26
2.3.	California Outward FDI in Mexico, Industrial Distribution, 2000	28
2.4.	FDI from Mexico in California, 1993–2000	30
2.5.	Mexican Equity and Debt in the CalPERS Portfolio	31
3.1.	Top 10 California Commodity Exports Relative to Total Exports, Mexico and the Rest of the World	41
3.2.	California Exports by Skill Level of Industry, 2002	43
3.3.	California Employment Producing and Transporting Exports to Mexico, 1996–2002	53
3.4.	California Jobs Producing Exports for Mexico as a Proportion of All Export-Related and All State Jobs, 1996–2002	54
3.5.	The Industrial Distribution of Certified Claims in California Under the NAFTA-TAA Program for Jobs Affected by Imports, 1994–2002	57
3.6.	Overnight Visitors to Mexico from the Top Three Sending States, 1980–2002	60

3.7.	Percentage Share of Exports (Inner Circle) and Imports (Outer Circle) with Mexico Handled by Ports in U.S. Border States, 2002	64
3.8.	Leading Gateways for California-Origin Exports to Mexico, 2002	67
4.1.	Destination of Sales for U.S. Multinational Affiliates Worldwide and in Mexico, 2000	74
4.2.	The Regional Distribution of Foreign-Owned Companies	77
4.3.	The Regional Distribution of Parent Companies	78
4.4.	The Location of California Parents of Maquiladoras, 1993 and 2002	89
4.5.	The Location of California-Owned Maquiladoras, 2002	90
4.6.	The Industrial Distribution of Certified Claims in California Under the NAFTA-TAA Program for Jobs Affected by Production Shifts to Mexico, 1994–2002	94
5.1.	The Border and Ports of Entry	97

Tables

S.1. Important Commodities in California-Mexico Intracommodity Trade, 2002	viii
1.1. California and Mexico, 2001	12
1.2. Regions of California and Mexico	15
3.1. Share of Exports Destined for Top Five Mexican Recipient States	45
3.2. Top Export-Receiving State for California and the Rest of the United States	46
3.3. Important Commodities in California-Mexico Intracommodity Trade, 2002	51
3.4. Value and Share of U.S.-Mexico Trade Through California Customs Districts, 2002	63
3.5. Leading California Gateways and Trade with Mexico, 2002	63
3.6. Use of California Ports by California Importers for Surface Imports from Mexico, 2002	69
4.1. Top Industries of California Maquiladoras, 1993 and 2002	91
5.1. Border Crossings into the United States, 1997 and 2002	101

Acknowledgments

We are grateful to Ernesto Vilchis for providing superior research assistance for this report. He chased down and worked with data covering many subjects, found useful background information, doggedly pursued government officials in two nations for data and information, and provided helpful interpretations of Mexican society during the research. Gordon Hanson, Jon Haveman, Hans Johnson, Fred Silva, Michael Teitz, and Hector Vanegas read earlier drafts and provided numerous useful comments. Gary Bjork helped make the report more readable and clear than it otherwise would have been, and Patricia Bedrosian provided a final polish. Eli Miloslavsky and Rosángela Bando Grana provided additional research assistance, and Paul King provided essential library assistance.

The report drew on data from numerous sources. Daniel Kwasnik patiently and in good humor made sure we received and understood the proper Dun & Bradstreet data, and Mike Sawyer explained the Solunet maquiladora data. Edward Kawahara and Don Perry of the California Economic Strategy Panel provided data on multipliers; Mark Baza of the California Department of Transportation provided survey data on border truck traffic; and Brad Pacheco, Patricia K. Macht, Clark McKinley, Leon Shahinian, and Sarah Corr of the California Public Employees' Retirement System provided data on CalPERS investments in Mexico. For data on Mexican enrollment in California universities, we thank Ricardo Vasquez of the University of California Office of the President, Philip Garcia of the California State University Office of the Chancellor, and Dixon Johnson, Executive Director, Office of International Services, University of Southern California. Elijah Henley and Michael Sprung of the U.S. Department of Transportation, Bureau of Transportation Statistics, sent and explained border crossing data, and Margaret M. Dougherty and Joseph R. Pearce of the U.S. Department of Justice provided and explained data on automated entries. Numerous Mexican

officials also sent and explained data. These included Alma Rosa del Angel Trejo of the Ministry of Tourism (Secretaría de Turismo) for tourism data; Adriana Caballero Miranda and María Teresa Garrido Blancas of the National Institute for Statistics, Geography, and Informatics (Instituto Nacional de Estadística, Geografía y Informática) for unpublished maquiladora data; and María Eugenia Cruz Terrazas of the same organization for help locating numerous bits of information. Bernardo Méndez Lugo of the Consulate General of Mexico in San Francisco proved helpful throughout the project with information about Mexico and its relations with the United States and California. Separately and together, the authors and Ernesto Vilchis traveled to San Diego, Tijuana, Sacramento, Mexico City, and Washington, D.C., to talk directly with government officials, private business people, and others. These interviews were conducted under conditions of anonymity, so we can convey only a general acknowledgment and thank you for both the conversations and an informative tour of parts of the border. Conversations by telephone and e-mail with others provided helpful information and context. Any errors of fact and interpretation remain those of the authors.

1. Introduction

The mid-1990s were uncomfortable times for California-Mexico relations. In 1994, California residents voted in favor of Proposition 187, a measure to deny government services to illegal immigrants. Regardless of one's position on it, the proposition and the campaign surrounding it caused tensions between California and Mexico, but the political tension may not have affected economic relations much. During the second term of Governor Pete Wilson, following the Proposition 187 vote, California exports to Mexico grew 74 percent. Exports from the rest of the United States to Mexico grew 52 percent.¹ Still, the discomfort was present.

The election of Governor Gray Davis in 1998 seemed to herald a new day in California-Mexico relations. In February 1999, shortly after he took office, Davis traveled to Mexico to meet with then-President Ernesto Zedillo, the first meeting between a California governor and a Mexican president in six years. Zedillo returned the favor three months later, visiting Davis in California and endorsing with him a joint memorandum of understanding providing for a high-speed Internet2 connection between California universities and Mexican universities.²

¹Shortly after the Proposition 187 vote in 1994, Mexico fell into economic crisis, depressing U.S. exports to Mexico. It might be argued that California was already more integrated with Mexico than was the rest of the United States, that the crisis hurt California exports more, and that the outperformance of California exports in the subsequent four years merely reflected a sharper rebound from a deeper trough. However, the numbers do not support this. California exports to Mexico fell 3.8 percent from 1994 to 1995, whereas exports from the rest of the United States to Mexico fell 9.8 percent during the same period. Gains in exports from California to Mexico and from the rest of the United States to Mexico were roughly equal from 1995 to 1996, but from 1996 to 1997, growth of California exports to Mexico far outstripped growth of exports from the rest of the United States to Mexico—33.0 percent versus 24.4 percent (Massachusetts Institute for Social and Economic Research, 2003a).

²Internet2 is a consortium of universities working in partnership with industry and government to develop a more advanced internet network. See <http://www.internet2.edu> for more information.

In an interview with the San Diego Union-Tribune, the Mexican president said:

I think that stemming from Governor Davis' visit to Mexico and my visit to California, we will see even more confidence on both sides of the border [among Californians and Mexicans] to work with their respective counterparts. Both Governor Davis and myself want to promote as many investment projects as possible both in Mexico and California.³

When Vicente Fox succeeded Zedillo in 2000 as the new Mexican president, ending the 71-year rule of the Institutional Revolutionary Party, the warming continued. Fox traveled to California in March 2001, and he and Davis agreed to meet twice a year. Davis traveled to Mexico for his turn in December of that year.

Other developments appeared to boost economic integration between California and Mexico. A new program funded by the California legislature in 2000 opened a network of California-Mexico Trade Assistance Centers (CMTACs) at California's community colleges, and the efforts of the CMTACs later earned the praise of the U.S. ambassador to Mexico.⁴ In March 2001, Mexico opened a Mexico Trade Center as the first agency at a new international business center in Santa Ana, California, with hopes of housing trade and investment representatives from all of Mexico's states. It was also the first such trade center opened by Mexico, and by mid-year 2002, there were four more—in Dallas and San Antonio, Texas; Santa Fe, New Mexico; and New York City.

Then came the terrorist attacks of September 11, 2001, and the focus of discussions between the United States and Mexico changed, certainly affecting relations between California and Mexico. In some ways, California-Mexico cooperation continued, driven by the momentum of the previous two years. In December 2001, California and the Mexican state of Baja California signed a lofty memorandum of understanding to establish sister-state cooperation and a joint working

³San Diego Union-Tribune (1999).

⁴Davidow (2001).

group to meet on a number of issues.⁵ However, most relevant to California, the changes in national policy temporarily ended any real discussions about migration from Mexico to the United States, a key issue for Fox and for many Californians. The state's budget crisis hit as well, pulling attention from other issues and limiting the state's ability to support a variety of programs. The 2003–2004 budget, passed in July 2003, did away with the California-Mexico Trade Assistance Centers.⁶ It also eliminated California's trade office in Mexico, the Governor's Office of California-Mexico Affairs, and the Commission of the Californias—a forum for California and the two Mexican states of Baja California and Baja California Sur.

Now, after the recall of Governor Davis and the election of his replacement, Arnold Schwarzenegger, in 2003, California may once again have embarked on tentative steps to reignite the relationship. Less than two weeks after the election, Governor Schwarzenegger met with Mexican Foreign Minister Luis Ernesto Derbez to discuss immigration and trade.⁷ The California legislature can also reconsider California-Mexico relations by virtue of committees with purview over international trade policy and select committees related to international trade, Mexico, and immigration.⁸

⁵These included economic development, trade, and tourism; environmental and coastal quality; ports of border entry infrastructure; education, technologic, and scientific exchange; cultural and sport exchange; and public safety and health (State of California, 2001).

⁶Despite the cut in state funding, some of the community college system's Centers for International Trade Development are continuing CMTAC activities with other funding (personal communication with Bernie Weiss regarding California-Mexico trade Assistance Centers, September 4, 2003).

⁷Gittelsohn (2003).

⁸These committees include the Assembly Committee on Jobs, Economic Development, and the Economy; Assembly Select Committee on California and Latin American Affairs; Assembly Select Committee on California's Foreign Trade Offices; Assembly Select Committee on International Trade; Senate Committee on Banking, Commerce, and International Trade; Senate Select Committee on California-Mexico Cooperation; Senate Select Committee on Immigration and the Economy; and Senate Select Committee on International Trade Policy and State Legislation.

Cyclical Politics, Permanent Ties

What is it that keeps Californian and Mexican politicians meeting? The primary driver is immigration. A dose of geography—a common border—helps, and reinforces immigration. Almost 12 percent of California’s residents were born in Mexico, and the links go beyond just current immigration. Many more than those 12 percent have Mexican ancestry, and the state has always had cultural influences from Mexico, since before the time it was a U.S. state—when it was part of Mexico from 1821 to 1848.

Immigration, however, is linked to economics.⁹ Labor shortages during World War I brought a U.S.-Mexico bilateral agreement that sparked wide-scale use of Mexican labor in agriculture. By 1930, Mexicans constituted between 70 and 80 percent of California’s seasonal workforce.¹⁰ World War II labor shortages brought a new temporary entry program for Mexican workers, lasting until 1964. This program was instrumental in setting up the networks that even today move Mexicans from south to north, and sometimes back again. Economics has been linked to immigration in other ways as well, specifically through the “pull” factor of better wages in the United States than in Mexico, and the “push” factor of little opportunity in Mexico.¹¹

Immigration also provided the seed for newer forms of economic exchange between the United States and Mexico and between California and Mexico that have increasingly played a role in public debate, specifically, trade and investment. The end of the temporary immigration program in 1964 left a pool of unemployed workers on the Mexican side of the border. One response was for Mexico to start a manufacturing program, known as the maquiladora program, in which foreigners set up plants in the border area to assemble foreign components into products for reexport. This program established the pattern of trade and investment that increasingly dominates relations between Mexico and the United States.

⁹Much of the information about immigration in this section comes from Martin (2003a).

¹⁰Fuller (1940), as cited in Martin (2003a).

¹¹Martin (2003b).

The economic relationship received its strongest boost on January 1, 1994, with the North American Free Trade Agreement (NAFTA), a trade and investment agreement between Canada, Mexico, and the United States. Stunned by economic stagnation and increasing poverty since a debt crisis in 1982, Mexico called for NAFTA as a means of increasing confidence in a reformed Mexican economy and restarting growth.¹² Wide-ranging in the subjects it covered, NAFTA at the time of its passage was of all reciprocal trade agreements in the world the one with the widest economic gulf between the living standards of its members.

The main goal of the United States and Mexico in signing NAFTA can be summarized as convergence in living standards through economic integration. Within this goal was the hope that Mexican development would stem the flow of illegal immigrants to the United States, although analysts recognized that there could be an immigration hump—a rise in immigration before a subsequent fall. California, with its large population of Mexican origin, its web of trade and investment relationships characterizing the border with Baja California, and its potential as a major consumer market for Mexican goods, was bound to play an important role in the integration of the two economies.

Convergence and Integration

To see what is meant by economic integration one can think about it in terms of trends—two economies can be considered integrated if their economic variables follow the same trends. In this sense, the U.S. and Mexican economies have integrated a great deal since the 1980s and especially since NAFTA. In a presentation to international financial institutions in New York in February 2003, Mexican Minister of Finance Francisco Gil Díaz noted that a number of Mexican economic indicators are moving together with either U.S. or U.S. and Canadian indicators. These include the business cycle, the growth of industrial production, stock markets, and exchange rates.¹³

¹²Lustig (1998).

¹³Gil Díaz (2003).

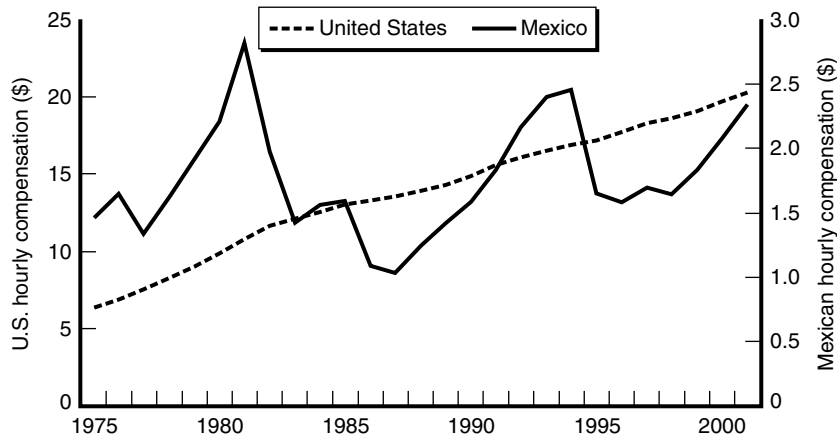
Integration can also be thought of in terms of joint economic activities. High levels of trade and investment between two economies can be a sign of integration. A modern and particularly important aspect of this is international production-sharing, in which components are made in one or more countries, shipped to yet another country for further manufacture or assembly, and then shipped to yet another country for final sale.

However, Mexican policymakers were hoping for something more than integration. They were looking for convergence, and still are, as Mexican speakers stressed at the U.S.-Mexico Partnership for Prosperity meeting held in San Francisco on June 8–10, 2003. At one level, convergence means a more rapid rise of incomes in poor countries than in rich countries, so that the gap between the incomes narrows.¹⁴ There can be a deeper meaning, however, specifically “the rapid growth in real incomes and productivity levels, the rapid adoption and adaptation of industrial-core technologies, and the shifts in economic structure,” or the assimilation of “the institutions, technologies, and productivity levels” of the world’s industrial core.¹⁵ Convergence means that rather than just moving together, the economies become more similar, with standards of living in Mexico approaching U.S. standards.

The difference between integration and convergence can be seen in compensation rates for manufacturing production employees (Figure 1.1). An argument can be made that at least since 1983, the trends in compensation in Mexico and the United States have been similar, although Mexican rates have been much more volatile. However, it is also obvious from comparing compensation levels over time that convergence is lacking. In 1983, Mexican manufacturing production workers made the equivalent of \$1.42 per hour, and U.S. workers made \$12.14 per hour—more than 8.5 times as much. In 2001, Mexican manufacturing production workers made \$2.34 and U.S. workers made \$20.32—almost 8.7 times as much. The figures do not adjust for productivity, so it may not be correct to say that Mexican workers are cheaper for all purposes. Nonetheless, the lack of convergence is clear. A

¹⁴Sala-i-Martin (1996).

¹⁵Dowrick and DeLong (2003).



SOURCE: U.S. Department of Commerce (2002).
 NOTE: Figures are in nominal terms.

Figure 1.1—Hourly Compensation Costs for Manufacturing Production Workers, United States and Mexico

more formal analysis of U.S.-Mexico wages finds that U.S.-Mexico labor markets are closely integrated and that of all Mexican border cities, Tijuana has the strongest characteristics of integration, although a large U.S.-Mexico wage differential still exists.¹⁶

In the post-World War II era, economic integration has driven convergence. The East Asian tigers—Hong Kong, Korea, Singapore, and Taiwan—once poor, are now middle-income or rich, in part because of export-led growth. In growing through integration, they followed the model of Japan, which rose from postwar devastation through the adoption of new manufacturing techniques and an emphasis on selling manufactured products abroad. Other countries in Europe and Asia also have achieved rapid growth through integration. Now, India and China are moving up the income ladder in part by opening to the world economy.¹⁷

¹⁶Robertson (2000).

¹⁷This should not be taken as an endorsement of a total freeing of the international exchange of goods, services, finance, and people. Economists are still studying the relationship between openness and growth, although there is a strong consensus that openness to the international economy is related to growth.

Mexico, too, has been trying to join the fold of nations that converge through integration. As with many Latin American nations, it followed a model of import-substituting industrialization throughout the 1950s and 1960s, and this paid off in high rates of growth and better living standards. However, economic crisis struck the region in the 1970s and early 1980s, in part through poor domestic policy choices, and policymakers are still trying to work out new strategies for growth.¹⁸ Mexico's new strategy started in 1985 and included removing trade and investment restrictions and diversifying exports. It also included seeking new trade and investment partners throughout the world. As of early 2004, it had in force 10 reciprocal trade agreements (RTAs) with 31 countries and 17 bilateral investment treaties (BITs) with 18 countries, and it had one more RTA ready to enter into force, three more BITs concluded but not entered into force, and three more BITs under negotiation.¹⁹ As of 2000, Mexico had the most RTAs of any country.²⁰ The results have been dramatic. Between 1985 and 1999, exports rose from \$21.7 billion to \$136.4 billion, and the share of oil and minerals in total exports fell from 57 percent to 6.5 percent.²¹ The most important of the RTAs was NAFTA, which tightly knit Mexico's economy to those of its North American neighbors.

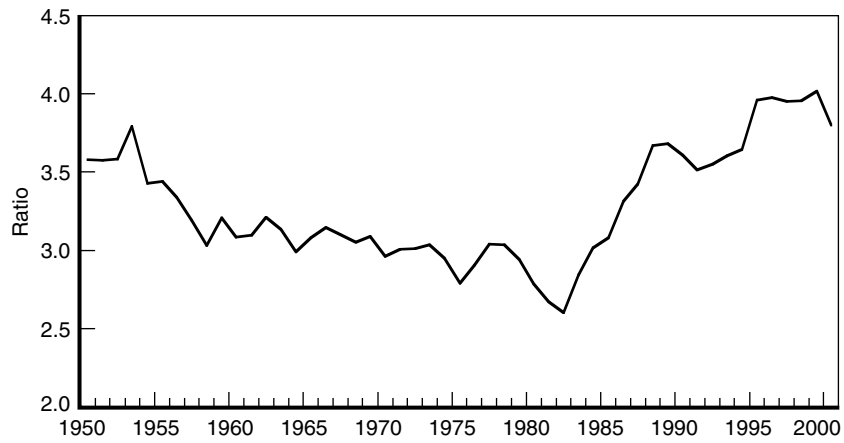
Is Mexico converging? The trend in per capita gross domestic product (GDP) shows little long-term convergence (Figure 1.2). Mexico made solid gains in per capita incomes in the 1950s and then stayed steady or even improved slightly through the 1960s and 1970s. Fueled by very high oil prices and a borrowing binge, Mexico further narrowed the gap from 1978 through 1982, when the ratio of U.S. to Mexican per capita GDP fell from 3.03 to 2.60, but then oil prices fell, international interest rates rose, the debts came due, and the debt crisis of the 1980s erased all the gains of the previous 30 years. Anticipation of NAFTA helped stabilize the gap, but a severe financial crisis in late 1994 and

¹⁸For bookends to the 1990s, a decade that saw the rise and then rethinking of one such strategy, see Williamson (1990) and Kuczynski and Williamson (2003).

¹⁹Secretaría de Economía (n.d.).

²⁰Ruiz (2003).

²¹Lustig (2001).



SOURCE: Heston, Summers, and Aten (2002).

NOTES: The figure shows the ratio of chain-weighted per capita GDP adjusted for purchasing power parity. The purchasing power parity adjustment takes account of different prices charged for the same goods and is a better measure of comparative standards of living than is the more-common measure of GDP based on market exchange rates.

Figure 1.2—The Ratio of U.S. to Mexican per Capita Gross Domestic Product, 1950–2000

1995 once gain erased the gains. Since then, Mexico has regained stability in the trend of its income. Better still, the Mexican presidential election of 2000 was the first since the election of 1972 to take place without a financial or balance-of-payments crisis, boding well for further stability.²²

Trends in wages may also indicate a lack of convergence. Analyzing Mexican and U.S. wages between 1990 and 2000, G. Hanson (2003) finds evidence of wage integration but little evidence of convergence. One statistical test suggests convergence of Mexican border wages with U.S. wages, but adding proper controls to the test eliminates this effect.

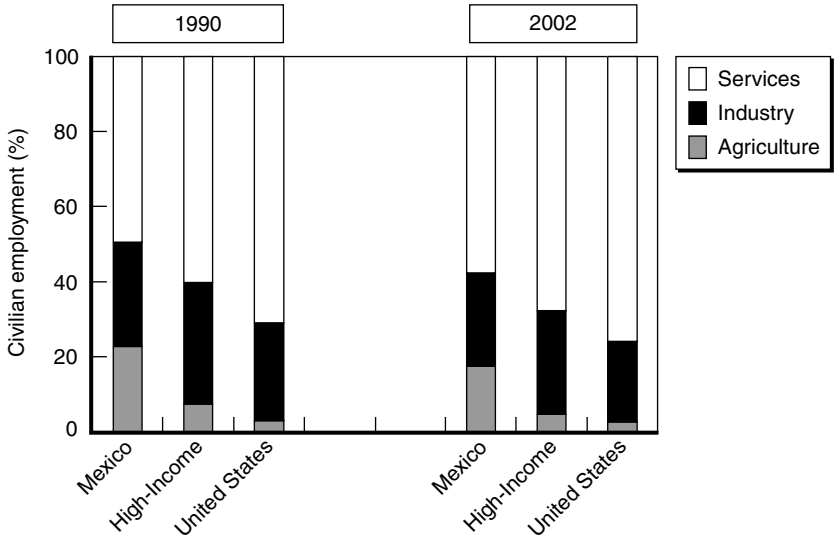
However, it may be too early to completely rule out convergence. Some analysts see Mexico as having joined those nations that are converging toward the economies of the world's industrial core.²³ In

²²Lustig (1998).

²³Dowrick and DeLong (2003).

particular, Mexico’s economy has become more like that of the United States and other high-income countries regarding its industrial structure (Figure 1.3). In 1990, 23 percent of Mexico’s civilian workforce was in agriculture, and 50 percent was in services. In high-income countries excluding the United States, these numbers were 7 percent and 60 percent, and in the United States they were 3 percent and 71 percent. By 2002, only 17 percent of Mexico’s civilian workforce was in agriculture, and 58 percent was in services. This brought it closer to the industrial structure of high-income countries and the United States, which together actually constituted a moving target—their workforces continued to move out of agriculture and industry and into services.

The pattern is similar regarding the national share of wages and profits, or value added, attributed to each sector. In 1993, 6.8 percent of Mexican value added came in agriculture, 28.7 percent in industry, and 64.6 percent in services. By 2000, these figures were 4 percent, 27.6 percent, and 68.3 percent. This brought Mexico’s industrial structure closer to that of the United States. In 1993, 1.7 percent of U.S. value



SOURCE: Organization for Economic Cooperation and Development (2003a).

Figure 1.3—Share of Civilian Employment, 1990 and 2002

added came in agriculture, 27.7 percent in industry, and 70.6 percent in services. By 2000, those figures were 1.6 percent, 24.5 percent, and 73.9 percent, respectively.²⁴

Focusing on a quarterly series of U.S. and Mexican wages from 1987 to 2001, Robertson (2003) finds evidence of wage convergence from 1987 to 1994 and then from 1995 to 2001, with this convergence especially strong in Tijuana. However, he also shows a huge divergence occurring during Mexico's peso crisis from late 1994 to early 1995, wiping out much of the gains of the previous seven years.

In sum, convergence is the goal, and integration is the means. The wage and GDP patterns discussed above suggest a mediating factor: For U.S.-Mexico integration to achieve convergence, Mexico must also achieve economic stability. Economic crises during the past 30 years have eroded gains in living standards, even as reforms and policies in both countries have been aimed at increasing Mexican living standards.

Unilateral Mexican reforms have certainly spurred integration, and NAFTA has given it a second wind. Convergence, however, is far less certain at this time. Economists, political scientists, politicians, and development officials disagree on the best ways to spur rapid growth in poor countries, although there is a widespread consensus that some degree of integration is necessary. Mexico is still trying to unwind from old political structures and ways of doing business to move closer to the advanced economies of the world, but it is not yet there. It may be apt to say, "Poor Mexico, so far from the United States, and so close to the past."

This report shows the many ways that California and Mexico are integrating and then suggests policies that can smooth that integration and spur convergence. To introduce the two stars of the show, this chapter concludes with a brief economic profile of California and Mexico.

²⁴Organization for Economic Cooperation and Development (1995, 1996, 2001, 2003b).

The Economies of California and Mexico

California is the largest state in the United States in terms of economy and population, although not in terms of land area (Table 1.1). Its gross state product (GSP) of almost \$1.4 trillion in 2001 makes it the fifth-largest economy in the world and more than twice the size of the Mexican economy. However, its population is about one-third that of Mexico's and its land area is about one-fifth, suggesting that its population is both more densely settled and much richer than that of Mexico. In terms of share of value added, California's economy is about

Table 1.1
California and Mexico, 2001

	California	Mexico
Total area (square miles)	163,695.5	756,078.6
GSP or GDP (\$ billions)	1,359.3	623.9
Population (millions)	34.6	99.4
GSP or GDP per capita (\$)	39,285	6,275
Manufacturing share of the economy (%)	12.1	17.4
Manufacturing share of employment (%)	11.0	30.1
Agricultural share of the economy (%)	2.7	3.9
Agricultural share of employment (%)	1.5	17.5
Goods exports relative to GSP (California) or GDP (Mexico) (%)	7.9	25.4
Largest container seaport	Los Angeles	Manzanillo
Container volume at largest sea port (thousands of twenty-foot-equivalent units)	5,183.5	547.9
Ratio of per capita personal income in richest county to poorest county (California) or per capita GDP in richest state to poorest state (Mexico)	3.8	6.4

SOURCES: The Regents of the University of California (2001–2004); World Bank (2004); U.S. Department of Commerce, (2003a); Instituto Nacional de Estadística, Geografía y Informática (n.d.a); Massachusetts Institute for Social and Economic Research (2003a); Port of Hamburg (n.d.); Economic Commission for Latin America and the Caribbean (2002).

NOTES: Manufacturing share of employment for Mexico is for 1998. For both California and Mexico, manufacturing share of employment is relative to total private employment. Agricultural share of employment for Mexico is for 2000. For both California and Mexico, agricultural share of employment is relative to total employment. State GDP for Mexico is 2000.

12 percent manufacturing and 3 percent agriculture, compared to 17 percent and 4 percent for Mexico. However, the Mexican goods-producing economy is much more labor-intensive. Only 11 percent of California's private employment is in manufacturing, compared to 30 percent of Mexico's, and only 2.5 percent of California's total employment is in agriculture, compared to 17.5 percent for Mexico.²⁵

Mexico is also more trade intensive. In 2001, goods exports constituted more than 25 percent of its GDP, compared to 8 percent for California. However, California tends to have much more seaport activity. Most of Mexico's trade is with the United States and much of this moves by land. In contrast, California not only trades worldwide but serves as a gateway for U.S. trade generally, so much of the state's trade facilitation is sea-based with Asia. Finally, although both regions have high degrees of income inequality, Mexico has far more on both a regionwide and populationwide basis. In California, per capita personal income in Marin County, the richest county, is \$63,000, almost 3.8 times higher than per capita personal income in Kings County, the poorest, at less than \$17,000. In Mexico, in contrast, per capita gross domestic product in the Federal District, the richest jurisdiction, is almost \$14,000, nearly 6.4 times larger than per capita gross domestic product in Chiapas, the poorest state, at less than \$2,200.

One other fact relevant to understanding the two economies is that they share only a very short border, about 145 miles long, compared to 1,950 miles for the total U.S.-Mexico border. This both limits and concentrates the amount of binational economic activity that can occur along the border. Furthermore, California abuts only the very western edge of Mexico, and this edge is isolated from the economic center of that country (Figure 1.4). This means that much of the economic

²⁵Two caveats are in order. The figure for agricultural employment in California includes only legal residents, and more than half of farm workers might be illegal immigrants (Johnson and Reyes, 2002). This would boost California's share of agricultural employment to as much as 5 percent of total state employment, although the agricultural employment figure cited in the text includes forestry, fishing, and agricultural services in addition to farms. In addition, the number of agricultural workers reported in the text is an average for the year. Because most agricultural jobs do not last all year, as many as twice the number of people reported hold agricultural jobs at some time during the year.



SOURCE: ESRI (2003).

Figure 1.4—California, Mexico, and the Continental United States

activity between California and Mexico is more likely to involve just residents of California and Baja California, rather than California and all of Mexico. Businesses that want to serve Mexican population centers will lower their transportation costs by locating closer to the Texas border than the California border.

The Scope of This Report

This report examines the economic interactions between California and Mexico, focusing on trade, foreign direct investment (FDI), and

border activity.²⁶ Although it takes a statewide perspective in the case of California and a countrywide perspective in the case of Mexico, it also describes regional issues, where appropriate. Accordingly, it has drawn on a number of sources to define separate economic regions (Table 1.2, Figure 1.5, and Figure 1.6). The regions are formed of areas that have both geographic proximity and economic similarity within each country.

Table 1.2
Regions of California and Mexico

Region	Counties (California) or States (Mexico)
California	
Northern California	Del Norte, Humboldt, Lake, Lassen, Mendocino, Modoc, Plumas, Sierra, Siskiyou, Trinity
Northern Sacramento Valley	Butte, Colusa, Glenn, Shasta, Tehama
Greater Sacramento Bay Area	El Dorado, Nevada, Placer, Sacramento, Sutter, Yolo, Yuba
San Joaquin Valley	Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano, Sonoma
Central Sierra	Fresno, Kern, Kings, Madera, Merced, San Joaquin, Stanislaus, Tulare
Central Coast	Alpine, Amador, Calaveras, Inyo, Mariposa, Mono, Tuolumne
South Coast	Monterey, San Benito, San Luis Obispo, Santa Barbara
Inland Empire	Los Angeles, Orange, Ventura
Border	Riverside, San Bernardino
	Imperial, San Diego
Mexico	
Border	Baja California, Chihuahua, Coahuila de Zaragoza, Nuevo León, Sonora, Tamaulipas
North Central	Aguascalientes, Baja California Sur, Durango, Nayarit, San Luis Potosí, Sinaloa, Zacatecas
Central	Colima, Distrito Federal (Mexico City), Guanajuato, Hidalgo, Jalisco, Estado de México, Michoacán de Ocampo, Morelos, Puebla, Querétaro de Arteaga, Tlaxcala, Veracruz de Ignacio de la Llave
South	Campeche, Chiapas, Guerrero, Oaxaca, Quintana Roo, Tabasco, Yucatán

SOURCES: California Technology, Trade, and Commerce Agency and California Economic Strategy Panel (1998), López Elías (2001), and judgment of authors and Ernesto Vilchis, research associate, Public Policy Institute of California.

