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How might CAFTA change macroeconomic fluctuations in Central America? Lessons from NAFTA

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Abstract

This paper examines the potential impact of the Central America Free Trade Agreement (CAFTA) on macroeconomic fluctuations in Central America in light of Mexico's NAFTA experience. CAFTA and NAFTA share a number of common characteristics as both agreements envisage comprehensive tariff reductions, cover a broad spectrum of sectors, and include provisions about settlement of disputes. NAFTA helped spur a dramatic increase in trade and financial flows between the member countries and was associated with significant changes in the Mexican business cycles. The findings in this paper suggest that CAFTA could also result in similar effects. In particular, CAFTA could boost trade and financial flows between the United States and the Central American countries. The agreement also could play a major role in reducing the volatility of business cycle fluctuations in the region and could lead to an increase in the degree of co-movement of business cycles in the Central American economies and the United States.

Keywords: Macroeconomic fluctuations; Regional integration; Volatility; NAFTA; CAFTA

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1. Introduction

Signed by five Central American countries (Costa Rica, El Salvador, Guatemala, Honduras, and Nicaragua), the Dominican Republic, and the United States in 2004, the Central American Free Trade Agreement (CAFTA) could constitute a turning point in the region's integration with the global economy.[1] CAFTA is a comprehensive trade agreement changing the framework of trade relations between the United States and the Central American countries (initial five and the Dominican Republic). The agreement provides enhanced access to the Central American countries' largest export market and could be instrumental in increasing foreign direct investment (FDI) inflows to the region.[2]

This paper examines the potential implications of CAFTA for macroeconomic fluctuations in Central America in light of the Mexico's experience under the North American Free Trade Area (NAFTA). While similar preferential trade agreements are relatively recent—therefore, providing little empirical evidence—Mexico's experience under NAFTA is quite insightful offering some guidance as to how CAFTA could affect Central America. Signed by the United States, Canada, and Mexico a decade ago, NAFTA was the first major trade agreement including a developing country and highly developed economies.[3]

CAFTA and NAFTA share a number of common characteristics as both agreements envisage comprehensive tariff reductions, cover a broad spectrum of sectors, and include provisions about settlement of disputes. CAFTA aims at eliminating tariffs and substantially reducing non-tariff barriers between the United States and the Central American countries. CAFTA also includes provisions covering investment flows, financial services, government purchases, protection of intellectual property rights, as well as labor and environmental issues. While the Central American countries already have strong trade and investment relations with the United States and enjoy preferential access in the context of the Caribbean Basin Initiative (CBI), CAFTA is more comprehensive and changes the form of trade relations from the unilateral preferential arrangement defined under the CBI to a negotiated bilateral agreement.[4]

CAFTA's main objective is to eliminate all tariffs and substantially reduce non-tariff barriers between the United States and the Central American countries.[5] During the past 10

[1] Negotiations for CAFTA began in January 2003. These negotiations were unique in that Central America negotiated as a single region and the demands of six separate countries were addressed within a single framework. Schedules for market access, however, were negotiated bilaterally between the United States and the individual Central American countries. Five Central American countries signed the Central American Free Trade Agreement (CAFTA) on May 28, 2004. The Dominican Republic joined the negotiations at the beginning of 2004 and signed the agreement on August 5, 2004. The agreement will go into effect after it is enacted by the legislative bodies of the member countries, which is expected to take place by early 2005.

[2] Within Latin America, Central America is the United States' second largest trading partner behind Mexico, as measured by dollar value of US trade in 2003.

[3] Kose, Meredith, and Towe (in press) and Lederman, Maloney, and Serven (in press) provide reviews of NAFTA's impact on Mexican economy.

[4] In many respects, the agreement is modeled on other bilateral free trade agreements the United States has recently signed, such as those with Chile and Singapore.

[5] Hornbeck (2004) and Griswold and Ikenson (2004) provide detailed discussions about the provisions of CAFTA. Salazar-Xirinachs and Granados (2004) discuss economic and political objectives of the Central American countries in CAFTA.

years, the Central American countries have already significantly decreased their tariff rates (see Kose, Rebucci, & Schipke, in press). In addition, these countries have undertaken various measures to reduce dispersion of tariffs. Immediately after CAFTA enters into force, tariffs on all non-agricultural and non-textile exports from Central America to the United States and on about 80% of non-agricultural and non-textile exports from the United States to Central America will be reduced. Tariffs on other goods would be phased out incrementally over a 5–20-year period. While a significant fraction of exports from the Central American countries have already had tariff-free access to the US market, CAFTA would further reduce various restrictions and eliminate compliance costs necessary to qualify preferential access (Griswold & Ikenson, 2004). In the case of agriculture and textiles, CAFTA provides some enhanced market access but its extent is much more limited than initially expected.[6]

A key component of CAFTA is that it includes various provisions about flows of investment and financial services, government purchases, and protection of intellectual property rights.[7] In addition, it provides broad market access for several markets, including services. Labor provisions are slightly tighter than under previous agreements, by offering a platform to examine the quality of legislation rather than merely ensuring its implementation (Elliot, 2004). Dispute resolution provisions of CAFTA are modeled on NAFTA, implying that disagreements would be solved through cooperation. The agreement would create a permanent committee on trade capacity building to help the Central American countries in trade negotiations.

NAFTA appears to have had a positive impact on the Mexican economy during the past 10 years. It helped spur a dramatic increase in trade and financial flows between Mexico and member countries. NAFTA has also been associated with significant changes in the Mexican business cycles. For example, there has been a moderation in the size of business cycle fluctuations in Mexico. The agreement has also fostered an increased synchronicity of business cycles in Mexico and the United States. Section 2 analyzes how CAFTA could affect the volume of trade and financial flows after reviewing the impact of NAFTA on the flows between Mexico and the United States. The results suggest that CAFTA could lead to a substantial increase in trade flows through its impact on productivity growth and specialization patterns in the CA countries. CAFTA also could accelerate the pace of diversification of the trade base. Moreover, CAFTA could further boost FDI flows to the Central American countries as NAFTA led to a sizeable increase in financial flows to Mexico.

Mexico's NAFTA experience suggests that the increased integration with the US economy could have a major impact on business cycles in the Central American countries. Section 3 documents that output variability could decline in the Central American

[6] The agreement envisages transition periods of up to 20 years for several agricultural goods, and maintains import tariffs on sensitive items such as sugar and corn while increasing related import quotas. For textiles—compared with the current situation, in which Central America enjoys preferences under the Caribbean Basin Initiative—the main changes will be the permanent nature of these preferences, and a slight easing of the rules of origin.

[7] While CAFTA's provisions ease restrictions on investment flows, they do not contain any balance of payments safeguards for transfers related to a wide range of financial and direct investments. Birdsall (2003) examines the implications of limiting the use of capital controls in the context of the US–Chile FTA.

countries after the inception of CAFTA. CAFTA also could play a major role in reducing the volatility of consumption and investment fluctuations in the Central American countries. More importantly, CAFTA could result in large welfare gains in the Central American countries by helping expand the set of available financial instruments for international risk-sharing purposes.

CAFTA could lead to an increase in the co-movement of business cycles in the Central American economies and the United States. The degree of synchronization of business cycles in the Central American countries and the United States has risen in recent years. Section 4 examines the importance of external and domestic shocks in explaining business cycles in the Central American countries using various VAR models. The results suggest that there are significant differences in these economies' exposure to external shocks, and particularly those stemming from North America. External factors appear to drive business cycles only in Costa Rica and Honduras. Domestic shocks are the dominant sources of volatility in Nicaragua and the Dominican Republic, consistent with their history of political and macroeconomic policy instability.

Section 5 argues that CAFTA could lead to a further increase in the degree of synchronization as it results in an increase in the importance of external shocks in driving business cycles in the Central American countries. A stochastic dynamic general equilibrium model, which is calibrated to reflect some basic features of the Central American economies, is used to analyze the potential changes in the transmission channels of business cycles after CAFTA. Impulse responses produced by the model indicate that reductions in trade frictions that boost trade flows between the Central American countries and the United States could lead to an increase in business cycle interdependence.

There are inherent difficulties associated with analyzing the potential impact of CAFTA on the Central American countries in light of Mexico's NAFTA experience. First, isolating the effects of NAFTA on Mexico is a complicated task given the significant other external and policy shocks that have occurred over the past decade. Second, Mexico differs from the Central American countries in several dimensions (Table 1). Mexico shares a common border with the United States, has a much larger and more a diverse economy, and its *per capita* GDP is much higher than all of the Central American countries except Costa Rica. Section 6 concludes with a summary of results.

2. Implications of CAFTA for trade and investment flows

2.1. Dynamics of trade flows

Central America has historically been very open, even more so than Mexico (Fig. 1). Moreover, some of the Central American countries experienced a surge in international trade during the past 10 years. For example, the average share of trade (exports and imports) was more than 75% of GDP in Central America during 1994–2003, compared to around 55% of GDP in Mexico. While Central America has been quite open, with an average openness ratio of roughly 60% during 1980–2003, there has been some variation across countries. For example, from 1980 to 2003, the average openness ratio was less than 50% in El Salvador and Guatemala but above 75% in Honduras and Nicaragua.

