Agriculture

Agriculture remains the make-or-break issue for multilateral and regional trade agreements. This is equally true of NAFTA. US agricultural trade with NAFTA partners has more than doubled in value over 1993–2003 and has grown twice as fast as agricultural trade with the rest of the world.[41] While agriculture accounts for only about 5 percent ($35 billion) of total intraregional trade in NAFTA, this number understates its political sensitivity. Several NAFTA disputes have taken place in agriculture; we highlight the US-Canada disputes over softwood lumber and the Canadian Wheat Board, and US-Mexico disputes over sugar and high-fructose corn syrup, in chapter 5 on agriculture.

NAFTA does not have a unified text on agriculture. Instead there are three separate bilateral agreements: between the United States and Canada, the United States and Mexico, and Canada and Mexico. The US-Canada agreement maintains significant restrictions and tariff rate quotas held over from the CUSFTA, particularly on trade in sugar, dairy, and poultry. By contrast, the US agreement with Mexico is in theory far more liberalizing but with long phaseout periods for trade restrictions on sensitive products.[42] Despite these long phaseout periods, Mexico has not made the infrastructure investment necessary to restructure its agrarian economy. The extent to which small Mexican farmers, cultivating traditional crops, have suffered is a matter of dispute. Chapter 5 on agriculture suggests that critics have exaggerated the adverse effects of NAFTA.

In the case of corn, the Mexican government chose not to enforce the tariff-rate quota NAFTA authorized, so the actual phaseout period was much shorter than was negotiated. Mexico is not self-sufficient in corn production, and the Mexican government waived at least $2 billion in tariff revenues, using the argument that cheaper corn imports were necessary to meet growing domestic livestock demand and control inflation.

Energy

Energy trade has long been a key component of North American economic integration. Although prices are volatile, energy accounts for about 7 percent of intra-NAFTA trade, of which US imports from Canada and Mexico represent the lion's share. The value of total US energy imports from NAFTA partners was $56 billion in 2003.[43] The United States imports more petroleum from Canada (2.1 million barrels per day in 2003) than from Saudi Arabia (1.8 mmb/d); Mexico is a close third with 1.6 mmb/d (EIA 2004b, table S3). Canada is by far the leading source of US natural gas imports; Canadian pipelines accounted for 3.8 trillion of a total 4 trillion cubic feet of natural gas imported by the United States in 2002. Mexico has gone from roughly balanced natural gas trade with the United States (importing 61 billion cubic feet and exporting 54 billion cubic feet in 1999) to become a significant net importer (importing 263 billion cubic feet and exporting only 2 billion cubic feet in 2002) (EIA 2004c, table 9). This shift of fortune reflects inadequate investment and rising demand rather than a shortage of Mexican reserves.

While both the CUSFTA and NAFTA liberalized energy investment between the United States and Canada, Mexico opted out of NAFTA's provisions in order to maintain its constitutional ban on foreign investment in the energy sector. As a result, inadequate investment has handicapped the Mexican oil and gas industry, threatening to make Mexico a net energy importer by the end of the decade. North American demand for energy is expected to grow by 1.5 percent annually through 2025 (EIA 2004a, table A1). Unless there is a dramatic push for greater energy production within North America and sharply increased conservation efforts, much of this demand will have to be met with extra-NAFTA imports.

Effects of Increased Trade

The increase in trade within North America since NAFTA is impressive. However, income gains depend importantly on whether intra-NAFTA trade resulted in an equivalent increase in global trade or whether the intra-NAFTA gains merely reflect trade diversion—shifting trade from countries that are otherwise more competitive but whose exports continue to face tariff barriers in the NAFTA region.

In a few industries, most notably textiles and apparel where "yarn forward" rules of origin were imposed specifically to make US textile firms the preferred suppliers for Mexican apparel manufacturers, NAFTA has indeed fostered trade diversion.[44] Burfisher, Robinson, and Theirfelder (2001) point out the connection between trade diversion and rules of origin: Industries with the strictest rules of origin appear to be the same ones where NAFTA has had a diversionary effect. Fukao, Okubo, and Stern (2002) empirically verify the diversionary effects of NAFTA on textile and apparel trade by examining the relationship between the US tariff barrier faced by a supplying country and the growth in its share of the US import

41. See table 5.2 in chapter 5 on agriculture.

42. Moreover, the United States has sidestepped its commitments on sugar, and both countries are using phytosanitary standards for protectionist purposes.

43. Defined as imports of coal (SITC 32), crude oil (333), refined oil (334), propane and butane (342), natural gas (343), and electricity (351) as reported by USITC Interactive Tariff and Trade Dataweb 2005, http://dataweb.usitc.gov (accessed on March 15, 2005).

44. Since "yarn forward" rules strictly limited Mexican purchases of Asian fabrics, they severely limited the growth of Mexican apparel exports to the US market. At the same time, they diverted Mexican yarn and fabric purchases from Asian to US suppliers.

market.[45] Importantly, the authors do not find diversionary tendencies when they examine other important trading industries, such as autos and electronics.

The World Bank (2003, chapter 6) notes that the increase in Mexico's share of aggregate NAFTA imports from 1994 to 2001 (from about 6 percent to over 9 percent) mirrors the growth of Mexico's share of non-NAFTA imports (from 0.2 to 0.4 percent)—suggesting that the increase in Mexico's aggregate import share is not due to diversionary factors. The wider range of products traded provides additional evidence of NAFTA trade creation. In 1993, 5,814 tariff lines covered all Mexican exports to the United States; by 2002, this figure had expanded to 8,328.[46] On balance, the empirical studies find that NAFTA tends to promote trade creation far more than trade diversion.

The success of NAFTA comes despite its restrictive rules of origin. Such rules determine which products are eligible for NAFTA trade preferences. Rules of origin were built into NAFTA (as in nearly all FTAs) for the announced purpose of preventing "trade deflection." Without such rules, third-country exporters could ship their wares to the NAFTA country with the lowest tariff rate and then reexport them duty-free throughout the free trade region. The idea is to preclude products largely made in non-NAFTA countries from receiving NAFTA benefits.

That said, the NAFTA rules of origin had an intended and protectionist side effect in selected sectors (notably textiles and apparel and autos): to restrict the use of intermediate goods from outside NAFTA. Unintentionally, the rules created administrative barriers to trade on goods within NAFTA—by forcing importers to maintain a lengthy paper trail on components used in highly fabricated goods. These side effects impose significant burdens on NAFTA producers. For example, Carrère and de Melo (2004) found that compliance costs entailed by rules of origin significantly offset, and in some cases outweigh, market access preferences granted under NAFTA—particularly in textiles and apparel.

Recognizing this problem, NAFTA trade ministers agreed in July 2004 to liberalize rules of origin affecting more than $20 billion in trade of foodstuffs and consumer and industrial products (NAFTA Free Trade Commission Joint Statement, July 16, 2004). We argue that such incremental reforms should be broadened. Distortions that rules of origin generate should be redressed by harmonizing and reducing the most-favored nation (MFN) tariffs of all three countries, thereby eliminating the incentive for trade deflection, the legitimate rationale, if not the real reason, for such rules (see the final chapter for our policy recommendations on this issue).

45. Among 60 industries classified at the two-digit level, the authors detected evidence of trade diversion in 15 cases. Of these, four are within textiles and apparel. See Fukao, Okubo, and Stern (2002, tables 1 and 2).