²⁶For an earlier look at many aspects of the California-Mexico relationship before NAFTA, see Lowenthal and Burgess (1993).



SOURCES: ESRI (2003) and the sources listed for Table 1.2.

Figure 1.5—California Regions and Counties

Topics that receive regional analysis include the distribution of California exports in Mexico and the location of California FDI in Mexico and Mexican FDI in California.

The selection of topics to be covered under the heading of economic integration is very broad, as shown in the next chapter. Along with trade



SOURCES: ESRI (2003) and the sources listed for Table 1.2.

Figure 1.6—Mexican Regions and States

and investment, there are financial flows, migration, Mexican participation in the California labor market, the border environment, border infrastructure, tourism, joint governance, and even cultural relations. After introducing the smorgasbord of available topics, thereport will focus on four specific areas: trade, gateway and port activity, FDI and joint production, and selected economic issues unique to the greater Tijuana-San Diego area. A final chapter concludes with a discussion of California policy options.

2. Modes of Integration

Economic integration is mediated by flows of people, goods, services, and capital. People flows can consist of long-term residents, sometimes known as settlers; shorter-term workers, sometimes known as sojourners; students; tourists; and others. Flows of goods and services are better known as trade and can include everything from avocados to computers to designs for buildings. Capital can include money flowing into specific businesses, stock markets, private debt, or government debt, and money flowing from foreign workers to their families back home.

In many ways, which modes of integration will dominate is a policy choice.¹ Given the very large flows of migrants from Mexico to the United States, economic integration will occur in some form. If trade and investment in Mexico can raise living standards and increase stability, then pressure to migrate will fall. If living standards stagnate in Mexico, then migration will continue.²

Certainly, much of the responsibility for raising living standards in Mexico falls on Mexican policymakers and the laws and regulations they promulgate. In the mid-1980s, Mexico made a policy choice to attempt convergence of living standards through integration with the rest of the world. The final chapter of this report discusses the Mexican role in spurring integration and convergence in more depth. However, if Californians want to see migration decline, they have a strong incentive to support policies that will lead to Mexican growth and stability.

Economic integration is often mediated by government, and Mexico has a large official presence in California. In contrast, the California official presence in Mexico is more limited. This leaves open the

¹The authors thank Gordon Hanson for this observation.

²Robertson (2003) finds that trade and investment between the United States and Mexico have tended to raise Mexican living standards but that recent U.S. migration restrictions have tended to lower them.

question of exactly how the state will cooperate with Mexico should it want to become more involved with that country's economic future.

Mexico has 10 consulates in California, and Bancomext, Mexico's development bank in charge of promoting foreign trade and attracting foreign investment, has one of its seven U.S. foreign trade commissions in California.³ Within the consulates, other branches of the Mexican government have offices. For example, the Mexican social security agency, the Instituto Mexicano del Seguro Social, has an office in the Los Angeles consulate. Other agencies have their own offices, including the fisheries commission (Comision Nacional de Acuacultura y Pesca–Conapesca), which has an office in San Diego and grants fishing licenses. Aside from agencies of the national government, some Mexican states have their own offices in California, generally in Los Angeles or San Diego.

Until the end of 2003, California had a trade and investment office in Mexico City, but that closed when the state closed the Technology, Trade, and Commerce Agency. The University of California system announced plans in 2001 to open a California House (Casa de California) in Mexico City, but as of early 2004, the university was still searching for a site. When opened, it will include an education abroad center for international students, a UC MEXUS research facility, and a university relations office to develop an alumni association in Mexico. The Port of Los Angeles also has representation in Mexico.

This chapter provides an overview of the many ways that California and Mexico are integrating. The modes described include migration, trade of goods and services, joint production and direct investment, and financial flows. Subsequent chapters focus more deeply on trade, joint production and direct investment, and the border.

Immigration

In California, the most visible sign of integration with Mexico is movement of people. Mexican-born residents dominate the immigrants

³The consulates are in Calexico, Fresno, Los Angeles, Oxnard, Sacramento, San Bernardino, San Diego, San Francisco, San Jose, and Santa Ana. The office of the Banco Nacional de Comercio Exterior, S.N.C. (Bancomext), is in Los Angeles.

in this immigrant-rich state, and the children of Mexican immigrants are helping fuel the state's rapid population growth. In 2000, the U.S. Census Bureau estimated that 3.9 million people of Mexican birth lived in California—44 percent of the nearly 8.9 million foreign-born residents of the state and almost 12 percent of the state's 33.9 million residents that year.

The number of Mexican-born California residents received significant boosts in the 1980s and 1990s. Of more than 3.2 million immigrants who arrived between 1980 and 1990, 38.2 percent, or almost 1.3 million, came from Mexico. Of more than 2.8 million immigrants between 1991 and 2000, 46.2 percent, or more than 1.3 million, came from Mexico.⁴

Immigrants who come enter as legally permanent, legally temporary, or illegal immigrants. Of the 209,000 permanent legal immigrants from Mexico who came to the United States in fiscal year 2002 (October 1, 2001, to September 30, 2002), more than half, or almost 106,000, intended to settle in California.⁵ For the United States, Mexicans legally permanently arriving constituted about 20 percent of all legal permanent immigrants; for California, they constituted more than 30 percent.

California is a similarly large recipient of temporary legal immigrants.⁶ In fiscal year 2002, 14.6 percent of the 4.2 million visitors from Mexico chose California as their state of destination. These 611,640 Mexican visitors represented almost 17 percent of all temporary legal immigrants to California, and Mexico was the largest single source country.⁷

⁴Hill and Hayes (2003). This publication contains extensive information on the status of these new immigrants.

⁵U.S. Department of Homeland Security, "Supplemental Table 1. Immigrants Admitted by Country of Birth and Intended State of Residence, Fiscal Year 2002" (2003b).

⁶These include foreign government officials, temporary visitors for business, temporary visitors for pleasure, transit aliens, crewmen, treaty traders and investors, students and their spouses and children, temporary workers and trainees and their spouses and children, and several other categories.

⁷The United Kingdom was next, with 475,000 (U.S. Department of Homeland Security, "Table 31. Nonimmigrants Admitted by Selected Country of Citizenship and State of Destination, Fiscal Year 2002" (2003a).

Many nonimmigrant visitors from Mexico entered through California although it was not their state of destination. In fiscal year 2002, almost 22 percent of the 4.2 million entries from Mexico came through ports of entry in San Diego, Los Angeles, or San Francisco, compared to the 14.6 percent for whom California was their state of destination. San Diego was by far the largest port of entry in the state, serving as gateway for 550,000, or 13.2 percent. Of all other states, only Texas served as a gateway for more, admitting almost 25 percent of the nation's nonimmigrant visitors from Mexico.⁸

The count of illegal migrants is uncertain, in part because they are undocumented, and therefore hard to track. U.S. Citizenship and Immigration Services (CIS) estimates that in 2000, the country had 4.8 million illegal immigrants from Mexico, up from 2 million in 1990.⁹ An alternative source reports a range of 3.4 million to almost 5.8 million unauthorized Mexican migrants in the United States in 2001.¹⁰ Neither source breaks down the number of Mexicans by state, but the CIS report estimated that California hosted 2.2 million illegal immigrants in 2000. It is likely that many of these were Mexican, considering that the 2000 Census, which attempts to collect information on the entire population, regardless of legal status, reports that 42.8 percent of all Mexican-born residents of the United States are in California.¹¹

As noted above, NAFTA has helped boost integration with the United States, and the treaty provided a new means for Mexican professionals to come to the United States to work temporarily through a program for professionals from NAFTA countries, also known as the TN Visa program. Professions include such jobs as accountant, dietician,

⁸U.S. Department of Homeland Security "Table 28. Nonimmigrants Admitted by Selected Port of Entry and Region and Country of Citizenship" (2003a).

⁹U.S. Department of Homeland Security (2003a). These entries do not include border crossers who do not fill out federal form I-94, such as Mexicans who stay within the border zone or who work or shop in San Diego. In 2002, the total number of entries through the ports of entry in California was more than 88 million.

¹⁰Bean, Van Hook, and Woodrow-Lafeld (2001).

¹¹For more information on estimates of illegal immigration, see Reyes, Johnson, and Van Swearingen (2002) and Johnson (1996).

entomologist, graphic designer, librarian, urban planner, and zoologist.¹² So far, this has been a little-used program. In 1996, 34,681 visas were issued, of which only 243 went to Mexicans. The program peaked in 2001 with almost 116,995 TN visas, of which only 3,341 went to Mexicans. Of the total in 2001, 17,559 visa holders, or 15 percent, came to California. Unfortunately, data separating Canadian from Mexican visa holders are unavailable, but it seems likely that the program served mostly Canadians.¹³

It is uncertain whether immigration will remain as high over the long term as it has been recently. Return migration to Mexico occurs regularly, and some analysts project an immigration “hump,” in which Mexican immigration to the United States peaks during Mexican restructuring and then falls as Mexico develops and its demography changes.¹⁴ Should Mexican living standards improve, there is every reason to believe that Mexican-origin U.S. residents will return to Mexico at a faster rate than previously to seek new opportunities. Return migration in response to increased economic opportunity and social stability has occurred in recent history in Northern Italy, Ireland, and the United States—with blacks returning from the north to the south. If Mexico fails to improve living standards and opportunities, however, immigration may remain high. The networks making immigration possible are well defined, and an aging native U.S. population will desire an expanding workforce to maintain economic dynamism and social programs.

Trade

Although immigration has been the most prominent aspect of California’s connections with Mexico, the expansion of trade in goods has been the most notable aspect of economic integration between California and Mexico. In 1988, the first year of recorded data, Mexico

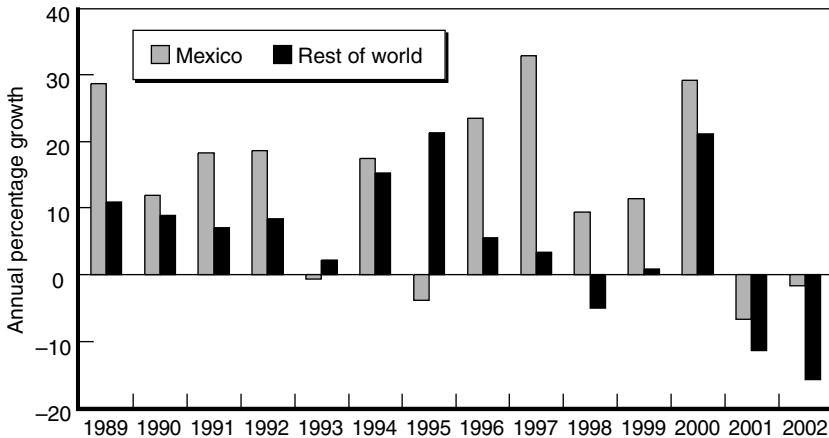
¹²U.S. Department of State (2003).

¹³Data are for fiscal years of the U.S. federal government. Data for 1996 and 2001 are from Immigration and Naturalization Service (1999 and 2003), respectively.

¹⁴For recent patterns of return migration, see Reyes (1997). For more on the immigration hump, see Martin (2003a).

absorbed 6.8 percent of all exports originating in California and was the third leading destination for those exports. In 1997, Mexico moved into the number-two spot, receiving 11.2 percent of all California exports. And only two years later, it passed Japan to become the top California-export recipient, absorbing 13.8 percent of the state’s exports. That share has continued to rise, hitting 15.3 percent in 2001 and 17.4 percent in 2002. The last time a country took more than 15 percent of California exports was in 1997, when Japan bought 16.3 percent.

The rising share has mostly accompanied rising levels. Exports to Mexico from California fell in only four years. In addition, annual exports to Mexico have generally grown more or fallen less than California exports to the rest of the world (Figure 2.1). Only in 1993, when Mexican economic growth slowed to less than 2 percent, and in 1995, when the peso crisis slammed Mexico’s economy, did California exports to Mexico fall when California exports to the rest of the world rose.¹⁵



SOURCE: Massachusetts Institute for Social and Economic Research (2003a).

Figure 2.1—The Growth of California Exports

¹⁵California and Mexico also conduct trade in services. Chapter 3, which focuses on trade, explores this more fully.

As with exports, California goods imports from Mexico also have grown rapidly. As measured strictly by land imports, goods flowing from Mexico to the United States handled by a California importer rose from \$9.1 billion in 1995 to \$20.3 billion in 2002—an increase of 124 percent. In contrast, land imports from Mexico handled by importers in the rest of the United States rose 108 percent.¹⁶

Investment and Finance

Exports are often the focus of the interaction of state economies with foreign countries, but they are not the only, or the most important, interaction. Another is the flow of capital, in terms of direct investment, portfolio investment, and other financial flows. Direct investment is investment across borders into a company that the investor controls. Examples include the Gigante supermarket in Santa Ana, California, owned by a Mexican company, and the Volkswagen factory in Puebla, Mexico, owned by a German company. Portfolio investment is cross-border investment into equity or debt, either private debt, such as corporate bonds, or public debt, such as U.S. 26-week treasury bills or Mexican 91-day cetes.¹⁷ Other financial flows do not fall under the definitions of either direct or portfolio investment. Most important among these are worker remittances. Although they can flow in either direction, the dominant flow of remittances linking California and Mexico is that from Mexicans resident in California back to their families in Mexico. Each type of financial flow will be explored further below.

FDI has been the engine of economic integration worldwide. In part, this is because multinationals are responsible for a large part of worldwide trade, so where there is FDI there is likely to be trade. For example, in 2001, 80.8 percent of U.S. goods exports and 70.3 percent of U.S. goods imports involved either parent companies of multinationals or their affiliates, and much of this was within corporate networks. For California-Mexico economic integration, the trade-FDI

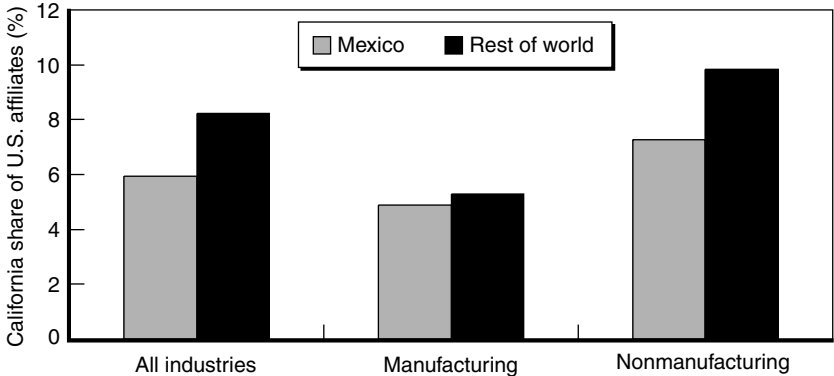
¹⁶U.S. Department of Transportation (n.d.).

¹⁷Cetes stands for Certificados de la Tesorería de la Federación, or Treasury Certificates of the Mexican national government.

link is particularly important because much of the trade is for production-sharing, with Mexican plants assembling components shipped by their parents or affiliates in California.

FDI has also been a driver of economic integration because it brings capital equipment, which embodies new technology, and new managerial, production, and marketing techniques. It also brings people, often the top managers of the foreign-invested company.

California-Mexico FDI moves in both directions.¹⁸ Unlike with exports, Mexico is not a favored investment destination for California multinationals. In FDI, the investing firm is known as the parent company, and the foreign-invested firm is known as the affiliate. California's share of all U.S.-owned affiliates in Mexico is actually lower than California's share of all U.S.-owned affiliates in the rest of the world (Figure 2.2). This is true for manufacturing, but the difference is magnified in nonmanufacturing. In 2000, California parents owned 4.9 percent of all U.S. manufacturing affiliates in Mexico and 5.3 percent in the rest of the world. In contrast, California parents owned 7.3 percent of all U.S. nonmanufacturing affiliates in Mexico but 9.8 percent in the rest of the world.



SOURCE: U.S. Department of Commerce (2003b).

Figure 2.2—California Outward FDI in Mexico, 2000

¹⁸This section draws on official U.S. data on FDI. Chapter 4, which covers FDI in more depth, uses two alternative data sources.

Mexico ranked number 11 as a host of California foreign affiliates, slightly behind Italy and ahead of Ireland, whereas it ranked number 6 as a host of foreign affiliates from the rest of the United States. The top countries, in order, for both California and the rest of the United States were the United Kingdom, Canada, Germany, France, and the Netherlands.¹⁹

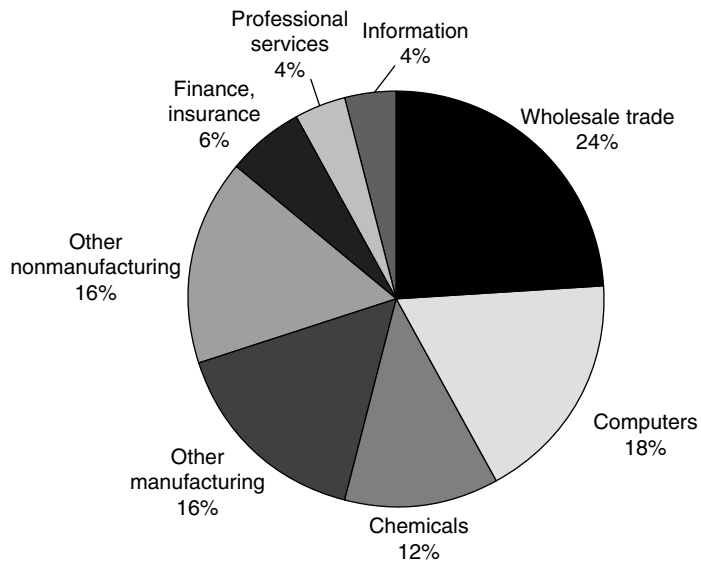
Although long time-series information is, unfortunately, not available for official FDI statistics, figures for California FDI in Mexico are available for 1998 through 2000. These show that the number of California-owned affiliates in Mexico did not change much over that period. In 1998, California parents owned 44 affiliates in Mexico. This rose to 53 in 1999 but fell to 50 in 2000. Overall in 2000, U.S. companies had 931 affiliates in Mexico, employing almost 1.1 million workers. Note that these numbers do not represent the total number of locations. An affiliate may have plants in several locations, or it may have other subsidiaries within the same country.

The top industry for California FDI in Mexico is wholesale trade, which contained 24 percent of all California affiliates in 2000 (Figure 2.3). It was followed by two manufacturing industries—computers with 18 percent and chemicals with 12 percent. Two miscellaneous groupings, other manufacturing and other nonmanufacturing, each accounted for 16 percent of all California affiliates.²⁰

Despite wholesale trade's leading spot in Mexico, California investors actually favor manufacturing much more in Mexico than they do in the rest of the world. Forty-six percent of all California affiliates in Mexico are in the manufacturing industries, compared to 23 percent in

¹⁹Japan, Australia, Singapore, Hong Kong, and Italy rounded out the top 10 for California; and Mexico, Japan, Australia, Italy, and Brazil rounded out the top 10 for the rest of the United States.

²⁰Other manufacturing includes machinery, electrical equipment, transportation equipment, beverages, textiles and apparel, paper, plastics and rubber products, printing, and petroleum and coal products. Other nonmanufacturing includes agriculture, construction, retail trade, transportation and warehousing, real estate, administration, health care, and accommodation and food service.



SOURCE: U.S. Department of Commerce (2003b).

Figure 2.3—California Outward FDI in Mexico, Industrial Distribution, 2000

the rest of the world. Twenty-nine percent of all California affiliates in the rest of the world are in wholesale trade, compared to 24 percent in Mexico.

The distribution of FDI is driven by the policies of the host country and source region, the size of the host country, the proximity of the host to the source region, and the industrial structure of the source region. Although it started a special assembly program for foreign manufacturers in the mid-1960s, Mexico was a latecomer among countries for letting in more general forms of FDI. Flows of FDI have been large, and therefore the stock is still growing but is still not up to the worldwide average for developing countries.²¹ Although California borders Mexico, other parts of the United States are closer to the economic center of that country

²¹In 2002, the stock of FDI measured 35.9 percent of developing country GDP. For Mexico, that figure was 24.2 percent (United Nations Conference on Trade and Development [UNCTAD], 2003 and 2004).

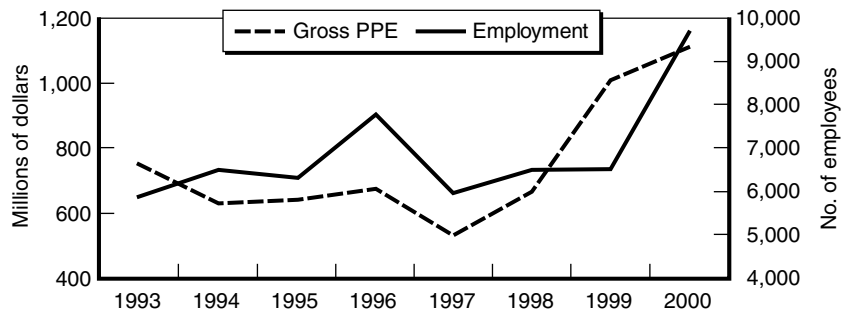
and share a much longer border, suggesting that California is not well placed within the United States to be a major source of FDI in Mexico. California's industrial structure may also lead it to view Mexico as a less-favored location for FDI. California's worldwide FDI takes place in technology, information industries, professional services, natural resources, and wholesale trade. Mexico specializes more in low- and medium-skilled manufacturing, although its consumer market is growing in both wealth and sophistication.

Despite these explanations of apparent low investment by California in Mexico, California business involvement may be higher than the official statistics reflect (as will be seen in Chapter 4). First, there is a size threshold for appearing in the official data.²² California companies may have small investments that have not been recorded. In addition, these data on FDI do not include contracting relationships, so that if a California company contracts with a Mexican company to assemble components, this would not be considered a parent-affiliate relationship. Still, Mexico does not appear to be a particularly favored location for California direct investors.

There is evidence that, unlike California investment in Mexico, Mexican direct investment in California is on the rise. In 1993, the year before NAFTA started, Mexican-invested affiliates in California employed about 5,900 workers. By 2000, that figure had risen to an estimated 9,700 workers (Figure 2.4). Likewise, the value of property, plant, and equipment (PPE) owned by Mexican-invested affiliates rose over the same period, from \$750 million to an estimated \$1.1 billion.

California also has financial links to Mexico through portfolio investments. These can occur in several different ways. Portfolio managers in California can buy the equity of Mexican companies and the debt of Mexican companies and governments for the different funds they manage. This is not necessarily an indication of the state's integration

²²The Bureau of Economic Analysis of the U.S. Department of Commerce collects data on the nonbank affiliates of nonbank parents through a variety of surveys. The threshold for completing the 2000 annual survey and the 1999 benchmark survey was total assets, sales, or net income of at least \$7 million, whereas that for the 1998 annual survey was \$3 million.



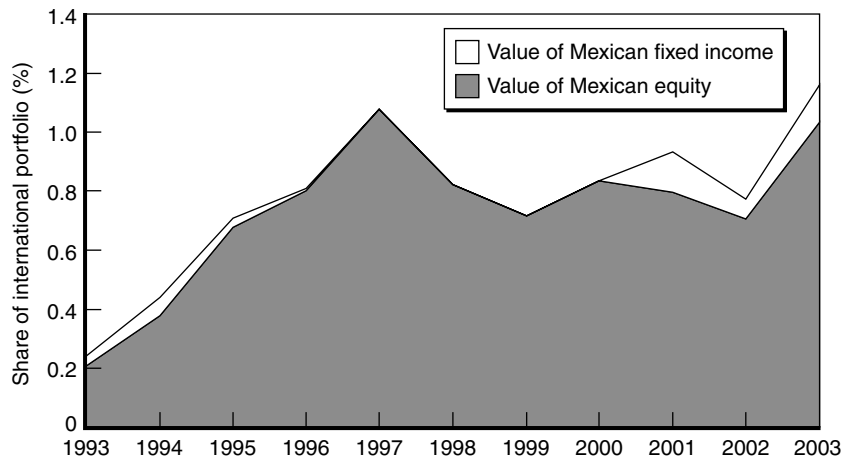
SOURCES: California Business Investment Services (2003) and authors' estimates
 NOTE: Employment for 1999 and 2000 is estimated; gross PPE for 1998 through 2000 is estimated. The range for employment in 1999 is 5,700 to 7,200, and the range for employment in 2000 is 8,900 to 10,400. The 1998 PPE estimate has no range. The range for the 1999 PPE estimate is \$886 million to \$1.1 billion, and the range for the 2000 PPE estimate is \$1.0 billion to \$1.2 billion. See Shatz and Vilchis (2004) for more information.

Figure 2.4—FDI from Mexico in California, 1993–2000

with Mexico, however, because these managers generally work with money from all over the United States and in some cases from all over the world. More directly linked to California, California investors may use their own money to buy Mexican equity and debt, or groups may take the money of Californians, rather than of investors in general, and allocate some of it to Mexican equity and debt.

This last case occurs with the California Public Employees' Retirement System (CalPERS) and the California State Teachers' Retirement System (CalSTRS). In fact, people who depend on these giant portfolios for their retirement income are in a small way depending on the health of the Mexican economy and government. The evolution of Mexican holdings in CalPERS illustrates this.

In 1993, the year before NAFTA took effect, CalPERS held about 0.2 percent of its international portfolio in Mexican equity and debt, although mostly in the equity securities of nine companies, including Grupo Televisa and Tolmex, a huge cement company (Figure 2.5). One year after NAFTA, in 1995, that figure jumped to 0.7 percent and has averaged almost 0.9 percent since then, hitting a peak of almost 1.2 percent of the CalPERS international portfolio in the year ended June



SOURCE: California Public Employees' Retirement System (2003).
 NOTE: Mexican values do not include holdings of peso-denominated cash-equivalents. Mexican and international holdings do not include the values of private equity (companies that do not trade on a quoted market).

Figure 2.5—Mexican Equity and Debt in the CalPERS Portfolio

30, 2003. That year, the investment fund held equity from 37 Mexican companies.

These numbers may seem quite small, but CalPERS puts about the same weight on Mexican equities that the Mexican stock market has in international financial markets. It puts somewhat more weight on Mexican fixed-income securities. From 1993 to 2002, the value of all equities on the Mexican stock market and the value of all Mexican listed bonds averaged about 0.6 percent of the value of all non-U.S. equities and bonds worldwide. During that same period, the value of Mexican equities and debt held by CalPERS averaged about 0.7 percent of all foreign equities and debt held by the system.²³

In addition to publicly traded equity and debt from Mexico, CalPERS also holds a small pool of investments in Mexican companies that do not trade on quoted markets, known as private equity. In mid-2003, CalPERS held \$7.5 million worth of this type of investment, or

²³Data on worldwide equity and debt markets are from World Federation of Exchanges (2003a and 2003b).

0.5 percent of all CalPERS international private equity. This was down from \$14.4 million in mid-2000, or 1.2 percent of all CalPERS international private equity at that point.²⁴

Portfolio investment is a formal way for capital to move across borders. A less-organized means that is quite active and becoming more formal is capital movements in the form of worker remittances. Remittances consist of money sent by immigrant workers to their home country from their country of residence. They are a form of export earnings, in that the country is exporting labor in return for payment. Such capital flows are difficult to measure.²⁵ However, the Inter-American Development Bank has made an effort to do so, and both it and the joint United States–Mexico Partnership for Prosperity have made an effort to formalize the remittance market and harness it for development.

Worldwide, workers' remittances during 1990 to 2001 have averaged about 0.7 percent of all goods and services consumed by households in the world and about 0.4 percent of worldwide GDP. However, they are an important source of foreign capital for some developing countries. In fact, during the same period, they averaged about 31 percent of the value of foreign purchases of equity and debt securities.²⁶

Of all Western Hemisphere countries south of the United States, Mexico receives the highest level of worker remittances—an estimated \$9.3 billion in 2001 and \$10.5 billion in 2002.²⁷ This is a very large figure, with the 2001 amount equivalent to 120 percent of foreign

²⁴Another form of formal cross-border capital flows is bank deposits and other liabilities. Unfortunately, data on Mexican deposits in California banks were unavailable. However, at the end of 2002, U.S. banks had liabilities to Mexico totaling \$37 billion. These included \$17 billion in deposits, short-term treasury obligations, and other liabilities held by Mexican official institutions and Mexican banks, and \$15 billion in deposits, short-term treasury obligations, and other liabilities held by other Mexicans, of which \$13 billion were deposits (U.S. Department of the Treasury, 2004).

²⁵Orozco (2003).

²⁶This estimate likely is low. Data and definitions are from World Bank (2003a and 2004).

²⁷Orozco (2002), and Multilateral Investment Fund, Inter-American Development Bank (2003).

purchases of equity and debt securities, 37.5 percent of all FDI received by Mexico, and 2 percent of all goods and services consumed by households in Mexico in that year.

Mexico's high level of remittances is due in part to its large size but also to the large number of Mexican nationals who come to the United States. For example, Brazil, with about a 70 percent larger population, received only \$4.6 billion in 2002. Because California has the largest proportion of Mexican migrants, it probably serves as the source of a large portion of Mexican remittances. Mexican statistics show that virtually all Mexican migrants travel to the United States, and U.S. Census Bureau statistics estimate that California was the host of 42.8 percent of the nearly 9.2 million Mexican-born residents of the United States in 2000. These numbers suggest that California may have been the source of \$4.5 billion worth of remittances in 2001, with the number sure to rise as the Mexican-born population increases. The estimated 2001 figure is about the size of the payroll of California's food manufacturing or machinery manufacturing industry.

There is some disagreement about the effects of remittances on the labor-sending economy. There is evidence that they are spent on both consumption and investment, with housing an important category of purchase.²⁸ Remittances have played an important role in alleviating poverty in many places.²⁹ They also may result in greater business activity, and thus greater local income generation, or in more self-employment with the loosening of capital constraints.³⁰ However, their effects on the overall economy are less clear because high levels of remittances can result in decreased labor force participation or work effort.³¹ The most serious cross-country study of remittances and

²⁸See Adams (1991) for an example from Egypt; Massey and Parrado (1994) for a study on Mexico; and Taylor (1999) and Chami, Fullenkamp, and Jahjah (2003) for reviews of the literature.

²⁹Kapur and McHale (2003).

³⁰Taylor (1999), and Funkhouser (1992).

³¹Funkhouser (1992).

national economic growth found that remittances actually have a negative effect on economic growth.³²

Currently, there are hopes of using remittances as a development tool, but given available evidence, such hopes should be tempered. If the only constraint to development is a capital constraint, then remittances certainly hold promise for Mexico. But insofar as poor regulatory environments, weak infrastructure, loose contract enforcement, or bad economic policies exist, more capital from abroad will do little to boost overall economic growth on its own. This may be the case in Mexico, because investment is certainly occurring in the country, just not so much in the regions sending most of the migrant workers. The challenge will be whether Mexico can create an encouraging environment for investment in those regions. If so, there is a chance that the remittance flow can promote development.³³

Summing Up Modes of Integration

As this chapter describes, California and Mexico are integrating in many ways. Some are formal—such as goods trade flowing through the border and following customs procedures—and some are informal—such as the indigenous Mexican from Oaxaca smuggled across the border in search of a better life. These many modes are often linked.

Trade and immigration can be interchangeable. Either the immigrant can stay in his home country and make a product there (the hope of NAFTA) or he can come to California and make the product in the United States. In other cases, however, they are not. This is especially true in the realm of services.

Trade and direct investment can also be complementary. Direct investment can build a new export-oriented factory abroad that uses U.S. inputs (increasing U.S. exports) and that then sells back to the United States (increasing U.S. imports). In other cases, there is no apparent link—for example, if a California professional services firm sets up an office to serve the Mexican market.

³²Chami, Fullenkamp, and Jahjah (2003).

³³Taylor (1999), p. 81.

Modes of integration are linked not just by transactions—making a good in Mexico and shipping it to California versus making it in California with Mexican immigrants—but by policy. Trade, investment, and migration policies define the pattern and forms of integration. The United States and Mexico are in the midst of an experiment to see whether trade and investment policy can help reshape migration patterns. The next two chapters explore in more depth the two modes at the heart of the experiment in economic integration—trade and FDI.

3. Trade

Throughout the 1990s, trade—the exchange of goods and services—between California and Mexico rose steadily. Some of it was pass-through trade: Goods were produced elsewhere in the United States and shipped to Mexico through California’s ports or land border crossings, or goods were shipped from Mexico to California and then sent on to points east and north in the United States. Much of the increase, however, can be traced back to California producers in the case of exports and California buyers in the case of imports.