Table 1
Selected economic indicators Central America and Mexico

	Costa Rica	Dominican Republic	El Salvador	Guatemala	Honduras	Nicaragua	Mexico
GDP ($ billions)	17.6	16.0	13.1	19.5	6.8	2.6	626.1
GDP growth (%)[a]	5.6	−1.3	2.2	2.1	3	2.3	1.3
PPP per capita	9035	6168	4210	3838	2562	2427	9070
Inflation (%)	9.4	27.4	2.9	5.9	7.7	5.2	4.5
Current account balance (% of GDP)	−5.5	5.6	−3.2	−4.4	−5.2	−17.6	−1.5
Human development index (HDI) rank[b]	42	94	105	119	115	121	55

Data sources: IMF, World Economic Outlook, United Nations, Human Development Report (2003). All statistics refer to 2003, except where otherwise indicated.

[a] Average annual percent growth.

[b] HDI is a composite measure (education, income, and life expectancy) of average achievement in human development. A lower ranking is better: e.g. United States (7), Italy (21), and South Korea (30). The 2003 report reflects data for year 2001.

2.1.1. NAFTA's impact on trade flows

Since the launch of NAFTA, Mexico's trade with the United States has registered a substantial increase. For example, Mexico's trade with the United States more than doubled in dollar terms between 1993 and 2003 (Fig. 2), while the share of trade in Mexico's GDP rose from less than 40% in the 1980–1993 period to 58% during the NAFTA period. After the inception of NAFTA, exports to (imports from) the United

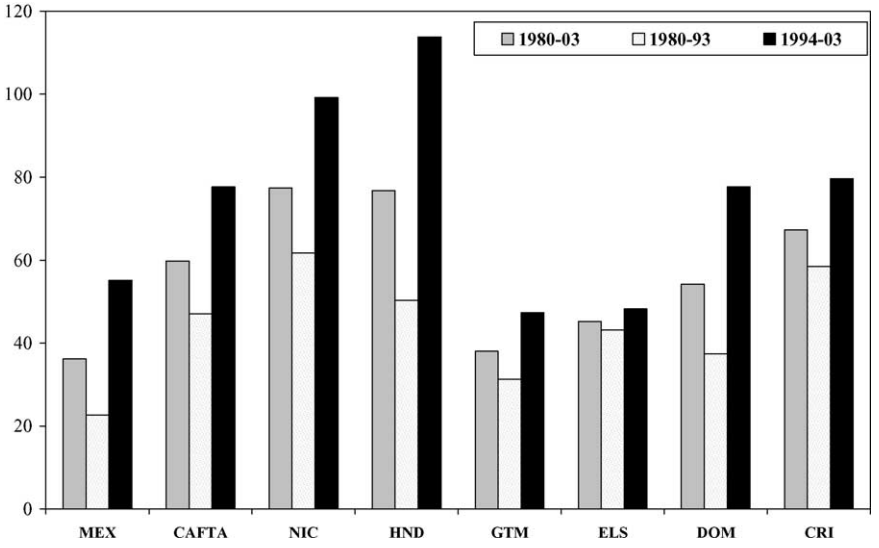

Fig. 1. Openness (exports + imports, share of GDP, %).

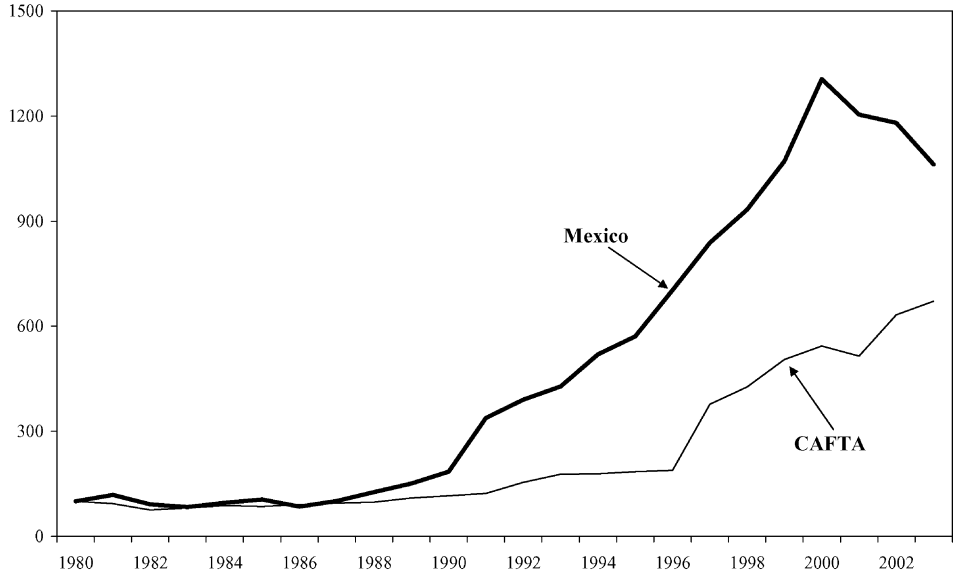

Fig. 2. Trade with the United States (exports + imports, index numbers, 1980 = 100).

States as a percent of GDP increased to about 23 (21)% from 14.0 (13.8)% during the 1980–1993 period.

Several studies find that NAFTA contributed to the impressive growth of trade between Mexico and the United States. Using aggregate trade data, some of these studies employ gravity models (Krueger, 1999 and 2000) while others use export and import demand equations (CBO, 2003) to analyze the impact of NAFTA on trade dynamics. These studies conclude that the effect of NAFTA on trade linkages was substantial. Some other studies using sectoral data series find a more significant impact of NAFTA on trade flows (Romalis, 2002) than those employing aggregate trade data.

Other studies use various general equilibrium models to analyze the impact of NAFTA on the dynamics of trade and economic growth. For example, studies employing static computable general equilibrium (CGE) models estimate NAFTA's long-run impact on Mexico's exports to the United States at between 3 and 16% (CBO, 2003). In dynamic versions of these models, the impact of NAFTA on trade flows is found to be much larger. For example, using a dynamic CGE model, Kouparitsas (1997) finds that the increase in Mexico's trade flows associated with NAFTA is around 20%.

2.1.2. CAFTA's potential impact on trade flows

Trade linkages between the United States and Central America have grown rapidly over the past decade. As a group, the Central American countries' trade with the United States increased fivefold in dollar terms in the period 1994–2003 (Fig. 2). However, the extent of trade linkages with the United States differed substantially across the respective countries. Between 1994 and 2003, Honduras sent more than 55% of its total exports to the United

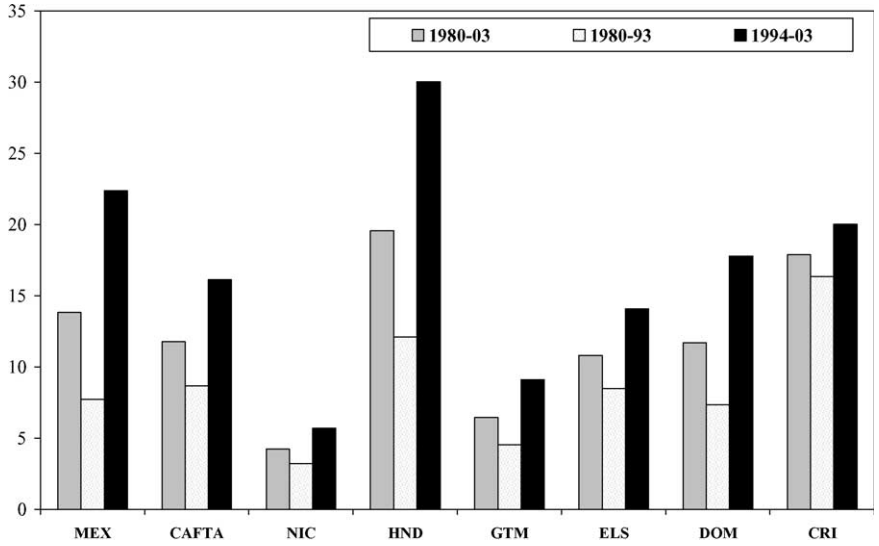

Fig. 3. Exports to the United States (share of GDP, %).

States, while the corresponding figure for Costa Rica was less than 27%. The Dominican Republic commanded the largest share of the region's exports to the United States, accounting for more than 25% of the US dollar value of exports in 2003; Nicaragua's share was the smallest, at less than 5%.

Although both Mexico and the Central American countries were able to increase their trade linkages with the United States substantially during the NAFTA period, Mexico's trade with the United States grew much faster than Central America's (Fig. 2).[8] For example, the US share in Mexico's exports rose from an annual average of 66% in 1980–1993 to 86% during the period 1994–2003 (Fig. 3). The increase in the average export share of the Central American countries was less than four percentage points during the same period. Moreover, the average growth rate of total Mexican exports after the inception of NAFTA was roughly twice as high as that of Central American exports. Mexico's export growth rate was also much higher than the average growth rate of exports of several emerging market economies over the same period.