46. See the World Bank's World Integrated Trade Solution database at http://wits.worldbank.org (accessed on February 23, 2004). Mexico did not report tariff line data in 1993, so we cannot compare the number of products exported to Mexico pre- and post-NAFTA. The growth in tariff line trade between Canada and the United States is much smaller, due to stronger integration before NAFTA.

Services

Intraregional trade in services also increased significantly during NAFTA's first decade.[47] However, the growth was less pronounced than in merchandise trade, and NAFTA reforms made a difference in only a few sectors. For some services, notably tourism, barriers were already very low before the trade agreements were ratified. For others, such as trucking and maritime transport, the barriers were not only high but also almost impervious to liberalization. Moreover, the number of NAFTA temporary work visas for professional workers was tiny, not enough to have much effect on the recorded flows of cross-border services income. The CUSFTA and NAFTA (beyond the WTO commitments made under the auspices of the General Agreement on Trade in Services, GATS) greatly liberalized some services sectors, particularly financial services, but other sectors were barely affected.

Overall, US services trade with its NAFTA partners grew more slowly than both merchandise and services trade with the rest of the world (table 1.3). From 1993 to 2003, US two-way trade in services with its NAFTA partners rose from $44 billion to $74 billion, or by 70 percent. Services trade with Canada and Mexico grew 78 and 59 percent, respectively. The US services trade *surplus* in 2003 with the NAFTA region was $12.5 billion—about the same as in 1993. However, services trade growth in NAFTA was slower than growth with non-NAFTA countries (91 percent). In all, 14.2 percent of total US services trade was with NAFTA in 2002, down slightly from 15.7 percent in 1993.

Table 1.4 provides data on services trade by sector; these data do not include services provided both ways between affiliates and their parent corporations. In most sectors, both payments and receipts have grown significantly. However, in the telecommunications sector, payments to Canada and Mexico have both decreased, reflecting a sharp decline in so-called accounting rates (termination charges by the call-delivering carrier).

In the case of Mexico, telecom liberalization has been slow in coming. In response to a law giving the former state monopoly, Teléfonos de Mexico (Telmex), the right to negotiate terms and conditions for the ter-

47. Services trade data are much less comprehensive than merchandise trade data. With 48 million persons crossing the Canada-US border each year, and with telephones and computers allowing lawyers, architects, and other professionals to carry on international business from their own desks, it seems likely that official statistics significantly underestimate the exchanges taking place.

Table 1.3 US trade in cross-border services with NAFTA partners, 1989–2003 (billions of US dollars)

Partner	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Percent change 1989–2003	Percent change 1993–2003
Canada																	
Exports	13.3	15.7	17.8	17.3	16.9	17.0	17.7	19.3	20.3	19.3	22.5	24.4	24.5	24.3	26.7	100.6	58.0
Imports	8.6	9.1	9.7	8.3	8.9	9.7	10.8	12.2	13.7	15.1	16.1	17.6	17.6	18.4	19.1	121.6	114.5
Total	22.0	24.8	27.5	25.6	25.8	26.7	28.5	31.5	34.0	34.4	38.5	42.0	42.1	42.7	45.9	108.8	77.5
Balance	4.7	6.6	8.1	9.0	8.0	7.3	6.9	7.1	6.6	4.2	6.4	6.8	6.9	5.9	7.6		
Mexico																	
Exports	4.8	8.6	9.7	10.5	10.4	11.3	8.7	9.4	10.8	11.6	12.8	14.3	15.2	15.9	16.6	244.2	59.7
Imports	6.7	6.7	7.1	7.3	7.4	7.8	7.9	8.9	9.8	9.8	9.5	11.0	10.5	11.1	11.7	73.5	57.6
Total	11.6	15.3	16.7	17.7	17.8	19.2	16.6	18.3	20.6	21.4	22.3	25.3	25.7	27.0	28.3	144.8	58.8
Balance	–1.9	1.9	2.6	3.2	3.0	3.5	0.8	0.5	0.9	1.8	3.3	3.3	4.6	4.8	4.9		
World																	
Exports	117.9	137.2	152.4	163.6	171.1	186.1	203.1	221.4	237.9	243.8	264.7	283.5	275.5	279.5	294.1	149.4	71.9
Imports	85.3	98.2	99.9	102.0	107.8	118.3	126.8	136.9	150.0	163.6	180.5	204.7	201.6	205.2	228.2	167.6	111.7
Total	203.2	235.4	252.4	265.6	278.9	304.4	329.8	358.3	387.8	407.4	445.2	488.1	477.1	484.7	522.3	157.0	87.3
Balance	32.6	39.0	52.5	61.6	63.3	67.7	76.3	84.5	87.9	80.2	84.2	78.8	73.9	74.3	65.9		
NAFTA																	
Exports	18.1	24.3	27.4	27.7	27.3	28.3	26.4	28.7	31.1	30.9	35.3	38.7	39.7	40.2	43.3	138.8	58.6
Imports	15.4	15.9	16.8	15.6	16.3	17.5	18.7	21.2	23.5	24.9	25.6	28.6	28.1	29.5	30.8	100.6	88.7
Total	33.5	40.1	44.2	43.3	43.7	45.8	45.2	49.9	54.6	55.8	60.8	67.3	67.8	69.7	74.1	121.2	69.9
Balance	2.8	8.4	10.6	12.1	11.0	10.7	7.7	7.6	7.6	6.0	9.7	10.1	11.6	10.7	12.5		
Non-NAFTA																	
Exports	99.8	113.0	125.0	135.9	143.8	157.8	176.6	192.6	206.8	212.9	229.4	244.8	235.8	239.3	250.8	151.3	74.4
Imports	69.9	82.3	83.2	86.4	91.5	100.8	108.0	115.7	126.4	138.6	155.0	176.1	173.5	175.8	197.4	182.3	115.8
Total	169.7	195.3	208.2	222.3	235.2	258.6	284.6	308.4	333.2	351.5	384.4	420.9	409.3	415.1	448.1	164.1	90.5
Balance	29.9	30.6	41.9	49.4	52.3	57.0	68.6	76.9	80.3	74.3	74.5	68.7	62.3	63.5	53.4		

Source: BEA (2004a, table 2).

mination of *all* international calls, the United States brought a WTO case against Mexico in 2002.[48] The dispute settlement panel ruled substantially in favor of the United States in April 2004, and Mexico chose not to appeal. The Mexican government agreed to revise its law to comply with the panel recommendations by 2005. The new rules should benefit US carriers routing calls into Mexico as well as the affiliates of AT&T and MCI operating in Mexico.

One of the major sticking points of NAFTA implementation has been the liberalization of cross-border trucking. Eighty percent of bilateral trade between the United States and Mexico moves by truck (Moore 2004). NAFTA was intended to gradually allow Mexican trucks to operate in the entire United States and vice versa—first in border states by December 1995, then finally throughout the two nations in January 2000.[49] Both political foot-dragging and judicial challenges delayed implementation of this provision. President Clinton first delayed implementation of the trucking agreement in 1995, citing concerns about the safety of Mexican trucks voiced by the International Brotherhood of Teamsters. After several years of inaction, Mexico charged the United States with violating its NAFTA obligations. No one was surprised when the NAFTA arbitration panel ruled, in February 2001, that the US ban on Mexican trucking was illegal. In November 2002, President Bush agreed to bring US practice into compliance, but regulations implementing his decision were im-

48. See WTO case *Mexico—Measures Affecting Telecommunications Service*, WT/DS204, available at docsonline.wto.org. This was the first WTO case based solely on the General Agreement on Trade in Services (GATS).