For decades, trade was the main mode of economic integration worldwide. In part, transportation and communications technologies were not developed enough to allow for the widespread use of other modes, such as FDI. Many countries had significant legal restrictions on FDI and portfolio investment, so that trade was in some cases the only way countries could interact economically. Migration, a key part of globalization 100 years ago, slowed dramatically between the two world wars and remained difficult until the last quarter of the 20th century.

Trade still plays an important role in discussions of international economic integration. The U.S.-Mexico agreement to integrate economically is the North American Free Trade Agreement, not the North American Free Trade and Investment Agreement, even though investment is certainly a component of the treaty. Furthermore, trade is more actively and accurately tracked than other forms of interaction. And trade plays a role in people’s everyday lives, from Mexican-grown asparagus that appears in California supermarkets to the Mexican-made Volkswagen New Beetles plying California’s roads. Going from California to Mexico, the products are less visible but just as real. They include cathode-ray tubes, integrated circuits, and machinery.

The U.S.-Mexico and California-Mexico trade relationships have been shaped by changes in policy and technology. In terms of policy, Mexico started opening its economy to trade in the 1980s after decades

of following a development strategy of trying to produce all its own goods and services. It followed this unilateral opening with a bold bid to form a free trade area with the United States and Canada, both of which agreed. NAFTA resulted in a further lowering of Mexican barriers to trade.

In 1986, the year that Mexico joined the General Agreement on Tariffs and Trade, its average tariffs were 24 percent, and goods that amounted to almost 47 percent of total manufacturing production could not be imported without a license. By 1990, tariffs had fallen to 12.5 percent, and import licenses covered 19 percent of manufacturing production.¹

NAFTA brought about similarly dramatic decreases in barriers. Between 1993 and 1998, the average Mexican tariff on U.S. products fell from 10 percent to less than 2 percent, and the average U.S. tariff on Mexican products fell from 4 percent to less than half a percent.² Just as important, the treaty lowered tariff peaks—tariffs that were well above the average. In 1999, the NAFTA countries zeroed out most tariffs but left a few in place through 2009.

Under NAFTA, trade has grown rapidly. Not all growth of trade is related to the treaty, but much is.³ Between 1994, the start of NAFTA, and 2003, U.S. domestic exports to Mexico rose by 69 percent, and U.S. imports for consumption from Mexico rose by 182 percent. Domestic exports are those exports actually produced in the United States, as opposed to those transshipped. Imports for consumption are those that pass through customs and enter the U.S. economy, rather than staying in a foreign trade zone or under other special status. In contrast to trade with Mexico, U.S. domestic exports to the rest of the world rose 31 percent during the same period, and U.S. imports for consumption rose 83 percent.⁴

In addition to domestic exports, the United States and California have foreign exports. These are goods that enter the country and then

¹Lustig (2001).

²Vargas (1999).

³McDaniel and Agama (2002) sort out the NAFTA effect from other effects.

⁴U.S. International Trade Commission (2003 and 2004).

leave again substantially untransformed. From 1994 to 2003, foreign exports from the United States to Mexico rose almost 750 percent, from \$1.7 billion to \$14.3 billion. In contrast, foreign exports to the rest of the world merely doubled.

The rise of foreign exports is a sign of the dominant feature of the trade relationship between the United States and Mexico—that of production-sharing. As discussed in both this chapter and the next, U.S.-Mexico economic integration is characterized by webs of production, with components being produced in the United States and then shipped to Mexico for finishing before being shipped elsewhere—mostly to the United States—for final sale. It is likely that many of the U.S. foreign exports—goods that enter and then leave the United States without major changes—are components used in assembly as well.⁵

Certain types of production-sharing are recorded in the official U.S. data under several tariff classifications, but these classifications do not capture all production-sharing. Of all U.S.-made intermediates brought back to the United States embodied in final goods under the production-sharing classifications in 2002, Mexico accounted for well over half the worldwide total, or \$5 billion out of \$8.6 billion.⁶ Production-sharing between the United States and Mexico can also take place duty-free because of NAFTA, and there is no need for producers to use the production-sharing tariff classifications. In fact, 57 percent of all U.S. exports to Mexico in 2002, or \$60.9 billion, were related to production-sharing.⁷ This total includes both components included in exports to the United States and machinery used to make the exports.

To illuminate the trade relationships between California and Mexico, this chapter first discusses goods exports and then goods imports, for which the data are much less complete. Then it puts the

⁵Some of them may also be consumer goods shipped from Asia, because it may be more efficient to ship to the ports of Los Angeles and Long Beach and then move the goods to Mexico by truck than to ship them directly to a Mexican port.

⁶Watkins (2003). In 2001, these figures were \$6.9 billion and \$11.8 billion, respectively.

⁷Watkins (2003). In 2001, these figures were 58 percent and \$65.4 billion, respectively (Watkins, 2002b).

two together and investigates intracommodity trade, in which California and Mexico trade different types of the same good. Such intracommodity trade is characteristic of production-sharing, because components are often classified in the same broad commodity category as the final good into which they are assembled. After exploring intracommodity trade, the effects of trade on employment are analyzed. The chapter then moves to services trade and discusses a number of ways in which the trade relationship has moved beyond components and assembled items. Finally, it investigates goods movement and the shipment activity along the border.

Export Trends and Export Commodities

Exports to Mexico originating in California grew an average of 12.8 percent annually between 1988 and 2002, a quicker pace than the growth of California-origin exports to the rest of the world, and exports from the rest of the United States to both Mexico and the rest of the world. During that time, Mexico changed from the third-largest destination in 1988, taking 6.8 percent of California-origin exports, to the largest in 1999. In 2002, Mexico received 17.4 percent of all California exports, compared to 13.6 percent of exports from the rest of the United States.

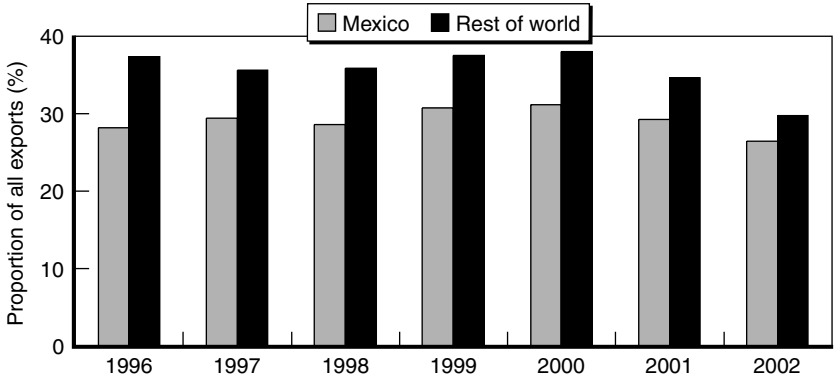
The majority of California's exports to Mexico comprise just two broad commodity classes—machinery, and electrical machinery and equipment. This is true of California's exports in general. California's Mexico exports have been somewhat different from California's exports to the rest of the world in that they have been slightly less concentrated sectorally. Between 1996 and 2002, these two commodities on average totaled 52.8 percent of all California exports to Mexico, compared to 56.2 percent of all California exports to the rest of the world. However, the proportions converged during that period, so that by 2002, 51.5 percent of all California exports to Mexico were in those commodities, but 50.3 percent of all California exports to the rest of the world were in those commodities.

On a more disaggregated basis, however, California's exports to Mexico are still somewhat more diverse than the state's exports to the rest of the world. The above distribution is based on 97 broad

commodity classes. Looking at exports of 4,700 commodities confirms that California’s Mexico exports are concentrated, but less so than California’s exports to the rest of the world. This suggests that the economic relationship between California and Mexico is more involved than that between California and the rest of the world.

On average from 1996 to 2002, the top 10 commodities constituted 29.1 percent of California’s exports to Mexico, compared to 35.5 percent of the state’s exports to the rest of the world (Figure 3.1). Fifty percent of the value of exports to Mexico came from 47 commodities on average, compared to 30 commodities for exports to the rest of the world. After the top 50 percent of value, there is a sharp dropoff in the value of individual commodity exports. Seventy-five percent of the value of exports to Mexico came from 233 commodities on average, compared to 150 commodities for exports to the rest of the world.

Of these highly disaggregated commodities, the leading exports to Mexico include cathode-ray television picture tubes and video monitors; certain types of integrated circuits; and electrical machines for electroplating, electrolysis, or electrophoresis. Each of these individual products—out of more than 4,700 possible products—accounted for



SOURCES: Global Trade Information Services, Inc. (1997–2001) and Massachusetts Institute for Social and Economic Research (2003b).

Figure 3.1—Top 10 California Commodity Exports Relative to Total Exports, Mexico and the Rest of the World

more than 5 percent of all California exports to Mexico in at least two years from 1996 to 2002.

Picture tubes and video monitors accounted for more than 5 percent of California exports every year. This reflects both California's industrial structure and that of the Mexican state of Baja California, on California's southern border. The industry from which these products come—the semiconductor and electronic component manufacturing industry—is one of the largest manufacturing industries in California. In 2001, it employed 138,000 workers, the most of any single manufacturing industry, and had a total payroll of almost \$6.8 billion, or more than \$49,000 per worker.⁸ Across the border, television assembly is clustered in Tijuana and Mexicali, both in Baja California; in Ciudad Juarez, in the state of Chihuahua, bordering on New Mexico and Texas; and Reynosa, in the state of Tamaulipas, bordering on Texas.⁹ The high level of exports of picture tubes and video monitors also reflects the production-sharing nature of the trade relationship between California and Mexico. Many of these goods are going to Mexico for final assembly and then reexport to the United States.

Exports and Skill

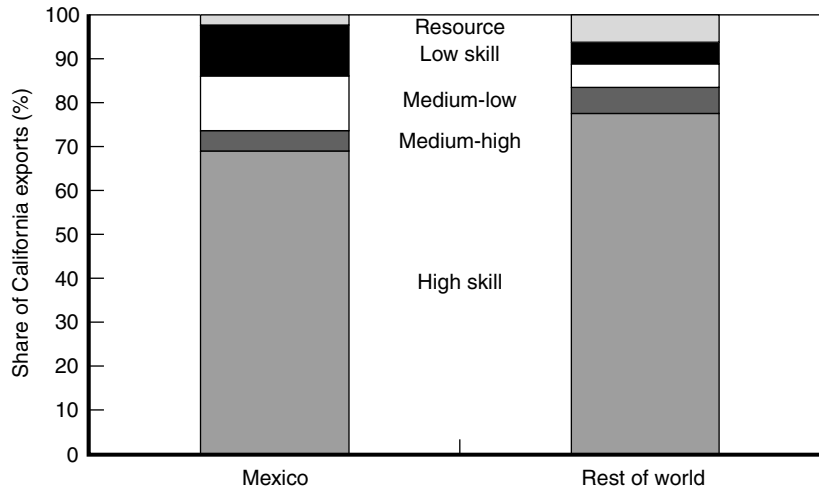
As illustrated by exports to Mexico of machinery and electrical equipment, California's exports are generally from high-skilled manufacturing industries. Between 1996 and 2002, on average about 79 percent of the state's merchandise exports to the world came from the 25 percent of industries with the highest skill levels.¹⁰ This level stayed remarkably constant, ranging between 76 percent and a little more than 81 percent.

California's exports to Mexico embody lower levels of skill than California's exports generally (Figure 3.2). On average, between 1996 and 2002, only about 68 percent of the state's merchandise exports to

⁸U.S. Census Bureau (2003).

⁹Watkins (2002a).

¹⁰An industry's skill level is defined by its proportion of nonproduction workers among all workers.



SOURCES: Massachusetts Institute for Social and Economic Research (2003b); U.S. International Trade Commission (2003 and 2004); U.S. Census Bureau (2002); and authors' computations.

NOTE: Manufactured commodities are ranked by skill level of the industry that produces them, from low skill to high skill. Nonmanufactured commodities, such as agricultural and mining commodities, are designated as coming from resource industries. This chart shows the share of California exports to Mexico coming from each skill level of industry and from resource industries.

Figure 3.2—California Exports by Skill Level of Industry, 2002

Mexico came from the 25 percent of industries with the highest skill levels. This may imply that trade with Mexico has provided greater opportunity to production workers, as opposed to executives, administrative assistants, marketers, and other office denizens, than has trade with the rest of the world.

As with California exports, exports from the rest of the United States to Mexico generally have lower skill content than do exports to the world as a whole, but the differences are far smaller. About 55 percent of all goods exports to Mexico came from the top quarter of industries in terms of skill, whereas for exports to the rest of the world, that proportion was about 60 percent on average. In both cases, the skill level rose during the period 1996 to 2002.

Another way to measure the skill level of an industry is to compute the share of total compensation paid to production workers.¹¹ Industries that pay a very high proportion to production workers could be considered more intensive in lower-skill labor.¹² Worldwide, on average only 5 percent of all California's merchandise exports come from the top 25 percent of industries in terms of the payroll share of production workers' wages. In contrast, more than 12 percent of exports to Mexico come from such industries—more than double the relative amount to the world as a whole. Again, exports from the rest of the United States to the world and to Mexico depend more on production workers than do exports from California. For exports to the world as a whole, 15 percent originating in the rest of the United States come from the top quarter of the industries in terms of share of payroll spent on production workers. For exports to Mexico specifically, that proportion was 19 percent on average from 1996 to 2002.

California's exports are largely manufactured goods (which can include manufactured food items), and this is especially true of exports to Mexico. About 4.7 percent of all California exports come from resource industries, either agriculture- or mining-based. In contrast, only about 2 percent of all California exports to Mexico come from such industries. In sum, California exports to Mexico are likely to stem from manufacturing industries that tilt toward the use of production workers in producing their output and away from resource industries.

Exports and Geography

The economic center of Mexico is around the capital, Mexico City, including the Federal District, the states of Mexico and Puebla, and

¹¹These figures can be found in the U.S. Census Bureau's Economic Census, conducted every five years, and the Bureau's Annual Survey of Manufactures (e.g., U.S. Census Bureau 1999, 2002, and 2003).

¹²Production workers are considered by the U.S. Census Bureau to be "workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations. . . . Employees above the working-supervisor level are excluded" (U.S. Census Bureau, 1999).

other central states. But California exporters rarely see beyond Baja California in their dealings with their Mexican counterparts.

It is possible to identify the location of the person or organization in Mexico to whom California exports are shipped for about 85 percent of California exports.¹³ This is not necessarily the location of the final destination, but it is certainly a better indication of location than just looking at the port of entry, the only other alternative. For California, the top five Mexican recipient states routinely take about 90 percent of all California exports to Mexico (Table 3.1). This is a higher proportion than for the rest of the United States, but that is not surprising, since the rest of the country is a much bigger economy, shares a much longer border with Mexico, and is more economically diverse. Although the rest of the United States has less concentrated export destinations, the share going to the top five Mexican states has also stayed very stable over time.

Even though both regions remain concentrated regarding the top five Mexican destinations, California remains far more concentrated

Table 3.1
Share of Exports Destined for Top Five Mexican Recipient States

Year	Share of California Exports (%)	Share of Exports from the Rest of the United States (%)
1995	91.0	68.4
1996	90.8	67.1
1997	90.6	66.8
1998	90.9	65.2
1999	89.0	65.7
2000	87.0	62.7
2001	89.2	64.7
2002	90.6	67.9

SOURCE: U.S. Department of Transportation (n.d.).

¹³This is different from the port of entry of the export. In fact, exports by California exporters differ significantly from exports to Mexico through California ports of entry. Between 1995 and 2002, the value of California-origin land exports going through all U.S. ports was on average 12 percent higher than the value of U.S.-origin land exports going through California ports (U.S. Department of Transportation, n.d.).

regarding its top destination (Table 3.2). For every year but one between 1995 and 2000, only one state took more than 10 percent of California’s exports—Baja California, which took 78 percent in 1995, trended downward to 65 percent in 2000, and then crawled back up to 70 percent in 2002. In 2001, the state of Mexico peered over that barrier and took 11 percent. In contrast, in that same period, four states took more than 10 percent of exports from the rest of the United States in six of the eight years, and in the other two years, three states took more than 10 percent.

Despite the concentration on one state, California businesses have lowered their share of exports targeted at the border more than have businesses in the rest of the United States, although with much volatility year by year. In 1995, almost 83 percent of all California exports were shipped to one of the six Mexican border states. By 2002, this had fallen to less than 74 percent. In contrast, businesses from the rest of the United States shipped almost 56 percent of their exports to the border states in 1996 and slightly more than 56 percent in 2002.

It is not clear what explains this difference. What has driven it is that California exports have tilted more toward Mexico City and the state of Mexico over time, rising from 6.8 percent of California land

Table 3.2

Top Export-Receiving State for California and the Rest of the United States

Year	Top State for Exports from California to Mexico	Share of California Exports to Mexico (%)	Top State for Exports from Rest of U.S. to Mexico	Share of Rest of U.S. Exports to Mexico (%)
1995	Baja California	78.3	Chihuahua	20.7
1996	Baja California	76.8	Chihuahua	20.9
1997	Baja California	71.9	Federal District	19.1
1998	Baja California	71.2	Chihuahua	18.3
1999	Baja California	73.5	Chihuahua	19.8
2000	Baja California	64.6	Chihuahua	20.9
2001	Baja California	65.5	Chihuahua	20.9
2002	Baja California	69.5	Chihuahua	22.0

SOURCE: U.S. Department of Transportation (n.d.).

exports in 1995 to 14.3 percent in 2002.¹⁴ The biggest growth in these exports came in electric and nonelectric machinery. This suggests increased production-sharing relationships with businesses near the Mexican capital.

Imports from Mexico

Just as exports from California to Mexico have grown dramatically, so have imports from Mexico to California. More precisely, the level of imports transported by land for which the person or business responsible for paying duties is a Californian has grown. It is impossible to tell exactly where these imports end their journey to the United States, but measuring the destination based on the location of the importer is the only way to get a sense of the geography of imports. Furthermore, imports transported by land account for about 86 percent of all U.S. imports from Mexico.

Mexican imports by California importers more than doubled between 1995 and 2002, from \$9.1 billion to \$20.3 billion. The growth was slightly larger than that of imports to importers in the rest of the United States.¹⁵ Nearly half of all these imports to California came in just two commodity groups—electrical machinery, including televisions, and nonelectrical machinery. In 1995, these two groups constituted 47 percent of all Mexican exports to California importers, and in 2002, they constituted 52 percent. The change represents a slight rising trend rather than just volatility. The third leading group has changed. In the mid-1990s, it constituted vehicles and vehicle parts. However, by 1997, that had switched to apparel, and apparel stayed in the number-three position through 2002. Apparel imports may stem from the rise of the apparel industry in Los Angeles and the use of Mexican apparel companies to carry out tasks that are complementary to Los Angeles apparel

¹⁴For the rest of the United States, these figures are 26.5 percent in 1995 and 24.6 in 2002.

¹⁵U.S. imports from Mexico during this period were quite responsive to decreases in tariffs resulting from NAFTA, with greater imports for those commodities that had bigger decreases in tariff rates (McDaniel and Agama, 2002).

companies. They may also relate to NAFTA benefits. NAFTA gave Mexico a cost advantage in apparel production that remained until new apparel benefits were given to the Caribbean, Andean, and African nations in the Trade and Development Act of 2000.¹⁶

As with California exports to Mexico, California imports from Mexico are concentrated in just a few commodities. In 1995, the top five commodities—out of 98—constituted 64 percent of all California imports from Mexico. This stayed steady through the 1990s and then started edging up in 2000, hitting 67 percent—or more than two-thirds of all imports—in 2002. Besides machinery and apparel, other leading imports that year included optical, photographic, and medical equipment, and vehicles and vehicle parts.

Not only were machinery, apparel, and instruments important imports in levels, they were also strong contributors to the growth of imports. Imports of each of these types of commodities more than doubled, with knit apparel imports rising 500 percent and nonknit apparel rising more than 200 percent. Together, the two types of apparel, instruments, and electrical and nonelectrical machinery contributed 75 percent of the growth of imports from Mexico between 1995 and 2002. As noted above, apparel received large preferences under NAFTA, relative to trade barriers on apparel from other partners, and machinery and instruments rely on production-sharing relationships.

Intracommodity Trade

California's trade relationship with Mexico has long passed the point of California exports ending their journey in Mexico and Mexican imports ending their journey in California. Instead, much of the trade takes place within webs of production, as exemplified by the Mexican border as the leading destination despite the Mexican center as the leading market. Many goods manufactured in California cross the border for further processing or final assembly and then come back to be purchased by consumers in California or the rest of the United States.

¹⁶Public Law 106-200, May 18, 2000.

One way to get a sense of this type of trade is to investigate an index of intracommodity trade that ranges from 0 to 100.¹⁷ If the index equals zero, then the partner country sells no commodity to the United States that the United States sells to the partner country, or the United States sells no commodity to the partner country that the partner country sells to the United States. If the index equals 100, then the partner country and the United States sell exactly the same value of the specific commodity to each other.

The index might approach the value of 100 for two possible reasons. First, the two countries trade differentiated products within the same commodity class. For example, Mexico may sell one brand of wine from a winery in Baja California to California, and California may sell another brand of wine to Mexico. In this case, the wine trade would be intracommodity but the export would stay in its destination market. Second, a high index could result when commodities are shipped abroad, processed or assembled while staying in the same commodity classification, and then shipped back—in other words, production-sharing.

Unfortunately, it is not possible to differentiate between these two reasons with currently available data. However, in the case of Mexico, it is likely that a high index indicates significant production-sharing. Nearly all electronics products assembled in Mexico rely on U.S. or Asian components, and for many commodities, the value of imports from the United States to Mexico to be used in further processing outstrips the value of imports headed for other uses.¹⁸ For example, in 2001, Mexican buyers purchased \$44.5 million worth of electrical machinery and other machinery under temporary import programs. U.S. exporters sold an additional \$39.5 million worth of these products to Mexico, or 88.6 percent of the value of these commodities sold under the temporary import programs.

¹⁷This is computed using the Grubel-Lloyd intraindustry trade index (Grubel and Lloyd, 1975).

¹⁸Watkins (2002b) and U.S. International Trade Commission (2002).

Given that, how does Mexico stack up regarding intracommodity trade? For the United States as a whole, trade with Mexico has one of the highest intracommodity trade indexes. U.S. trade with the world since 1989 has had an average intracommodity trade index of 47.9, and has not dipped below 47 since 1994.¹⁹ In contrast, U.S. trade with Mexico has averaged about 67.5 during this period, and Mexico has ranked in the top five every year since 1989. The only other country to rank in the top five every year is France, and France has been the top country six times, compared to three times for Mexico. Other frequent top-five countries include the United Kingdom, Canada, and Germany, all advanced economies with which the United States has extensive final-product and intermediate-goods intracommodity trade.

Just as U.S. trade with Mexico often occurs in the same commodities, so does California trade with Mexico. Between 1995 and 2002, the years of available state-level data, California's trade with Mexico was slightly more tilted toward intracommodity trade than was trade between Mexico and the rest of the United States, although the difference was very small. In that period, the intracommodity trade index for California-Mexico trade averaged 66.3 and bounced around between 62.2 and 71.5. The index for the rest of the United States averaged 65.2 and ranged between 63.2 and 69.8.

The top commodities for intracommodity trade include a range of goods, such as live trees and plants, live animals, glass and glassware, and musical instruments. However, just a few products with very large trade volumes of more than \$1 billion each year appear to be the main factors driving the high intracommodity index (Table 3.3). Some of these products also drive the high intracommodity trade index between the rest of the United States and Mexico, in particular machinery, electric machinery, and optical and medical instruments. However, the rest of the country also has large intracommodity flows of a variety of metals commodities, along with glass and rubber articles.

¹⁹This index is created using total exports and general imports at the two-digit harmonized tariff system (HS) code level. It includes HS codes 98 and 99. Indexes calculated at a more disaggregated level will be lower. See the appendix for more information.

Table 3.3

Important Commodities in California-Mexico Intracommodity Trade, 2002

Commodity	California Exports (\$ billions)	California Imports (\$ billions)	Intracommodity Trade Index
Machinery	2,808	3,308	91.8
Vehicles	511	758	80.1
Optical and medical instruments	669	1,021	79.2
Electric machinery	3,682	7,206	67.6
All commodities	13,781	20,308	62.2

SOURCES: Authors' calculations and U.S. Department of Transportation (n.d.). Calculations include only trade that traveled between California and Mexico by surface transportation. In 2002, this accounted for almost 86 percent of California exports to Mexico and an unknown proportion of California imports from Mexico.

NOTE: The table shows all commodities with greater than \$1 billion in surface trade between California and Mexico and an intracommodity trade index greater than the overall index.

The intracommodity trade flows point to one aspect of trade with Mexico that differs from established patterns. In general, high levels of intracommodity trade occur between countries of similar wage and income levels.²⁰ In 2002, the top three intracommodity trade partners with the United States included France, the United Kingdom, and Canada, and the top 10 included Germany and Belgium, which are very rich, and Malta, Singapore, and Israel, which are arguably developed countries but at minimum are wealthy middle-income countries. The only two truly developing countries in the top 10 were Mexico and the Philippines. Mexico's inclusion in the list speaks to the extensive production networks that have developed between it and the United States.

Trade and Its Effect on California Employment²¹

On an economywide basis, trade generally does not have the direct effect of creating jobs, although it can have that effect in a localized area

²⁰Sachs and Shatz (1994), p. 21.

²¹All estimates of the effect of exports on employment and compensation are based on the authors' calculations using trade data and input-output multipliers. Methods are explained in the appendix and more fully in Shatz and Vilchis (2004).

of a national economy. The level of employment in an economy—especially an economy as large and complex as that of the United States—is set for the most part by fiscal and monetary policy. For U.S. employment, this is especially true of trade between the United States and Mexico, because the Mexican economy is very small relative to the U.S. economy.

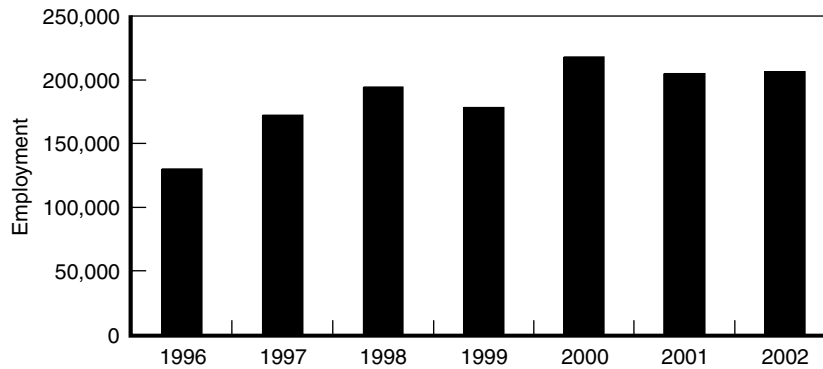
The main effects of trade are to reallocate employment and production among sectors and regions and to enlarge the overall economy. The growth of the economy can bring about higher average incomes, and it can bring about more jobs as a secondary effect, for example, by increasing demand and raising labor-force participation. Discussion about exports creating jobs and imports destroying jobs obscures these effects. Evaluating the effects of NAFTA on the U.S. economy, several economists noted, “an honest argument for trade liberalization should recognize that an economy benefits from both imports and exports. However, to realize these gains, resources must be reallocated, and this entails adjustment costs.”²²

With the opening of Mexico and the advent of NAFTA, California exports to Mexico have risen dramatically. In 1989, California-origin exports to Mexico totaled \$3.2 billion. They peaked in 2000 at \$17.5 billion—more than five times higher—and by 2002 had settled back down to only \$16.1 billion. This steady march upward, or at least mostly upward, has meant that more and more Californians are producing goods destined for Mexico. As California producers have reallocated their exports to Mexico and away from the rest of the world, it also means that fewer Californians are producing goods for other markets, or even for the rest of the United States if goods formerly produced for internal use are now going to Mexico.

Between 2000 and 2002, more than 200,000 California workers directly or indirectly produced goods destined for Mexico, about the number of jobs in San Joaquin, Santa Barbara, Solano, or Stanislaus Counties in December 2002 (Figure 3.3).²³ Many of these jobs were held by the people who actually produced the goods that were exported,

²²Burfisher, Robinson, and Thierfelder (2001), p. 132.

²³The method for computing these numbers is explained in the appendix.



SOURCES: California Technology, Trade, and Commerce Agency (2002); U.S. International Trade Commission (2003 and 2004); U.S. Department of Commerce (1997 and 1998); U.S. Department of Labor (n.d.); and authors' computations.

Figure 3.3—California Employment Producing and Transporting Exports to Mexico, 1996–2002

including the workers who made the final product and the workers who made the inputs for the final product. However, many also were held by the people who transported and wholesaled these goods. In fact, total transporting and wholesaling jobs related to exports to Mexico amounted to more than 20 percent of all jobs producing and moving these exports.

In some cases, the transport and marketing jobs came from moving reexports—goods that enter the United States and then undergo either no transformation or minimal transformation before being exported again. In 1996, about 5 percent of all export-related transport and wholesaling jobs stemmed from handling reexports. By 2002, that figure had risen to 20 percent.

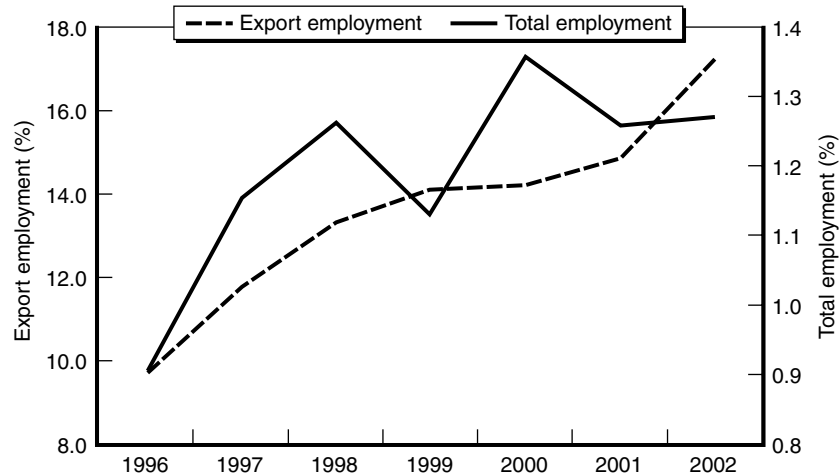
Employment related to Mexico-bound exports rose in absolute terms from 1996 to 2002, from 130,000 to 206,000, with a peak in 2000.²⁴ In contrast, employment related to exports to the rest of the world fell between the two years, from 1.2 million to a little less than 1.0 million,

²⁴The number of jobs producing exports for Mexico may be an undercount if California goods are shipped through other states and credited as having their origin of movement in those states, as is likely. Properly identifying the production location of exports is a long-standing problem in state export data.

also with a peak in 2000. This reflects the reallocation of California production away from other markets, such as Japan, and toward Mexico.

The number of jobs producing exports for Mexico is a large portion of all California jobs producing exports, but a small portion of all California jobs (Figure 3.4). Both proportions have risen dramatically as California has reoriented its trade toward Mexico. In 1996, 9.7 percent of all export-related jobs in the state produced exports for Mexico. By 2002, that number had risen to 17.2 percent. Likewise, in 1996, 0.9 percent of all California jobs produced exports for Mexico. By 2002, that proportion had risen to 1.3 percent after peaking at nearly 1.4 percent in 2000.

Exports to Mexico have had a similar effect on total household earnings from export production. In 1996, household earnings stemming from exports to Mexico measured 9.2 percent of all California household earnings stemming from export production. That figure rose steadily and hit 16.7 percent in 2002. More and more, the people who earn their livings from exports do so from exports to Mexico.



SOURCES: California Technology, Trade, and Commerce Agency (2002); U.S. International Trade Commission (2003 and 2004); U.S. Department of Commerce (1997 and 1998); U.S. Department of Labor (n.d.); and authors' computations.

Figure 3.4— California Jobs Producing Exports for Mexico as a Proportion of All Export-Related and All State Jobs, 1996–2002

A final caveat is in order. Were exports to Mexico to stop, these production, transportation, and wholesaling jobs and the incomes associated with them would not disappear, so it is incorrect to think that employment in California would fall by 200,000. The companies producing, shipping, or marketing the goods would sell most of them to other markets, sometimes at lower prices, and the jobs would continue to exist, at least in the medium to long term. There would, as well, be transition costs, as producers found new markets for their goods.