Mexico's experience under NAFTA suggests that trade flows between the Central American countries and the United States could increase rapidly after the inception of CAFTA. Employing a multi-country CGE model, Hilaire and Yang (2003) find that the Central American countries' exports to the United States could increase by 28% after the inception of CAFTA. This finding is consistent with Mexico's experience under NAFTA, since Mexico's exports to the United States also rose by more than 50% in dollar terms in

[8] Recent research shows that trade flows between the United States and the Central American countries were not affected by NAFTA. For example, Lederman, Perry, and Suescun (2002) find that the extent of trade diversion from the Central American countries to Mexico was minimal after the inception of NAFTA.

less than 2 years after the inception of NAFTA. They also find that the main source of the increase in CAFTA's exports comes from textiles, clothing, and processed crops, since Central American exports of textile products and agricultural goods are currently subject to relatively higher tariffs in the United States.

CAFTA also could lead to a substantial increase in trade flows through its impact on productivity and specialization patterns. These gains could be substantial in the context of CAFTA, since the agreement includes various provisions about the flows of investment, financial services, and intellectual property. Further, Kehoe (2003) argues that static CGE models severely underestimated the impact of NAFTA on the volume of regional trade, as these models were unable to account for much of the increase in sectoral trade flows. Yet another potential problem associated with these models is that they do not capture the impact of productivity changes associated with trade agreements and they do not allow endogenous changes in specialization patterns. This implies that in static CGE models, such as those used in Hilaire and Yang (2003), the largest increase in trade would take place in those sectors that already have intensive trade linkages, while in fact the opposite could be true, as in the case of NAFTA. Overall, these findings imply that CAFTA's positive impact on trade flows between the Central American countries and the United States could be much larger than suggested by the static CGE models.

2.1.3. CAFTA's potential impact on the composition of trade

The Central American countries' major export items to the United States included agricultural products (bananas and coffee), apparel, and electrical machinery (Table 2). The shares of coffee and bananas in total exports declined during the past decade and stood at around 6 and 3%, respectively, in 2003. However, apparel remained the main export item for all countries except Costa Rica. The Dominican Republic, Honduras, and El Salvador accounted for almost 75% of the Central American countries' total apparel exports to the United States. The preferential market access provided by the CBI program in 1984 played an important role in the rapid growth of apparel exports. Roughly 60% of total exports of

Table 2
Top eight US merchandise imports from Central America (2003, $ millions)

Product and HTS number	Total	Costa Rica	Honduras	Guatemala	El Salvador	Nicaragua	Dominican Republic
Total US imports	16,862	3,362	3,312	2,945	2,019	769	4,455
Knit apparel	5,595	309	1,887	1,076	1,318	147	858
Woven apparel	3,629	282	680	686	403	337	1,241
Edible fruit and nuts	1,022	519	150	337	1	15	
Electrical machinery	1,364	814	98	2	34	39	377
Optical/medical equipments	939	480	0	9	0	0	450
Spices, coffee, tea	453	126	26	216	45	40	
Fish and seafood	303	69	124	21	19	70	
Mineral fuel, oil	187	4	0	177	6	0	
Other	3,370	759	347	421	193	121	1529
Top eight imports as percentage of total	83	70.8	89.5	83.3	89.4	81.4	82

Source: U.S. Department of Commerce; HTS, harmonized tariff schedule; Hornbeck (2004).

Table 3
Diversification of exports (average; in percent of total)

	Emerging markets	Mexico	Cafta average	Costa Rica	Dominican Republic	El Salvador	Guatemala	Honduras	Nicaragua
Manufacturing									
1980–2001	44.92	53.32	27.96	32.91	43.34	37.85	27.70	14.12	11.85
1980–1993	38.90	37.14	24.24	25.36	43.64	33.52	25.13	8.60	9.19
1994–2001	55.47	81.63	34.38	46.13	42.59	45.42	32.20	23.80	16.16
Agriculture and food									
1980–2001	32.49	10.14	66.83	62.67	44.01	57.29	68.84	82.08	86.06
1980–1993	35.73	11.91	72.40	69.33	55.38	62.31	71.90	86.90	88.59
1994–2001	26.83	7.04	55.70	51.02	15.59	48.51	63.47	73.65	81.95
Fuel and ores									
1980–2001	20.16	36.47	2.66	1.61	0.70	4.71	3.46	3.65	1.85
1980–1993	22.64	50.89	2.68	1.68	0.92	4.14	2.96	4.39	1.97
1994–2001	15.81	11.24	2.63	1.50	0.20	5.72	4.33	2.36	1.65

Source: WDI, IMF Staff Calculations.

electrical machinery from the Central American countries to the United States was produced in Costa Rica, which has been able to attract sizeable FDI flows to build plants for the production of computer parts in the past 3 years. The Central American countries' major import items from the United States included electrical machinery, apparel, and fabric.

Mexico's export base shifted toward manufactured goods following NAFTA's introduction (Table 3). Although the share of manufactures in total exports had been increasing since at least 1980, the pace of diversification accelerated after the inception of NAFTA. As a result, Mexico's export and import bases have become one of the most diversified among emerging market economies. After the inception of NAFTA, vertical specialization has increased, with member countries increasingly specializing in particular stages of the production process. The prime example has been the *maquiladora* trade along Mexico's northern border, where firms import inputs from the United States, process them, and re-export back to the United States. *Maquiladora* firms specialize in the manufacture of electronics, auto parts, and apparel. Intra-industry trade between Mexico and the United States also rose significantly. Moreover, NAFTA boosted intra-firm trade (OECD, 2002) and resulted in a substantial increase in the variety of products traded between Mexico and the United States (Hillberry and McDaniel, 2002).

During the period 1994–2001, the Central American countries substantially diversified their trade bases (Table 3). For example, the share of manufacturing exports rose from less than 24% in 1980–1993 to approximately 34% over the period 1994–2001. Costa Rica, El Salvador, Honduras, and Nicaragua significantly increased their manufacturing exports. However, agricultural and food products still accounted for almost 60% of total exports during the 1994–2001 period. Moreover, the extent of diversification was much lower in the Central American countries than in Mexico. During the period 1994–2001, the average share of manufactured exports of the Central American economies was less than half of that of Mexico.

Mexico's experience under NAFTA suggests that CAFTA could accelerate diversification of Central America's trade base. There was a major change in the nature of goods exported from Mexico to the United States as these countries developed stronger trade linkages during the past two decades. NAFTA was instrumental in the rapid growth of intra-industry and vertical trade between Mexico and the United States in the past 10 years. For example, the growth of the *maquiladora* industry accelerated during the 1990s, as the average growth rate of real value added produced by the *maquiladora* sector was around 10% in the period 1990–2002, over three times the average growth rate of real GDP during the same period (Hanson, 2002). The share of intra-industry trade in Mexico's manufacturing sector rose from 62.5% in 1988–1991 to 73.4% in the period 1996–2000 (OECD, 2002). The Central American countries have already begun expanding the scope of vertical and intra-industry trade with the United States. For example, most of their imports of electrical machinery and apparel from the United States were used as intermediate inputs in the production of other goods that were re-exported back to the United States.

2.2. Dynamics of foreign direct investment flows

The Central American countries were able to increase FDI flows significantly in the period 1994–2003 (Table 4). In Costa Rica, the Dominican Republic, and Nicaragua, gross FDI flows relative to GDP were larger than in Mexico over the same period, although the level of these flows was much smaller than that received by Mexico, given the larger size of the Mexican economy. However, these flows were sizeable relative to total domestic investment, representing about 14% of domestic investment on average. The United States is the largest source of FDI flows to each Central American economy. A significant fraction of FDI flows from the United States went to Costa Rica between 1999 and 2002. The Dominican Republic also has begun receiving flows comparable to those of Costa Rica.

Foreign direct investment flows between Mexico and its partners strengthened after NAFTA (Table 5). The agreement contained various provisions that improved the relative standing of investors from the partner countries in Mexico and expanded the sectors in which they could operate. These changes helped boost FDI flows to Mexico from US$12

Table 4
FDI inflows from the United States ($ millions)

Country	1999	2000	2001	2002
Mexico	37,151	39,352	56,554	58,074
Costa Rica	1,493	1,716	1,677	1,602
El Salvador	621	540	361	580
Guatemala	478	835	389	391
Honduras	347	399	242	184
Nicaragua	119	140	157	242
Dominican Republic	968	1,143	1,233	1,123
Total CA countries	4,026	4,773	4,059	4,122

Source: U.S. Department of Commerce, Bureau of Economic Analysis, Data reflect stock of FDI historical-cost basis; Hornbeck (2004).