49. The United States agreed to allow Mexican operation of cross-border trucking services in border states three years after the *signing* of NAFTA, which occurred in December 1992, while full-country access was to be allowed six years after the agreement *entered into force*— January 1994 (NAFTA, vol. II, annex I, I-U-20). A copy of the NAFTA text is available at www.nafta-sec-alena.org/DefaultSite/index_e.aspx?DetailID=78 (accessed on July 18, 2005).

Table 1.4 US unaffiliated services trade with NAFTA partners, selected sectors, 1993–2003 (millions of US dollars)

Partner/sector	1993		1994		1995		1996		1997		1998	1998	1999		2000		2001		2002		2003		Percent change, 1993–2003	
	Receipts	Payments	Receipts	Payments	Receipts	Payments	Receipts	Payments	Receipts	Payments	Receipts	Payments	Receipts	Payments	Receipts	Payments	Receipts	Payments	Receipts	Payments	Receipts	Payments	Receipts	Payments
Canada																								
Travel	7,458	3,692	6,252	3,914	6,207	4,319	6,900	4,670	6,945	4,904	6,245	5,692	6,740	6,233	7,188	6,284	6,595	6,345	6,268	6,489	6,844	6,376	–8.2	72.7
Passenger fares	1,191	260	1,186	302	1,284	306	1,339	391	1,361	470	1,478	587	1,540	712	1,640	795	1,768	685	1,717	594	2,114	406	77.5	56.2
Other transport	1,791	2,012	1,973	2,330	2,275	2,513	2,394	2,790	2,414	3,037	2,317	2,910	2,484	3,226	2,641	3,700	2,478	3,337	2,544	3,589	2,614	3,634	46.0	80.6
Education	343	8	383	8	403	9	425	10	439	12	445	14	474	14	511	19	568	18	617	28	647	56	88.5	579.5
Financial services	428	97	389	121	580	190	593	173	593	200	768	228	981	203	1,009	247	1,049	177	934	154	1,035	161	141.8	66.8
Insurance	262	366	258	412	313	407	318	374	359	412	361	429	415	278	412	308	392	343	459	554	660	525	151.7	43.4
Telecommunications	252	361	244	391	299	381	294	350	305	332	306	310	321	223	442	199	434	238	585	256	681	281	170.2	–22.2
Business, professional, and technical services	1,023	351	1,376	374	1,230	629	1,637	681	1,879	1,197	1,802	1,477	2,448	2,145	2,820	2,522	2,897	2,073	2,954	2,267	3,000	2,786	193.3	693.7
Mexico																								
Travel	5,119	5,159	4,866	5,334	2,857	5,316	3,004	5,972	3,438	6,480	3,818	6,396	4,114	5,805	5,162	6,646	5,320	6,711	5,688	7,061	5,861	7,404	14.5	43.5
Passenger fares	554	641	733	601	515	569	761	650	859	777	958	809	961	957	1,028	923	949	828	1,329	794	1,158	862	109.0	34.5
Other transport	495	397	567	476	420	481	549	525	567	800	549	958	690	1,070	683	1,318	720	1,031	790	993	882	1,040	78.2	162.0
Education	120	95	131	112	151	119	153	157	167	170	183	179	192	172	211	182	223	203	267	201	294	221	144.2	131.6
Financial services	230	66	231	75	160	79	249	125	282	82	261	31	347	54	383	46	376	60	309	87	388	99	68.4	49.8
Insurance	31	0	27	0	23	0	30	1	43	1	57	2	70	3	82	5	91	9	125	16	164	13	429.3	n.a.
Telecommunications	180	884	195	966	251	1,067	350	1,162	445	1,104	464	1,017	376	794	537	1,133	426	810	495	794	541	815	200.6	–7.8
Business, professional, and technical services	546	82	714	105	683	102	648	89	796	136	854	123	952	129	723	155	932	181	938	215	1,116	260	104.4	217.1

n.a. = not applicable

Source: BEA (2004a, tables 3.9–3.18, 5.9–5.18).

mediately challenged in court on grounds that an environmental assessment was required—under the National Environmental Policy and Clean Air Act—before Mexican trucks could roll on US highways. In June 2004, the US Supreme Court unanimously ruled that the administration's decision to comply with NAFTA does not require an environmental assessment.[50] However, the border remains closed to Mexican trucks pending the adoption of special regulations to ensure that they operate in a safe and clean manner. This delay has added to cross-border transportation costs, increased turnaround times at assembly plants, and worsened border pollution as older drayage trucks idle in lines to clear customs.

The liberalization of financial services has profoundly altered the Mexican banking sector. Mexico had negotiated a long phase-in period for financial-sector liberalization but chose to accelerate the pace in the wake of the peso crisis. Also, while Mexico was required to open the financial-services sector only to North American firms, it chose global liberalization. In response, the foreign share of Mexican banking assets has increased from 1 percent in 1994 to 90 percent in 2001 (ECLAC 2003, table III.2), leading a trend in foreign banking acquisitions throughout Latin America. Spanish banks BBVA and Santander made major acquisitions. BBVA controls BBVA Bancomer, currently Mexico's largest bank with $46 billion in assets, and BBV-Probursa, with $28 billion in assets, while Santander purchased Banca Serfin ($20 billion) and established the subsidiary Banco Santander Mexicano (UNCTAD 2004, table 88). Citigroup and Bank of America of the United States and Scotiabank of Canada also invested heavily in the Mexican market. Citigroup's $12.5 billion purchase of Banco Nacional de Mexico (Banamex) in 2001, at the time Mexico's largest bank, was unthinkable in a pre-NAFTA environment; Banamex now has $40 billion in assets (UNCTAD 2004, table 88).

One consequence of this financial transformation is a drastic reduction of "connected lending," motivated by political and family relationships rather than sound commercial principles. Another consequence is a flourishing market for home mortgages and the growth of middle-class home ownership, long lacking in Mexico.[51]

50. See *Department of Transportation v. Public Citizen*, Docket No. 03-358, laws.findlaw.com/us/000/03-358.htm (accessed on June 30, 2005).

51. See "Revolution in Mexico: Affordable Housing," *Wall Street Journal*, December 15, 2004, B1; and "Mexico's Working Poor Become Homeowners," *New York Times*, December 17, 2004, 1.

Direct and Portfolio Investment

One of Mexico's key objectives in NAFTA has been to attract FDI—from the United States, Canada, and beyond. For that reason, Mexico implemented its NAFTA obligations regarding investment on an MFN basis. The trade pact itself has fostered FDI by ensuring that firms with assembly plants in Mexico could import US and Canadian components and export finished products duty-free to the north. More important, NAFTA's rights and obligations toward private investors have contributed—in conjunction with stable and conservative macroeconomic policies—to a more inviting environment for FDI in Mexico.