The relationship between jobs and imports is more difficult to compute than that between jobs and exports because their effects are more complicated. Imports can and do lead to short-term losses in employment or lack of employment growth. However, they also expand product variety and lower prices, allowing producers to use lower-priced inputs and thereby expand, or allowing consumers to spend more on other goods, some of which might be made domestically.²⁵

There is, at this point, insufficient data to accurately assess the short-term effect of imports from Mexico on employment in California. Better data on imports from abroad and from the rest of the United States would be necessary, because imports from Mexico might displace California imports from other foreign countries or from other states, rather than California domestic production.

One way to attack the question, however, is through the North American Free Trade Agreement—Transitional Adjustment Assistance Program (NAFTA-TAA) that ran from the start of NAFTA in 1994 through November 3, 2002, when it was merged with more general Trade Adjustment Assistance. Rather than applying just to the new trade resulting from NAFTA, the program applied to all trade and investment related to NAFTA countries. It aimed to provide transition assistance to all workers who lost their jobs or whose hours of work were reduced as a result of trade with Canada or Mexico or as a result of a production shift to Canada or Mexico.²⁶

²⁵Imports also provide more competition, which spurs productivity growth, and they bring new technology that may not be otherwise available to an economy.

²⁶Worker groups, employers, and unions could all apply, and applications then went through a certification process at both the state and federal level (U.S. General Accounting Office, 2000).

The data may understate the true effects of imports from Mexico. Most important, although secondary workers (those who supplied companies directly affected by NAFTA imports and production shifts) were eligible for benefits, the database used does not include them.²⁷ Furthermore, not all affected workers might have applied for assistance.

Despite these caveats, the numbers from the NAFTA-TAA program are instructive.²⁸ During the life of the program, 161,066 U.S. workers qualified for benefits as a result of imports from Mexico or imports from Mexico and Canada (with the true source country undetermined).²⁹ Of this number, 5,713 were in California, or only 3.5 percent.³⁰ This number is slightly less than total employment in Inyo County (6,710 jobs) and slightly more than total employment in Trinity County (5,240 jobs) in December 2002.

These workers who qualified were located in only 12 of California's 58 counties. Only three of these counties had more than 10 percent of the affected jobs—Los Angeles County with 29.8 percent, San Diego County with 11.7 percent, and Santa Cruz County with 10.5 percent. In each case, those proportions were higher than the county's share of total state employment in December 2002 (27.2 percent, 8.7 percent, and 0.8 percent, respectively).

Apparel and agriculture were by far the hardest-hit industries (Figure 3.5). Slightly less than 40 percent of the jobs were in apparel, especially

²⁷This may not be a meaningful omission. Between 1995 and 1999, only 1.3 percent of all certified NAFTA-TAA workers have been secondary workers. Many such workers might not have applied. Therefore, an alternative way to handle the issue is to use a Department of Labor multiplier that suggests that each manufacturing job supports 0.95 of a job in a supplier industry. In that case, the number of affected secondary workers would be approximately the same as the number of affected primary workers (U.S. General Accounting Office, 2000).

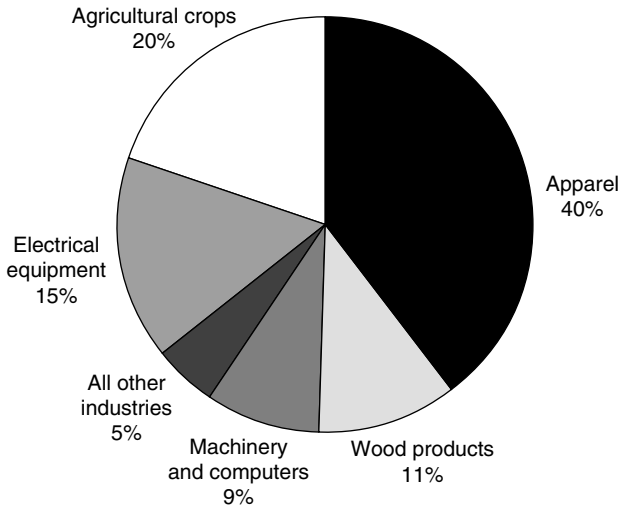
²⁸Data on the NAFTA-TAA are from the database on the program maintained by the North American Integration and Development Center at the University of California, Los Angeles, and were downloaded December 9, 2003.

²⁹Omitted from this total are the number of jobs qualifying as a result of shifts in production to Mexico, which is foreign direct investment rather than trade, and the number of jobs qualifying as a result of imports from Canada or shifts in production to Canada.

³⁰This figure omits the number of jobs affected by the relocation of production; this will be reviewed in Chapter 4.

in men's and boys' trousers and slacks; women's, misses', and juniors' blouses and shirts; and women's, misses', and juniors' outerwear, not elsewhere classified. In agriculture, which accounted for almost 20 percent, these jobs were in vegetables, melons, and grapes. Other industries with more than 10 percent of the affected jobs included electrical equipment and wood products. The electrical equipment and machinery and computer industries are the same industries that have the two leading import commodities, as described above.

Certainly, some of these affected industries have noticed the pressure of imports from Mexico. For example, commenting on Mexican pressure on the United States to loosen restrictions on imports of Mexican avocados, a California Avocado Commission official noted, "California's avocado industry has been good at building consumer



SOURCE: North American Integration and Development Center (n.d.).

Figure 3.5—The Industrial Distribution of Certified Claims in California Under the NAFTA-TAA Program for Jobs Affected by Imports, 1994–2002

demand. But now we're seeing countries like Mexico and Chile come in and take advantage of our work."³¹

As for the net effect of Mexican imports and exports on employment, most studies estimate that it is small relative to the size of the U.S. labor market. For example, Hinojosa Ojeda and associates find that between 1990 and 1997, imports from Mexico affected between 273,000 and 299,000 U.S. jobs, and exports were related to between 330,000 and 609,000 jobs. During the same period, the U.S. economy had 400,000 workers separating from their jobs each month and was creating 200,000 net new jobs per month.³²

The export figures reported above for California show that the increase in export-related employment between 1996 and 2002 was 76,187, a small amount compared to the total California labor force. Import-affected employment was 5,713, for a longer period, 1994 through 2002, but that does not account for linkages throughout the economy. However, the import-related number would have to understate the effects by 13 times for the two totals to be comparable. Regardless, one other comparison is clear: The total number of jobs affected by exports and imports appears small relative to total California employment, which in December 2002 was 16.3 million.

Services Trade with Mexico

Although most of this chapter concentrates on goods trade between California and Mexico, services trade is also important. Shatz (2003a) detailed California's services exports with the world. Any such estimate for California-Mexico services trade would be very speculative. However, several components of services trade likely play an important role in interactions between the two economies. These are travel, land freight transportation, and, possibly, software sales from California to Mexico. To illustrate the nature of services trade, this chapter gives two examples: travel trade, which is large, and trade in educational services, which is small but may grow if relationships between California universities and Mexico become more institutionalized.

³¹Campbell (2000).

³²Hinojosa Ojeda and others (2000).

Travel exports to Mexico include all purchases of goods and services by Mexican travelers in the United States. Travelers include anyone traveling for business or personal reasons and staying less than one year but exclude students and medical patients. Travel imports from Mexico include all purchases of goods and services by California travelers in that country. Land freight transportation exports include receipts to California carriers by Mexican exporters for the transport of freight by truck, rail, or pipeline, and the provision of services related to that transport. Imports include expenditures by California exporters to Mexican carriers for bringing goods from California to Mexican destinations. Education exports include tuition and living expenses incurred by Mexicans enrolled in U.S. colleges and universities. California education imports include tuition and living expenses incurred by Californians enrolled in Mexican colleges and universities.

Total U.S. services exports to Mexico in 2000 were \$14 billion, of which the two largest components were travel (35 percent) and various private services such as education, financial, business, professional, and technical (46 percent). Total U.S. services imports from Mexico were \$11 billion, of which travel was the largest component by far (60 percent). In total, U.S.-Mexico services trade constituted 5 percent of all U.S. services trade.³³ Some data are available for later years, and the rest of this section discusses two components of services trade between California and Mexico—travel and education.³⁴

In 2002, total U.S. travel exports to Mexico (or receipts from Mexican visitors) were \$5.5 billion, with an additional \$1.3 billion collected for transporting these visitors. An estimated 9.8 million Mexicans visited the United States that year. Of these visitors, an estimated three million came to California, suggesting a very rough estimate of \$2 billion in travel and transport exports for California.

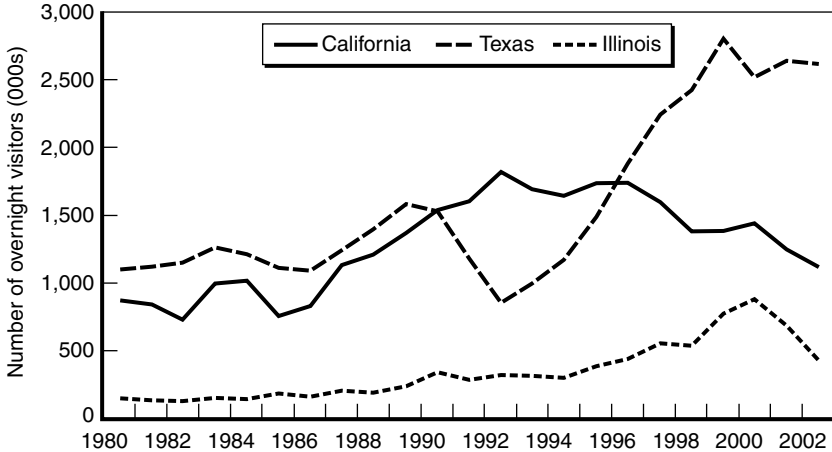
Conversely, total U.S. travel imports from Mexico were \$7.1 billion, with an additional \$794 million for transportation. That same year,

³³Mann and Borga (2001).

³⁴Education is included in the broad component “other private services.” This broad category constituted the largest category of U.S. services exports to the world and to Mexico in 2000 and the second-largest category of U.S. services imports from the world and from Mexico that year.

16.8 million Americans visited Mexico (the leading U.S. destination, just ahead of Canada). Unfortunately, U.S. data on the number of California visitors to Mexico are not available, but Mexican data are. Although the levels are not comparable, the proportions may be. Mexican data show that 12.8 percent of all U.S. tourists who stayed at least one night in Mexico came from California, slightly larger than California's share of the U.S. population. Of these, almost two-thirds were not Mexican nationals. However, the expenditures of overnight visitors from California to Mexico amounted to only 11.5 percent of expenditures by all such visitors. In addition, the number of overnight visitors from California to Mexico has trended downward in recent years and has been eclipsed by visitors from Texas (Figure 3.6).

In contrast to travel exports (Mexicans visiting California), it does not appear that California education exports to Mexico form a large



SOURCE: Secretaría de Turismo (2003).
 NOTE: Data show visitors under the category "turismo receptivo," those visitors who spend a night or more in Mexico, not including visitors to border areas.

Figure 3.6—Overnight Visitors to Mexico from the Top Three Sending States, 1980–2002

share of overall U.S. education exports to Mexico.³⁵ In the 2002–2003 academic year, 12,801 Mexican students studied in the United States, constituting 2.2 percent of all foreign students at universities in the United States and ranking Mexico seventh among source countries.³⁶ Although these numbers have been rising, from 8,021 in the 1993–1994 academic year, so have the numbers of foreign students overall. Therefore, the share of Mexicans among all foreign students has stayed about the same from 1993 to 2003.³⁷

However, these numbers do not appear to be large for California institutions of higher education. The University of California (UC) system reported only 200 Mexican nationals among its students in the 2002–2003 academic year, of which 162 were graduate students. The California State University (CSU) system reported 496 nonpermanent-resident Mexican nationals among its 2002–2003 student body, of which 81 were postbaccalaureate or graduate students. This is a huge increase from the 1990–1991 figures—138 students, of whom 50 were postbaccalaureate or graduate—but is still small compared to all Mexican students in the United States. Even the University of Southern California (USC), the leading recipient of foreign students in the United States, reports few Mexican students. Between 1993 and 2002, USC reported hosting on average 31 nonimmigrant, nonpermanent resident students from Mexico, with a range of 25 to 39. Including U.S. permanent residents, the average for 1996 to 2002 (the only years these figures are available) was 169, with the figure trending downward.³⁸ In the 2002–2003 academic year, USC hosted 6,270 international students out of a total enrollment of 30,682.³⁹

³⁵The numbers reported refer to Mexican nationals who are not permanent residents of the United States.

³⁶India and China led, with 66,836 and 63,211 students, respectively.

³⁷Institute for International Education (2003).

³⁸Data from the UC and CSU systems and from USC are from personal communication.

³⁹Institute for International Education (2003).

It is not clear what to make of these numbers, but there are three possibilities. One is that there is serious underreporting, or that legal permanent residents or illegal immigrants of Mexican origin are being counted as U.S.-origin students. The second is that universities in other U.S. states may be relatively more attractive to Mexican nationals. The third is that Mexico itself offers an excellent selection of universities, so there is little reason to go abroad.

California as a Gateway for U.S. Trade with Mexico

Aside from the sale and purchase of goods and services, California's trade integration with Mexico is manifested one other way, and that is through its role in the physical movement of goods and the gateway services it provides. This section discusses gateway services provided to U.S. trade generally, and the next section discusses gateway services provided to California trade specifically.

The land crossings, or ports of entry, airports, and seaports of the four U.S. border states—Texas, New Mexico, Arizona, and California—serve as the major gateways for U.S.-Mexico trade. Between 1989 and 2002, on average, 91 percent of U.S. exports entered Mexico and 88 percent of imports from Mexico entered the United States through these states. This latter figure steadily rose from 82 percent in 1990 to more than 90 percent throughout the late 1990s.

Besides the geographic concentration of gateway services with Mexico, there is a modal concentration as well. From 1995 to 2002, more than 87 percent of all U.S. trade with Mexico moved by land. For trade through California, more than 92 percent moved by land—91 percent of all exports and 93 percent of all imports. The vast majority moved by truck. For San Diego-area gateways—the leading California gateways for U.S.-Mexico trade in California—98 percent of all land exports and 99 percent of all land imports moved by truck.⁴⁰

Ports are grouped in customs districts, of which California has three—the customs districts of Los Angeles, San Diego, and San Francisco. Of the three, San Diego handled 11 percent of all U.S. exports going to Mexico, on average, from 1989 to 2002, and almost 13

⁴⁰Other possible land modes are train or pipeline.

percent of all U.S. imports coming from Mexico, on average, during the same period. San Diego averaged about 88 percent of all U.S. exports to Mexico exiting through California and 92 percent of all imports from Mexico entering through California (Table 3.4). Among individual gateways, as opposed to customs districts, the Otay Mesa crossing is the largest in terms of value of trade and the only California gateway among the top five in the United States handling U.S.-Mexico trade in 2002 (Table 3.5).⁴¹

Table 3.4

Value and Share of U.S.-Mexico Trade Through California Customs Districts, 2002

Customs District	Exports			Imports		
	Value (\$ million)	Share of U.S. (%)	Share Through California Ports (%)	Value (\$ million)	Share of U.S. (%)	Share Through California Ports (%)
San Diego	12,762.0	13.1	91.5	17,292.9	13.0	93.8
Los Angeles	979	1.0	7.0	719	0.5	3.9
San Francisco	213	0.2	1.5	433	0.3	2.3

SOURCES: U.S. International Trade Commission (2003 and 2004).

Table 3.5

Leading California Gateways and Trade with Mexico, 2002

Gateway	Customs District	Value of Trade (\$ million)	Share of All Mexico Trade through California Ports (%)	Share of all U.S.-Mexico Trade (%)
Otay Mesa Station	San Diego	20,363	62.9	8.8
Calexico-East	San Diego	8,409	26.0	3.6
Los Angeles International Airport	Los Angeles	1,156	3.6	0.5
Tecate	San Diego	950	2.9	0.4
Port of Los Angeles	Los Angeles	325	1.0	0.1

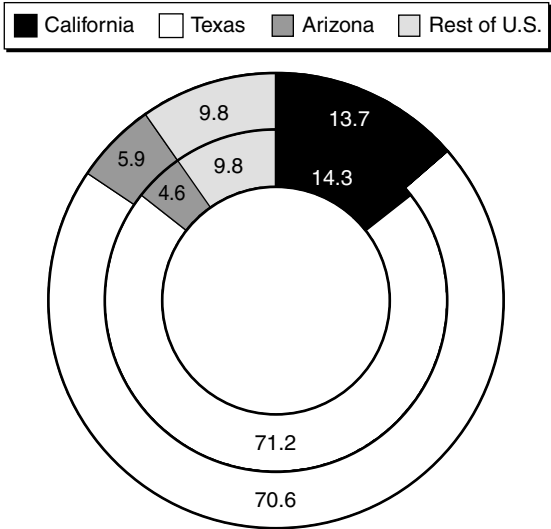
SOURCE: Massachusetts Institute for Social and Economic Research (2003a).

NOTE: Trade is the total of imports plus exports.

⁴¹The top five, in order, were Laredo, Texas; El Paso, Texas; Otay Mesa, San Diego; Hidalgo, Texas; and Nogales, Arizona. Of these, Laredo was far ahead, handling \$79.4 billion of imports and exports combined, or 34.2 percent of all U.S. trade with Mexico.

California gateways play a small role in the facilitation of overall U.S. trade with Mexico (Figure 3.7). In 2002, they handled 13.7 percent of all U.S. imports from Mexico and 14.3 percent of all U.S. exports to Mexico. Contrast this with Texas, which handled 70.6 percent of all U.S. imports from Mexico and 71.2 percent of all U.S. exports to Mexico. Arizona handled the smallest share—only 4.6 percent of U.S. exports to Mexico and 5.9 percent of U.S. imports from Mexico in 2002.

In large part, California’s low share of U.S.-Mexico port activity relative to that of Texas results because much trade between the two countries moves by land, and the land border between California and Mexico is quite short (145 miles). In contrast, the land border between Texas and Mexico is 1,254 miles, allowing for more transit points. Furthermore, Texas is closer to the majority of economic activity in the United States—the giant East Coast economy—and to the majority of economic activity in Mexico. A comparison of distance from Dallas to



SOURCES: U.S. International Trade Commission (2003 and 2004).
 NOTE: Texas includes two ports of entry in New Mexico. California includes two ports of entry in Nevada.

Figure 3.7—Percentage Share of Exports (Inner Circle) and Imports (Outer Circle) with Mexico Handled by Ports in U.S. Border States, 2002

Mexican state capitals to distance from Los Angeles to Mexican state capitals shows that Texas is closer to the Mexican states that had 93 percent of Mexican GDP in 2001, closer to the five largest, and closer to four of the six border states, where maquiladoras are concentrated.⁴²

A recent survey of truck traffic between California and Mexico sheds more light on the origins and destinations of truck-based trade between the United States and Mexico.⁴³ The survey estimates that about 92 percent of truck traffic to and from the border either comes from or is destined for points within the United States, with another 8 percent to or from Asia, Canada, Europe, and South America excluding Mexico.⁴⁴ Of the trips that are within the United States, about 79 percent stay within California, and most of these stay south of the sixth standard parallel—the northern border of San Luis Obispo, Kern, and San Bernardino Counties.

Most of the population of California lives in this southern region, and so a relevant measure is truck trips relative to population. By this measure, truck activity is concentrated at the border. Almost 25 percent of California-Mexico truck trips are between Mexico and San Diego and Imperial Counties, although less than 9 percent of California's population live in those counties. Another 14.5 percent are between Mexico and Riverside and San Bernardino Counties, where about 10 percent of California's population live. Many of these goods are probably destined for elsewhere in the United States, however, because San Bernardino is a major warehousing center and the jumping off point for much truck and rail traffic to the rest of the United States. Finally, almost 54 percent of the California-Mexico truck trips are between Mexico and the South Coast counties of Ventura, Los Angeles, and Orange, which together host 39 percent of California's population.

⁴²California is closer to the states of Baja California, Baja California Sur, and Sonora.

⁴³California Department of Transportation (2003).

⁴⁴The contents of these trucks are brought to airports, seaports, or land border crossings and then shipped internationally.

Unlike much of California-origin trade, only a small amount of California exports to Mexico is shipped by air.⁴⁵ In 2002, Los Angeles International Airport served as the gateway for 6.7 percent of all U.S.-Mexico exports handled by California ports, the third-ranked export gateway in the state, but far behind Otay Mesa and Calexico-East. This was actually down from the proportion handled in 2001 (8 percent) and 2000 (7 percent). In contrast to exports, Los Angeles International handled 1 percent of U.S. imports from Mexico moving through California ports in 2002, down from 2.5 percent in 2000 and 1.8 percent in 2001. The limited air shipments are likely because the bulk of California exports are aimed at the border and shipping by truck is more efficient in terms of time and cost than shipping by air.

The destination of exports to Mexico passing through California ports is highly concentrated, according to land-transport data. On average, since 1995, only three Mexican states have received more than 1 percent of all U.S. exports to Mexico passing through California ports.⁴⁶ These are Baja California, which received 84.2 percent on average, the state of Mexico, which received 6.8 percent, and Mexico City (the Federal District), which received 2.4 percent on average.

These averages mask underlying trends. The share of exports going to Baja California fell from almost 92 percent to 77 percent between 1995 and 2002. In contrast, the share going to the state of Mexico rose from 2.3 percent to 12.9 percent during the same period. And the share going to Mexico City rose from 1.5 percent to 2.8 percent, hitting a high of 4.7 percent in 2001. During the same period, however, no other Mexican state received more than 1 percent of U.S. exports entering Mexico from California ports. There may be two explanations for these trends. First, even though trade is still concentrated at the border, increased economic integration during the past 20 years has meant increased economic relations with businesses in the center of Mexico. Second, they may be an artifact of the data: The goods may still be aimed at the border, but the importer of record may be in Mexico City.

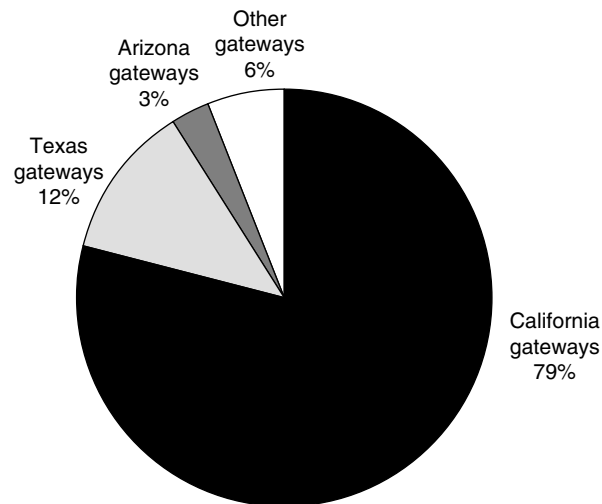
⁴⁵See Shatz (2003a) for information on California's airports in international trade.

⁴⁶State destinations are determined by the location of the ultimate consignee, or party taking delivery, rather than by the state of final destination.

California as a Gateway for California Trade with Mexico

Unlike exporters and importers from the rest of the nation, those in California rely on California ports to handle most of their trade. However, they still use Texas ports as well. In fact, more than 12 percent of California-origin exports to Mexico exited the United States through Texas ports in 2002. Data on California trade through ports are available for all exports, exports by land, and imports by land. This section first discusses total exports and then focuses on trade by land.

In 2002, almost 80 percent of California's exports to Mexico—almost \$12.7 billion out of \$16.1 billion—left the state through California ports (Figure 3.8). Most of the rest went through Texas and Arizona ports, with an additional tiny portion exiting through New Mexico. California exports rely on border ports even more than do U.S. exports to Mexico as a whole. In that same year, 94.2 percent of California exports entered Mexico through ports in border states, compared to 90.2 percent of U.S. exports as a whole. Proximity surely



SOURCE: Massachusetts Institute for Social and Economic Research (2003a).

Figure 3.8—Leading Gateways for California-Origin Exports to Mexico, 2002

plays a role. Manufacturers in the northeastern United States are more likely than manufacturers in California to find shipments by air cheaper than shipments by truck.

Although California's seaports and airports generally facilitate trade for the nation as a whole, California's land ports with Mexico largely serve California-origin trade, at least when it comes to exports. On average, from 1999 to 2002, more than 92 percent of all exports leaving California ports for Mexico started their export journey in California.⁴⁷ In large part, this is because most U.S. trade is destined for the center of Mexico and the Mexican states bordering Texas—destinations for which California's ports are disadvantageous.

Most California-origin exports that go through California ports are meant for delivery in Baja California. In some cases, the party taking delivery is in the state of Mexico or Mexico City, but California exporters behave much as exporters from the United States as a whole, selling mostly to the border states. During the period 1995 to 2002, on average 87 percent of all California-origin exports that left through California ports were delivered to Baja California. As with exports from the United States as a whole, this fell during the period, from 93.0 percent to 81.9 percent, with a low of 79.4 percent in 2001.

As with exports, the vast majority of imports from Mexico entering through California ports are handled by California importers (Table 3.6).⁴⁸ On average, between 1995 and 2002, 87 percent of all surface imports, 87 percent of all imports by truck, and 78 percent of all imports by train through California ports were facilitated by a California importer. These patterns held throughout the period. Likely because of

⁴⁷Even though a good started its export journey in California, it may not have been produced in the state. The state-level export data record the origin of movement of the good in terms of its transportation origin rather than its production origin. The transportation origin might be a warehouse or broker rather than a factory. The origin of movement and the place of manufacture have a strong relationship for manufactured goods but a weaker relationship for nonmanufactured goods such as agricultural products (U.S. Department of Commerce, International Trade Administration, n.d.).

⁴⁸Data on destination of imports are available only for trade that entered by surface transportation, rather than sea or air. Destination of import is the address of the importer responsible for paying duties and may not reflect the final destination.

Table 3.6
Use of California Ports by California Importers for Surface Imports
from Mexico, 2002

Values of imports (\$ billions)	
Value of California surface imports from Mexico	20.3
Value of U.S. surface imports from Mexico handled by California ports	17.3
Value of California surface imports from Mexico moved through California ports	15.2
Proportions of import value (%)	
California surface imports from Mexico moved through California ports	74.8
California imports moved through California ports relative to U.S. imports moved through California ports	87.9
California surface imports through California ports moved by truck	99.4
California surface imports through California ports moved by train	0.4

SOURCE: U.S. Department of Transportation (n.d.).

their location, California ports cannot serve as an efficient gateway for most U.S.-Mexico trade for U.S. importers from outside California. Rather, they serve mostly Californians. As a result, they have a direct link to the health of statewide business activity, which should bring them to the attention of the legislature in Sacramento and the state's congressional delegation in Washington, D.C.

In sum, California gateways serve a specialized niche in U.S.-Mexico trade. They host trade between the United States and Baja California, the vast majority of their traffic moves by land, and their main users are California exporters and importers. This contrasts with the services they provide to the United States for trade with Asia or Europe. In those cases, large proportions of trade move by sea and air, and the port users include businesses from across the United States. Geography largely determines these patterns. The California border with Mexico is short and U.S. and Mexican shippers can reach their destinations more easily from the Texas and Arizona land crossings.

Summing Up California Trade with Mexico

Mexico has become a significantly more important trade partner with California over the past 15 years. Merchandise exports have risen smartly and tend to provide more opportunities for Californians in industries that rely somewhat less on high-skill labor than in industries

that manufacture exports for the rest of the world. At the same time, these exports remain geographically concentrated among Mexican border states, and many are used in production-sharing rather than for final sale to Mexican consumers. Imports have also risen and as with exports, are concentrated in just a few industries. California and Mexico also engage in services trade, with California experiencing high levels of travel exports in the form of Mexican visitors and Californians supplying a large number of visitors to Mexico, counted as services imports.

Trade generally helps bring about economic growth through enlarging the market, introducing efficiencies, and lowering costs. However, it also has a distributional effect through jobs and incomes. It appears, based on limited data, that more jobs are related to California exports to Mexico than are affected by imports from Mexico. However, the two numbers are small in relation to the size of the overall California labor market.

Two patterns are likely going forward. First, it is likely that trade will stay at high levels, although this is not a particularly bold prediction. Despite calls from some politicians and groups on both sides of the border to rethink NAFTA, most politicians are committed to trade integration in one form or another. For example, the United States and Mexico have tried to spawn increased business contacts through the Partnership for Prosperity program. Business people are becoming ever more familiar with how to do business in the United States or Mexico, and because trade tends to be geographically concentrated, the common border will encourage trade.

Second, it is likely that Mexican business people, perhaps in cooperation with U.S. investors, will expand their sales to the growing U.S. Hispanic market. A recent program for small and medium businesses held in Tijuana in November 2003 featured a talk on “Business Opportunities for the Hispanic Market in the Southwest United States.” A large component of the talk focused on the giant Hispanic market in Los Angeles.⁴⁹ California, by virtue of its own geography and population, will continue to play an important role in U.S.-Mexico trade.

⁴⁹Villagómez (2003).

Much of the trade is spurred by investment, and investment linkages between the United States and Mexico are strong. In fact, increased investment is one other aspect of integration that the Partnership for Prosperity is designed to encourage. It is to this aspect of the economies of California and Mexico that the next chapter turns.

4. The Spread of Multinationals and Cross-Border Production

Trade links between Mexico and California are deep, in the sense that the total value of traded goods is high, and broad, in the sense that many different types of goods are traded. There are other links, however, that bring the two economies closer.

Although trade is a visible sign of integration, the main driver of global integration in recent years has been the spread of multinationals through FDI. In just the decade 1991 to 2001, global imports of goods and services increased 5.5 percent each year on average, but global flows of FDI increased 17.0 percent each year.¹ The growth numbers are different depending on the base year, but the comparison holds up for almost any period—FDI has been rising much more rapidly than trade.²

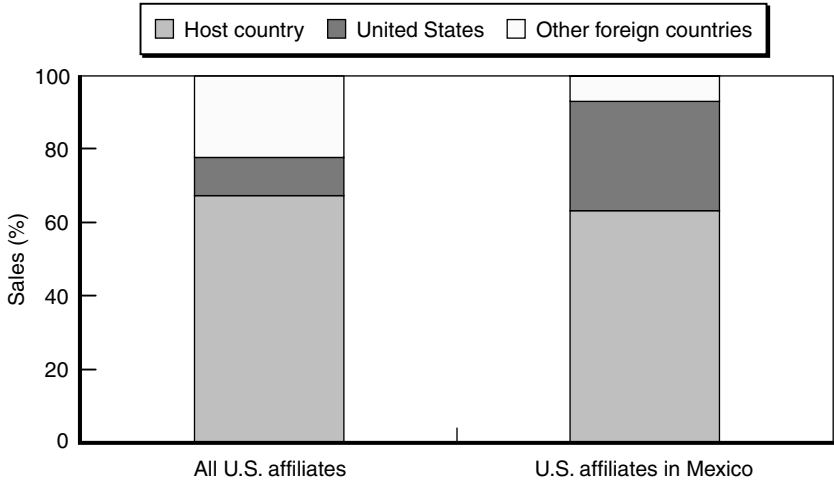
FDI drives integration in a number of different ways. First, it creates an interest by the investing company in the host country. Although there are a number of ways to hedge risk, and some forms of FDI are easier to withdraw than others, direct investors generally study target countries carefully and choose those in which they believe they can make a long-term commitment. This differs from portfolio investment—investment in foreign equities and bonds—which can be reversed easily and quickly. Second, FDI often involves transfers of management techniques and technology to the host country and gains in market-knowledge for business people from the source country. Third, FDI is a facilitator of trade, because much of world trade flows between different units of the same multinational company.

¹The figure is based on recorded flows of inward FDI, which do not necessarily (but should) match recorded flows of outward FDI. Such discrepancies are common in international economic data, where outbound values, such as the value of exports, should match inbound values, such as the value of imports.

²World Bank (2003a and 2004).

Companies carry out FDI for a number of reasons. One important task that they accomplish is serving the host market, in which the goods produced abroad are sold in the country in which they are produced. In 2000, more than two-thirds of all sales by U.S. multinational affiliates abroad were sold in the host-country market, with only 11 percent sold back to the United States (Figure 4.1). In Mexico, however, the story is somewhat different. Although a large portion of sales stayed in Mexico (63 percent) most of the rest (30 percent) came back to the United States.

This suggests a second purpose for FDI—the creation of foreign plants to play a role in an international supply chain, assembling or producing goods for either the home market or third-country markets. One key driver of FDI between rich economies, such as those of the United States, the European Union, and Japan, and poor and middle-income economies, such as those of East Asia in the 1970s and Mexico today, has been the opportunity to outsource tasks or fragment production. This has been an important part of FDI in Mexico since the creation in 1964 of the maquiladora program. From the inception of the



SOURCE: U.S. Department of Commerce (2002), Table III.F.2.