Table 5
Gross FDI flows

	Mexico	Cafta Average	Costa Rica	Dominican Republic	El Salvador	Guatemala	Honduras	Nicaragua
Gross FBI flows (billions of US $)								
1980–2003	7.34	0.16	0.25	0.34	0.09	0.15	0.08	0.07
1980–1993	2.86	0.06	0.11	0.09	0.00	0.11	0.03	0.00
1994–2003	13.61	0.31	0.45	0.69	0.21	0.21	0.15	0.17
Gross FBI flows (fraction of GDP, %)								
1980–2003	1.94	2.16	2.49	2.38	1.14	1.15	1.63	8.20
1980–1993	1.27	1.20	2.00	1.25	0.72	1.17	0.83	0.00
1994–2003	2.86	3.51	3.16	3.96	1.96	1.14	2.74	8.20
Gross FDI flows (fraction of fixed investment, %)								
1980–2003	10.10	9.19	12.89	10.68	6.77	7.98	7.17	9.68
1980–1993	6.76	5.76	9.95	5.80	5.70	8.52	4.59	0.00
1994–2003	14.78	14.00	17.00	17.52	8.26	7.23	10.77	23.24

Source: WEO; IMF Staff Calculations.

billion over 1991–1993 to roughly US$54 billion over the 2000–2002 period. The share of FDI flows in domestic gross fixed capital formation (investment) also increased from 6% in 1993 to 11% in 2002, mainly due to inflows from Mexico's NAFTA partners.

CAFTA is likely to boost FDI flows to the Central American countries as NAFTA did in the case of Mexico. Recent research suggests that NAFTA membership significantly affected the volume of FDI inflows to Mexico. For example, Cuevas, Messmacher, and Werner (2002b) and Waldkirch (in press) show that NAFTA led to a significant increase in FDI inflows to Mexico.[9] The latter study argues that NAFTA's impact on FDI inflows to Mexico was the result of increased vertical specialization as well as the agreement's effect on Mexico's commitment to liberalization and reform programs. As NAFTA did, CAFTA will serve as a commitment device and encourage FDI flows while inducing a change in the nature of trade flows in favor of vertical trade. CAFTA could also help attract foreign multinational corporations to the Central American countries, as Mexico's NAFTA experience proved (see Blomstrom & Kokko, 1997).

3. Dynamics of volatility after CAFTA

3.1. Integration and volatility: theoretical and empirical studies

The theoretical impact of increased trade and financial flows on output volatility depends on a number of factors, including the nature of financial flows, patterns of specialization, and the sources of shocks. For example, if increased trade openness is associated with further *inter-industry* specialization across countries and *industry-specific*

[9] Cuevas et al. (2002b) employ panel regressions and find that Mexico's participation in NAFTA led to roughly a 70% increase in FDI flows. Waldkirch (in press) concludes that NAFTA induced a 40% increase in the volume of FDI flows.

shocks are important in driving business cycles, this could lead to an increase in output volatility. However, if increased trade is associated with increased *intra-industry* specialization across countries, which leads to a larger volume of intermediate inputs trade, then the volatility of output could decline. In addition, economic theory suggests that increased access to international financial markets should dampen the volatility of consumption while inducing an increase in investment volatility (Kose, Prasad, & Terrones, 2003a).

Recent empirical studies are unable to establish a clear link between stronger economic linkages and macroeconomic volatility. While some of these studies find no significant relationship between the increased degree of economic interdependence and domestic macroeconomic volatility (Buch, Dopke, & Pierdzioch, 2002), others find that an increase in the degree of trade openness leads to higher output volatility, especially in developing countries (Easterly, Islam, & Stiglitz, 2001). Kose et al. (2003a) find that while trade openness increases the volatility of output, income, and consumption in emerging market economies, it reduces the relative volatility of consumption to output, implying that it improves the consumption risk-sharing possibilities. They also document that increased financial integration is associated with rising relative volatility of consumption, but only up to a certain threshold.

3.2. Volatility in Mexico after NAFTA

Macroeconomic volatility in Mexico declined after the inception of NAFTA. This can be seen in the uniform and sizeable decline in the variance of several macroeconomic aggregates between the pre-(1980–1993) and after 1996 (Table 6). In particular, output volatility, measured as the standard deviation of the annual growth rate, decreased by 20% and investment volatility fell by more than 40% in the latter period. Consistent with theoretical predictions, increased trade and financial linkages also led to a reduction in the volatility of consumption in Mexico. In addition, consumption became slightly less volatile than output during the 1996–2003 period. This, along with the increased cross-country consumption correlations as we document below, suggests that Mexico has became better able to share macroeconomic risk with the United States through increased trade and financial linkages.

The decreased volatility of the Mexican economy during the past 10 years could be the result of several factors, including particularly NAFTA and the policy regime changes Mexico enacted. However, both the theory briefly reviewed earlier as well as available evidence on the increased importance of regional and external shocks in driving the Mexican business cycles (Kose, Meredith, et al., in press) suggest that the decrease in volatility could be the result of NAFTA's substantial effect on intra-industry and vertical trade rather than the result of increased stability of domestic macroeconomic policies stemming from the implementation of sound monetary and fiscal policies over the period 1996–2001 (Cuevas, Messmacher, and Werner, 2002a).

3.3. How could CAFTA affect volatility?

Reflecting in part the success in pursuing sound macroeconomic policies, the volatility of macroeconomic variables decreased in the Central America economies during the past

Table 6
Volatility of macroeconomic aggregates (in percent)

	Mexico	Cafta average	Costa Rica	Dominican Republic	El Salvador	Guatemala	Honduras	Nicaragua
GDP								
1980–2003	3.61	3.28	3.70	3.71	3.27	2.34	2.50	4.13
1980–1993	3.48	3.62	4.38	3.97	3.73	2.73	2.62	4.26
1994–2003	3.93	2.08	2.71	2.93	1.63	1.10	2.46	1.64
1996–2003	2.69	2.09	3.06	3.29	0.98	1.08	2.27	1.84
Consumption								
1980–2003	4.07	6.16	3.24	6.16	6.56	1.57	5.12	14.33
1980–1993	3.58	7.66	4.31	6.59	8.49	1.79	6.45	18.29
1994–2003	4.82	3.35	1.92	5.12	2.75	1.19	2.30	6.83
1996–2003	2.37	3.00	1.68	5.78	1.48	1.09	2.60	5.38
Investment								
1980–2003	13.21	13.02	10.59	14.62	8.64	10.64	14.08	19.54
1980–1993	12.94	14.57	11.85	16.94	9.36	12.18	16.73	20.36
1994–2003	14.13	11.09	9.69	11.84	8.10	9.51	9.63	17.74
1996–2003	9.21	11.03	10.89	12.05	7.10	10.26	8.98	16.91
Exports								
1980–2003	8.17	10.53	8.58	9.34	13.14	6.52	10.70	14.88
1980–1993	6.26	10.81	5.95	10.67	15.20	7.80	9.52	15.70
1994–2003	10.02	8.99	10.30	7.82	6.29	5.37	12.38	11.78
1996–2003	7.98	7.53	11.51	8.76	7.07	4.93	5.89	7.02
Imports								
1980–2003	18.14	11.51	9.33	10.36	12.47	11.38	8.86	16.64
1980–1993	21.51	12.68	9.49	11.68	14.91	13.72	11.50	14.76
1994–2003	13.34	9.30	8.47	8.66	8.51	9.21	3.21	17.75
1996–2003	10.79	8.43	9.55	9.80	7.24	10.41	2.50	11.06

Source: WHO; IMF Staff Calculations.

10 years (Fig. 4 and Table 6). In particular, there was a significant decrease in the volatility of output fluctuations in El Salvador, Guatemala, and Nicaragua. Both consumption and investment volatility declined in Central America during the period 1996–2003. In all countries except Costa Rica, there was a moderation in the size of business cycle fluctuations in exports and imports. Output volatility in Central America was lower than that of Mexico during the period 1994–2003. However, consumption and investment in these countries exhibited higher volatility than did Mexico's over the same period. In addition, during the period 1996–2003, consumption fluctuations were more volatile than those of output in Central America, whereas the volatility of consumption was slightly below that of output in Mexico.

The NAFTA experience suggests that CAFTA could help further reduce output volatility in Central America. As NAFTA did for Mexico, CAFTA could further reduce volatility in Central America through accelerating the diversification of the export base by fostering intra-industry and vertical trade linkages with the United States. After the inception of CAFTA, shocks originating in the United States could play a more prominent role in Central America as

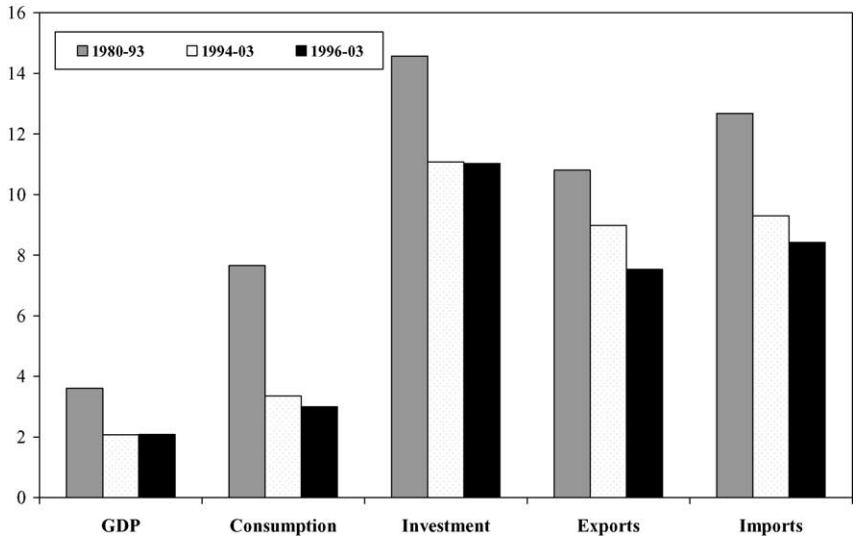

Fig. 4. Volatility of macroeconomic aggregates_CAFTA average (%).

we discuss below. Given the stability of the US economy, however, these shocks are expected to be relatively less volatile than shocks specific to Central America, resulting on balance in a more stable macroeconomic environment. Moreover, CAFTA may have a positive impact on the quality of institutions, which in turn should reduce volatility.