Since NAFTA entered into force, Mexico has enjoyed an FDI boom; based on data reported in the UNCTAD *World Investment Report* (table 1.5), the stock of FDI in Mexico grew from $33 billion in 1994 to $166 billion by year-end 2003, despite the tribulations of the 1994–95 peso crisis.[52] Based on US data, the stock of US FDI in Mexico increased from $17 billion in 1994 to $61.5 billion at year-end 2003 (table 1.6). About half of the US stock of FDI was accumulated after 1998 and reflects major investments in both financial services (led by Citibank's purchase of Banamex in 2001) and manufacturing. Mexico has attracted FDI not only from the United States but also from other countries (see table 1.5) and is now host to a larger stock of FDI than all other developing countries except China and Hong Kong.[53]

However, like other developing countries, Mexico faces strong competition from China for FDI in manufacturing industries (particularly textiles and apparel). The China threat heightened in 2003, when FDI inflows to Mexico fell to $11.4 billion (down from $15.1 billion in 2002). Mexico's decline as a destination for FDI was consistent with broader trends: FDI flows to the developing world fell 34 percent from a peak of $252 billion in 2000 to $158 billion in 2002, before partially recovering to $172 billion in 2003 (UNCTAD *World Investment Report 2004*). The decrease in FDI has been spread across almost all sectors of the economy (table 1.7), though low-skill, labor-intensive sectors—notably electronics assembly and the textile and apparel industries—have been particularly susceptible to competition from China. Nonetheless, preliminary data for 2004 indicate a resurgence of FDI in Mexico, particularly in the auto sector, with inflows valued at $16.6 billion.

Unlike Brazil and Argentina, Mexico does not have commodity endowments (except in the petroleum sector) that complement China's develop-

52. In fact, the "insurance policy" of NAFTA may have given confidence to foreign investors in Mexico's recovery from the peso crisis, encouraging investment at fire sale prices (Schott 1997).

53. Note, however, the inconsistencies between the UNCTAD *World Investment Report* data (table 1.7) and the US Bureau of Economic Analysis data (table 1.8).

Table 1.5 Realized FDI inflows and stocks in Mexico, by investing country or region

a. FDI inflows, 1994–2004 (billions of US dollars)

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Share 1994–2004
Total FDI	15.1	9.7	10.1	14.2	12.4	13.3	16.9	27.7	15.3	11.7	16.6	
Estimates[a]	4.4	1.4	2.3	2.0	4.0	0	0	0	0	0	.8	
Notified FDI	10.7	8.3	7.8	12.2	8.4	13.3	16.9	27.7	15.3	11.7	16.1	100.0
By origin:												
Canada	0.7	0.2	0.5	0.2	0.2	0.6	0.7	1.0	0.2	0.2	0.3	3.3
United States	5.0	5.5	5.3	7.5	5.5	7.2	12.1	21.3	9.7	6.4	6.9	62.2
European Union	1.9	1.8	1.1	3.2	2.1	3.8	2.9	4.2	4.3	4.3	7.3	24.8
Japan	0.6	0.2	0.1	0.4	0.1	1.2	0.4	0.2	0.2	0.1	0.1	2.4
Switzerland	—	0.2	—	—	—	0.1	0.2	0.1	0.4	0.3	1.1	1.8

— = less than $50 million
FDI = foreign direct investment

a. Estimates of investment not notified to the Registro Nacional de Inversiones Extranjeras (RNIE), which are not attributed to any investing country. Estimates before 1999 include all reinvestment and exchanges between companies and their affiliates. These were included in notifications since 1999. Since 2002, the RNIE has made estimates of reinvestment that occurred but have not yet been reported.

Notes: Data presented are not comparable to official statistics before 1994. Pre-1994, statistics reflect realized investment in addition to unrealized notifications for the year reported. The data presented show realized investment credited to the year the investment took place. The peak in FDI in 2001 is due to the $12.5 billion acquisition of Banamex by Citigroup.

Source: Secretaría de Economía (2005a).

(table continues next page)

Table 1.5 Realized FDI inflows and stocks in Mexico, by investing country or region *(continued)*

b. Inward FDI stock, 1994–2003 (billions of US dollars)

	1994	1995	1996	1997	1998	1999	2000	2001[a]	2002[a]	2003[a]
Total	33.2	41.1	46.9	55.8	63.6	78.1	97.2	140.4	155.1	165.9
Canada	.7	.7	1.7	1.8	1.8	2.0	2.4	3.9	4.1	4.3
United States	23.5	26.1	27.9	33.4	35.0	42.9	55.0	88.3	97.6	103.6
European Union	6.0	7.5	8.1	10.3	17.6	20.9	26.8	33.3	37.5	41.4
Japan	1.6	.8	.8	1.3	1.5	2.8	3.3	3.6	3.8	3.9
Switzerland	1.2	2.0	2.2	3.0	2.5	2.9	2.8	3.0	3.4	3.7

a. Because UNCTAD does not report FDI position by country of origin, we estimate that increases in FDI stock are proportional to the national share of FDI inflow for 2001 to 2003 (table 1.5a).

Sources: OECD (2004a, 2005); UNCTAD *World Investment Report 2004*.

Table 1.6 US outward direct investment position (stock) at year-end, NAFTA and world (historical cost basis, billions of US dollars)

	Canada		Mexico		World	
Sector	**1994**	**2003**	**1994**	**2003**	**1994**	**2003**
Mining[a]	10.4	24.3	.1	.4	67.6	98.7
Utilities	n.a.	1.0	n.a.	.7	n.a.	26.9
Manufacturing						
Food	4.0	4.3	2.7	1.7	24.9	22.7
Chemicals	5.8	13.1	2.3	4.0	47.9	90.3
Primary and fabricated metals	2.2	4.1	n.a.	n.a.	9.8	23.0
Machinery	2.1	3.1	n.a.	1.1	25.0	21.4
Computer and electronic products	n.a.	5.3	n.a.	1.8	n.a.	57.6
Electrical equipment, appliances, and components	1.1	1.5	.9	.9	19.6	9.7
Transportation equipment	9.4	17.9	1.8	n.a.	28.0	45.4
Total	34.0	74.9	10.1	20.1	201.0	378.0
Wholesale trade	6.9	12.7	1.3	2.0	59.0	140.6
Information	n.a.	2.2	n.a.	1.2	n.a.	47.5
Depository institutions	.9	2.7	n.a.	16.9	27.4	63.7
Finance (except depository institutions) and insurance	13.0	34.2	2.2	7.2	195.9	299.8
Professional, scientific, and technical services	3.3	2.0	.4	.4	27.0	40.6
Other industries	5.8	38.5	n.a.	12.6	35.0	693.1
All industries	74.2	192.4	17.0	61.5	612.9	1,788.9

n.a. = not available

a. Values for 1994 are petroleum only.

Notes: Starting in 1999, the Bureau of Economic Analysis (BEA) updated its categorization for FDI abroad. Some investment may have shifted categories as a result of reclassification.

Source: BEA (2004b).

ment needs. But it does have two key advantages: geographic proximity to the world's largest market and membership in NAFTA. These factors do not guarantee success in the global competition for FDI, but they provide positive incentives if complemented by other investment-friendly policies. Unfortunately, Mexico has not fully benefited due to a variety of homegrown problems related to the general business environment.[54] To be specific, worries about personal safety (mugging and kidnapping),

54. An element of the country's 2005 tax reform legislation further threatens to discourage FDI. The amendment restricts the definition of business activities under the Mexican tax code. Because business activities are not explicitly defined in the US-Mexico tax treaty (and several other Mexican tax treaties), several payments generally thought of as business profits would become subject to a 25 percent withholding tax (e.g., technical assistance, advertising, financial services, construction services, time sharing, and reinsurance). Several lawyers who have examined the amendment believe that the Mexican Supreme Court will find it unconstitutional; it came into force on January 1, 2005. See McLees (2004) and McLees et al. (2004).