Figure 4.1—Destination of Sales for U.S. Multinational Affiliates Worldwide and in Mexico, 2000

program, goods were shipped to Mexican factories duty-free, assembled there to take advantage of the lower Mexican wage rates, and then shipped back to the United States. U.S. tariffs on these goods were generally levied only on the Mexican portion of the value.

Although much of the world's FDI comes from the rich countries, firms in developing countries also invest abroad. Mexican FDI in the United States has grown, in part to serve the U.S. market and in part to take advantage of the skills and business environment that the U.S. economy offers.

Two-way FDI received a further boost from NAFTA. Although billed as a free trade agreement, NAFTA was actually a trade and investment treaty. A separate chapter within the treaty specified rules for how all three NAFTA nations had to treat investments coming from elsewhere in the NAFTA region and designated a process for arbitrating disputes when these rules were violated. NAFTA also made all three countries more inviting locations for investment from outside the region by creating a larger unified market. A company from Europe or Asia wishing to export to the United States, for example, could set up a plant in Mexico and get duty-free treatment for its U.S.-bound goods rather than having to pay duties applicable were it to manufacture at home.

In the eight years before NAFTA, 1985 to 1993, the value of the stock of FDI in the NAFTA countries grew 130 percent. In the eight years from the start of NAFTA, 1994 to 2002, it grew 177 percent. In contrast, in the rest of the world, growth of the stock of FDI in those two periods was 143 percent and 170 percent, respectively. NAFTA inward investment changed from growing more slowly than investment in the rest of the world to growing more rapidly. All three NAFTA markets had increases between the two periods, with Mexico's increase the most dramatic: 116 percent in the earlier period and 364 percent in the later period.³

Certainly, not all of that change was due to NAFTA. North America saw robust growth in the late 1990s, in part because of the U.S. technology boom, in part because of U.S., Canadian, and Mexican

³United Nations Conference on Trade and Development (2003 and 2004).

economic policies, and in part because of the Mexican rebound from the 1995 peso crisis. NAFTA, however, also helped spur this investment.

This chapter investigates FDI between California and Mexico in two ways. First, it looks at FDI generally, using a firm-level dataset that does not capture all firms but captures many major investments regardless of the purpose. This allows a discussion of FDI in both directions. Second, it looks exclusively at maquiladoras, investigating California's use of these plants in the past decade. After reviewing these two types of cross-border business activity, it discusses FDI and employment issues.

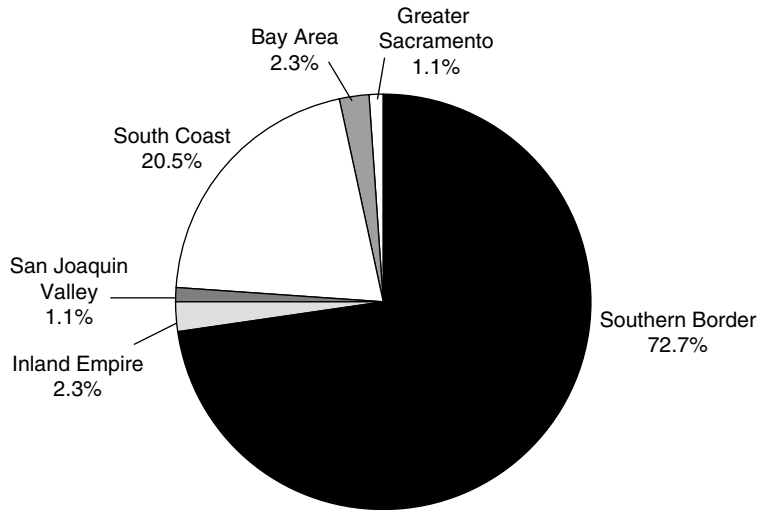
Two-Way FDI Between California and Mexico

As with trade, the spread of multinationals is in large part a border story, especially from the perspective of Mexican investors (Figure 4.2). Most Mexican-owned subsidiaries in California—more than 72 percent—are in Imperial and San Diego Counties. More than 47 percent of California-owned subsidiaries in Mexico are in the border states of Baja California, Chihuahua, Nuevo León, Sonora, and Tamaulipas, and more than three-quarters of these are in Baja California. About half of California-owned subsidiaries in Mexico are in central Mexico, but these are not widely distributed—60 percent of the central Mexican subsidiaries are in Mexico City.

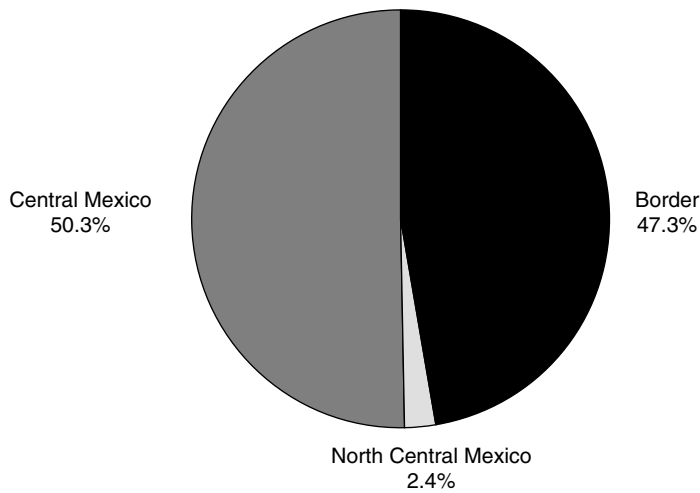
The situation is similar regarding parent companies, i.e., those that own the subsidiaries in California or Mexico, although the California companies that own Mexican companies are more widely distributed (Figure 4.3). Most Mexican parents are on the border, and nearly all of those border companies are in Baja California. As with Mexican subsidiaries, about three-quarters of the Mexican parent companies in central Mexico are in Mexico City. California parents are less concentrated, and slightly more than a quarter are in the border counties of Imperial and San Diego. Almost 41 percent are in the South Coast counties of Orange, Los Angeles, and Ventura, and another quarter are in the Bay Area.

This section now focuses in more detail on Mexican-owned California subsidiaries, Mexican parents, California-owned Mexican subsidiaries, and California parents, in that order. To do so, it uses a database of companies that have registered with a leading business-

A. Mexican-Owned Subsidiaries in California



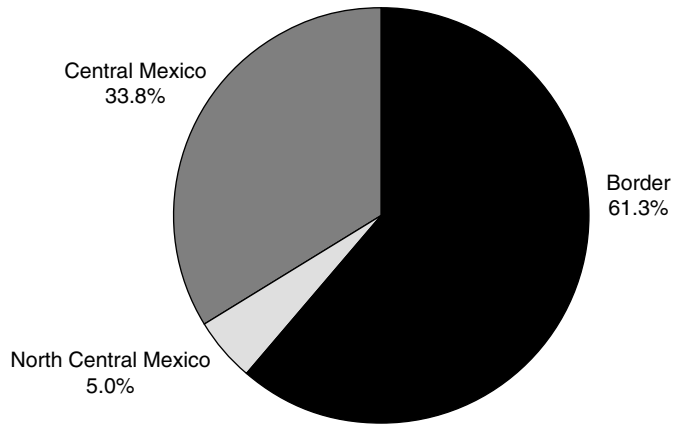
B. California-Owned Subsidiaries in Mexico



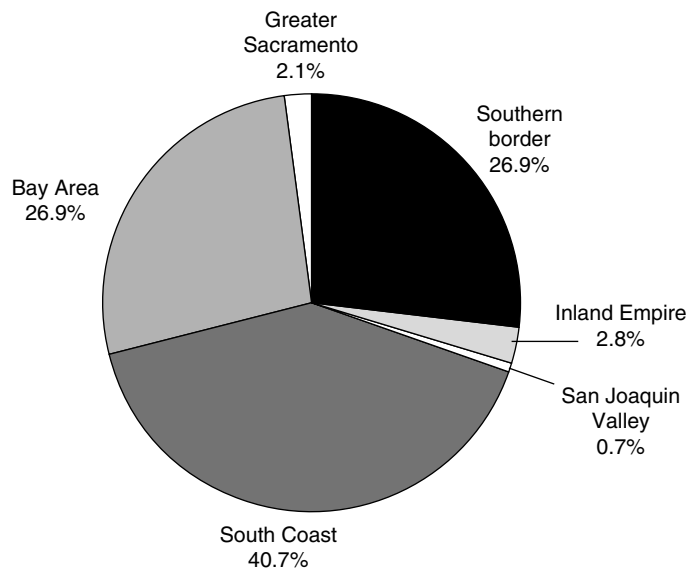
SOURCE: Dun & Bradstreet (2003).

Figure 4.2—The Regional Distribution of Foreign-Owned Companies

A. Mexican Parent Companies



B. California Parent Companies



SOURCE: Dun & Bradstreet (2003).

NOTE: Percentages may not add to 100 because of rounding.

Figure 4.3—The Regional Distribution of Parent Companies

information company, Dun & Bradstreet (D&B).⁴ The data show all California companies that have registered with D&B with a lower-level corporate family member in Mexico that has also registered with D&B, and all Mexican companies that have registered with D&B with a lower-level family member in California that has also registered with D&B. Not only do the data show linkages moving down the corporate chain, but they also show linkages moving up the chain, therefore enabling the identification of the ultimate parent company, which may or may not be the California or Mexican investor.

This information may not reflect the full extent of the investment. For example, if a Mexican company that reports to a California company also has several locations throughout Mexico reporting to it, those additional locations may not appear in the data. Despite that and other problems, the data likely give a fair picture of the geographic and industrial distribution of the two-way investment activity.

Mexican Parents and Their Subsidiaries in California

Both popular and professional discussion of U.S.-Mexico economic integration focuses on investment by U.S. companies in Mexico. Even during the debate over NAFTA, there were popular fears of corporate relocations from the United States to Mexico, most piquantly expressed by Ross Perot with the phrase the “great sucking sound.” At the same time, one purpose of the treaty, in particular the investment provisions of NAFTA Chapter 11, was to create a stable Mexican investment environment so that American investors would set up companies to provide job opportunities to Mexico’s rapidly increasing population. Not much discussed, however, was the fact that there was potential for Mexican companies to invest in the United States.

In California as of the first quarter of 2003 at least 80 Mexican companies owned at least 88 subsidiaries throughout California. This number of subsidiaries may seem low, but other measures indicate that it is not. In 2001, Mexican parent companies owned 163 affiliates throughout the United States with total assets, sales, or net income of greater than \$3 million. These affiliates owned other companies within

⁴Dun & Bradstreet (2003).

the United States, and the affiliates and their companies combined totaled 458.⁵ This suggests that if the two databases are comparable and Mexican investment in 2003 was not much more than in 2001, a large proportion of Mexican-owned companies in the United States are in California.

Neither is the count of 80 Mexican parents low in the context of the Mexican economy. Although Mexico has many companies, few of them are large, and outward FDI is correlated with company size. At the beginning of 2004, the Mexican stock market listed 159 domestic companies. Companies with stock-market listings are presumably the most sophisticated in an economy and are therefore the companies most likely to invest abroad. Similar sized countries with higher levels of economic development had many more. For example, in 2003, the Korean stock market listed 681 domestic companies, and the Spanish stock market listed 3,004 domestic companies.⁶ Considering all Mexican companies, the 1999 economic census reports that only 0.25 percent of all Mexican companies are classified as large; and only 0.4 percent of all manufacturers, the most likely investors, are large.⁷ Thus, the pool of possible parents in Mexico is quite low.

In many cases, the Mexican parent companies that have invested in California reported to no other company. Rather, they were the global ultimate headquarters of their business group. However, this was not always the case. Five of them were owned by companies from other countries, including France, Spain, and even the United States, the latter exhibiting a round-tripping phenomenon quite common in FDI.⁸

⁵U.S. Department of Commerce (2003c).

⁶Data on the Mexican stock market are from Bolsa Mexicana de Valores (2004). Data on other markets are from World Federation of Exchanges (2004).

⁷Instituto Nacional de Estadística, Geografía y Informática (n.d.a). The actual numbers are 2.7 million companies, of which 6,775 are large, and 344,000 manufacturing companies, of which 1,374 are large.

⁸In 2000, 5 percent of total assets owned by companies in the United States whose proximate owner was a foreign company belonged to companies whose ultimate owner at the top of the corporate chain was actually another U.S. company (U.S. Department of Commerce, n.d.).

These ultimate U.S. companies were based in Connecticut, New York, and Washington, D.C.

The Mexican parents are quite concentrated geographically. More than half are in Baja California, and almost 63 percent are in Mexican border states, with an extra 25 percent in Mexico City. The contribution by Mexico City is about proportionate to its economic size—in 2001, it constituted almost 23 percent of Mexican GDP. However, the contribution of the border states is far out of proportion to their economic size. In 2001, they constituted only 24 percent of Mexican GDP, and Baja California alone constituted only 3.5 percent of Mexican GDP.

The Mexican parents come from a variety of industries, and some produce goods in more than one broad industry. Taking account of all industries and excluding those parents for which no industry can be identified, more than four in 10 Mexican parents are in wholesale and retail trade, almost a quarter are in manufacturing, and 15 percent are in some type of finance. The wholesalers are in a variety of businesses, including motor vehicle parts, electrical apparatus, and home furnishings. The retailers are in clothing, groceries, chemicals, and department stores, among others.

In California, their subsidiaries are concentrated in the south, with more than half in San Diego County (mostly in Chula Vista, San Diego, and San Ysidro) and another 20 percent in Imperial County, all in Calexico. The only county outside the two border counties to host a large share of Mexican subsidiaries is Los Angeles, with almost 16 percent. The geographic spread of Mexican affiliates in California may broaden as the investing companies gain knowledge of the California market and as other Mexican companies grow and seek new opportunities abroad. The pace of this spread, however, is difficult to predict.

Unfortunately, about one-quarter of Mexican-owned subsidiaries in California are not classified by industry. Of the rest, more than one-third are in wholesale and retail trade, 15 percent are in manufacturing, and 7 percent are in finance. California is a target for wholesale and retail trade investment from abroad in general, and in 1999 about 23 percent of all workers in all foreign-owned companies in California

worked in wholesale and retail trade.⁹ Although the Mexico-specific data from Dun & Bradstreet are not equivalent to the official U.S. data, they do mirror the way California's large market attracts foreign investment from other countries. The very high levels and proportions of Hispanic Californians may be proving an even greater attractor for wholesale and retail establishments owned by investors from Mexico.

These wholesaling and retailing affiliates are in a wide range of businesses. Wholesalers, presumably funneling Mexican-made products into the California market, sell furniture, roofing, computers, electrical equipment, electrical appliances, televisions, radios, plumbing fixtures, and jewelry. Their retailing cousins sell frozen goods, fish, auto and home supplies, and children's and infants' wear.

California Parents and Their Subsidiaries in Mexico

In part because of its larger and more diverse economy, California investment in Mexico is well above that of Mexican investment in California. As of early 2003, 145 California companies had 165 lower-level corporate family members in Mexico. Some of these 165 subsidiaries might have had other, unreported locations as well.

Besides California parents, the state's proximity to Baja California has led other states and countries to set up companies in California to run operations in Mexico. About two-thirds of all California companies that invest in Mexico have California as the location of their ultimate parent, going up the corporate chain. Some have ultimate parents elsewhere in the United States, in particular Illinois, Michigan, Missouri, New Jersey, New York, Texas, and Virginia. About a quarter have ultimate parents outside the United States.

Of these foreign countries that invest in California and then have their California companies invest in Mexico, by far the leading one is Japan. These Japanese companies are partly in electronics, computers, and motor vehicles and parts. But they also include transport companies and even a seed company.

The California parents are less concentrated than are Mexican parents. Most are within a few hours' drive of the border (without heavy

⁹Shatz (2003a), p. 41.

traffic), with a bit more than two-thirds either in the border counties or in Orange, Los Angeles, or Ventura Counties. Many, however, are in the Bay Area, and there are even a few in the Sacramento area.

Unlike Mexican parents, California parents lean much more toward manufacturing, with more than half coming from that sector. The manufacturing parents are heavily dominated by companies in industrial and commercial machinery, computer equipment, and electronic and electrical components. Wholesaling and retail parents constitute about 20 percent of all parents, and companies from all types of services industries make up about 17 percent of all parents. They are also much more diversified within firms. More than 40 percent of California parents operate in two or more broad industries, compared to only about 13 percent of Mexican parents.¹⁰

California-owned Mexican affiliates are located in at least 17 Mexican states but are concentrated in three. The leading destination for California direct investment is Baja California, which hosts almost 37 percent of all California affiliates, and all six border states together claim 47 percent of all California affiliates. Second is the Federal District, or Mexico City. The facilities in the capital may be major production or sales facilities, but they also might be located there just to establish a corporate or administrative presence in the heart of Mexico, with production facilities elsewhere.

The third state to claim a large share of California-owned affiliates is Jalisco, which hosts almost 10 percent of all such affiliates. Jalisco and its capital Guadalajara have a high concentration of companies in the electric and electronics sector and the state has been dubbed the Silicon Valley of Mexico.¹¹ In fact, the California companies that have affiliates there include Intel Corp., the giant chip manufacturer based in Santa Clara, and Solectron Corp., a technology design, manufacturing, and services firm based in Milpitas.¹²

¹⁰“Broad industries” means two-digit industries in the 1987 U.S. Standard Industrial Classification.

¹¹Vargas (2000).

¹²Intel’s subsidiary is Intel Tecnología de México, S.A. de C.V., and Solectron’s is Solectron de México, S.A. de C.V. The Solectron facility opened in 1997.

As with their parents, California affiliates in Mexico that have an identifiable industry lean heavily toward manufacturing, with more than 55 percent of them in this sector. These affiliates operate in 16 of 20 broad manufacturing sectors, but the majority are in industrial and commercial machinery, computer equipment, and electronic and electrical components. Another fifth of all California affiliates in Mexico are in the wholesale and retail sectors. Wholesalers are mainly in computers and electronics, and retailers are in a number of different areas, including farm supplies. California is even involved with the distribution and publishing of books in Mexico. Advanced Marketing Systems of San Diego, through its wholly owned subsidiary Advanced Marketing S.A. de R.L. de C.V., serves about 790 locations and has started to publish Spanish-language editions of certain books.¹³

Services constitute the third major sector in which California affiliates in Mexico do business. As with manufacturing, these concentrate heavily on computers and technology. Typical service industries in which California affiliates are involved include computer programming and computer integrated systems design. However, California services affiliates in Mexico operate in some nontechnology industries as well, including movie theaters and executive searches. The rise in service FDI stems from two causes. First, many services are not tradable and therefore necessitate some form of investment. Second, since the late 1980s, Mexico has dramatically liberalized its foreign investment laws to allow investment in a greater range of industries. Pent-up demand met pent-up supply, and services investment took place.

California and the Mexican Maquiladora Economy

Mexico started its maquiladora program in 1964 following the ending of a guest-worker program, known as the bracero program, by the United States. The bracero program, which ran from 1942 to 1964, brought Mexican farm workers to the United States temporarily, and its ending left thousands of Mexicans unemployed. The maquiladora

¹³Information from the company's website, available at <http://www.advmkt.com/intnl/intnl.html> (accessed September 3, 2003).

program was meant in part to take up the slack. Several possible origins exist for the term *maquiladora*, and they are complementary. One version holds that the term stems from the noun *maquila*, the charge that millers in colonial Mexico collected for processing grain. The other holds that it stems from the verb *maquilar*, to process a product in exchange for a portion of the product.¹⁴ A third source suggests that the verb *maquilar* means “to submit something to the action of a machine.”¹⁵

Originally restricted to the border and used almost completely for the assembly of American-made components into finished products for export back to the United States, *maquiladoras* have changed a great deal. Although still concentrated along the border, they are now in most Mexican states. Many carry out much more than simple assembly, and they are now allowed to sell to the domestic market. In fact, although *maquiladoras* still go through a special registration process, there is little difference between some of the most advanced *maquiladoras* and other types of FDI. On average, however, *maquiladoras* are still largely export-oriented toward the U.S. market, whereas other types of FDI may be oriented toward the Mexico market or other foreign markets.¹⁶

The number of *maquiladoras* has expanded a great deal. In 1980, 16 years after the program started, there were just 578 *maquiladoras* employing 120,000 people. By 1990, that had risen to 1,703 plants employing more than 446,000 people, and in 2000 there were 3,590 plants employing almost 1.3 million people. Numbers have fallen somewhat, but at the beginning of 2003 there were still almost 3,250 plants, employing almost 1.1 million people.

Labor productivity has also increased rapidly, as measured in terms of real value added per worker. Between 1990 and 2002, it rose 45 percent, indicating that the total value added in *maquiladoras* increased

¹⁴Information about the *maquiladora* program is drawn from McNeece and Nava (2002), Vargas (1998a and 1998b), Wilson (2002), and Instituto Nacional de Estadística, Geografía y Informática (2003).

¹⁵International Trade Data System (2002).

¹⁶Many of the tariff benefits for *maquiladoras* ended in 2000. Registering as a *maquiladora* still confers certain procedural benefits. Modest border tax benefits remain as well.

much more rapidly than the number of workers. Value added per worker is related to the capital intensity of production and the skills that workers bring to the job, so the gains indicate that maquiladoras have become more capital-intensive or have moved to higher-skill tasks. There is evidence that both have occurred.¹⁷ Despite high turnover generally, some maquiladoras have training and human development programs, and others have upgraded their processes and tasks. In addition, improved Mexican universities are producing new generations of skilled workers who can handle the technical and managerial tasks that more advanced factories demand.

Recent times have not been so good for maquiladoras. Between the peak of June 2001 and the trough of April 2002, the number of maquiladoras fell by 14.5 percent, from 3,763 to 3,218. Employment peaked in October 2000 at 1.35 million and hit a low point of 1.06 million in March 2002, a fall of 21 percent. A number of causes drove this. Some are permanent, whereas others are not.

Main reasons cited include the U.S. economic slowdown, a strengthening of the peso against the dollar, increased global competition from countries such as China, changes in U.S. trade laws, uncertainty about Mexican tax policy, and changes in benefits resulting from NAFTA.¹⁸ Maquiladoras send about 98 percent of their production to the United States, and so any slowdown in the U.S. economy will affect the maquiladora economy. As the U.S. economy picks up, so should maquiladora production. Likewise, if the peso strengthens against the dollar, Mexico becomes a more expensive place in which to manufacture, and some producers will shift their production elsewhere. Whether this will remain an issue will depend on how well the Mexican central bank manages the currency and how well the central government manages the country's budget, both of which are related to the exchange rate.¹⁹

¹⁷Evidence is based on interviews conducted in San Diego and Tijuana in November 2003.

¹⁸U.S. General Accounting Office (2003), and Cañas and Coronado (2002).

¹⁹Technically, the key variable is the real rather than the nominal exchange rate, and the real rate is much harder to target. It is related to the nominal rate, inflation, productivity, and other factors.

Global competition and the rise of China are permanent issues, but Mexican proximity to the United States, existing industrial clusters in Mexico, and tariff preferences extended to Mexico through NAFTA suggest that the maquiladora sector will remain strong in some industries.²⁰ Changes in U.S. trade preferences also suggest that Mexico will lose its advantages in some industries, particularly in textiles and apparel, but not in others. NAFTA gave Mexico textile and apparel advantages, but programs in the Trade and Development Act of 2000 extended textile and apparel benefits to the Caribbean, Andean countries, and African countries.²¹ Because the Caribbean has lower wages than Mexico and apparel is a low-capital, high-labor-intensity industry, some apparel trade shifted away from Mexico.

Uncertainty in tax and regulatory rules came toward the end of the administration of President Ernesto Zedillo and continued with the new administration of President Vicente Fox. In particular, because of changes in Mexican rules, double taxation of profits in the United States and Mexico became a possibility. Other tax changes affected the taxation of salaries. In 2002 and 2003, Mexico instituted several reforms, including the publication of new amendments to the maquila decree that some think will lend regulatory certainty. One key reform is that maquiladoras will be approved within 15 business days unless the government acts otherwise within that time period.²² Other recent reforms to the administration of the maquiladora sector are also seen as very positive by people involved in the industry.²³ These include streamlined customs requirements and the resolution of the double-taxation problem.

Finally, NAFTA itself eroded maquiladora benefits with Article 303, which in January 2001 eliminated duty-free imports of maquiladora

²⁰Watkins (2002a).

²¹These benefits were extended in the Caribbean Basin Trade Partnership Act, the revised Andean Trade Preferences Act, and the African Growth and Opportunity Act, all part of the Trade and Development Act.

²²The discussion of regulatory issues is based on interviews with business people in the maquiladora industry in November 2003. For more on the new maquila amendments, see Baker and McKenzie (2003).

²³Interviews conducted in November 2003.

inputs from non-NAFTA countries if the goods incorporating these inputs were to be exported to another NAFTA country. This limited the ability of maquiladoras to import components from Japan duty-free, for example, assemble a product, and then ship it to the United States duty-free. Despite these changes, advantages to registering as a maquiladora remained, such as simplified customs procedures. However, to maintain strong maquiladora benefits, the Mexican government in November 2000 expanded its sectoral promotion programs, known as PROSECs, which granted tariff reductions for a variety of inputs. The list of inputs expanded in 2001 and 2002.

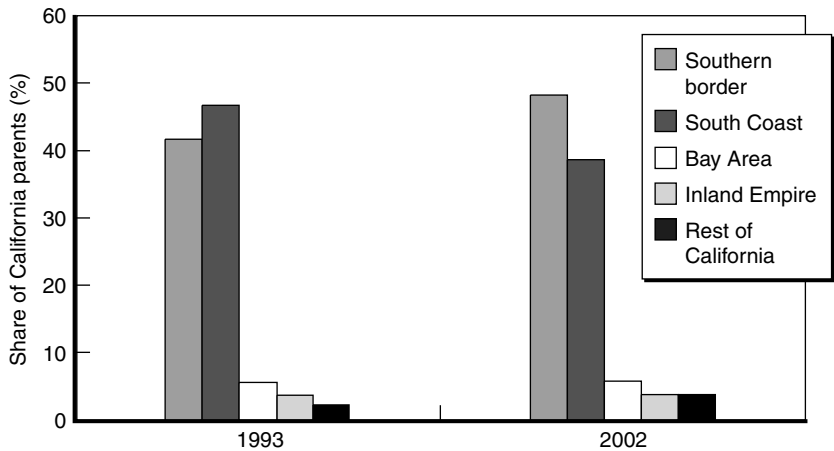
The fact that some of the causes of the maquiladora decline were countered and that others were temporary suggests that such plants are far from a doomed species of business operation. Mexico will retain an advantage in some industries for many years. In those areas subject to more competition, upgrading production techniques and continuing the reform and improvement of Mexico's business climate and regulatory regime can help.

Maquiladoras can be of three types. They can be contract manufacturers or assemblers, in which they are owned by a Mexican or foreign business and work on a contract basis for anyone who pays. They can be shelter operations, in which the owner of the shelter operation provides the facilities, personnel management, and certain administrative services, but the foreign company actually manages the production processes. Or they can be subsidiaries of foreign companies, owned and run by the foreign companies. Because of these variations, not all maquiladoras can be connected with American or foreign companies that use them. Nonetheless, imperfect data exist that allow links to be drawn between California and the Mexican maquiladora economy.

California's ownership of maquiladoras has stayed steady throughout the decade 1993 through 2002. In that first year, California companies owned almost 30 percent of all maquiladoras that claimed a parent company; the proportion fell to 29 percent in 1997 and then rose to 32

percent by the end of 2002.²⁴ The number of California parents appears to have risen as well, from less than 400 in 1993 to slightly more than 500 at the end of 2002.²⁵

The vast majority of California parents are in the southern border counties of San Diego and Imperial and the South Coast counties of Ventura, Los Angeles, and Orange. In fact, there has been a subtle shift toward the border over the last decade (Figure 4.4). In 1993, 46.7 percent of California maquiladora parents were from the South Coast region, making that the leading region. A decade later, the border counties constituted the leading region, with their parents constituting 48.2 percent of all California maquiladora parents.



SOURCES: Solunet: Info-Mex, Inc. (1993 and 2003).
 NOTE: The graph shows the share of the total count of California parents.

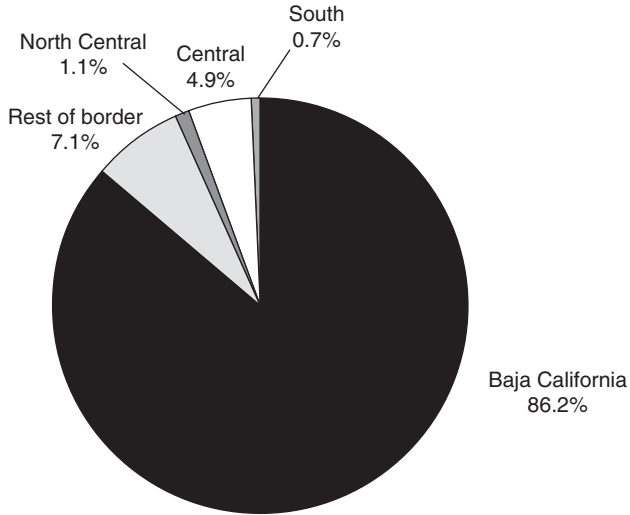
Figure 4.4—The Location of California Parents of Maquiladoras, 1993 and 2002

²⁴These data are drawn from various editions of the Twin Plant Guide, published by Solunet: Info-Mex, Inc. (1993, 1997, 2003). Data for 1993 are current as of November 1993, and data for 2002 are current as of December 2002.

²⁵California’s ownership proportion of all maquiladoras, regardless of whether they had a parent or not, follows a somewhat different trend—28 percent in 1993, 27 percent in 1997, and 17 percent in 2002. A much larger number of plants claimed no parent in 2002 than in 1993 and 1997.

California-owned maquiladoras have been concentrated along the border. This is not unusual. In 1993, 87.4 percent of all maquiladoras were located in the six Mexican border states. By the end of 2002, this figure had fallen but remained high at 78.1 percent.²⁶ California maquiladoras, however, are even more concentrated. In 1993, almost 93 percent were at the border. Although this figure dipped in 1997 to 89 percent, it bounced back up to 93 percent by 2002.

This concentration is driven by the use of Baja California as a production site (Figure 4.5). California companies locate more than 80 percent of their maquiladoras in the one Mexican state that borders California. In contrast, only about one-third of all maquiladoras are in Baja California. This is because most U.S. companies that use maquiladoras carry out their production in the Mexican states bordering Texas, including Chihuahua, Coahuila, Nuevo León, and Tamaulipas.



SOURCE: Solunet: Info-Mex, Inc. (2003).

Figure 4.5—The Location of California-Owned Maquiladoras, 2002

²⁶Instituto Nacional de Estadística, Geografía y Informática (2003).

They are much closer by distance and road connections to the population centers of the United States.

California-owned maquiladoras are involved in a variety of industries—34 broad industry sectors as of the end of 2002.²⁷ Unfortunately, most do not list an industry, so finding the true industrial distribution is difficult. Despite that problem, and despite the variety, these operations appear to be concentrated in just a few industries. In particular, only six industries claimed more than 5 percent of all plants to which an industry could be traced in 2002, compared to only seven industries in 1993 and 1997.

Through this period, one industry is dominant, the electronic and electrical equipment manufacturing industry (Table 4.1). As of the end of 2002, 25 percent of all California-owned maquiladoras operated in this industry, down from 32 percent in 1993 and 28 percent in 1997. This decrease is reflected in the overall decrease of California-owned maquiladoras in the three main technology industries: industrial and commercial machinery, including computer equipment; electronic and electrical equipment; and instruments. Total maquiladoras involved in

Table 4.1
Top Industries of California Maquiladoras, 1993 and 2002

Industry	Share of Maquiladoras (%)	
	1993	2002
Electronic and electrical equipment	32.4	25.0
Apparel	12.5	11.3
Rubber and plastics products	5.4	9.3
Fabricated metal products	6.9	7.4
Instruments	1.8	5.4
Furniture and fixtures	9.7	5.3

SOURCES: Solunet: Info-Mex, Inc. (1993 and 2003).

NOTE: The table shows all industries that claimed more than 5 percent of California-owned maquiladoras at the end of 2002.