In the same vein, CAFTA could play a major role in reducing consumption and investment volatility in Central America. NAFTA appeared to have helped Mexico achieve relatively more stable consumption and investment dynamics through its impact on FDI flows. CAFTA could be similarly instrumental in increasing the volume of FDI flows to the region, since it would signal a long-term commitment to implementing trade-promoting policies. This could help reduce the amplitude of investment fluctuations.

In addition, CAFTA could result in welfare gains in Central America by helping to expand the set of available financial instruments for international risk-sharing purposes. These instruments would allow domestic residents and firms to utilize international financial markets for consumption smoothing, resulting in large welfare benefits. Recent studies document that the benefits from international risk-sharing tend to be large when a country's consumption growth is volatile, positively correlated with domestic output growth, and not highly correlated with world consumption.[10]

Some of the Central American economies face highly volatile consumption fluctuations, implying that the benefits to CAFTA and consequent reductions in consumption volatility

[10] A simple general equilibrium model is used to assess the extent of potential welfare gains for Central America from international risk sharing. The methodology is similar to the one employed in van Wincoop (1999). In brief, the model compares two scenarios. The first one has no additional risk sharing relative to what is already implied by observed consumption behavior, while in the second, there is perfect risk sharing so that each country consumes a constant fraction of total world consumption.

Table 7
Potential welfare gains from international risk-sharing (percent of consumption)

Costa Rica	1.30
Dominican Republic	6.38
Guatemala	0.39
Honduras	1.21
Nicaragua	14.95
El Salvador	3.74
Average CAFTA	4.66
Median CAFTA	2.52

Source: IMF Staff Calculations.

could be very large. While these benefits would on average have the same effect as about a 5% permanent increase in the level of *per capita* consumption, they differ significantly across the Central American economies (Table 7). The gains are generally inversely proportional to the volatility of consumption. To illustrate, Nicaragua, the most volatile Central American economy, stands to gain close to 15%, while the gain for the least volatile economy, Guatemala, is less than a half-percent.

Increased trade and financial integration associated with CAFTA could reduce the adverse effect of macroeconomic volatility on economic growth. A burgeoning literature has documented a negative relationship between volatility and growth (Ramey & Ramey, 1995). This implies that policies and exogenous shocks that affect volatility can also influence growth. Thus, even if volatility is considered intrinsically a second-order issue, its relationship with growth suggests that volatility could indirectly have first-order welfare implications. Kose, Prasad, and Terrones (in press-b) document that increased trade and financial integration appear to diminish the negative impact of volatility on growth. Specifically, in regressions of growth on volatility and other control variables, they find that the estimated coefficients on interactions between volatility and trade integration are significantly positive. In other words, countries that are more open to trade appear to face a less severe trade-off between growth and volatility. They also document a similar, although slightly less robust, result for the interaction of financial integration with volatility.

4. Sources of business cycles in Central America

4.1. The importance of external shocks

Country specific vector autoregressive systems (VARs) are estimated to assess the relative importance of external and domestic shocks in explaining business cycle variation in Central American economies following Rebucci (1998).[11] These VARs include six

[11] The small number of countries in the sample and the cross-country differences in the empirical analysis do not permit a rigorous pooling exercise implying that it is not possible to characterize a typical Central American economy with a panel-VAR.

Table 8
Forecast variance decomposition of real GDP growth

Country	External shocks	Domestic shocks
Costa Rica	0.67	0.33
	0.31	*0.20*
Dominican Republic	0.10	0.90
	0.15	*0.33*
El Salvador	0.23	0.77
	0.23	*0.34*
Guatemala	0.55	0.45
	0.35	*0.28*
Honduras	0.42	0.58
	0.24	*0.27*
Nicaragua	0.18	0.82
	0.23	*0.35*
Average	0.36	0.64
Standard deviation	*0.24*	*0.32*
Average standard error	*0.25*	*0.29*
Mexico	0.33	0.67
	0.22	*0.26*

Notes: Data cover the period 1964–2003. Standard errors in italics.

variables in addition to a constant and a linear trend. To capture the influence of external shocks the following variables are included: the US real GDP growth, a measure of the ex-post US real interest rate (the US Federal Fund rate minus annual CPI inflation), and the ratio of oil to non-fuel commodity prices (a proxy for the terms of trade of these economies). The domestic variables are the CPI inflation rate, the trade balance-to-GDP ratio, and the growth rate of real GDP.[12]

These VARs permit assessing the relative importance of external and domestic shocks for growth variability. It is assumed that six shocks drive the business cycle dynamics of these economies: three external shocks and three domestic shocks. A small open economy assumption justifies using the Cholesky decomposition of the reduced form variance–covariance matrix to separate the influence of external shocks from those of domestic ones. This decomposition also permits decomposing the variability of growth in these two blocks of shocks without identifying individual shocks separately, and without placing restrictions on their long-run dynamics.

External shocks play an important role in the Central American region, but there are large differences across countries (Table 8). While on average external shocks explain about the same share of growth variability as in Mexico (about 30%), in Costa Rica, Guatemala, and Honduras external shocks account for a much larger fraction of growth

[12] The data frequency is annual and the sample period is 1964–2003. The lag length is two for all VAR systems estimated. Because of the limited amount of available data, an analysis of consumption growth and other national account aggregates was not possible.

variability than in Mexico. On the other hand, in the Dominican Republic, El Salvador, and Nicaragua, domestic shocks play a much larger share than in Mexico. In the countries in which external shocks play the largest role, the response to a US supply shock is deeper and more persistent (Fig. 5).

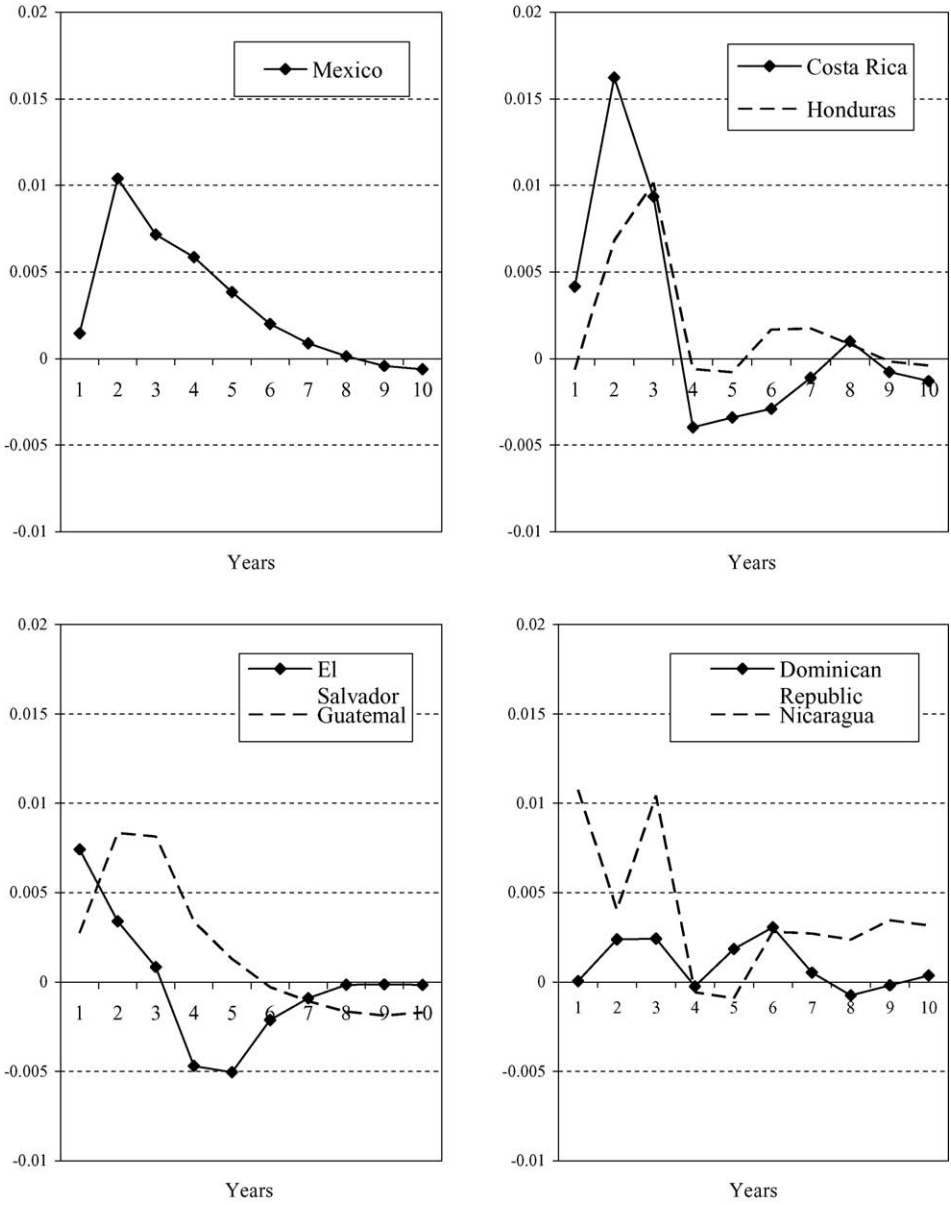

Fig. 5. Impulse responses from VAR models. *Source*: IMF Staff Calculations.