Table 1.7 Realized FDI flows into Mexico, by sector, 1994–2004 (millions of US dollars)

Sector	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	1994–2004 share
Manufacturing	6,207	4,858	4,815	7,295	5,157	8,994	9,502	6,032	6,500	5,045	8,246	49.3
Food, beverages, and tobacco	1,809	651	502	2,953	731	1,041	1,201	974	1,337	898	1,010	8.9
Machinery and metal products	1,889	2,893	2,212	2,757	2,344	5,396	4,445	3,362	2,926	2,597	3,869	23.6
Chemical products, including derivatives of petroleum, rubber, and plastics	646	573	1,197	820	1,166	950	1,444	412	1,133	687	1,857	7.4
Mineral nonmetallic products	54	90	37	6	20	236	143	102	–81	77	782	1.0
Basic metals	1,344	143	325	106	54	269	282	243	60	8	42	2.0
Other subsectors	466	509	542	653	842	1,102	1,986	940	1,126	778	687	6.5
Services	2,100	1,475	1,704	2,016	1,518	2,263	6,690	15,962	5,429	3,152	5,181	32.2
Real estate	222	65	64	59	59	179	329	143	152	49	100	1.0
Professional and technical services	266	140	211	144	313	703	1,143	954	411	566	68	3.3
Financial services and insurance	716	952	1,111	969	627	379	4,343	14,034	4,249	1,811	4,519	22.9
Restaurants and hotels	723	103	167	571	208	322	437	366	351	319	320	2.6
Other subsectors	174	216	150	273	312	680	438	465	267	407	174	2.4
Other	2,354	2,012	1,297	2,871	1,642	1,951	590	5,641	3,200	3,176	2,420	18.4
Total	15,067	9,667	10,055	14,216	12,360	13,207	16,781	27,635	15,129	11,373	16,602	
Total notified	10,661	8,344	7,818	12,186	8,319	13,207	16,781	27,635	15,129	11,373	15,846	100.0
Estimates[a]	4,405	1,322	2,238	2,030	4,041	0	0	0	0	0	756	

a. Estimates of investment not notified to the Registro Nacional de Inversiones Extranjeras (RNIE), which are not attributed to any host sector. Estimates before 1999 include all reinvestment and exchange between companies and their affiliates. These were included in notifications since 1999. Since 2002, the RNIE has made estimates of new investment and reinvestment that occurred but have not yet been reported.

Source: Secretaría de Economía (2005a).

widespread corruption, the absence of a stable legal framework, poor highways, and looming energy shortages all discourage new investment. However, these concerns vary widely among the 31 Mexican states. Nuevo Leon and Aguascalientes are known for a good business environment; Chihuahua and Jalisco have a different reputation.[55]

Since 2000, Mexican FDI flows appear to have shifted from manufacturing toward financial services, transport, and communications. FDI inflows at the sectoral level can fluctuate dramatically from one year to the next, due to expensive acquisitions of established Mexican firms. This was a pronounced feature in financial services, but so much of the industry is now in foreign hands that additional large FDI inflows in this sector seem unlikely.

The increase in cross-border investment between the United States and Canada has been less dramatic. Two-way FDI stocks between Canada and the United States increased from $104 billion in 1989 to $298 billion by year-end 2003, a gain of 187 percent. By contrast, US two-way FDI with non-NAFTA countries increased by 333 percent between 1989 and 2003. Even before the CUSFTA was ratified, Canada and the United States had a mature two-way investment relationship, so the incremental liberalization was a small spark compared with new opportunities elsewhere. Much of Canada's post-NAFTA investment in Mexico has been concentrated in mining and tourism, two industries where Canada has traditionally been competitive.

Longitudinal data on private portfolio investment are unreliable, but a few inferences can be drawn from stocks of portfolio capital as of 2001–02. At the end of 2001, private US holdings of foreign securities (equities and long-term and short-term debt) totaled some $2.3 trillion. Of this amount, $201 billion represented claims against Canadian issuers and $48 billion against Mexican issuers. In other words, claims against Canada were 9 percent of the global total, and those against Mexico were only 2 percent. Both figures were substantially less than the share of US merchandise exports destined for NAFTA partners (22 and 14 percent, respectively). Conversely, at the end of 2002, private portfolio investment in the United States totaled $4.4 trillion. Of this amount, $208 billion represented claims held by Canadian investors and $52 billion by Mexican investors. As shares of the relevant totals, claims held by both Canadian and Mexican investors (5 and 1 percent, respectively) are much smaller than Canadian and Mexican exports (18 and 12 percent, respectively).

Nevertheless, through direct investment, a great deal of financial integration has taken place within North America—for example, the Manulife-

55. In 2003, Mexico was ranked third—behind China and the United States—in the A. T. Kearney FDI Confidence Index, but it fell to 22 in the 2004 rankings. The index is derived from a worldwide survey of business executives. Lack of reforms—particularly in energy, infrastructure, and telecom—were cited as reasons for Mexico's decline (GBPC 2004).

John Hancock merger, the acquisition of Harris Bank by the Bank of Montreal, the acquisition of Banamex by Citigroup, and the equity share operations of TD Waterhouse. Even without massive cross-border portfolio flows, the mortgage security, equity, and insurance markets should become more tightly linked—especially with the help of a sound regulatory environment in all three countries.[56]

Summarizing the investment picture, it appears that the CUSFTA and NAFTA did little to enhance the already mature direct investment relationship between Canada and the United States. The growth of two-way US-Canada FDI lagged significantly behind two-way non-NAFTA FDI by the United States. By contrast, NAFTA significantly enhanced the direct investment relationship between Mexico and the United States. Two-way US-Canada and US-Mexico portfolio investment stocks are not particularly large, when contrasted with merchandise trade, but the most meaningful financial integration has probably taken place through cross-border mergers and new corporate subsidiaries.

While NAFTA appears to have boosted FDI in Mexico, the effect in Canada is hard to discern. In the United States, the effect has been minimal—no surprise considering the size of the US economy relative to its NAFTA partners. While complaints are still voiced about US plant closings and relocations to Mexico, in fact US FDI in Mexico has averaged less than one-half of 1 percent of nonresidential investment in the United States each year. Footloose plants are bad news for affected workers and their communities but represent a statistically insignificant share of US business investment. Furthermore, it is impossible to say whether these plants moved *because of* NAFTA or would have left in search of lower labor costs regardless. Nevertheless, in retrospect it is clear that US business groups worked hard to negotiate and ratify NAFTA partly because they anticipated the benefits resulting from cross-border investments.

Business Cycle Synchronization

A case can be made for free trade to have both synchronizing and desynchronizing effects on national business cycles. Synchronizing effects result from the stronger influence of partner-country demand on local business conditions. Desynchronizing effects result from production specialization within each country—increasing the country's exposure to industry-specific shocks. More time must pass before NAFTA's impact on the business cycles within North America can be definitively assessed. Preliminary studies appear to show, however, that synchronizing effects are dominant. Kose, Meredith, and Towe (2004) find that regional factors became stronger determinants of the Mexican business cycle in 1994–2002 than in 1980–93. Cañas and Coronado (2004) confirm this result and point out that because over 80 percent of US-Mexican trade is intraindustry, the synchronizing effects should be expected to dominate. Cardarelli Kose (2004) adapt the model of Kose, Meredith, and Towe to evaluate the Canadian business angle and finds that while the regional factor has been important since the 1960s, its importance has grown since the early 1980s.