²⁷These sectors are defined as two-digit industries according to the 1987 U.S. Standard Industrial Classification.

these industries fell from 41 percent in 1993 to 35 percent in 2002, although absolute numbers rose from 161 to 194 maquiladoras.

The biggest gains in shares by industry during this time came in wholesale trade, rubber and plastics products, and instruments (a technology industry). The gain in wholesale trade represents, in part, changes in Mexican laws and, in part, a maturing of the integration of California with Baja California. In 1993, California had only one maquiladora involved in wholesaling, and by the end of 2002 this had risen to 24. The wholesaling maquiladora in 1993 was in Baja California. By the end of 2002, 22 of the 24 wholesaling maquiladoras were in that Mexican state. Over time, and especially since NAFTA started in 1994, Mexico has broadened the range of activities in which maquiladoras could operate, opening the way for more wholesaling maquiladoras. California's concentration of wholesaling in Baja California, combined with its concentration of manufacturing in that state, suggests that the wholesalers may be heavily involved in moving products from factory to factory through different parts of the production chain, or that California-controlled manufacturing is finding a market outlet among Baja California businesses and consumers.

Aside from their concentration in Baja California, California-owned maquiladoras are different from those owned by non-California companies in two other ways. They generally have fewer employees, and they are generally smaller in terms of square footage. By the end of 2002, the average California-owned maquiladora had 333 employees. In contrast, the average non-California-owned maquiladora had 573 employees. This may be due to industry mix, but testing the proposition is difficult because very large shares of each group of maquiladoras do not record an industry of operation.

FDI and Employment

California, like nearly all states, has eagerly scoured the world for investors willing to set up businesses in the state. Policymakers justify this in terms of employment gains. FDI locating in a region actually has several effects. Where labor markets are slack, the new investment may create new jobs. Where labor markets are tighter and most people already have jobs, the new investment can serve to either raise wages or

bring new people into a region. In the case of California and Mexico, Mexican-owned companies employ an estimated 9,000 to 10,000 workers in California.

However, many who oppose closer economic relations with Mexico are worried about the opposite phenomenon—companies moving their production out of the United States and into Mexico, thereby laying off American workers. Outward FDI has a number of effects and may not lead to employment losses, but it sometimes does. In response to this, the NAFTA-TAA included assistance for workers who lost their jobs, or saw their hours or wages reduced, because of imports from Canada or Mexico or a shift of production to Canada or Mexico.²⁸ Note that effects from production shifts might not have come from FDI but from contracting or some other arrangement where U.S. production was curtailed and Mexican production was increased as a substitute.

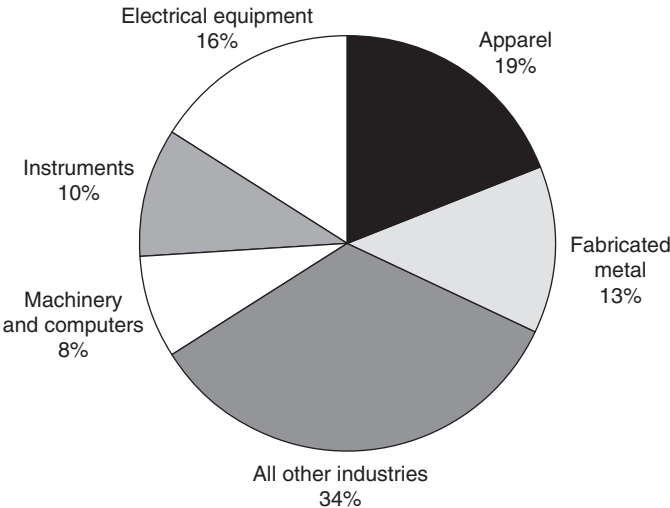
Under this program, 263,388 workers throughout the United States were deemed to have lost their jobs or seen their hours or wages reduced as a result of a shift of production to Mexico between 1994 and 2002. Of these, 22,046 workers, or 8.4 percent of the total, were in California. This is about four times the number of workers in California whose jobs were affected purely by imports. As with the jobs affected by imports, the number of jobs affected by production shifts was very small compared to the total California labor market. Total California employment in December 2002 measured 16.3 million.

In general, production shifts touched more counties than did imports and more industries as well. Workers in 22 of California's counties were affected by production shifts, whereas workers in only 12 counties had claims to being affected by imports certified. Of these workers affected by production shifts, 34 percent, or more than one-third, were in Los Angeles County. Orange County had the second-highest share—28 percent, or 6,212 workers. Riverside was the only other county with more than 5 percent, and it had 5.2 percent of all certified claims. The border counties of San Diego and Imperial had 3.8 percent and 0 percent of all certified claims, respectively.

²⁸The NAFTA-TAA outcomes for workers affected by imports, rather than production shifts, are discussed in Chapter 3.

As with workers affected purely by imports, the hardest-hit industry from production shifts was apparel (Figure 4.6). This industry accounted for 4,216 of the affected jobs, or 19 percent. Within apparel, the most affected subsectors were those that made women's, misses', and juniors' blouses and shirts, and men's and boys' separate trousers and slacks. These same sectors were affected by imports, and the effects are likely related, with U.S. companies shifting production to Mexico and exporting much lower-cost product back to the United States, thereby further affecting jobs that remained in the United States.

Other industries that accounted for more than 10 percent of the jobs affected by production shifts to Mexico included electrical equipment, in which 3,587 jobs were affected, fabricated metals, in which 2,876 jobs were affected, and technical, photographic, and medical instruments, in which 2,298 jobs were affected. Unlike with jobs affected by imports, the agricultural sector did not suffer from production shifts. Agriculture accounted for only 170 certified claims, or 0.8 percent of the total.



SOURCE: North American Integration and Development Center (n.d.).

Figure 4.6—The Industrial Distribution of Certified Claims in California Under the NAFTA-TAA Program for Jobs Affected by Production Shifts to Mexico, 1994–2002

Summing Up FDI and Cross-Border Production

California companies are active investors in Mexico, and Mexican companies are active investors in California across a wide variety of industries. Likewise, California companies have increased their participation in Mexico's maquiladora economy. Despite the variety of industries and locations, however, this investment remains concentrated at the border. In fact, research has shown that production on the Mexican side tends to attract businesses to the American side from elsewhere in the United States, leading to growth in U.S. border cities.

Maquiladoras in Baja California—not just those owned by California companies—are quite important to that state's economy and to the regional, binational economy. In 2000, employment in maquiladoras totaled 25 percent of Baja California employment. This had fallen by 2003, but it remained high at 19 percent. Maquiladora employment totaled 97 percent and 79 percent of manufacturing employment in the state those two years, respectively.²⁹

Nearly all workers in maquiladoras are in manufacturing, so a relevant comparison for the regional, binational economy would be between maquiladora employment in Baja California and manufacturing employment in Imperial and San Diego Counties. In 2000, maquiladora employment in Baja California was 282,602—more than twice the manufacturing employment on the U.S. side of the border, 124,200. By 2002, this ratio had fallen somewhat, but maquiladora employment still far outstripped U.S. border manufacturing employment—218,887 versus 114,800. Many of Imperial and San Diego Counties' manufacturing jobs are linked to maquiladoras. The unified border manufacturing economy has about two-thirds the number of manufacturing jobs that Los Angeles County, California's largest manufacturing county, has.³⁰

Despite the active cross-border investment, Mexican companies have yet to find their way strongly into Northern and Central California, and California companies have yet to find their way into Central and

²⁹Instituto Nacional de Estadística, Geografía y Informática (n.d.a and 2003).

³⁰Instituto Nacional de Estadística, Geografía y Informática (2003) and California Employment Development Department (2004).

Southern Mexico, aside from Mexico City and Jalisco. In part, this may be the result of a learning process. Business people on both sides of the border are still becoming familiar with each other's markets. In part, it may be the result of infrastructure in the case of California investment into Mexico, and the location of the market in the case of Mexican investment into California. The roads and other infrastructure necessary for business are much better in the north of Mexico than elsewhere. In California, the consumer market and the Hispanic population are concentrated in the south, making that a more natural location for Mexican businesses testing the U.S. market.

For example, a Mexican company called *Itto Restaurantes y Servicios, S.A. de C.V.*, brought a new kind of sushi—complete with cream cheese and chipotle sauce—to Mexico through its *Sushi Itto* restaurant in 1988. It now has restaurants throughout Mexico, in Central and South America, and in Europe. It recently opened its first restaurants in the United States. The location of choice for its foray into the giant U.S. market was the Hillcrest neighborhood of San Diego, followed by a second location in the city's Gaslamp district.³¹

California investment may spread more evenly through Mexico if the interior market becomes larger and the infrastructure improves—in other words, if and when convergence occurs. Likewise, Mexican investment in California may spread more evenly as those Mexicans doing business in San Diego and Los Angeles learn more about the California market.

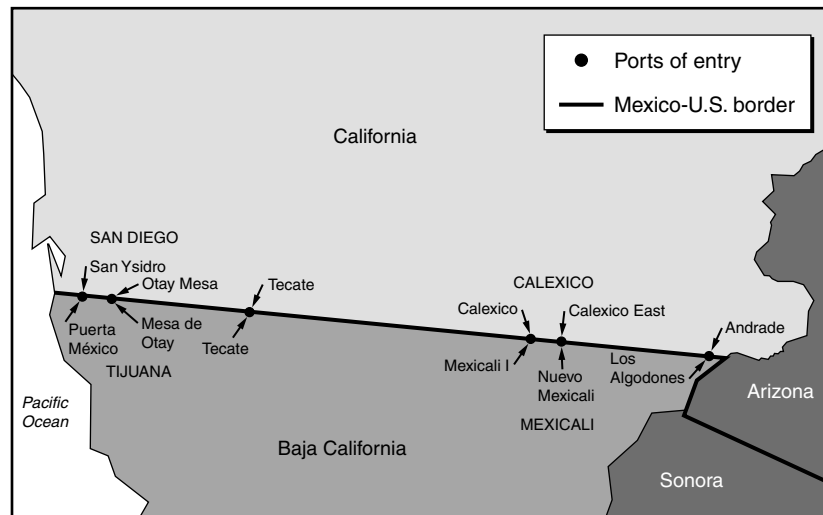
³¹Information about the company is from <http://www.sushi-itto.com>.

5. The Border

People call it “our Berlin Wall.” Sometimes a triple fence, sometimes not much of a fence at all, the barrier between Mexico and California snakes through urban areas and desert scrub. Nearby, like courtiers to a monarch, the green and white trucks of the border patrol rest quietly but alertly, or zip along the roads of southern San Diego County, attentive to the demands of the border.

Of course, the barrier is not California’s Berlin Wall. That one was meant to keep people in, people in a poor country ruled by a one-party government. The one in California is meant to keep them—people in a poor country formerly ruled by a one-party government—out.

There are openings in the barrier, and would-be openings (Figure 5.1). At Jacumba in California and Jacumé in Mexico, and west of the



NOTE: Ports of entry are identified by both their U.S. and Mexican names.

Figure 5.1—The Border and Ports of Entry

San Diego–Imperial County line east of Tecate, one of the few places on the California-Mexico border where a new crossing could go, California state road 94 sidles in close to the border, providing a link to population centers. A cluster of houses nestled on hills among cacti and desert plants overlooks more of the fence—and sometimes a border patrol truck. At Otay Mesa in California and Mesa de Otay in Mexico, the main commercial crossing, the trucks are ever present, lined up and idling or parked at nearby warehouses.

At San Ysidro in California and Puerta México in Mexico, the main car and pedestrian gateway, the evening crossing on foot of Mexicans coming home from their jobs in San Diego to Tijuana creates a steady stream passing through the barrier. Highway lanes in both directions pass through narrow Mexican or U.S. gateways and are filled with idling or slow-moving cars, except for the few lanes into the United States dedicated for precleared crossers, who drive steadily through. The rail line linking the San Diego and Imperial Valley Railroad with the Carrizo Gorge Railway of Ferrocarriles Peninsulares del Noroeste runs next to the highway at San Ysidro. Coming from the north the train first hits the gamma ray machine that scans its cars, and then a giant gate, dividing California from Mexico. Beyond the giant gate, a smaller gate opens into the Mexican railyard, which hosts a few lazing dogs who can spring to alertness when they really have to.

The border is permeable in many ways. Trade between California and Mexico has increased, and nearly all of it goes through the border crossings of Otay Mesa and Calexico. FDI by California companies is concentrated in Baja California (with substantial activity in the center, however), and California parents are concentrating more and more in San Diego. In the reverse direction, Mexican parents are concentrated in Baja California, and their subsidiaries are likely to be found in San Diego and Imperial Counties. Executives live in one country and work in the other, passing through daily, or even more often.¹

One result of this border activity is the growth of San Diego employment resulting from Mexican manufacturing activity and the response of the U.S. economy. Expansion of export activity in Mexican

¹For a portrait of the complete U.S.-Mexico border, see Langewiesche (1993).

border cities has increased overall employment in U.S. border cities, particularly in manufacturing and services employment.² In contrast, such expansions have not occurred in the interior cities of border states, suggesting that growth in border cities rather than in the southwest United States overall drives the changes. It also suggests that growing integration is leading to a relocation of economic activity throughout the United States and that when companies carry out activities along the border in Mexico, they also carry out complementary activities along the border in the United States.

From serving as a gateway to trade, as the seat of the California-Mexico maquiladora economy, as the site of a great deal of FDI, as a passageway for people, and as a porous barrier to illegal crossings, the border is the main locus of California-Mexico economic integration.

Border integration occurs in far more areas than just trade, investment, and migration, the standard ways the rest of California interacts with Mexico. Rather, border integration involves environmental issues, water, and transportation and energy infrastructure, among other issues. It involves Mexican nationals who live in Baja California and shop or work in San Diego, and U.S., Mexican, or foreign nationals who live in San Diego and go to Tijuana for work or entertainment. The dynamics of this region have been captured in a variety of publications and are followed by a variety of institutions. An example of the former is Feinberg (2001). An example of the latter is the San Diego Association of Governments (SANDAG), which approaches the issues through its Borders Committee, its Committee on Binational Regional Opportunities, and other means.

Despite the many links, interviews with people involved in business, government, and nonprofit groups indicate that many in the region do not think of it in terms of its binationality.³ Certainly, opinions on this differ, but people tended to say that San Diego County residents, especially those in the northern part of the county, do not picture their region as the San Diego-Tijuana region. Rather, they look north, toward the Los Angeles area, if they think of their location in a regional context.

²G. Hanson (1996 and 2001).

³These interviews were conducted in August 2002 and November 2003.

Indeed, the U.S. General Accounting Office reports, “it is estimated that two out of three residents of San Diego have never been to Tijuana.”⁴ As will be described below, there are efforts to change this. This chapter provides an overview of a variety of economic issues at the border and how policymakers are dealing with them. First, it discusses the key manifestation of integration—the border crossings between California and Mexico. Then it describes the more diverse set of issues surrounding the region.

Physical Movements Across the Border

One highly visible result of economic integration is the level of border crossings (Table 5.1). Despite its limited share of the border (145 miles out of a total of 1,950), California handles a high proportion of various types of entries. For commercial traffic, the combined ports of entry of Otay Mesa and San Ysidro, California, were the second-largest port of entry for Mexico-origin traffic in 2002, with 731,000 truck crossings and 380,000 loaded containers. The top port of entry was Laredo, Texas, serving as the gateway for 1.4 million truck crossings and 807,000 loaded truck containers.

Passing through was not necessarily easy. A recent survey found that most companies moving goods through the California ports of entry by truck have border wait times of two to three hours, but many consider anything more than one hour excessive. Furthermore, the survey found that many in the transportation community thought infrastructure improvements were needed, especially at the Otay Mesa port of entry. Despite those problems, the majority said that they would not make any changes in their operations even if delays worsened. Many companies choose their shipping times based on their production schedules or the schedules of their customers, rather than based on the times of congestion at the border.⁵

The survey makes a number of recommendations about how to ease congestion, including performance monitoring of border inspection

⁴U.S. General Accounting Office (2003), p. 14.

⁵Science Applications International Corporation (2003).

Table 5.1
Border Crossings into the United States, 1997 and 2002

Type of Crossing from Mexico and Port	1997	2002
Incoming truck crossings (millions)		
United States	3.7	4.4
Texas	2.5	3.0
California	0.8	1.1
San Ysidro–Otay Mesa, California	0.6	0.7
Calexico and Calexico-East, California	0.2	0.3
Personal vehicle crossings (millions)		
United States	80.1	89.8
Texas	43.8	46.7
California	26.9	31.9
San Ysidro–Otay Mesa, California	17.0	20.5
Calexico and Calexico-East, California	8.3	5.9
Pedestrian crossings (millions)		
United States	43.9	50.3
Texas	18.6	21.7
California	17.5	18.6
San Ysidro–Otay Mesa, California	7.7	9.6
Calexico and Calexico-East, California	8.2	6.9

SOURCE: U.S. Department of Transportation (2003).

NOTES: Data for the crossings of San Ysidro and Otay Mesa, both part of San Diego and only about six miles apart, have been combined. The commercial crossing is the Otay Mesa crossing. Personal vehicles cross at both San Ysidro and Otay Mesa, although primarily at San Ysidro, and pedestrians cross at San Ysidro. The crossings for Calexico and Calexico-East have been combined. Commercial vehicles go through Calexico-East, personal vehicles cross through both, and pedestrians cross through both, although personal vehicles and pedestrians cross primarily through Calexico. Data are available from before 1997, but personal vehicle crossings and pedestrian crossings at San Ysidro went unreported for 1994–1996, and so the totals for these years misrepresent actual crossings.

agencies; road infrastructure improvements; dedicated lanes for certain shipments that have received some degree of preclearance; increased inspection agency staffing; longer, more flexible hours; and institutionalized binational, interagency coordination. Another option, congestion pricing for border crossing, was not on the list, but might be considered.

Even though many in the survey said that they would not change their shipping schedules, the shipping community took action in fall 2003 to create an opportunity for such changes. A group of eight trade associations in Mexico and the United States successfully got the Bureau of Customs and Border Protection to extend the crossing hours at the Otay Mesa port of entry as a test for the month of November.⁶ There was some fear among the transportation community that a one-month test would not give shippers and carriers enough time to change their transport schedules. The experiment was subsequently extended until December 13, still not much more time. According to data from the experiment, the timing of truck crossings was a little less bunched than in November 2002, but still had marked bunching during afternoon hours. In response, the trade community turned to marketing regular morning hours to companies that use the border, in an effort to get more morning crossings, and planned to work with the Bureau of Customs and Border Protection to perhaps have seasonal hours and educate the industry about fully utilizing the port of entry.⁷

Whereas Otay Mesa is busy with commercial traffic, but not number one along the border, San Ysidro was the busiest port of entry for personal vehicles in 2002 with 16.4 million crossings. El Paso was number two at 13.1 million. California also handles a high proportion of pedestrian crossings. Although El Paso was number one in 2002 with 9.3 million such crossings, San Ysidro was next with 7.9 million, and Calexico was third with 6.9 million. Imperial County's Andrade crossing, not shown in the table, was also an important pedestrian crossing point, with 1.7 million crossings in 2002.

In fact, adding automobile crossings and pedestrian crossings appears to make the San Ysidro crossing the busiest land port of entry in the

⁶The groups include Asociación de Agentes Aduanales de Tijuana y Tecate, Asociación de la Industria Maquiladora y Exportación, A.C., Asociación Morelos, California Trucking Association, Cámara Nacional de la Industria de Autotransporte y Carga, Otay Mesa Chamber of Commerce, San Diego Broker's Association, and Western Maquiladora Trade Association.

⁷Results of the pilot project were provided to us through the courtesy of Alejandra Mier y Terán, Otay Mesa Chamber of Commerce, in personal communication, December 15, 2003.

world.⁸ Combining drivers and passengers in cars, passengers in buses, and pedestrians, there were 45.3 million crossings into the United States in 2002 through San Ysidro, or 142,000 every day.⁹ If each of these crossings involved a return trip, then the border had a total of 284,000 crossings every day. In all California ports of entry, there were 88.6 million crossings into the United States in 2002, or almost 243,000 crossings northward daily, and 486,000 total crossings each day.

This is similar to two other borders between a rich area and a poor area—the boundary between Hong Kong and Shenzhen in Guangdong Province, China, and the border between Singapore and Malaysia. On average, as of October 2002, almost 147,000 people passed daily from China into Hong Kong through the four land crossings of Man Kam To, Sha Tau Kok, Lok Ma Chau, and Lo Wu.¹⁰ Like the trolley that trundles along between downtown San Diego and the border, the Kowloon-Canton Railway moves people between China and Hong Kong. A difference is that there, shoppers move in both directions, frequenting bargain stores in Shenzhen and luxury establishments in Hong Kong, whereas in San Diego and Tijuana most of the shoppers are Mexicans coming north. People live in Shenzhen and work or study in Hong Kong—not always legally—much as people live in Tijuana and work or study in the San Diego area.

The truck volumes between China and Hong Kong are even greater than those between Baja California and California. In 2002, 1.8 million container trucks entered Hong Kong through the Lok Ma Chau crossing, more than all the truck entries into California from Baja California. An additional 1.5 million goods vehicles—other types of trucks and smaller vehicles carrying goods—entered Hong Kong through the same crossing. Total vehicle entries into Hong Kong that year, including cars and buses, were almost 6.2 million, or 17,000 per day.¹¹

In response to these volumes—and in contrast to the California-Mexico crossings—Hong Kong and China keep the crossing at Lok Ma

⁸San Diego Association of Governments (2003a), p. 171.

⁹U.S. Department of Transportation (2003).

¹⁰Hong Kong Special Administrative Region Government (2002).

¹¹Hong Kong Special Administrative Region Government (2003).

Chau open to goods vehicles and passengers 24 hours each day. The crossing at Lo Wu is open from 6:30 a.m. to midnight, and the two other crossings are open fewer hours. At Lok Ma Chau, it is reported that 70 percent of vehicles pass through in one hour.¹²

The two Singapore crossings, Woodlands and Tuas, are also open 24 hours and are well-known for their automation. For example, commuters with smart cards encoded with fingerprint data are cleared quickly through automated lanes equipped with fingerprint scanners and card readers.

Because of border congestion for personal vehicles at the California-Mexico border, the number of people trying to qualify under automated entry programs has increased rapidly. The U.S. government has a number of programs that allow people to enter the United States automatically, of which the most relevant for California-Mexico relations is the SENTRI program, or Secure Electronic Network for Travelers Rapid Inspection. SENTRI was first implemented at Otay Mesa in 1995, and dedicated lanes now exist at Otay Mesa and San Ysidro in California, and El Paso in Texas. There is a SENTRI enrollment center at Otay Mesa, where commuters can apply.¹³

In 2001, there were 1.4 million entries at Otay Mesa and San Ysidro under all automated entry programs. In addition, 11,000 people applied to be part of the programs, and 10,000 cards were issued. The attacks of September 11, 2001, and subsequent jams at the border, increased demand to participate in the programs. In 2002, 2.7 million entries occurred under the programs. An additional 26,000 people applied, and

¹²For information on commuting, see Ng and Lam (2002). For information on trucks, see Chadha (2003).

¹³The United States also has an expedited entry program for commercial trucks, known as Free and Secure Trade (FAST). It started on the Canadian border, and implementation started on the Mexican border in Texas in 2003. It was expected to spread to the California-Mexico border in 2004. The FAST program is a successor to the Border Release Advanced Screening and Selectivity (BRASS) program, which itself was the successor to the U.S. Customs Service Line Release Clearance Program. FAST seeks to expedite shipping by “reducing Customs information requirements, dedicating lanes at major crossings to FAST participants, using common technology, and physically examining cargo transported by these low-risk clients with minimal frequency” (U.S. Customs and Border Protection, n.d.).

23,000 cards were issued. And in January 2003, there were 284,000 entries, well above the 170,000 for the same month the previous year.

The Border in Full

Aside from border crossings and truck traffic, the San Diego–Tijuana area shows high levels of integration on other dimensions. In the realm of economics, Tijuana may be more integrated with San Diego than it is with Mexico’s interior, and the region was integrated even before NAFTA.¹⁴ Changes in U.S. wages lead to changes in Tijuana’s wages in the same direction for both male and female Mexican workers. Furthermore, these changes in Tijuana wages occur more rapidly than do similar changes in other Mexican border cities when the wages in the United States change.

However, the relation goes far beyond economics, and business people, academics, and community leaders in the border region in California and Mexico have been exploring these issues for years. For example, since 1997, the civic group San Diego Dialogue has sponsored the Forum *Fronterizo* luncheon series, which in the last few years has explored the energy sector in Baja California, water supply issues along the entire California-Mexico border, the efficiency of the border crossings, the maquiladora economy, and border air quality.

More recently, San Diego area governments started formal planning for the border in the wake of two major changes—a statutory redirection of SANDAG, and an institutionalization of a binational view through a new SANDAG Borders Committee. The statutory redirection came in the form of California Senate Bill 1703, which made SANDAG the consolidated transportation agency in San Diego County as of January 1, 2003, and formally established a borders policy committee. Previewing this move, the Borders Committee actually held its first meeting in February 2002, several months after SANDAG hired a special projects director for binational planning and coordination.¹⁵ In addition to the

¹⁴Robertson (2000).

¹⁵The Borders Committee actually considers San Diego’s relations along all its borders, including those with Imperial County, Riverside County, Orange County, and the 17 tribal governments within San Diego County.

Borders Committee, the consul general of Mexico in San Diego serves as an advisory member of SANDAG's board of directors, and the Borders Committee has an advisory committee, the Committee on Binational Regional Opportunities, that draws about half its members from Mexico.

In its new guise, SANDAG has published a new regional transportation plan and is in the process of writing a new regional comprehensive plan (RCP)—the first for the area—that will merge plans for transportation and land use.¹⁶ Within the draft RCP, a separate chapter focuses on San Diego's borders, including those with other Southern California counties, Indian tribes within San Diego County, and Mexico.

Naturally, as with any plan, the RCP, still in draft form, is a mix of concrete proposed actions, good intentions, and bland statements, and there is no guarantee that any of it will come to pass. Implementation will depend on local partnerships, collaboration, and coordination because SANDAG is not a regulatory authority and does not have land-use authority. As discussed further in the next chapter, mechanisms for creating binding obligations between San Diego and Imperial Counties and Baja California may be tricky, or not possible. In addition, because the RCP is created by governments that may have conflicting views, the plan may gloss over controversial topics. For example, there is some amount of regional disagreement about the necessity and means of providing improved cargo train service between San Diego and Tijuana.

Still, the borders chapter of the draft RCP presents a useful framework with which to summarize the complex border relationship through the six issues it focuses on: the jobs-housing balance, transportation, energy and water, the environment, economic development, and homeland security.¹⁷ Although these are dealt with separately, there is significant overlap. The jobs-housing balance, transportation, economic development, and homeland security all deal with transportation issues, and the energy and water supply topic is tied

¹⁶These plans are described in San Diego Association of Governments (2003b and 2003a, respectively).

¹⁷For each of these issues, the plan sets out a goal, policy objectives, and actions that San Diego County and the 18 cities in the county will attempt to achieve.

closely to environmental issues, as are economic development and transportation. The rest of this section provides an overview of those six areas, drawing from the draft RCP and from other sources.

The Jobs-Housing Balance

Many who work in San Diego live in Tijuana, in part because housing is much cheaper in Mexico. Growth in Tijuana through natural increase and migration from the south of Mexico, along with San Diegans moving southward, will continue to put pressure on an often substandard housing stock. Key policy actions proposed in the draft RCP include working with Mexico to address binational land use issues and commuting patterns.

Transportation

This has long been a focus of many groups in both Mexico and the United States. In general, analysts from the region discuss technological solutions and infrastructure improvements as the means of smoothing cross-border transit.¹⁸ Specific infrastructure improvements include a new commercial crossing at East Otay Mesa, two miles east of Otay Mesa, scheduled to open in 2010; improvements in the California road network connecting the ports of entry with major highways; and the opening of a rail connection from Tecate to the Union Pacific line at Plaster City in Imperial County and from there to the rest of the United States. In Mexico, the East Otay Mesa crossing will connect with a major road from Tijuana to Rosarito and other roads from Tijuana to Tecate.¹⁹ In addition, there are moves to increase rail freight service from San Diego to Mexico, currently running only for a few hours late at night on the same tracks as the San Diego Trolley. Key policy objectives in the draft RCP for binational transportation issues include ensuring the efficient flow of people and goods across borders and reducing commute times.

¹⁸See, for example, Nathanson and Lampell (2002), and San Diego Association of Governments (2003a), p. 187.

¹⁹San Diego Association of Governments (2003b).

Energy and Water Supply

New energy projects mean that the border area is becoming heavily integrated in terms of energy. Two electricity-generating plants near Mexicali, Mexico—one owned by InterGen, a Massachusetts-based power-generation firm partly owned by San Francisco-based Bechtel and the other owned by Sempra Energy of San Diego—have recently been completed. Of the combined generating capacity of 1,665 megawatts, plans are to sell 1,070 to the United States.²⁰ These plants have raised concerns about their effect on air quality in the Mexicali-Calexico area, in particular the effects from emissions of nitrogen oxide, carbon monoxide, and particulate matter. Control of these emissions has not yet been resolved, although they may represent much less of a threat than air pollution from vehicle emissions, agricultural activity, and particulate matter kicked up by cars driving on unpaved roads.²¹ Additional proposed energy projects include several liquefied natural gas import facilities in Tijuana and Ensenada serving the binational market.²²

In the area of water, communities along the entire border rely on Colorado River water. Although there are separate aqueducts on either side of the border, the water systems in San Diego and the Tijuana and Tecate area in Mexico have an emergency connection. Mexican water infrastructure is much less adequate than U.S. infrastructure, and Mexican usage is much lower. Tijuana has developed a master plan for water and wastewater infrastructure, and that plan is now being supported by the U.S. Environmental Protection Agency through the North American Development Bank (NADBank).²³ As suggested by the funding for the Tijuana wastewater project, the issues of energy and water supply tie in closely with environmental concerns.

Environment

The environment has been one of the greatest concerns along the entire border region since even before the signing of NAFTA. In

²⁰California Energy Commission (2003a).

²¹Lampell (2002).

²²California Energy Commission (2003b).

²³San Diego Association of Governments (2003a), p. 192.

response, the NAFTA parties started the NADBank, the original purpose of which was to fund water, wastewater, and solid waste projects within 100 kilometers of the border and with market-rate loans. It has also, since its inception, modestly funded community adjustment programs in the United States and Mexico regardless of their proximity to the border. Since its founding, its financing tools have been expanded to include low-interest loans, loan guarantees, and the administration of U.S. Environmental Protection Agency grants through the Border Environmental Infrastructure Fund. Its role has been expanded to include advisory services and education.

All projects that the NADBank funds must first be certified by the Border Environment Cooperation Commission (BECC). As of September 30, 2003, nine projects in California and nine in Baja California had been BECC-certified.²⁴ Of these, nine projects in California and seven in Mexico had been funded.²⁵ In Mexico, projects included two separate sanitation and wastewater projects in Mexicali, an air quality improvement and street paving project in Baja California, two separate solid waste and water and wastewater projects in Tecate, and two separate sewage and wastewater projects in Tijuana. In California, projects included two separate water and wastewater projects in Brawley, a water project in Calexico, a wastewater project in Desert Shores, two separate water and wastewater projects in Heber, a water conservation project in the Imperial Irrigation District, a water reclamation project in San Diego, and a wastewater project in Westmoreland.

From the point of view of the local governments of San Diego, the key environmental issues include habitat preservation in the binational area, watersheds and water quality—in particular sewage flowing into the Pacific Ocean—and air quality. One proposed action to address some of these issues is the establishment of a transborder environmental impact assessment process. San Diego area officials are also watching a pilot program now being implemented in the El Paso, Texas–Ciudad Juarez,

²⁴Border Environment Cooperation Commission and North American Development Bank (2003).

²⁵North American Development Bank (2003).

Chihuahua, region—the Joint Advisory Committee for the Improvement of Air Quality.²⁶

Economic Development

As noted at the beginning of this chapter, it appears that many in San Diego do not think in terms of a binational region. However, if the draft RCP holds sway, then the associated governments have started to think in those terms. The draft RCP views proximity to Mexico as an asset and calls for ensuring access to trade corridors, in part through improving regional seaport facilities and developing stronger ties between those ports, from Ensenada, Mexico, to Los Angeles, in part through improving rail links, and in part through improving air passenger and cargo capacity. The draft RCP also includes as an action item supporting economic development along the border in Mexico, including the maquiladora program.