The large importance of external shocks for some countries of the Central American region is consistent with the relatively high degree of openness of these economies documented earlier in the paper. These findings are also close to those documented by Lederman et al. (2002) and Hoffmaister and Hall (1999, Table 3.3), as well as with the predictions of dynamic small open economy models, including Mendoza (1995) and Kose (2002). In the Dominican Republic, El Salvador, and Nicaragua, instead, the relatively high share of growth variance explained by domestic shocks despite the non-negligible degree of openness could reflect the predominance of political instability and a variety of negative policy shocks stemming from this instability.

4.2. The importance of regional shocks

A multi-country VAR system is employed to assess the relative importance of regional shocks. The multi-country VAR includes the Unites States and Mexico, and the six Central American economies considered before. By including the Unite States and Mexico, it is possible to control for external shocks. (This is also consistent with the analysis of Hoffmaister & Hall, 1999.) The VAR includes the real GDP growth series for each country to conserve the degree of freedom, a constant, and a linear trend.

The VAR permits us to assess the relative importance of the North American, regional, and domestic shocks for growth variability. As in the country-specific systems, a small open economy assumption motivates using the Cholesky decomposition of the reduced-form residuals to identify different blocks of shocks. The Cholesky decomposition of a block recursive system is invariant to the ordering of variables within each block. So, by

Table 9
Forecast variance decomposition of real GDP growth

Country	NAFTA shocks	Regional shocks	Domestic shocks
Costa Rica	0.26	0.58	0.16
	0.20	*0.26*	*0.10*
Dominican Republic	0.12	0.45	0.43
	0.17	*0.28*	*0.02*
El Salvador	0.26	0.63	0.11
	0.21	*0.31*	*0.08*
Guatemala	0.21	0.70	0.09
	0.19	*0.33*	*0.07*
Honduras	0.34	0.25	0.24
	0.24	*0.23*	*0.14*
Nicaragua	0.16	0.44	0.40
	0.18	*0.26*	*0.19*
Average	0.22	0.51	0.24
Standard deviation	*0.11*	*0.24*	*0.16*
Average standard error	*0.20*	*0.28*	*0.10*

Notes: Data cover the period 1964–2003. Standard errors in italics. NAFTA shocks include those from the United States and Mexico.

placing the US and Mexican GDP growth series in the first block and the GDP series of each Central American country in the last block, it is possible to assess the relative importance of the remaining block of Central American countries for the growth variability of the country placed last in the system. As a result, the relative importance of the domestic shock is also isolated by this identification strategy.

Regional shocks, on average, explain a relatively large share of growth variability in the Central American region, but there are still large cross-country differences (Table 9). Regional shocks explain about 50% of growth variability, on average. Their share is significantly larger for Guatemala and El Salvador, and smaller only in the case of Honduras. Domestic shocks continue to represent the largest source of volatility for Nicaragua and the Dominican Republic.

These empirical findings suggest that there are significant differences across countries in these economies' exposure to external shocks, and particularly those stemming from North America. External factors appear to drive business cycles only in Costa Rica and Honduras. Domestic shocks are the dominant sources of volatility in Nicaragua and the Dominican Republic, consistent with their history of political and macroeconomic policy instability. Regional shocks, instead, dominate the picture in the case of El Salvador and Guatemala.

5. Dynamics of co-movement after CAFTA

5.1. Integration and co-movement: theoretical and empirical studies

In theory, increased trade linkages have ambiguous effects on the co-movement of business cycles. Stronger trade linkages can result in more highly correlated business cycles, since they generate both demand and supply-side spillovers across countries. Moreover, if stronger trade linkages are associated with increased *intra-industry* specialization across countries, and *industry-specific* shocks are important in driving business cycles, then the co-movement of business cycle would be expected to increase. However, the degree of co-movement might diminish if increased trade is the result of a rise in *inter-industry* trade and *industry-specific* shocks are important in driving business cycles.

Increased financial flows also have an ambiguous theoretical effect on business cycle correlations. For example, stronger financial linkages could result in a higher degree of synchronization of output fluctuations by generating large demand-side effects. However, financial linkages could stimulate specialization of production through the reallocation of capital in a manner consistent with countries' comparative advantage. This type of specialization, which could result in more exposure to industry- or country-specific shocks, could lead to a decrease in the degree of output correlations while inducing stronger co-movement of consumption across countries (Kalemli-Ozcan, Sorensen, & Yosha, 2003).

Several recent empirical studies suggest that both trade and financial linkages result in greater business cycle synchronicity. For example, using the results from cross-country or cross-region panel regressions, Frankel and Rose (1998), Clark and van Wincoop (2001),

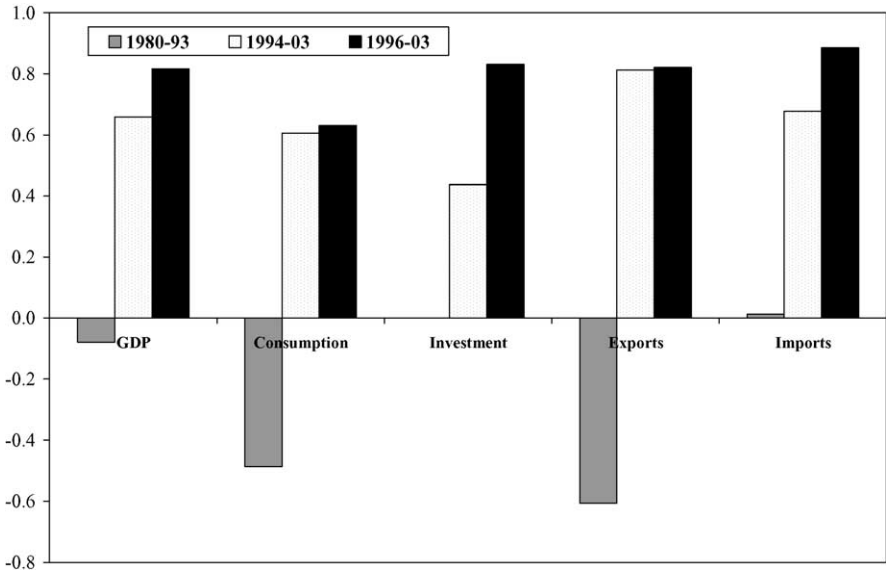

Fig. 6. Co-movement of economic variables in Mexico and the United States.

Calderon, Chong, and Stein (2002), and Kose and Yi (in press) show that pairs of countries that trade more with each other exhibit a higher degree of business cycle co-movement. Calderon (2003) documents that the impact of trade intensity on cross-country business cycle correlation is larger if the two countries have a free trade agreement. Kose et al. (2003b), Kose, Prasad, and Terrones (2003b, in press-a) report that countries that are more open to financial flows have business cycles more highly correlated with the G-7 aggregate. Imbs (2003) also finds that financial integration has a positive impact on the degree of co-movement of business cycle fluctuations in output and consumption.

5.2. NAFTA's impact on co-movement of business cycles

NAFTA has been associated with an increased degree of co-movement of the Mexican and US business cycles.[13] This can be seen from the marked increase in cross-country correlations of the major macroeconomic aggregates, including output, consumption, and investment (Fig. 6 and Table 10). In particular, the output correlation between Mexico and the United States rose from almost zero in the pre-NAFTA period to around 0.75 during the post-crisis period. There was a significant increase in consumption correlation, suggesting that Mexico was able to diversify its consumption risk more effectively after NAFTA. Cross-country correlations of exports and imports also increased significantly after the inception of NAFTA, possibly resulting from the increased intra-industry trade in the region.

[13] Comovement is measured as the cross-country correlation of the annual growth rate of main macroeconomic aggregates (output, consumption, investment, exports, and imports).