Increased synchronization, if it persists, will underscore the case for closer macroeconomic consultation within North America. Notably absent from the NAFTA experience has been any significant convergence in prices between Canada and the United States.[57] Engel and Rogers (1996) used price index changes (measured by standard deviations) across US and Canadian city pairs to determine a "border effect," controlling for the distance between cities. They could not find a significant convergence in cross-border prices as a result of the CUSFTA or NAFTA. Baldwin and Yan (2004), using prices of individual goods rather than indices, also found that the hypothesis that trade liberalization in North America would lead to price convergence was "not supported by the data." This result stands in contrast to the European experience (Rogers, Hufbauer, and Wada 2001; Engel and Rogers 2004) and invites the hypothesis that exchange rate volatility may be an obstacle to price convergence in North America.

To date, consultations between the three central banks and finance ministries are episodic and ad hoc; they have no institutional standing within NAFTA. NAFTA included no mechanisms for macroeconomic cooperation between member states, although Rubin (2003, chapter 1) reports that the US response to the 1994 peso crisis was stronger thanks to the creation of NAFTA. Since that time, stability has returned to the Mexican economy, and cooperation on macroeconomic policy has been limited to informal consultations between central banks and finance ministries. Given the economic preponderance of the United States in the region, sovereignty concerns are likely to obstruct closer forms of cooperation. The US Congress does not want to give Mexico or Canada a voice in the Federal Reserve System or a say on spending or tax priorities. Both Mexico and Canada would resist any formal US role in setting their fiscal and monetary policies. Indeed, the common currency debate underscores fierce Canadian resistance to "monetary domination" by Washington.

Remittances

Remittances have become an important source of foreign income for Mexico. Since 1994, when Mexico began keeping records on household remit-

56. In Mexico, the effects of the peso crisis have dissipated enough to allow a $100 million issue of mortgage-backed securities by Hipotecaria Nacional, a leading mortgage lender. Since the number of Mexican households is projected to nearly double from 22.3 million in 2000 to 42.2 million in 2020, there is urgent need for a secondary mortgage market to capitalize homebuilding ("A Mexican Bond that's as Safe as Houses?" *Financial Times*, August 23, 2004, 25).

57. Given the income and demographic differences between Mexico and its NAFTA partners, less price convergence would be expected between Mexico and the United States or Canada.

tances, they have grown from $3.5 billion to $16.6 billion in 2004, or by 374 percent (see table 1.1). The surge has coincided with an explosion in new services provided by banks and wire companies to facilitate remittances.[58] Approximately 9.9 million Mexican-born residents live in the United States.[59] A sizable fraction of them send a portion of their earnings home to relatives. In 2003, remittances from foreign sources ($13 billion) actually surpassed foreign inflows from FDI. NAFTA bears little relationship to the remittance story; rather, the growth reflects a larger migrant population and new technology that makes remittance transactions cheaper, faster, and safer. Remittances are expected to continue growing, raising the profile of immigration issues in the US-Mexico relationship (see chapter 8 on migration).[60]

Employment and Wages

What impact did NAFTA have on employment in each country? The short answer is positive, though less than promised by politicians and more than predicted by pundits. Economists know that employment gains essentially depend on macroeconomic policies, a flexible labor force, worker skills, and effective use of technology. Attempting to evaluate NAFTA based strictly on a jobs gained/lost measure leads analysts into a mercantilist trap of "exports good, imports bad" and distracts from the true source of gains from trade—more efficient production on both sides of the border.

NAFTA coincided with an extended period of strong economic growth in the United States—and positive knock-on effects for its neighbors. Employment levels increased in all three countries. US employment rose from 110 million in 1993 to 134 million in 2003 (BLS 2004a) and in Canada from 12.9 million to 15.7 million (Statistics Canada 2004). Jobs in the formal sector in Mexico increased from 32.8 million to 40.6 million (STPS 2004). But not every worker or community benefited, and national trade adjustment assistance programs remain inadequate to the task. This section surveys what happened in each country with regard to employment and wages; more detailed analysis is in chapter 2 on labor.

United States

Like any trade agreement with a small economy, NAFTA never had the potential for luring droves of US firms abroad or sucking millions of US jobs into Mexico or Canada. Yet the original NAFTA political debate in the United States was centered on prospective job gains and losses. While claims by the most strident NAFTA critics have been discredited, some—such as the Economic Policy Institute—continue to rehearse the jobs-lost story. Using multipliers based on the bilateral trade balance, Scott (2003) argues that NAFTA caused a net loss of 879,280 jobs, and he has disaggregated the figure by US states. Such analysis is fundamentally flawed.[61]

To most economists, the debate over NAFTA and jobs is surreal. Trade pacts can affect the composition and quality of jobs by shifting output from less productive into more productive sectors. This process contributes to the normal churning associated with job creation and job dislocation in the huge US economy (see table 1.8a). Using data from the Bureau of Labor Statistics (BLS) Mass Layoff Statistics Program, Kletzer and Litan (2001) found that churning "dislocates" more than 1 million jobs per year through mass layoffs in the United States.[62] Most of these workers "relocate" to other jobs, though in the process roughly 25 percent of them suffer pay cuts of 30 percent or more.[63] Trade pacts are far from the most prominent cause of job churn—and have only a third-order impact on the absolute level of employment.

Table 1.8a reports *overall* employment trends in the United States from the advent of NAFTA through 2003. Of course, NAFTA was a very small part of the overall picture. According to the Current Employment Survey, US employment expanded by about 15.6 million over this period, roughly in line with the expansion of the total US labor force. The lower part of the table is less familiar; it displays the gross job gains and losses over the period as calculated by the BLS using the Quarterly Census on Employment

58. HSBC, Citibank, Bank of America, and Western Union all have specific facilities geared toward remittances. Among the new facilities are accounts by which money deposited in the United States can be withdrawn by a relative abroad via ATM, regardless of whether the relative has a bank account. See Devesh Kapur and John McHale, "Migration's New Payoff," *Foreign Policy*, November 2003, 48–57.

59. Of these, roughly 1.6 million are naturalized US citizens, 3.5 million are nonnaturalized legal residents, and approximately 4.8 million are undocumented. See www.migrationinformation.org (accessed on January 13, 2004).

60. In 2003, Mexican households received over 42 million remittance transactions, of which 88 percent were wire transfers and 10 percent were money orders. The average remittance was $321. To take advantage of the US-Mexico remittances market, Spain's Banco Bilbao Vizcaya Argentaria SA (BBVA) purchased Mexico's largest bank, Grupo Financiero Bancomer for $4.1 billion ("Mexican Migrants Send Home Dollars," *Financial Times*, January 31, 2004, 2, and "Spanish Bank Makes Bid in Move to Improve its Position in the US," *Wall Street Journal*, February 3, 2004, A8).

61. The use of a multiplier to calculate employment effects from the bilateral trade balance rests on shaky theoretical ground. For example, does an increase in television exports from Mexico really cost US jobs, considering almost no TVs are manufactured in the United States, or do Mexican imports displace imports from Asia? Furthermore, Scott's method assumes that the entire increase in bilateral trade with Mexico is attributable to NAFTA—a flattering but unlikely assumption.

62. A mass layoff is defined as a job loss action associated with 50 or more claims against an establishment's unemployment insurance account over a five-week period.

63. Some 34 percent of dislocated workers report earning the same amount or more in their postdisplacement job. On average, workers take postdisplacement jobs that pay 17 percent less than their previous wage.