Homeland Security

The final area in the draft RCP reflects current U.S. concerns since the terrorist attacks of September 11, 2001—how to ensure secure borders while still supporting international commerce, tourism, and integration. In March 2002, Presidents Bush and Fox announced the U.S.-Mexico Border Partnership Action Plan, the so-called 22-Point Agreement. Grouped in three broad areas, the points focus on secure infrastructure, secure flow of people, and secure flow of goods. Beyond the rubric of security, the agreement also calls for measures to improve infrastructure, relieve bottlenecks at the border, harmonize port of entry operations, finance border projects, and exchange customs data. Many of the points call for increased use of technology at the border.

The new needs of improving homeland security may provide other benefits. Improving border technology, supply-chain integrity, and border procedures may increase the overall efficiency of the crossings. Current discussions about all modes of cargo security involve the question of whether new screening and tracking devices can have the dual effect of increasing security and making commerce more efficient.

²⁶San Diego Association of Governments (2003a), pp. 203 and 201, respectively.

Border improvements in response to security demands need not just make life for shippers more complicated—they might actually help decrease congestion.

Summing Up the Border

California has, in the past, tried to take steps to coordinate policy with Mexico. In 1964, California and Baja California formed the Commission of the Californias, and in 1967 they invited Baja California Sur to join. California added new institutions with the start of the California Office of Trade and Investment in Mexico City, and the Governor's Office of California-Mexico Relations. The Commission of the Californias was largely inactive through the mid-1990s, was dissolved, and then was reactivated in 1999. As of the end of 2003, it and California's two other statewide points of contact with Mexico were dissolved.

Flying much lower than a grand, statewide effort, local contacts remain along the border, and contacts remain regarding specific topics. U.S., California, and San Diego and Imperial County officials are working with their Mexican counterparts to attack problems of border crossings, the environment, energy markets, infrastructure, security, and economic development. Some of these efforts may be symbolic, others may be well-meant but ineffective, and others may well be very effective at solving joint problems.

The imbalance between state efforts and local efforts fits the reality of California-Mexico relations. The border is the focal point of California-Mexico economic integration. A great deal of trade and FDI take place near the border. A joint housing market is developing. The clash of transportation systems is more prominent there than within California between its counties or between California and its bordering states. Crossing from Mexico to California, actually from Tijuana to Chula Vista or National City, to shop is routine, and crossing from California to Tijuana for an evening out is routine as well.

This suggests that when California reviews its policy stance toward Mexico and considers reviving institutions, border cooperation and coordination should place high on the state's agenda. Within this domain, the state must pay serious attention to the region's trade routes

and border crossings—bottlenecks that can make tens of thousands of people miserable or that can lubricate a growing commercial relationship. Should California wish to consider more than just the border, it has a whole menu of policy options, and it is to these that the next chapter turns.

6. Policy Options for an Integrating California-Mexico Economy

California and Mexico have a complex and evolving economic relationship. It is complex, in that it involves far more than simply trade and investment. Immigration from Mexico, both legal and illegal, provides much of the complexity and conflict. Much of California agriculture survives because of immigrant labor. Immigrants have expanded the overall labor force, giving the state an opportunity to train a new generation of workers who might some day keep the California economy expanding as the native population ages. However, large-scale immigration has also brought social problems, leaving many Californians conflicted and confused about how the state should approach Mexico.¹

California and Mexico have trade and investment relations in a large variety of industries and products. California businesses reach deep within Mexico but tend to avoid the far south and concentrate their activities at the border. Likewise, Mexican businesses reach far across California but concentrate their activities at the border and in the South Coast region.

Immigration has played a role in extending those activities into the South Coast region and may further expand California-Mexico economic integration throughout the state. The Los Angeles area provides a huge market for Mexican-origin goods because of its high number of Mexican immigrants and Hispanic communities. The Mexican Ministry of the Economy encourages Mexican business people to link up with the Hispanic market in California through its web page entitled, “El

¹For one view of the challenges of immigration, see V. Hanson (2003).

Mercado Hispano en EE.UU.” (The Hispanic Market in the U.S.).² The site discusses the size of the U.S. Hispanic market and gives links to the U.S. Hispanic Chamber of Commerce.³

Beyond economics and immigration, Mexico and California face a variety of joint issues, many of which are concentrated at the border. These include the environment, infrastructure, water, and even security. In response, officials from the border regions on both sides of the boundary are continuing to develop a variety of mechanisms to deal with these issues.

What stance should California take toward economic integration with Mexico, toward the creation of deeper and wider trade and investment networks? The state has many choices, and this chapter presents four for consideration, some of which build on each other. The first is to do nothing and let private traders, investors, and manufacturers develop relationships on their own. A second is for California to take a more active role in improving border infrastructure and environment. A third is to provide development assistance to Mexico. A fourth is for California to work with the Mexican and U.S. governments, both by influencing the U.S. government to adopt convergence-friendly policies and by serving as a testing ground for these policies, and to work with private businesses on both sides of the border to shape integration.

Which policies are implemented will depend on many factors, but decisions should take account of the most important trends in the relationship. The key economic issue that calls for attention is border congestion. Deeper integration will lead to more traffic through the borders. Truck crossings into California have risen every year since 1994, except for 2001—from 657,000 to almost 1.1 million. People crossings have risen as well, so that in 2002, there were almost 89 million entries into California through the ports of entry along the California-Mexico border.

²http://www.economia-snci.gob.mx/sic_php/lis23al.php?s=500&p=1&l=1.

³The ministry does not just promote exports from Mexico. Elsewhere on its website, it gives reasons for importation to Mexico, including making up for supplies of goods that local businesses cannot produce, opening up new options for consumption, and providing competition.

Rising two-way trade and direct investment are trends that California policymakers can protect and build on, because they are the foundation of economic integration. However, more effort may be needed to broaden the geographic location of both. Northern California and the Bay Area do not have high levels of economic integration with Mexico, and California businesses do not go far beyond the Mexican border or Mexico's capital.

California policymakers must also recognize that there are limits to what the state can do. As suggested in the more detailed section below on policy options, the state can certainly help improve border infrastructure and create venues for encouraging increased trade and investment. But many policies are not among the state's responsibilities or abilities. Should the state seek to influence national policy toward Mexico, it will have to work much more closely with its sometimes-fractious congressional delegation.

Policies implemented will also depend on what Mexico wants and what types of cooperation the Mexicans can offer. In general, Mexican policymakers and business people suggest that they want economic convergence, more labor mobility between the United States and Mexico, and financial assistance for regional development.

Two factors can slow cooperation between California and subnational regions of Mexico, such as Baja California. First, it is difficult, if not impossible, to create binding agreements. Nations can do so, within limits, but their subnational regions have little ability to do so. Second, subnational governments in Mexico have much more limited abilities to finance projects than does California, despite California's current budget problems. Mexican states and municipalities are much more dependent on the central government for finance than are U.S. states and municipalities.

Regardless of the option, the ultimate goal is clear, and that is to bring Mexico's living standards closer to those of the United States. Also regardless of the option, Mexico itself must make a serious effort to adopt convergence-friendly policies, or any California policy will fail to spur significant Mexican development.

Mexico's Role in Its Own Fate

Successful economic reform involves political skill as much as or more than economic policy skill. In the words of one participant-observer in the successful economic reforms of Poland, referring to the Polish experience,

The hardest part of the transformation, in fact, will not be the economics at all, but the politics. . . . There will be losers together with winners. . . . In many cases, the winners will not be sure about their economic successes for years to come, well before politically important groups identify themselves as potential losers. The great political task is to follow the path of reform in the face of inevitable anxieties, vested interests fighting for the status quo, and demagogues ready to seek political power by playing on the public's fears.⁴

Simple arithmetic shows why patience, and the political skill needed to master patience, is required. In 2000, U.S. per capita GDP on a purchasing power parity basis was 3.7 times that of Mexico. The fastest-growing country in history over a long term is Korea, which grew almost 6.1 percent annually from 1960 to 2000. For a variety of reasons, it is highly unlikely that Mexico can attain that growth rate. But suppose that Mexico grew at a rate of 5 percent between 2000 and 2010, and the United States grew at its historic post-World War II average of about 2.5 percent. How would the countries compare in 2010? The United States would still be almost three times richer on a per capita basis than Mexico. Despite astounding economic growth, Mexico would still appear very far away. And after 20 years, the gap would have narrowed to 2.4 times—still very large. Only after 56 years of 5 percent average annual growth would Mexico reach the standard of living of the United States.

This is not meant to breed pessimism, only to emphasize that if Mexico does not reach U.S. living standards within the next decade, that does not mean that reforms and integration have failed. Even if Mexico grew consistently at 4 percent over a shorter time—a much more reasonable goal—its citizens would have a far better material life than they do now. Again, other countries provide a valid comparison. In 1950, Portugal's per capita GDP was 20.1 percent of U.S. per capita

⁴Sachs (1993), p. 3.

GDP. Mexico's was 28 percent. By 2000, Portugal's was 48 percent, and Mexico's was 26 percent. After emerging from dictatorship and integrating with the European Union, Portugal grew rapidly. Standards of living are not at the American level but are much better than before and are much better on average than those in Mexico. Ireland and Singapore provide other examples of countries that have not fully caught up but that have advanced rapidly. In 1950, Ireland's per capita GDP was 40 percent of that of the United States. By 2000, it was 79 percent. In 1960, Singapore's was 18 percent of that of the United States. By 1996, it was 85 percent. Convergence need not mean total equality of per capita incomes, just a narrowing of the gap.⁵

Is Mexico up to the task? That's not clear, and Californians and the United States should have no illusions about the Mexican political environment. The country has undergone a remarkable political transformation since 1968, when government troops and agents killed protesting citizens at Tlatelolco, Mexico City.⁶ Aggressive, educated, and wily politicians and technocrats have introduced a broad array of positive economic reforms in Mexico since that country's 1982 debt crisis, and many of those reforms will be hard to reverse. However, growth can stall as a result of poor macroeconomic policies (policies regarding the exchange rate, the government budget, and government debt), failure to engage in microeconomic reforms (such as the rules surrounding business formation and labor markets), and failure to continue investing in education or to make Mexico's government more efficient and more fair.

Consider a number of different issues. It has long been recognized that Mexico needs significant reforms to its tax system and energy markets. However, during the first three years of the Fox administration, political rivalries stalled any progress on these fronts and indications are that they will continue to do so.⁷ Banking regulation may also be a problem. Left over from the 1995 peso crisis and the government's

⁵Data on per capita GDP for Ireland, Portugal, Singapore, and the United States are from Heston, Summers, and Aten (2002).

⁶Preston and Dillon (2004).

⁷Sarmiento (2003).

response to it, many banks have weak balance sheets. This has constricted needed capital to services industries, which are necessary to provide employment opportunities and enhance Mexico's export economy.⁸

Numerous business law and regulatory issues may also need reform. For example, the World Bank estimates from a series of worldwide surveys that to start a business, Mexicans have to take seven steps that take 51 days and cost about 19 percent of per capita gross national income (GNI). In contrast, in the United States, starting a business takes five steps and four days at a cost of 0.6 percent of per capita GNI. For the Organization for Economic Cooperation and Development (OECD) as a whole—a group of 30 countries, most of which are economically advanced—starting a business takes seven steps over 30 days at a cost of 10 percent of GNI per capita.⁹ In addition, labor markets are more highly regulated in Mexico than in the OECD and the United States, and contract enforcement is more complex and more costly.¹⁰

Finally, institutional strength is a recognized problem. A deterioration in the enforcement of contracts by courts may have resulted in lenders' reluctance to provide capital.¹¹ Corruption is another example. Mexico had 71 years of one-party rule and developed high levels of corruption usually associated with such rule. In Transparency International's 2003 Corruption Perception Index, Mexico ranked 64, out of 133 countries. Tied with Poland, this put it above 10 other Latin American and Caribbean countries in the survey but below nearly all the countries of the OECD, to which it is aiming to converge, and well below other low- and middle-income countries such as Chile, Slovenia,

⁸Tornell, Westermann, and Martinez (2004).

⁹The OECD is a group of mostly economically advanced countries with the standards of living and industrial structure to which most developing countries aim to converge. Eighteen European countries, the United States, and Canada founded it in 1960, and its membership has risen to 30. Although most members are economically advanced, some are considered developing, including Mexico, Turkey, and several East European countries. Mexico became a member in 1994.

¹⁰World Bank (2003b).

¹¹Tornell, Westermann, and Martinez (2004).

Botswana, Estonia, and Uruguay.¹² To its credit, the current government has tried to stop annual shakedowns at the border, when officials demanded bribes from Mexicans in the United States returning home with gifts and possessions for Christmas to visit family members. Other efforts against corruption have also been put in place.¹³

Despite the long way to go, momentum appears to be with continued reform. And there are ways for the United States and California to help, if they desire. These are described in detail in the discussion of California's policy options.

California's Policy Options

One policy stance for California to take toward Mexico is to minimize government involvement in the relationship. State and federal lawmakers have many demands on them, and time spent on Mexico is time not spent on California education, social services, homeland security, or any other pressing policy issues. Furthermore, the state has much greater economic links with Asia and Europe than it does with Mexico, so working to increase ties with those regions might serve the state's population better in terms of job opportunities and economic advancement.

Still, a case can be made for engagement with Mexico. It is the same case that supported U.S. emergency financial assistance at the time of the 1995 peso crisis: "Without an international rescue, a major depression in Mexico seemed almost inevitable, and it would almost surely have led to regional slowdowns in California and Texas and a jump in illegal immigration into the United States."¹⁴ The two economies are linked through a common border, trade, investment, and immigration.

California's second policy option is to more fully address border issues. Increased economic exchange—U.S. and Mexican national goals—will require more infrastructure, so border infrastructure merits attention at both the state and national levels. Options are numerous,

¹²Transparency International (2003).

¹³Pinkerton (2001) and Iliff (2001).

¹⁴DeLong, DeLong, and Robinson (1996).

and the likelihood of successfully improving border infrastructure will increase if there is cooperation not just among California policymakers, but between California and Mexican policymakers and California state policymakers and the state's congressional delegation. The state's congressional delegation is needed for two reasons. First, border issues are under the purview of federal agencies, and the state has little leverage with them. Second, building new infrastructure will take money, which the state does not have.

Although major capital improvements will cost money, not all helpful policies will be expensive. Lengthening crossing hours, as in Singapore and Hong Kong, could alleviate some congestion. The policy will work better—and perhaps pay for the extra personnel and other costs—by using congestion pricing, in which trucks and cars that cross during peak hours pay a fee. Such pricing is used in other situations and can provide the right incentives to vehicles to cross when the crossing is good.

Several policy venues exist for further border improvements. The U.S.-Mexico Joint Working Committee (JWC) coordinates transportation planning along the border, and the district director for California Department of Transportation District 11—the border—sits on that committee. Congressional cooperation could help provide financing for JWC projects, especially when Mexico is unable.

Another policy venue is the International Boundary and Water Commission, a binational group that carries out treaty obligations and focuses on water and public works. The commission runs three water treatment plants, paid for by both countries, including one in San Diego that treats Tijuana water. The San Diego plant has needed upgrades, but these have met with resistance from both the San Diego area and the state. In response, the commission plans to build a new secondary treatment facility east of Tijuana in Mexico, paid for by the United States. The United States would provide up to \$156 million for engineering, construction, operation, and maintenance. The government of Mexico would cover part of the operating costs.¹⁵

¹⁵International Boundary and Water Commission (2004).

Congress has authorized the plant, but as of spring 2004 had not appropriated the money for it.

California financing of border infrastructure—on both sides of the border—has been part of Sacramento policy discussions for several years. In 2002, the legislature passed, but the governor vetoed, a bill to establish a California and Mexico Border Economic Infrastructure Financing Authority that could finance projects within 100 kilometers of the border on either side of the line.¹⁶ In his veto message, Governor Gray Davis noted that other infrastructure financing mechanisms existed, and that the bill did not provide Mexicans with equal participation in decisions about infrastructure funding—particularly important for projects in Mexico.¹⁷

A third policy option that has been considered is to provide development assistance to Mexico. This option came up on the Sacramento agenda in 2002 when the legislature passed a bill to establish an advisory committee to “conduct a study with respect to the establishment of a California-based international development program with Mexico that can provide assistance and coordination to community-based organizations to perform economic development projects in Mexican migrant regions.”¹⁸ The bill passed the Assembly 75-2 and the Senate 24-10 but was vetoed by the governor.

For a number of reasons, this may not be a good idea for future legislatures to pursue. First, there is no reason to think that California state government has any ability to help another country develop. State officials’ knowledge of the international economy is limited. During the recent budget troubles, the state largely gutted its staff involved with the international economy and economic strategy and planning. If it is not a priority for the state to focus on its own economy, it is difficult to see why it should be a priority for the state to help develop the Mexican economy.

Second, it is not clear that Mexico would welcome this assistance. It agreed only in 2002 to start admitting U.S. Peace Corps volunteers after

¹⁶Senate Bill 1731, sponsored by Senator Richard Polanco.

¹⁷Davis (2002b).

¹⁸Assembly Bill 552, sponsored by Assembly Member Marco Firebaugh.

a long history of suspicion or rejection of U.S. aid. Third, Mexico already has highly trained and talented government officials and business leaders. Many have advanced degrees from American universities, extensive business experience, or both. And many have a clear idea of the major reforms needed in Mexico. Aside from Mexican government officials, there are already many highly trained specialists, including large contingents from the World Bank and American universities, working on these issues.

Fourth, some of what Mexico most desires and needs for its own development involves cooperation with the United States at the national rather than the state level. For example, at a meeting of the U.S.-Mexico Partnership for Prosperity in San Francisco in June 2003, Mexican business leader Hector Rangel suggested the establishment of a customs union, the interconnection of energy markets, and the elimination of U.S. agricultural subsidies as among the ways that the United States and Mexico could cooperate. Regarding Mexican action, he recommended strengthening the rule of law and reforming the country's laws regarding energy, tax policy, and labor markets.¹⁹ In his veto message of the Assembly Bill aiming at a development program, Governor Davis noted, "the issue of development in foreign countries, even those that neighbor California, is a federal, not state, responsibility."²⁰

So far, the chapter has introduced three policy options: do nothing, focus on the border, and provide assistance to Mexico without gaining immediate benefits for California. California's fourth option is to create a partnership that will have both benefits and costs to the state. The rest of this section will discuss a number of possible steps should the state decide to make deeper California-Mexico integration.

In any policy area, the state can coordinate, convene, subsidize, or fill gaps where the private or nonprofit sectors cannot act appropriately. It can also lobby federal officials, including members of the California congressional delegation, for actions in the state's interest. The policy actions presented below fulfill each of these five possibilities.

¹⁹Rangel (2003).

²⁰Davis (2002a).

The first step to consider is the creation of institutions for a formal dialogue with the governments of Mexico and the state of Baja California. The closure of the California Technology, Trade, and Commerce Agency at the end of 2003 also closed the Governor's Office of California-Mexico Affairs, the state's Office of Trade and Investment in Mexico City, and the Commission of the Californias, which included California, Baja California, and Baja California Sur. If Mexico is a priority, the state should recreate a high-level office for Mexico to coordinate California policy and provide a venue for private parties to interact with the state regarding Mexico. As a secondary measure, California could consider reopening a Mexico City office. It was never clear that the state's foreign offices in general were fulfilling—or even could have fulfilled—their mandate of expanding California exports and investment into California in a cost-effective manner. Therefore, the office should not be recreated as a trade and investment office but as an overseer of broader concerns. These could include not only working on trade and investment but facilitating educational and cultural exchanges, coordinating visits between California policymakers and their Mexican counterparts, promoting tourism, and monitoring developments in Mexico that relate to California. Such an office, however, would need a clear mission and a structure that would prevent it from becoming politicized. Without those, restarting such an office would be a questionable policy step.

Focusing on economic relations, as a coordinator, California can work with existing trade and investment organizations to help ensure that businesses get appropriate assistance.²¹ Despite the end of the state's programs and the possible end of some functions of the California-Mexico Trade Assistance Centers, the state still has a variety of private and public organizations involved with trade development. These include four world trade centers, the Centers for International Trade Development at the California community colleges, a network of U.S. export assistance centers, and numerous local and regional trade

²¹More information about state-level trade assistance is available in Shatz (2003b and 2003c).

organizations. Working with these organizations will also reveal gaps in trade services that the state might fill.

As a convener, California can create events where businesses from both sides of the border can explore opportunities. The U.S. Partnership for Prosperity meeting is one example of this, but a better example might be Cal-IT, the annual California Information Technology Partnering and Investment Forum that has been curtailed because of the state's budget difficulties. In this program, held for most of the last decade, the state put together a London conference featuring about 50 carefully selected California technology companies and numerous European companies and investors to explore investment, joint ventures, technology development, and other opportunities. Careful selection of participants is a key to any such program, as the judicious selection of participants is thought to be an element in successful trade development programs generally.²²

Such programs could be especially useful in steering business away from the border. As noted in previous chapters, much of California-Mexico economic integration takes place close to the border. Venues that create more knowledge and interest in doing business elsewhere in Mexico or California could help integrate new areas into California-Mexico economic relations. For example, the state could focus on Mexican businesses already in San Diego and Los Angeles and help them develop business contacts throughout the rest of California. Likewise, it could help expose California businesses to parts of Mexico beyond the border by working with businesses and officials deeper south in Mexico.²³ The already large trade and investment linkages between California and Mexico provide a good start for such an effort.

By promoting such events, California would be called on to think differently about its role in the international economy. Traditionally, the state has promoted California exports and has tried to attract investment to the state, but greater California-Mexico integration will require export markets for Mexican goods and investment into Mexico from foreigners.

²²Nothdurft (1992).

²³For this to succeed, Mexican infrastructure investment and other changes in the target regions likely will be necessary.

This means that California will have to accept the promotion of imports and outward FDI as legitimate policies, something few if any states have ever done. To hope for Mexican success while promoting only California export and inward FDI, however, would at best be hypocritical, especially because imports and outward FDI can be beneficial to the state as well.

As a subsidizer, the state can lower the costs of doing business in Mexico for Californians or in California for Mexicans, by subsidizing the hiring of trade consultants or by guaranteeing export loans, for example. In fact, for many years the state had an export finance office that provided working capital loan guarantees for small businesses for specific export orders. As with many of the state's other international programs, the export finance guarantee function has been ended.

In the way of filling gaps, the state can more aggressively pursue outside funding from national and international agencies for border and other binational projects. Communities on both sides of the border may be eligible for this type of funding but might not know how to pursue it. Already, the North American Development Bank is funding projects, and money from other agencies might be available.²⁴ This could be an area of cooperation with local authorities in Baja California, because funding might not be available to the United States but might be available for Mexican projects that could benefit California. A California office dedicated to the California-Mexico relationship would also fill a gap because no private group can speak for the state about Mexico.

The state can play a final role by working with the federal government to design programs deserving of national attention. One is by finding ways to lower the cost of sending remittances from the United States to Mexico. This has been part of the Partnership for Prosperity between the two countries, and costs have come down. It is likely, however, that more can be done, particularly in the way of bringing migrants and their families in Mexico into the formal banking and credit union systems, in promoting competition in the United States and in Mexico among financial institutions, in improving Mexican financial

²⁴For a list of some of these agencies, see San Diego Association of Governments (2002).

infrastructure, and in improving links between U.S. and Mexican financial institutions.²⁵

A second area for federal-state cooperation is border improvements. Cooperation between the congressional delegations of California, Arizona, New Mexico, and Texas would be merited. Such an alliance would be more influential in improving border infrastructure, especially if joined by the senators and members of Congress who represent states bordering Canada.²⁶

Federal attention to Mexico can cover much more than these two areas, however. It was noted above that Mexico itself has a large number of challenges that it must overcome to maintain a convergence path. These include weak legal structures, poor infrastructure, and education gaps. It was also noted that reforms create winners and losers, and the losers will try to block reforms. Reforms also often have short-term costs for longer-term gains.

A new or expanded aid program from the United States, in cooperation with the four border states of Texas, New Mexico, Arizona, and California, could help solve these problems. Mexico's recovery from its 1982 debt crisis was slowed in part by lack of foreign assistance, whereas its speedy recovery from the 1994–1995 peso crisis came in large part from immediate U.S. assistance.²⁷ There is evidence that intra-European Union aid has helped foster convergence of poor regions in Europe.²⁸ Indeed, many people have called for a European-style transfer program, known as Structural and Cohesion Funds, between the United States and Mexico. However, the United States has never supported, and likely will never support, such a European-style program.

There are still roles that a creative aid program can play. One is to help Mexico compensate losers of reforms that will work to the benefit of the United States and Mexico, such as reforms in the Mexican energy market. In the case of moving Eastern Europe from communism to the market economy, the justification was that “emergency financial help

²⁵Abernathy (2003).

²⁶Fourteen states have land borders with either Canada or Mexico.

²⁷For the role of foreign assistance in the 1982 crisis, see Lustig (1998).

²⁸López-Calva and Lustig (2003).

must be provided in an expeditious way in order that controversial reforms are put in place and have the time to take hold.”²⁹

The second is to provide aid complementary to private investment and conditional on policy reform and reform success. An example of such complementary aid would be the creation of a functioning road network in the south of Mexico, the poorest part of the country.³⁰ Conditionality could be exercised by first giving the money as a loan, and then converting it into a grant as the specific project for which it is intended proceeds appropriately.

There are already precedents for such a conditional aid program, as well as a mechanism for delivering it. One precedent is the new U.S. Millennium Challenge Account program announced by President George W. Bush in Monterrey, Mexico, in 2001. In this program, countries from around the world compete for grants provided they have met certain requirements regarding domestic policies. A program aimed only at Mexico or Mexico and Central America might be considered.

The United States and Mexico created another recent precedent for such conditional aid in the 1995 emergency loan package the United States granted to Mexico when Mexico suffered a severe liquidity crisis and had to devalue the peso. In that episode, Mexico agreed to stabilize the peso through fiscal and monetary policy, rather than through foreign exchange market intervention, to transparently and regularly disclose information on the economy and policy decisions, to proceed with its economic reforms, and to raise domestic interest rates as a means of keeping the value of the peso from collapsing.³¹

Further precedent comes from the European Union, whose program of Structural and Cohesion Funds provides a model for some backers of U.S. aid. Although the European Union does not have conditionality in the sense discussed above, it does require that all new members adopt the Union’s policies and rules in more than 30 different policy areas. Furthermore, it requires that members implement and enforce the rules.

²⁹Sachs (1993), pp. 102–103.

³⁰The implications of such infrastructure investment for the south of Mexico are discussed in Dávila, Kessel, and Levy (2002).

³¹Lustig (1997).

In effect, the arrangement requires that each member country shift a certain amount of national sovereignty to the European Union as a whole.

The mechanism for delivering aid from the United States to Mexico could be the NADBank, which presently has a much more limited role. The NADBank was set up with the onset of NAFTA to use market-rate loans to finance water, wastewater, and solid waste projects within 100 kilometers of the border. Since then, its mission and financing tools have been expanded, yet it still focuses on environmental infrastructure in the border region.

The United States might consider—with California's encouragement—once again expanding the role of the NADBank to make it a true development bank and engage all of Mexico. Indeed, as long as large parts of southern and central Mexico remain undeveloped, significant pressures at the border will stay in place because that is the region in Mexico outside Mexico City that is the most prosperous and has the most opportunity. Once expanded, the NADBank could administer the complementary and conditional aid discussed above.

Should California adopt an active policy stance toward Mexico, the starting point is clear. Much activity has concentrated near the border, so that region demands special attention regarding infrastructure, environment, and other noneconomic issues. Broadening engagement beyond the border, California's endowment of Mexican-born residents makes trade and investment expansion one of the easier policies to implement. Because of the level of Mexico's development, that country does not present the varied opportunities that Europe or developing Asia present. However, with the right policies, a bit of help from north of the border, and a little luck, it might one day.

Appendix

Data Sources and Methods

This appendix describes data used throughout the report and the methods used in the analysis. A more complete description can be found in Shatz and Vilchis (2004).

California trade data come from several sources: Global Trade Information Services (GTIS, 1997–2001), Massachusetts Institute for Social and Economic Research (MISER, 2003a and 2003b), and U.S. Department of Transportation (DOT, n.d.). The GTIS and MISER sources contain origin of movement data, which means that they list exports as California exports if the good started its export journey in California. This does not mean that the exports were produced in California, however. In general, the origin of movement data give a close approximation to the production site for manufactured goods but do not perform as well for commodities.

The DOT source records only land exports and imports, and exports are again origin of movement data. The key advantage of these data are that they include the Mexican state to which the U.S. export was directed and the U.S. state to which the import from Mexico was directed. In the case of U.S. exports, the Mexican state is the state of the ultimate consignee, or the entity to which the good is shipped, and may not be the state of final destination. In the case of U.S. imports from Mexico, the U.S. state of destination is the address of the importer of record. This is the person responsible for paying any customs duties. The state of destination therefore may not represent the physical destination or the final destination of the imported goods.

The trade chapter estimates the skill level of California exports. To do so, different commodities were classified as coming from resource industries or from manufacturing industries, and those from manufacturing industries were assigned a skill level based on their main industry of production. Two measures of skill were used. These were the ratio of nonproduction workers to total workers and the ratio of

wages paid to production workers to total employee compensation for each industry using total U.S. data. Although not exact matches, nonproduction workers are often used to proxy for skilled workers and production workers are often used to proxy for unskilled or less-skilled workers (Lawrence and Slaughter, 1993; Berman, Bound, and Griliches, 1994; and Sachs and Shatz, 1994). Therefore, the two ratios present alternative measures of the skill level of an industry. The higher the first of the two ratios, the more skilled an industry, and the higher the second of the two ratios, the less skilled an industry.

The chapter also computes the number of jobs producing California exports to Mexico. To do so, it uses multipliers stemming from the input-output accounts of the United States. There are three types of multipliers for economic impact analysis—output, earnings, and employment. The report gives results using only the employment and earnings multipliers. These multipliers show how much aggregate output is used to produce an extra dollar's worth of final demand, the amount of earnings stemming from this output and final demand, and the jobs connected with this output and final demand. Multipliers are available for more than 490 industries and are computed by the U.S. Bureau of Economic Analysis as part of the Regional Input-Output Modeling System (RIMS II). California multipliers were provided by the California Technology, Trade, and Commerce Agency (2002).

To use the multipliers, California domestic exports and California foreign exports were estimated. Domestic exports are manufactured in California, and foreign exports are imported, undergo little or no transformation, and then reexported. The California trade data combine both types and do not differentiate.

The export values were then divided into producer prices and wholesale and transportation margins. Export data record the value at the border, but the multipliers for each sector are appropriate for the values at the factory gate. There are other multipliers for the value of transporting the goods from the factory to the port and for wholesaling them. After this step, the multipliers for each commodity were applied to the value of the exports, with the employment multipliers applied to real values in 1997 or 1999 dollars, depending on the set of multipliers used. Sectoral multipliers were applied to the producer-price values of

California domestic exports but not to the producer-price values of California foreign exports, because they were not produced in California. Wholesale and transportation multipliers were applied to the wholesale and transportation portions of both California domestic and foreign exports.

A final technique applied to the trade data is the computation of intracommodity trade. This used the Grubel-Lloyd formula (Grubel and Lloyd, 1975), which for each country is:

$$\sum_i \theta_i \left(\frac{(X_i + M_i) - |X_i - M_i|}{X_i + M_i} \right), \quad \theta_i = \frac{X_i + M_i}{\sum_i (X_i + M_i)}.$$

First, an index for each commodity, i , is created by subtracting the absolute value of the difference of exports and imports from the sum of exports and imports and then dividing by the sum of exports and imports. This ranges from 0 for no intracommodity trade to 1 for complete intracommodity trade. Then the index is weighted by the commodity's share of total trade with the partner country, θ . Finally, the weighted indexes are summed to get an overall index for the country. These indexes were computed at the two-digit level of the harmonized tariff schedule.

Several sources were used for FDI data. The U.S. Bureau of Economic Analysis carries out annual and benchmark surveys of foreign direct investment in the United States and U.S. direct investment abroad. These surveys provide comprehensive overviews of FDI in both directions but often suppress data to not reveal the identity of investors.

More detailed data were purchased from two private vendors, Dun & Bradstreet (D&B), and the Twin-Plant Guide (TPG), published by Solunet: Info-Mex, Inc.