Table 10
Co-movement of macroeconomk aggregates with the US aggregates

	Mexico	Cafta average	Costa Rica	Dominican Republic	El Salvador	Guatemala	Honduras	Nicaragua
GDP								
1980–2003	0.16	0.29	0.60	0.25	0.46	0.20	0.22	0.01
1980–1993	−0.08	0.27	0.60	0.15	0.50	0.12	0.39	−0.16
1994–2003	0.66	0.40	0.60	0.53	0.30	0.55	−0.17	0.59
1996–2003	0.82	0.54	0.61	0.56	0.70	0.74	−0.04	0.67
Consumption								
1980–2003	−0.07	−0.08	0.21	0.20	0.12	−0.34	−0.64	−0.05
1980–1993	−0.49	−0.13	0.48	0.11	0.12	−0.63	−0.73	−0.12
1994–2003	0.61	0.11	0.12	0.29	−0.01	0.10	−0.02	0.16
1996–2003	0.63	0.30	0.20	0.34	0.68	0.39	−0.04	0.24
Investment								
1980–2003	0.18	0.18	0.23	0.25	0.06	−0.03	0.26	0.28
1980–1993	0.00	0.17	0.71	0.18	0.06	−0.22	0.23	0.04
1994–2003	0.44	0.35	0.09	0.47	0.06	0.28	0.56	0.64
1996–2003	0.83	0.41	0.12	0.61	−0.04	0.35	0.75	0.66
Exports								
1980–2003	0.11	0.31	0.28	0.53	0.08	0.37	0.40	0.19
1980–1993	−0.61	0.23	0.15	0.44	0.00	0.00	0.72	0.08
1994–2003	0.81	0.51	0.24	0.74	0.56	0.88	0.09	0.53
1996–2003	0.82	0.51	0.27	0.76	0.58	0.92	0.05	0.46
Imports								
1980–2003	0.21	0.28	0.29	0.37	0.25	0.10	0.40	0.27
1980–1993	0.01	0.29	0.77	0.13	0.19	−0.02	0.51	0.13
1994–2003	0.68	0.35	0.37	0.84	0.35	0.34	−0.18	0.39
1996–2003	0.88	0.39	0.38	0.88	0.41	0.36	−0.04	0.36

Source: WEO; IMF Staff Calculations.

5.3. How could CAFTA affect co-movement of business cycles?

The degree of co-movement of cyclical fluctuations in Central America and the United States on average rose during the past 10 years (Fig. 7 and Table 10). While cross-country correlations of output in the United States and the Dominican Republic and Guatemala significantly increased over the 1994–2003 period, there was a considerable decrease in the correlations of El Salvador and Honduras with the United States. Output correlation between Costa Rica and the United States remained quite stable over the years. In all of Central American countries except Costa Rica, correlation of consumption with the United States rose in 1996–2003. Although Honduras' exports became less correlated with the US exports, the other Central American countries exhibited increased co-movement of exports with those of the United States over the same period.

NAFTA's positive impact on business cycle synchronization between Mexico and the United States suggests that CAFTA could have a similar effect on the Central American economies' business cycles. As discussed earlier in the paper, CAFTA could lead to a sizeable increase in trade and financial linkages between Central America and the United

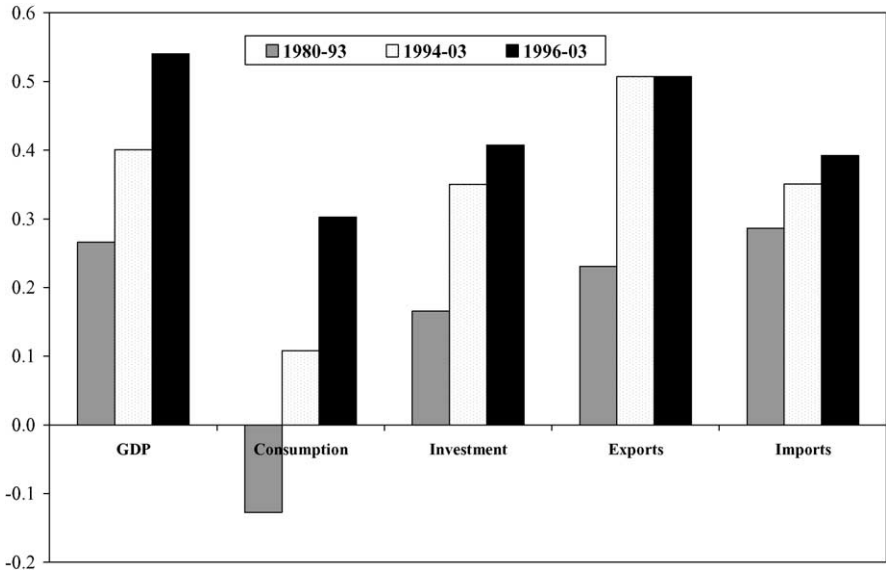

Fig. 7. Co-movement of economic variables in the CA countries and the United States (average correlation).

States. The increased trade and financial flows could result in a higher degree of business cycle interdependence through stronger demand and supply channels. Moreover, CAFTA could amplify the spillover of sector-specific shocks through its impact on the nature of trade flows.

CAFTA could lead to an increase in the importance of external shocks in driving business cycles in Central America. Stronger trade linkages after the advent of NAFTA induced a similar change in Mexico's business cycles, as documented in Kose, Meredith, et al. (in press). Using a dynamic factor model, they find that regional factors associated with the North American business cycle became more important in explaining macroeconomic fluctuations in Mexico over time. The increased role of regional factors in the case of Mexico's business cycles was the result of stronger transmission channels associated with the impact of NAFTA on the regional trade flows. As we discuss below, CAFTA could similarly lead to an increase in the strength of channels of business cycle transmission from the United States to the region. The results of the VARs reported in the previous section also suggest that the US business cycle could become even more important for some countries of the region following the inception of CAFTA. The overall impact might vary significantly across countries though, also depending on other changes in policy regimes and institutions triggered by CAFTA.

5.4. How could CAFTA affect the transmission of business cycles?

A multi-country dynamic stochastic general equilibrium (DSGE) model is employed to study the channels through which CAFTA could affect the transmission of business cycles

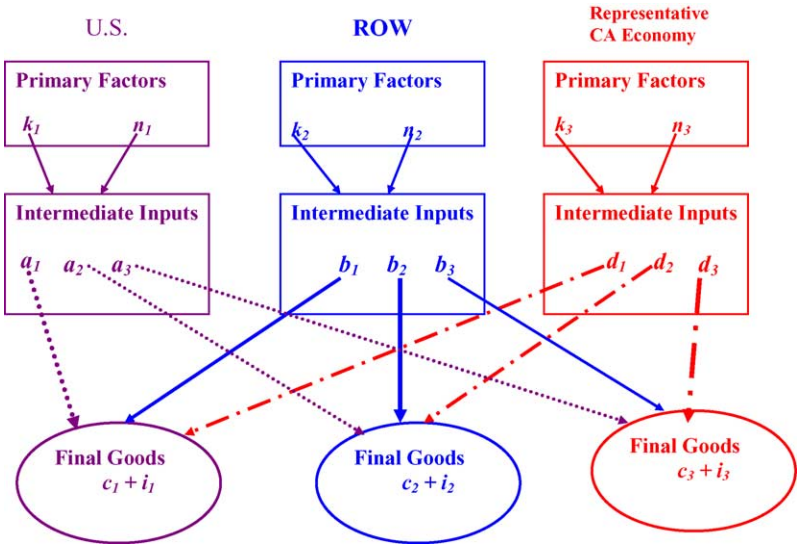

Fig. 8. Production structure of the CAFTA model.

from the United States to Central America. The multi-country DSGE model is a natural setting for this purpose because it accounts for the demand- and supply-side spillover channels that are critical in transmitting business cycles. The model, developed by Kose and Yi (in press), extends the two-country free trade, complete market model of Backus, Kehoe and Kydland (1994) by including three countries, trading frictions (tariffs and transportation costs), and international financial autarky.[14]

The model economy includes a traded intermediate goods-producing sector and a non-traded final goods-producing sector. Perfectly competitive firms in the intermediate goods sector produce traded goods according to a Cobb–Douglas production function (Fig. 8). When the intermediate goods are exported to other countries, they are subject to transportation costs, which are considered as a proxy for tariffs and other non-tariff barriers, as well as actual transport costs. It is assumed that each country is completely specialized in the production of an intermediate good. Each country's output of intermediates is used as an input into final goods production. Final good producers combine domestic and foreign intermediates via an Armington aggregator. These assumptions imply that imports from the United States are used as intermediate inputs to produce final consumption and investment goods in Central America. In each country, there are representative agents who derive utility from consumption and leisure.