Table 1.8 US employment and NAFTA

a. US employment statistics (millions)

	1994	2003	Change
Current Employment Survey			
Seasonally adjusted employment	114.3	129.9	15.6
Seasonally adjusted labor force	131.1	146.8	15.8
Quarterly Census on Employment and Wages			
Gross job gains (1994–2003)	327.8		
Gross job losses (1994–2003)	312.9		
Difference	14.9		

Source: BLS (2004a, 2004b, 2004c).

b. NAFTA total US job predictions (thousands)

	Gain	Loss	Net	Years
Perot and Choate[a]		5,900	–5,900	n.a.
Kantor	200		200	2
Zoellick			44 to 150	4
Hufbauer and Schott	316	145	171	5

a. Perot and Choate calculated jobs "at risk" due to NAFTA; no time period was specified.

Sources: Perot and Choate (1993); *Wall Street Journal* (August 17, 1993, A14); Zoellick (1991); and Hufbauer and Schott (1993).

c. Estimated annual NAFTA effects on US employment (thousands per year)

	Gain	Loss	Net	As of
NAFTA-TAA and jobs supported by exports	100	58	42	December 2002
Scott	88	186	–98	December 2002
Hinojosa-Ojeda et al.[a]	74	23	51	December 1997

n.a. = not applicable

a. Hinojosa-Ojeda et al. (2000) use data from 1990–97 in their analysis, arguing that the Canada-US Free Trade Agreement and Mexican market opening, and associated trade impact, pre-date NAFTA.

Sources: Public Citizen's NAFTA-TAA database, 1994–2002; Scott (2003); and Hinojosa-Ojeda et al. (2000).

and Wages (a separate measure from the monthly Current Employment Survey). Over the NAFTA period, *every quarter* an average of 7.6 percent of total employment (10.5 million jobs at current employment levels) was displaced and 7.9 percent (11 million jobs) was created (BLS 2004c).[64] Oft-

64. The Quarterly Census counts a job gained only when an establishment opens or expands and a job lost only when an establishment closes or contracts. Therefore, persons changing jobs due to voluntary quits or retirement are not counted as long as the position remains intact. The size of the job churn is massive, but it is also surprisingly stable. Since 1994, the percentage of jobs lost has never been below 6 percent per quarter, and the percentage of jobs gained has never been below 7 percent.

reported statistics on net job gains or losses are the outcome of this massive churn process.

Tables 1.8b and 1.8c summarize some of the predictions and estimates of NAFTA's effect on US employment. All these estimates—even the most extreme—are minuscule compared with overall employment trends. Many focus only on jobs gained or alternatively jobs lost, without considering the other side of the churning equation. A one-sided look is questionable since the intended result of increased trade is to deploy labor more efficiently. Trying to tease out employment effects in the US economy of a trade agreement with two countries that, combined, are 18 percent of the US size (at purchasing power parity) may be a fool's errand. Nevertheless, our own estimate is included in table 1.8b.

Based on the NAFTA-TAA program, about 525,000 US jobs were dislocated in import-competing industries through 2002 when the program was consolidated with general TAA (about 58,000 jobs per year).[65] While this is the most solid figure available on the US impact, it contains elements of under- and overstatement. The figures are understated because not all workers who are displaced due to NAFTA apply for NAFTA-TAA benefits. They are overstated because NAFTA-TAA certification requires only showing that imports from Canada or Mexico adversely affected the job or that the firm moved to Canada or Mexico; no evidence was required that NAFTA liberalization *caused* either the imports or the relocation of the firm.

Comparable data are not collected on US jobs created in the United States in export industries. Given recent employment to value added ratio in manufacturing, we estimate that 8,500 manufacturing jobs are supported by every $1 billion of US exports.[66] Applying this coefficient to the average annual gain in US exports to NAFTA countries between 1993 and 2003, about $12.5 billion per year, over 100,000 *additional* US jobs were supported each year by the expansion of North American trade, though not necessarily as a direct result of NAFTA.[67] Even more important, Lewis and Richardson (2001, 24–27) found that export-oriented firms pay wages 13 to 16 percent higher than the national average.

65. See Public Citizen's NAFTA-Transitional Adjustment Assistance (NAFTA-TAA) Database, 1994–2002, www.citizen.org/trade/forms/taa_info.cfm (accessed on April 20, 2004).

66. In 2001, the manufacturing sector employed 15.9 million employees while manufacturing value added was $1,853 billion (*Statistical Abstract of the United States: 2003*, 123rd ed., US Census Bureau, table 987). Our calculation assumes that $1 billion of exports equates to $1 billion of manufacturing value added (taking into account shipments of components between manufacturing firms). This method, in contrast to the method adopted by the USTR (see following footnote), ignores labor employed in nonmanufacturing sectors that supply inputs to the manufacturing sector.

67. USTR (2004) estimates that US goods and services exports "supported" 11.6 million US jobs in 1999. The study uses a ratio of 12,000 jobs per billion dollars of exports, significantly above our own estimate, to calculate the number of jobs directly and indirectly supported by exports (indirect jobs are those outside manufacturing).

Widespread fears that integrating Mexico into the North American auto industry would cause job flight and wage collapse north of the Rio Grande have not materialized. While the US auto and auto parts employment level (SIC 371), like the manufacturing sector as a whole, is lower than it was in 1994 (reflecting declines in manufacturing employment since 1998), it is hard to attribute the change to Mexican production. Indeed, Mexican auto employment has also declined, reflecting substantial productivity gains and the manufacturing slowdown during the economic downturn in 2001–02. While the wage premium paid to US autoworkers over other manufacturing production workers has declined slightly, it is still high, $8.63 per hour.[68]

Canada

In contrast to the United States and Mexico, Canadian employment levels rose steadily during 2000–03, from 14.9 million to 15.7 million. In manufacturing, employment has remained nearly flat at 2.3 million. But while Canada has maintained or modestly increased its employment levels, the "productivity gap" between the United States and Canada has widened. Indeed, labor-market watchers in Canada have been seriously concerned with the widening productivity gap.

Labor productivity is the leading determinant of the national standard of living, so it comes as no surprise that Canada's lagging productivity growth, relative to the United States, is viewed with alarm. According to convergence theory, free trade agreements should spur productivity growth in both countries, but especially in the smaller and less productive country, Canada.[69] Trade should allow specialization and more efficient allocation of labor, facilitate technology transfers and information sharing (or spillovers), intensify competition and incentives to innovation, and facilitate economies of scale. However, since the CUSFTA came into force in 1989, Canada has experienced average annual productivity growth of 1.58 percent, compared with annual US productivity growth of 1.85 percent. The gap was particularly pronounced after 1995, with US productivity growth averaging 2.36 percent compared with only 1.64 percent for Canada (Sharpe 2003, figure 3).

Cardarelli and Kose (2004) believe that the larger impact of information technology (IT) on the US economy can explain much of the difference in productivity growth. NAFTA played a minuscule role in the IT component of the US productivity boom of the late 1990s. Canadian firms, with a few notable exceptions, neither produced nor adopted the new IT technologies as rapidly as their US counterparts. This difference contributed to the widening of the productivity gap during the 1990s.