The D&B data were drawn in May 2003 from that company's WorldBase, a global database of businesses that at the time of the search had more than 78 million businesses registered. Although a large sample, it is not a random sample because registration is voluntary, and parents and their lower-level family members will show up only if both register. However, businesses have strong incentives to register with

D&B. D&B's search found 145 California companies and 165 lower-level Mexican companies, and 80 Mexican companies and 88 lower-level California companies (Dun & Bradstreet, 2003). Not only do the data show linkages moving down the corporate chain, but they also show linkages moving up the chain, thereby enabling the identification of the ultimate parent company, which may or may not be the California or Mexican investor. However, it is important to note that each of the lower-level companies could have subsidiaries or branches not recorded in the data.

The TPG data give plant-level information about Mexico's maquiladora industry (Solunet: Info-Mex, Inc., 1993, 1997, and 2003). The TPG data are somewhat different from the official Mexican data but are drawn from them. The advantages of the TPG data are that they identify companies by name and trace corporate linkages.

Still, the TPG data should be treated with caution. Although TPG employees try to verify the information, the databases contain inaccuracies and duplications. Note that the official data from the Instituto Nacional de Estadística, Geografía e Informática are reported to contain inaccuracies as well.

More important, the TPG data do not appear to follow the standard definition of a parent company. In 1993, the data indicated that of the 1,514 maquiladoras in the database, 65 reported having no parent company. At the end of 2002, of the 3,344 maquiladoras in the database, 1,624 reported having no parent company. Part of the difference may be that as the maquiladora economy has become more sophisticated—independent plants that carry out complicated manufacturing have formed, and these plants are less likely to self-report a parent. However, part of the difference lies in how Solunet defines parent. At least for the 2002 database (published in Solunet: Info-Mex, 2003), Solunet does not consider any maquiladora incorporated in Mexico to have a foreign parent if the maquiladora is majority-owned by Mexicans. This does not accord with the definition of parent used in official data, which generally considers 10 percent ownership sufficient to establish the parent-affiliate relationship. As a result, it is likely that many of the 1,624 parentless maquiladoras actually have parent companies. As a result of this problem, the report often gives descriptive

variables about maquiladora ownership in Chapter 4 in terms of proportions, rather than actual numbers, on the assumption that the problem applies equally to California-owned maquiladoras and those owned by businesses from other areas.

Bibliography

- Abernathy, Wayne, "Assistant Secretary Abernathy's Testimony on Remittances to House Financial Services Committee," U.S. Department of the Treasury, Washington, D.C., October 1, 2003.
- Adams, Richard H., Jr., *The Effects of International Remittances on Poverty, Inequality, and Development in Rural Egypt*, Research Report 86, International Food Policy Research Institute, Washington, D.C., 1991.
- Baker and McKenzie, "Amendments to the Maquila Decree," available at www.maquilaportal.com/public/artic/artic300e.htm (accessed December 13, 2003).
- Bean, Frank D., Jennifer Van Hook, and Karen Woodrow-Lafield, "Estimates of Numbers of Unauthorized Migrants Residing in the United States: The Total, Mexican, and Non-Mexican Central American Unauthorized Populations in Mid-2001," Special Report, Pew Hispanic Center, Washington, D.C., November 2001.
- Berman, Eli, John Bound, and Zvi Griliches, "Changes in the Demand for Skilled Labor Within U.S. Manufacturing: Evidence from the Annual Survey of Manufactures," *Quarterly Journal of Economics*, Vol. 109, No. 2, May 1994, pp. 367–397.
- Bolsa Mexicanas de Valores, "Empresas Emisoras," Mexico City, Mexico, 2004, available at www.bmv.com.mx.
- Border Environment Cooperation Commission and North American Development Bank, "BECC-NADB Joint Status Report—September 30, 2003," San Antonio, Texas, 2003.

- Burfisher, Mary E., Sherman Robinson, and Karen Thierfelder, "The Impact of NAFTA on the United States," *Journal of Economic Perspectives*, Vol. 15, No. 1, Winter 2001, pp. 125–144.
- California Business Investment Services, *Foreign Direct Investment in California*, Sacramento, California, August 2003.
- California Department of Transportation, "2003 Commercial Vehicle Crossing Survey," unpublished data, San Diego, California, 2003.
- California Employment Development Department, Labor Market Information Division, "Industry Employment and Labor Force—by Annual Average, March 2003 Benchmark: San Diego MSA, Imperial County, and Los Angeles-Long Beach MSA," Sacramento, California, March 10, 2004, available at www.calmis.ca.gov/htmlfile/county.htm.
- California Energy Commission, *Integrated Energy Policy Report Subsidiary Volume: Electricity and Natural Gas Assessment Report*, Sacramento, California, December 2003a.
- California Energy Commission, "Pending Natural Gas Infrastructure Projects," Sacramento, California, October 2003b.
- California Public Employees' Retirement System, unpublished data on equity, fixed-income, and private equity investments, Sacramento, California, 2003.
- California Technology, Trade, and Commerce Agency and California Economic Strategy Panel, "California Economic Regions," Sacramento, California, 1998.
- California Technology, Trade, and Commerce Agency, "Using Multipliers to Measure Economic Impacts," Sacramento, California, October 2002.
- Campbell, Kate, "Ag Alert: Mexico Presses for Increased Avocado Imports into U.S.," California Farm Bureau Federation, Sacramento, California, June 14, 2000.

- Cañas, Jesus, and Roberto Coronado, “Maquiladora Industry: Past, Present and Future,” *El Paso Business Frontier*, Issue 2, El Paso Branch, Federal Reserve Bank of Dallas, El Paso, Texas, 2002.
- Chadha, K. K., “Delivering CEPA’s Benefits,” *Hong Kong Trade Services*, Vol. 2, 2003, available at <http://www.tdctrade.com/prodmag/trade/trade200302tcl.htm>.
- Chami, Ralph, Connel Fullenkamp, and Samir Jahjah, “Are Immigrant Remittance Flows a Source of Capital for Development?” International Monetary Fund Working Paper WB/03/189, Washington, D.C., September 2003.
- Davidow, Jeffrey, letter to Governor Gray Davis regarding the California-Mexico Trade Assistance Centers, January 23, 2001.
- Dávila, Enrique, Georgina Kessel, and Santiago Levy, “El Sur También Existe: Un Ensayo Sobre el Desarrollo Regional de México” [The South Still Exists: An Essay About the Regional Development of Mexico], presented at Conference on Spatial Inequality in Latin America, University of the Americas-Puebla, 2002.
- Davis, Gray, veto of Assembly Bill 552, Sacramento, California, September 22, 2002a.
- Davis, Gray, veto of Senate Bill 1731, Sacramento, California, September 27, 2002b.
- DeLong, Bradford, Christopher DeLong, and Sherman Robinson, “The Case for Mexico’s Rescue: The Peso Package Looks Even Better Now,” *Foreign Affairs*, May/June 1996.
- Dowrick, Steve, and J. Bradford DeLong, “Globalization and Convergence,” in Michael D. Bordo, Alan M. Taylor, and Jeffrey G. Williamson, eds., *Globalization in Historical Perspective*, The University of Chicago Press, Chicago and London, 2003.
- Dun & Bradstreet, untitled electronic database of California-Mexico family linkages among businesses, Parsippany, New Jersey, 2003.

- Economic Commission for Latin America and the Caribbean,
“Movimiento portuario, 20 principales puertos (TEU)/Port moves, top
20 ports (TEU),” Santiago, Chile, 2002, available at [www.eclac.cl/
transporte/perfil/ppteu2.asp](http://www.eclac.cl/transporte/perfil/ppteu2.asp).
- ESRI, “ESRI Data & Maps,” Redlands, California, April 2003.
- Feinberg, Richard, with Gretchen Schuck, *San Diego, Baja California
and Globalization: Coming from Behind*, Pacific Council on
International Policy, Los Angeles, California, October 2001.
- Fuller, Varden, “The Supply of Agricultural Labor as a Factor in the
Evolution of Farm Organization in California,” unpublished Ph.D.
dissertation, University of California, Berkeley, 1940.
- Funkhouser, Edward, “Migration from Nicaragua: Some Recent
Evidence,” *World Development*, Vol. 20, No. 8, 1992, pp.
1209–1218.
- Gil Díaz, Francisco, “The Mexican Economy: Recent Developments
and Challenges,” presentation at a forum of the Asociación de
Instituciones Financieras Internacionales (AIFI; Association of
International Financial Institutions), New York, New York, February
13, 2003.
- Gittelsohn, John, “Schwarzenegger Talks Immigration, Trade,” *The
Orange County Register*, October 22, 2003.
- Global Trade Information Services, Inc., “Annual Summary of the *World
Trade Atlas—State Export Edition 1996–2000*,” Columbia, South
Carolina, 1997–2001.
- Grubel, Herbert G., and P. J. Lloyd, *Intra-Industry Trade: The Theory
and Measurement of International Trade in Differentiated Products*,
John Wiley and Sons, New York, 1975.
- Hanson, Gordon H., “Economic Integration, Intraindustry Trade, and
Frontier Regions,” *European Economic Review*, Vol. 40, 1996, pp.
941–949.

- Hanson, Gordon H., "U.S.-Mexico Integration and Regional Economies: Evidence from Border-City Pairs," *Journal of Urban Economics*, Vol. 50, 2001, pp. 259–287.
- Hanson, Gordon H., "What Has Happened to Wages in Mexico Since NAFTA? Implications for Hemispheric Free Trade," National Bureau of Economic Research Working Paper 9563, Cambridge, Massachusetts, March 2003.
- Hanson, Victor Davis, *Mexifornia: A State of Becoming*, Encounter Books, San Francisco, California, 2003.
- Heston, Alan, Robert Summers, and Bettina Aten, *Penn World Table Version 6.1*, Center for International Comparisons at the University of Pennsylvania (CICUP), Philadelphia, Pennsylvania, October 2002.
- Hill, Laura E., and Joseph M. Hayes, "California's Newest Immigrants," *California Counts*, Vol. 5, No. 2, November 2003.
- Hinojosa Ojeda, Raúl, David Runsten, Fernando De Paolis, and Nabil Kame, *The U.S. Employment Impacts of North American Integration After NAFTA: A Partial Equilibrium Approach*, North American Integration and Development Center, School of Public Policy and Social Research, University of California, Los Angeles, January 2000.
- Hong Kong Special Administrative Region Government, Information Services Department, "Hong Kong: The Facts—Customs and Excise," Hong Kong, October 2002.
- Hong Kong Special Administrative Region Government, Transport Department, *Annual Transport Digest 2003*, Hong Kong, 2003.
- Iloff, Laurence, "Fox to Mexico: End Culture of Corruption; President Says Curbing Practice Will Take Time; Critics Have Doubts," *The Dallas Morning News*, December 10, 2001, p. 1A.
- Immigration and Naturalization Service, *Statistical Yearbook of the Immigration and Naturalization Service 1997 and 2001*, Washington, D.C., 1999 and 2003.

- Institute for International Education, *Open Doors 2003: Report on International Education*, New York, 2003.
- Instituto Nacional de Estadística, Geografía y Informática, Population and Economic Databases, Mexico City, Mexico, n.d.a.
- Instituto Nacional de Estadística, Geografía y Informática, *Resumen de los Resultados de los Censos Económicos 1999*, Aguascalientes, Aguascalientes, Mexico, n.d.b.
- Instituto Nacional de Estadística, Geografía y Informática, *XII Censo General de Población y Vivienda, 2000, Tabulados Básicos*, Aguascalientes, Mexico, 2001.
- Instituto Nacional de Estadística, Geografía y Informática, unpublished maquiladora data, Aguascalientes, Mexico, 2003.
- International Boundary and Water Commission, “Minute No. 311: Recommendations for Secondary Treatment in Mexico of the Sewage Emanating from the Tijuana River Area in Baja California, Mexico,” El Paso, Texas, February 20, 2004.
- International Trade Data System, “Maquiladoras,” Washington, D.C., 2002, available at www.itsd.treas.gov/maquiladora.html.
- Johnson, Hans P., *Undocumented Immigration to California: 1980–1993*, Public Policy Institute of California, San Francisco, California, 1996.
- Johnson, Hans P., and Belinda Reyes, “Has Increased Border Enforcement Tightened U.S. Labor Markets,” Working Paper, Public Policy Institute of California, San Francisco, California, June 2002.
- Kapur, Devesh, and John McHale, “Migration’s New Payoff,” *Foreign Policy*, November/December 2003, pp. 49–57.
- Kuczynski, Pedro Pablo, and John Williamson, eds., *After the Washington Consensus: Restarting Growth and Reform in Latin America*, Institute for International Economics, Washington, D.C., 2003.

- Lampell, Julio, "Air Quality and Economic Development Along the California/Baja California Border: Can We Have Both?" San Diego Dialogue, San Diego, California, October 2002.
- Langewiesche, William, *Cutting for Sign*, Pantheon Books, New York, 1993.
- Lawrence, Robert Z., and Matthew J. Slaughter, "International Trade and American Wages in the 1980s: Giant Sucking Sound or Small Hiccup?" *Brookings Papers on Economic Activity: Microeconomics*, No. 2, 1993, pp. 161–226.
- López-Calva, Luis F., and Nora Lustig, "Social Protection and Inclusive Trade: Strengthening the Sources of Convergence within FTAA," Institute of Public Policy and Development Studies Working Paper 2003-6, University of the Americas–Puebla, March 5, 2003.
- López Elías, José Antonio, "1980–1998: Nuevas Realidades Industriales," *Notas: Revista de Información y Análisis*, Instituto Nacional de Estadística, Geografía e Informática, No. 14, April–June 2001.
- Lowenthal, Abraham F., and Katrina Burgess, eds., *The California-Mexico Connection*, Stanford University Press, Stanford, California, 1993.
- Lustig, Nora, "Mexico in Crisis, the U.S. to the Rescue. The Financial Assistance Packages of 1982 and 1995," Brookings Discussion Paper, Washington, D.C., January 1997.
- Lustig, Nora, *Mexico: The Remaking of an Economy* (2nd ed.), Brookings Institution Press, Washington, D.C., 1998.
- Lustig, Nora, "Life Is Not Easy: Mexico's Quest for Stability and Growth," *Journal of Economic Perspectives*, Vol. 15, No. 1, Winter 2001, pp. 85–106.
- Mann, Michael A., and Maria Borga, "U.S. International Services: Cross-Border Trade in 2000 and Sales Through Affiliates in 1999," *Survey of Current Business*, November 2001, pp. 49–95.

- Martin, Philip, "Mexico-US Migration," Institute for International Economics, Washington, D.C., 2003a.
- Martin, Philip, "Economic Integration and Migration: The Mexico-US Case," United Nations University World Institute for Development Economics Research Discussion Paper No. 2003/35, Helsinki, Finland, April 2003b.
- Massachusetts Institute for Social and Economic Research, *Foreign Trade Database*, Amherst, Massachusetts., 2003a, available at www.misertrade.org.
- Massachusetts Institute for Social and Economic Research, Special Data Extract of California Exports by Country at the Six-Digit Schedule B Level, Amherst, Mass., 2003b.
- Massey, Douglas S., and Emilio Parrado, "Migradollars: The Remittances and Savings of Mexican Migrants to the USA," *Population Research and Policy Review*, Vol. 13, 1994, pp. 3–30.
- McDaniel, Christine A., and Laurie-Ann Agama, "The NAFTA Preference and U.S. Trade," unpublished paper, Office of Economics, U.S. International Trade Commission, 2002.
- McNeece, John B. III, and Laura Nava, *The Maquiladora Program and Its Legal Implications*, Luce, Forward, Hamilton & Scripps LLP, San Diego, California, 2002.
- Multilateral Investment Fund, Inter-American Development Bank, "Sending Money Home: An International Comparison of Remittance Markets," Washington, D.C., February 2003.
- Nathanson, Charles E., and Julio Lampell, "Identifying Low Risk Crossers in Order to Enhance Security at Ports of Entry into the United States," San Diego Dialogue, San Diego, California, January 2002.
- Ng, Tze-wei, and Gabelle Lam, "Cross-Border Commuting on the Rise," *The Shenzhen Files*, the University of Hong Kong Journalism and Media Studies Centre, 2002, available at <http://jmsc.hku.hk/jmsc6001>.

- North American Development Bank, "NADB Quarterly Project Report, September 30, 2003," San Antonio, Texas, 2003.
- North American Integration and Development Center, "North American Development Bank (NADBank), Los Angeles Office, and the United States Community Adjustment and Investment Program (USCAIP) Data Search Engine," School of Public Policy and Social Research, University of California, Los Angeles, n.d.
- Nothdurft, William E., *Going Global: How Europe Helps Small Firms Export*, The German Marshall Fund of the United States and the Brookings Institution, Washington, D.C., 1992.
- Organization for Economic Cooperation and Development, *Labour Force Statistics 1982–2002*, Paris, September 2003a.
- Organization for Economic Cooperation and Development, *Main Economic Indicators*, Paris, December 1995, December 1996, December 2001, and November 2003b.
- Orozco, Manuel, "Attracting Remittances: Market, Money and Reduced Costs" Inter-American Development Bank Multilateral Investment Fund Report, Washington, D.C., January 28, 2002.
- Orozco, Manuel, "Worker Remittances: An International Comparison," Inter-American Development Bank Multilateral Investment Fund Working Paper, Washington, D.C., February 2003.
- Pinkerton, James. "Mexicans Heading Home See Changes at the Border," *The Houston Chronicle*, December 23, 2001, p. 33.
- Port of Hamburg, "Facts & Figures," Hamburg, Germany, n.d., available at www.hafen-hamburg.de.
- Preston, Julia, and Samuel Dillon, *Opening Mexico: The Making of a Democracy*, Farrar, Straus and Giroux, New York, New York, 2004.
- Rangel, Hector, presentation to the Partnership for Prosperity Workshop, San Francisco, California, June 10, 2003.

- The Regents of the University of California, "Counting California," Oakland, California, 2001–2004, available at countingcalifornia.cdlib.org/index.html.
- Reyes, Belinda I., *Dynamics of Immigration: Return Migration to Western Mexico*, Public Policy Institute of California, San Francisco, California, 1997.
- Reyes, Belinda I., Hans P. Johnson, and Richard Van Swearingen, *Holding the Line? The Effect of the Recent Border Build-up on Unauthorized Immigration*, Public Policy Institute of California, San Francisco, California, 2002.
- Robertson, Raymond, "Wage Shocks and North American Labor Market Integration," *American Economic Review*, Vol. 90, Issue 4, September 2000, pp. 742–764.
- Robertson, Raymond, "Did NAFTA Increase Labor Market Integration Between the United States and Mexico?" Macalester College, St. Paul, Minnesota, 2003.
- Ruiz, Alejandro, "Agri-Food Sector Profile: Mexico," Canadian Embassy, Mexico City, Mexico, 2003, available at atn-riac.agr.ca/latin/e3421.htm.
- Sachs, Jeffrey, *Poland's Jump to the Market Economy*, the MIT Press, Cambridge, Massachusetts, and London, England, 1993.
- Sachs, Jeffrey D., and Howard J. Shatz, "Trade and Jobs in U.S. Manufacturing," *Brookings Papers on Economic Activity*, Issue 1, 1994, pp. 1–84.
- Sala-i-Martin, Xavier X., "The Classical Approach to Convergence Analysis," *The Economic Journal*, Vol. 106, No. 437, July, 1996, pp. 1019–1036.
- San Diego Association of Governments, "Directory of Border Infrastructure Public Financing Institutions," presented at the SANDAG Committee on Binational Regional Opportunities 6th Annual Binational Summer Conference, *Border Infrastructure Needs and Financing: Challenges and Opportunities*, San Diego, California, July 19, 2002.

- San Diego Association of Governments, "Regional Comprehensive Plan for the San Diego Region: Draft," San Diego, California, December 2003a.
- San Diego Association of Governments, *Mobility 2030: The Transportation Plan for the San Diego Region*, San Diego, California, April 2003b.
- San Diego Union-Tribune, "Q & A: Ernesto Zedillo, President of Mexico," May 23, 1999.
- Sarmiento, Sergio, "Mexico's PRI Axes a Would-Be Fiscal Reformer," *The Wall Street Journal Online*, December 12, 2003.
- Science Applications International Corporation, *Survey and Analysis of Trade and Goods Movement Between California and Baja California, Mexico, Final Report, June 2003*, prepared for the California Department of Transportation and the San Diego Association of Governments, 2003.
- Secretaría de Economía, "Preguntas Frecuentes México: 1. Negociaciones Comerciales Internacionales," Mexico City, Mexico, n.d., available at www.economia.gob.mx.
- Secretaría de Turismo, unpublished tourism data, Mexico City, Mexico, 2003.
- Shatz, Howard J., *Business Without Borders? The Globalization of the California Economy*, Public Policy Institute of California, San Francisco, California, 2003a.
- Shatz, Howard J., *Statement on State Foreign Offices*, Occasional Paper, Public Policy Institute of California, San Francisco, California, 2003b.
- Shatz, Howard J., *Small Business and the Globalization of California's Economy*, Occasional Paper, Public Policy Institute of California, San Francisco, California, 2003c.

- Shatz, Howard J., and Ernesto Vilchis, with Eli Miloslavsky, "Detailed Data Appendix to *The Emerging Integration of the California-Mexico Economies*," Working Paper, Public Policy Institute of California, San Francisco, California, 2004.
- Solunet: Info-Mex, Inc., *Twin Plant Guide*, Electronic Database, El Paso, Texas, 1993, 1997, and 2003.
- State of California, "Memorandum of Understanding Between The State of California of the United States of America and The State of Baja California in Mexico," Sacramento, California, December 3, 2001.
- Taylor, J. Edward, "The New Economics of Labour Migration and the Role of Remittances in the Migration Process," *International Migration*, Vol. 37, No. 1, 1999, pp. 63–88.
- Tornell, Aaron, Frank Westermann, and Lorenza Martinez, "NAFTA and Mexico's Less-Than-Stellar Performance," National Bureau of Economic Research Working Paper 10289, Cambridge, Massachusetts, February 2004.
- Transparency International, "Nine out of Ten Developing Countries Urgently Need Practical Support to Fight Corruption, Highlights New Index," *Corruption Perceptions Index 2003*, Berlin, Germany, October 7, 2003.
- United Nations Conference on Trade and Development, *Foreign Direct Investment/Transnational Corporations Database*, Geneva, Switzerland, available at www.unctad.org (accessed August 2003 and March 2004).
- U.S. Census Bureau, *1997 Economic Census, Manufacturing, Industry Series: Logging (EC97M-1133A)*, Washington, D.C., November 1999.
- U.S. Census Bureau, "Sector 31: Manufacturing: Detailed Statistics by Industry: 1997, Washington, D.C., 2002, available at factfinder.census.gov.
- U.S. Census Bureau, *Annual Survey of Manufactures, Geographic Area Statistics: 2001*, Publication M01(AS)-3, Washington, D.C., January 2003.

- U.S. Customs and Border Protection, “FAST: Free and Secure Trade,” Washington, D.C., n.d.
- U.S. Department of Commerce, Bureau of Economic Analysis, “Selected Data of Nonbank U.S. Affiliates by Country of Ultimate Beneficial Owner, 2000,” Washington, D.C., n.d., available at http://www.bea.doc.gov/bea/di/Web_Tb_Cty.xls.
- U.S. Department of Commerce, Bureau of Economic Analysis, *Regional Multipliers: A User Handbook for the Regional Input-Output Modeling System (RIMS II)*, 3rd. ed., Washington, D.C., 1997.
- U.S. Department of Commerce, Bureau of Economic Analysis, *Benchmark Input-Output Accounts of the United States, 1992*, Washington, D.C., 1998.
- U.S. Department of Commerce, Bureau of Economic Analysis, “U.S. Direct Investment Abroad: Operations of U.S. Parent Companies and Their Foreign Affiliates, Preliminary 2000 Estimates,” Washington, D.C., 2002.
- U.S. Department of Commerce, Bureau of Economic Analysis, “Regional Economic Accounts,” Washington, D.C., 2003a, available at www.bea.gov.
- U.S. Department of Commerce, Bureau of Economic Analysis, “Distribution of Nonbank Foreign Affiliates by Country and by Industry for U.S. Parent Companies Headquartered in California, 2000,” unpublished data, Washington, D.C., 2003b.
- U.S. Department of Commerce, Bureau of Economic Analysis, “Foreign Direct Investment in the United States: Operations of U.S. Affiliates of Foreign Companies, Preliminary 2001 Estimates,” dataset, Washington, D.C., 2003c.
- U.S. Department of Commerce, International Trade Administration, “Appendix: Guide to State and Sub-State Export Data,” Washington, D.C., n.d., available at www.ita.doc.gov/td/industry/otea/state/technote.html.

- U.S. Department of Homeland Security, *2002 Yearbook of Immigration Statistics*, Washington, D.C., October 2003a.
- U.S. Department of Homeland Security, “Supplemental Tables: Fiscal Year 2002,” Washington, D.C., October 2003b, available at uscis.gov/graphics/shared/aboutus/statistics/SupplementalTables.htm.
- U.S. Department of Labor, Bureau of Labor Statistics, *Import/Export Price Indexes*, Washington, D.C., n.d., available at www.bls.gov/mxp/home.htm.
- U.S. Department of Labor, Bureau of Labor Statistics, “International Comparisons of Hourly Compensation Costs for Production Workers in Manufacturing, 1975–2001, Supplementary Tables for BLS News Release USDL 02-549,” Washington, D.C., September 27, 2002.
- U.S. Department of State, “TN Visas: Professionals Under NAFTA,” available at travel.state.gov/tn_visas.html (accessed December 6, 2003).
- U.S. Department of Transportation, Bureau of Transportation Statistics, *Transborder Surface Freight Data*, Washington, D.C., n.d., available at www.bts.gov/transborder/.
- U.S. Department of Transportation, Bureau of Transportation Statistics, border crossing data, Washington, D.C., 2003.
- U.S. Department of the Treasury, “Treasury International Capital System,” Washington, D.C., available at www.ustreas.gov/tic/ (accessed March 22, 2004).
- U.S. General Accounting Office, “Trade Adjustment Assistance: Trends, Outcomes, and Management Issues in Dislocated Worker Programs,” Report to the Chairman and Ranking Minority Member, Committee on Finance, U.S. Senate, GAO-01-59, Washington, D.C., October 2000.
- U.S. General Accounting Office, *International Trade: Mexico’s Maquiladora Decline Affects U.S.-Mexico Border Communities and Trade; Recovery Depends in Part on Mexico’s Actions*, Report to Congressional Requesters, GAO-03-891, Washington, D.C., July 2003.

- U.S. International Trade Commission, “Appendix C: Selected Statistical Tables (C-1 to C-7) for Trade Under Mexico’s Production-Sharing Provisions (Temporary Import Programs),” *Industry Trade and Technology Review*, Office of Industries, USITC Publication 3534, July 2002, pp. C-1–C-16.
- U.S. International Trade Commission, *Dataweb Version 2.6.0*, electronic trade database, Washington, D.C., available at www.usitc.gov (accessed 2003 and 2004).
- Vargas, Lucinda, “The Maquiladora Industry in Historical Perspective (Part 1),” *El Paso Business Frontier*, El Paso Branch, Federal Reserve Bank of Dallas, El Paso, Texas, Issue 3, 1998a.
- Vargas, Lucinda, “The Maquiladora Industry in Historical Perspective (Part 2),” *El Paso Business Frontier*, El Paso Branch, Federal Reserve Bank of Dallas, El Paso, Texas, Issue 4, 1998b.
- Vargas, Lucinda, “NAFTA’s First Five Years (Part 1),” *El Paso Business Frontier*, El Paso Branch, Federal Reserve Bank of Dallas, El Paso, Texas, Issue 2, 1999.
- Vargas, Lucinda, “Maquiladoras 2000: Still Growing,” *El Paso Business Frontier*, El Paso Branch, Federal Reserve Bank of Dallas, El Paso, Texas, Issue 3, 2000.
- Villagómez, Armando, “Oportunidades de Negocio para el Mercado Hispano en el Suroeste de Estados Unidos,” talk presented to *Semana PYME 2003*, Tijuana, Mexico, November 6, 2003.
- Watkins, Ralph, “Mexico Versus China: Factors Affecting Export and Investment Competition” *Industry Trade and Technology Review*, Office of Industries, United States International Trade Commission, USITC Publication 3534, July 2002a, pp. 11–26.
- Watkins, Ralph, “Production-Sharing Update: Developments in 2001,” *Industry Trade and Technology Review*, Office of Industries, United States International Trade Commission, USITC Publication 3534, July 2002b, pp. 27–42.

- Watkins, Ralph, "Production-Sharing Update: Developments in 2002," *Industry Trade and Technology Review*, Office of Industries, United States International Trade Commission, USITC Publication 3661, November 2003, pp. 11–30.
- Williamson, John, ed., *Latin American Adjustment: How Much Has Happened?* Institute for International Economics, Washington, D.C., 1990.
- Wilson, Patricia A., "Maquiladoras," *The Handbook of Texas Online*, Texas State Historical Association, Austin, Texas, July 23, 2002 (accessed September 4, 2003).
- World Bank, *WDI Online*, Washington, D.C., 2003a and 2004.
- World Bank, *Doing Business*, Washington, D.C., web-based database benchmarked to January 2003, available at rru.worldbank.org/DoingBusiness (accessed December 3, 2003b).
- World Federation of Exchanges, "Market Capitalization of Shares of Domestic Companies (Main and Parallel Markets)," Paris, France, August 23, 2003a, available at www.fibv.com/WFE/home.Asp.
- World Federation of Exchanges, "Market Value of Bonds Listed (Domestic and Foreign)," Paris, France, August 23, 2003b, available at www.fibv.com/WFE/home.Asp.
- World Federation of Exchanges, "Additional Data on Stock Markets," Paris, France, 2004, available at www.fibv.com/WFE/home.Asp.

About the Authors

HOWARD J. SHATZ

Howard Shatz is a research fellow at PPIC, where he studies California and the international economy. His research interests include international investment and trade, economic geography, and international economic development. His previous publications include *Business Without Borders? The Globalization of the California Economy*, “The Geography of International Investment” (in *The Oxford Handbook of Economic Geography*, with Anthony J. Venables), and “Trade and Jobs in U.S. Manufacturing” (in *Brookings Papers on Economic Activity*, with Jeffrey D. Sachs). In recent papers, he has investigated the location of the affiliates of U.S. multinationals and the geography of foreign direct investment in the United States. He has held research fellowships at The Brookings Institution, at the Board of Governors of the Federal Reserve System, and at the Center for International Development at Harvard University. He has also served as a consultant to the World Bank. He holds a Ph.D. in public policy from Harvard University.

LUIS FELIPE LÓPEZ-CALVA

Luis Felipe López-Calva is a professor of economics at *Universidad de las Américas—Puebla* and director of the university’s Institute of Public Policy and Development Studies. He is also the coordinator of the Mexican Human Development Report, a member of the Technical Committee for Poverty Measurement at the Federal Ministry of Social Development (SEDESOL), and a member of SEDESOL’s National Scientific Council. His research and publications cover child labor, poverty, inequality, institutional economics, and economic development. His book *La Medición del Desarrollo Humano en México (The Measurement of Human Development in Mexico)*, coedited with Miguel Székely, is forthcoming from *Fondo de Cultura Económica*. In 2001, he received the “Best Paper Award” from the Latin American and Caribbean Economic Association–Interamerican Development Bank–World Bank Network on Inequality and Poverty for his work on social norms and child labor. He has been a consultant for the World

Bank and other multinational institutions, as well as for the governments of Bolivia, Costa Rica, Egypt, and other countries. From 1998 to 2002, he was a professor and researcher at the Center of Economic Studies at *El Colegio de México*. He holds a Ph.D. in economics from Cornell University.

Related PPIC Publications

Foreign Tariff Reductions and California Exports

Jon D. Haveman

California's Global Gateways: Trends and Issues

Jon D. Haveman and David Hummels

Undocumented Immigration to California: 1980–1993

Hans P. Johnson

Business Without Borders? The Globalization of the California Economy

Howard J. Shatz

Dynamics of Immigration: Return Migration to Western Mexico

Belinda I. Reyes

Holding the Line? The Effect of the Recent Border Build-up on

Unauthorized Immigration

Belinda I. Reyes, Hans P. Johnson, and Richard Van Swearingen

PPIC publications may be ordered by phone or from our website
(800) 232-5343 [mainland U.S.]
(415) 291-4400 [Canada, Hawaii, overseas]
www.ppic.org