While the IT sector accounts for 6 percent of US GDP, the sector is only 4 percent of the Canadian economy. Moreover, evidence suggests that the United States has better used IT to enhance productivity in downstream industries.[70] Cardarelli and Kose found that the productivity gap was largest in IT-intensive industries, such as finance, insurance, and real estate. Energy and mining account for a larger share of output in Canada than in the United States. These sectors are highly capital-intensive, with rather few employees, and IT has fewer payoffs in raising labor productivity than in the manufacturing or services sectors.

Sharpe (2003) explores a variety of reasons why the *level* of productivity in the United States is higher than that in Canada.[71] First, Canada has less capital for each worker. Despite a steady rise since 1955, the Canadian capital to labor ratio was only 84.3 percent of the US level in 2001 (Sharpe 2003, figure 10). Sharpe estimates that this difference accounts for 25 to 30 percent of the labor productivity gap. The second major difference is technological innovation, exemplified by research and development (R&D) outlays and institutions of higher education. Canada spent 1.67 percent of its GDP on R&D in 2000, a record since data were first tracked in 1963, but this level is still well below the US figure of 2.69 percent in 2000 (Sharpe 2003, figure 11).

Mexico

In Mexico, NAFTA forced structural adjustment among industrial firms and contributed to rapid job growth in the traded-goods sector. Mexican political leaders optimistically promised that NAFTA would generate one million new jobs each year and begin to address the misery of subsistence labor in rural areas. But the trade pact alone neither generated job gains of that magnitude nor alleviated rural poverty in many parts of Mexico. These goals will require a sustained period of strong growth and substantial income transfers to poorer states in the south of Mexico. The maquiladora sector exemplifies the role of NAFTA. From 1993 to 2000, the industry boomed, more than doubling employment from 540,000 to 1.34 million (October 2000), and at least some of the expansion absorbed migration from rural areas. But in the wake of the US industrial slowdown,

68. Calculated as the difference between the average per hour cost of employee compensation of production workers in SIC 371 and all manufacturing production workers. Data are from BLS (2003).

69. According to Trefler (2004), Canadian industries that faced the deepest tariff cuts under the CUSFTA raised their labor productivity by 15 percent, which translates into a compound annual growth rate of 1.9 percent.

70. See Baily (2001) for a full discussion of the effect of IT innovation on the productivity of downstream portions of the economy in the United States and other industrial countries.

71. Sharpe focuses his research on the productivity level (output per worker), rather than on productivity growth (change in output per worker). While it is difficult to create comparable national statistics of productivity levels, Sharpe carefully outlines the methodology of his approach, which is designed to calculate meaningful level statistics. He concludes that the absolute "productivity gap" between the United States and Canada is between 10 and 20 percent; statistical difficulties prevent a more precise estimate.

and competition from China, maquiladora employment fell to 1.06 million in December 2003. By July 2004, there was a modest recovery to 1.13 million (INEGI 2004).

Since the introduction of NAFTA, Mexican manufacturing real wages (excluding maquiladoras) have declined by 5 percent (see table 1.9a).[72] Some commentators have used this statistic to imply that NAFTA has hurt Mexican workers.[73] These commentators cite statistics from a report published by the Carnegie Endowment for International Peace (CEIP) (Audley et al. 2003, chapter 1, figure 10). In that study, the authors stress that the real wage decline "cannot be attributed primarily to NAFTA" but instead reflects inflated real wages in 1993 and steep declines during the 1994–95 peso crisis. The authors also note that productivity gains have not been translated into real wage gains and argue that this "decoupling" can be attributed to footloose global production and Mexico's "institutional bias" against wage increases.

Table 1.9a displays data from the Encuesta Industrial Mensual (EIM), the same data source used by the CEIP study.[74] We select a different base year (1994 rather than 1993), but the underlying data on wages are the same.[75] The data do show a slight decline in real wages over the whole period 1994–2003. Real wages fell by 22 percent in the years immediately following the peso crisis; however, since 1997, real wages rebounded to reach 95 percent of the precrisis level in 2003. The decline in real wages triggered by the peso crisis is symmetrical to the increase in wages during the period of rising peso overvaluation from 1990 to 1993. Similar trends are present in real income per worker.

Our calculations of productivity, based on the same Mexican sources, are also shown in table 1.9a.[76] We report data for both nonmaquiladora and maquiladora manufacturing plants. These results do not agree with

72. Mexican manufacturing wages in foreign-owned manufacturing plants, however, have raised the demand for, and earnings of, workers with high and medium skills; see Feenstra and Hanson (1995).

73. See Thea Lee, "NAFTA: A Ten-Year Perspective and Implications for the Future," testimony before the Senate Subcommittee of International Economic Policy, Export and Trade, April 20, 2004; and Charles Rangel, "Trade Alone Does Not Help Poor Countries," *Financial Times*, April 27, 2004.

74. The CEIP study reports a decrease in real wages for 2003, while we report an increase. This is because we use an annual average, while CEIP uses a January-to-September average, since October–December 2003 data were not available at the time of the CEIP publication. A cursory examination of remuneration data reveals a pronounced seasonal spike every December (due to Christmas bonuses).

75. Data for the Mexican manufacturing sector were reclassified in 1994, so 1994 is a better year for comparisons with later years.

76. Tables 1.9a and 1.9b also display output per worker, which uses employment rather than hours worked in the denominator. The difference between these series is slight.

Table 1.9 Real wages and productivity trends (1994 = 100)

a. In nonmaquiladora manufacturing[a]

Year	Real output per worker	Real productivity	Real monthly income per worker	Real wages
1987	69.7	70.6	71.3	72.1
1988	74.0	73.9	71.0	70.8
1989	78.7	78.2	77.3	76.8
1990	79.6	78.7	80.0	79.2
1991	82.8	81.6	84.9	83.7
1992	86.2	84.9	92.3	90.8
1993	90.7	90.5	96.5	96.1
1994	100.0	100.0	100.0	100.0
1995	114.1	115.5	87.5	88.5
1996	119.2	119.4	78.8	79.0
1997	117.8	117.2	78.3	77.9
1998	119.1	118.5	80.5	80.1
1999	115.8	114.6	81.8	80.9
2000	118.7	117.2	86.6	85.7
2001	119.8	118.6	92.4	91.7
2002	123.4	122.4	94.1	93.5
2003	125.4	124.7	95.3	94.8

b. In maquiladora manufacturing[b]

Year	Real value added per worker	Real productivity	Real monthly income per worker	Real wages
1990	96.2	99.6	96.2	99.7
1991	97.7	103.8	94.2	100.2
1992	95.7	99.7	95.9	99.9
1993	96.9	99.8	95.8	98.7
1994	100.0	100.0	100.0	100.0
1995	103.3	103.2	94.0	93.9
1996	98.7	96.9	88.8	87.1
1997	102.3	85.3	90.4	75.4
1998	110.4	92.5	94.0	78.8
1999	113.7	94.8	96.0	80.1
2000	113.2	94.5	100.3	83.7
2001	128.9	108.6	109.4	92.2
2002	141.1	118.9	115.5	97.4
2003	144.8	121.0	115.5	96.5

a. Pre-1994 statistics correspond to the 129 classification system, which was discontinued in 1995. Post-1994 statistics correspond to the 205 classification system, which was introduced in 1994. Data for real productivity are measured as peso-denominated gross output per hour worked. Nonmaquiladora value added data from the Encuesta Industrial Mensual were not available.

b. Data for real productivity are measured as peso-denominated value added per hour worked. Official Mexican productivity measures are typically reported on the basis of gross output; see INEGI (2002) and footnote 77.

Source: INEGI (2004).