The model is calibrated to reflect some basic structural features of the CAFTA members. Since the objective is to analyze the interdependence of business cycles in Central America and the United States, it is assumed that the three countries in the model are a representative Central American economy, the United States, and the rest-of-world, represented by an aggregate of the members of the European Union. The steady state levels of trade flows

[14] A detailed description of the model is presented in Kose and Yi (in press).

among the three countries in the model are computed using the average trade flows during the past 5 years. It is assumed that the representative Central American economy is 2% of the world economy and each of the other two countries constitutes 49% of the world economy. The elasticity of substitution between domestic and foreign goods is set at 1.05. The impact of CAFTA is simulated by changing the level of transportation costs (trading

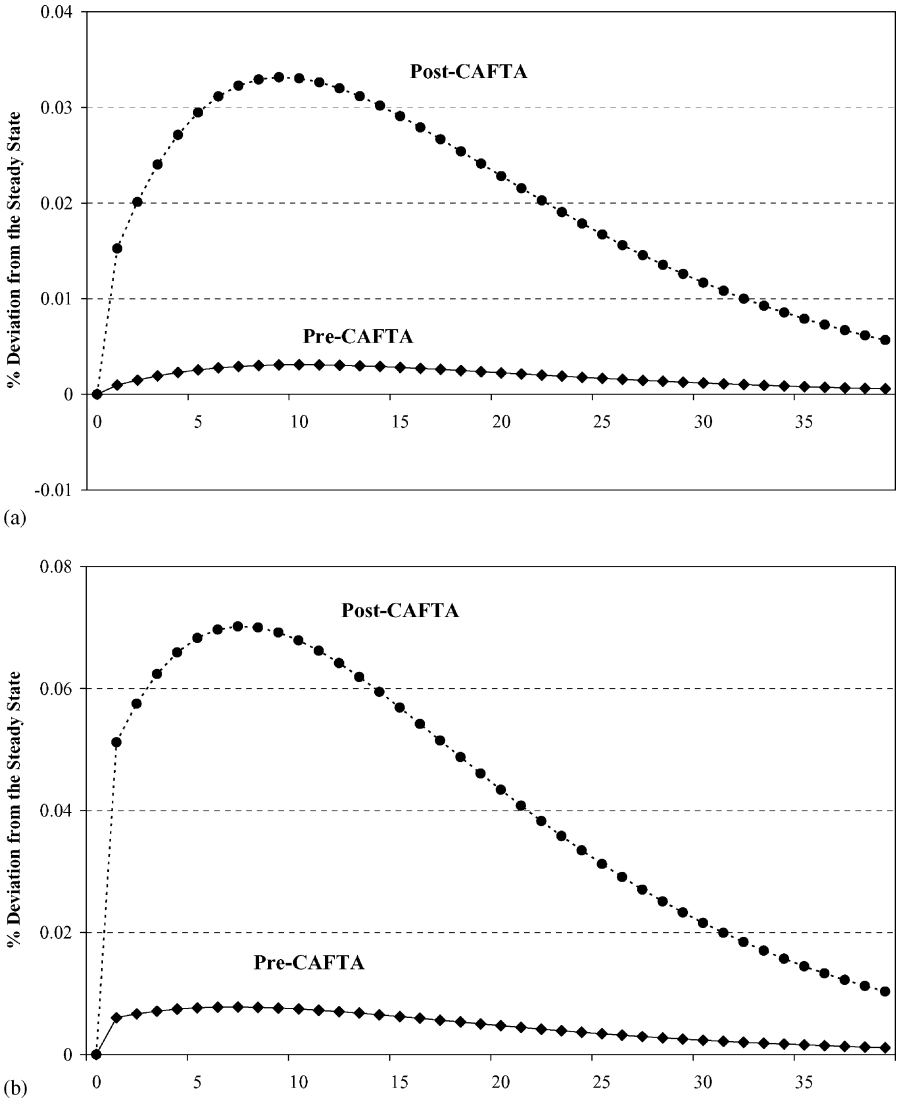

Fig. 9. (a) Impulse response-CAFTA GDP (1% increase in supply shock in US). (b) Impulse response-consumption in CAFTA (1% increase in supply shock in US). (c) Impulse response-investment in CAFTA (1% increase in supply shock in US). (d) Impulse response-CAFTA's exports to US (1% increase in supply shock in US).

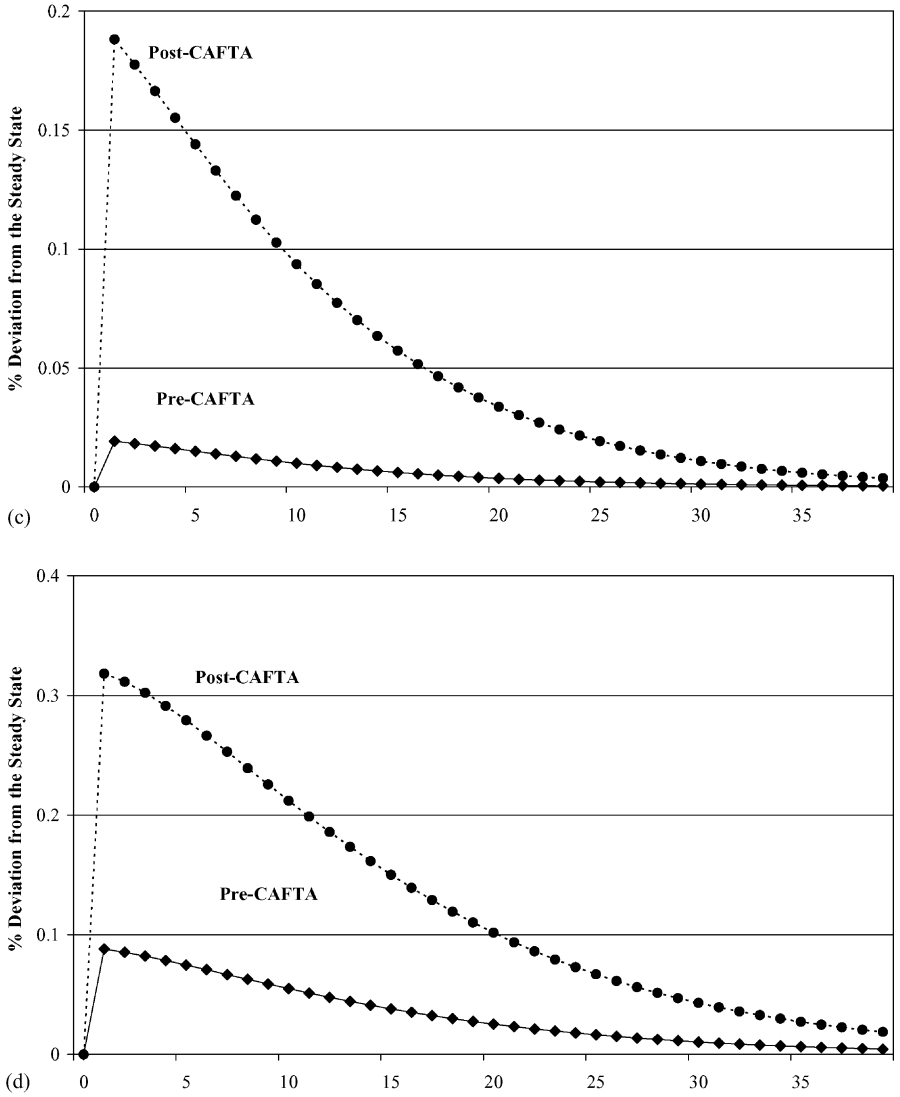

Fig. 9. (*Continued*).

frictions) between the representative Central American economy and the United States. The model is solved following the standard linearization approach in the international business cycle literature.

The results suggest that CAFTA could magnify the impact of shocks originating in the United States on the Central America economies. To analyze the responses of macroeconomic aggregates in a representative Central America economy to shocks originating in the United States, the impulse responses of the Central American country's variables to a temporary productivity (supply) shock in the United States are computed.

The results indicate that the responses of the representative country's output, consumption, and investment to the external shock increase after the inception of CAFTA (Fig. 9a–d). In addition, pre- and post-CAFTA simulations illustrate the substantial increase in the Central American country's exports to the United States that results from the lowering of tariffs and other trading frictions after the advent of the agreement.

The reduction in trade barriers in the model results in greater intensity of trade flows between the Central American economy and the United States, which in turn leads to a higher degree of business cycle interdependence. An increase in the synchronization of business cycles between the Central American economies and the United States implies that the region is subject to more common shocks, which in turn would facilitate further macroeconomic policy coordination among the Central American countries.

6. Conclusions

There are inherent difficulties associated with analyzing the potential impact of CAFTA on the Central American countries in light of Mexico's NAFTA experience. First, isolating the effects of NAFTA on Mexico is a complicated task given the significant other external and policy shocks that have occurred over the past decade. Second, Mexico differs from the Central American countries in several dimensions. Mexico shares a common border with the United States, has a much larger and more a diverse economy, and its *per capita* GDP is much higher than all of the Central American countries except Costa Rica. Hence, the analysis in this paper and its findings are only tentative.

The Central American countries are already becoming more integrated with the United States, in terms of both trade and financial flows. The United States is their most important commercial partner. There are some important differences among the Central American countries, however, and not all of them are integrating with the United States at the same pace. Mexico's NAFTA experience suggests that CAFTA could significantly accelerate the pace of the integration process. However, the Central American countries' relatively less favorable location, lower level of income, less diversified trade base, and smaller size might be detracting factors to the process of economic integration.

Both Mexico's experience and ongoing specialization trends in the Central American economies suggest CAFTA could lead to lower consumption volatility and hence higher welfare in the region. CAFTA could also decrease output and investment volatility as the role of the shocks originating in the United States becomes more important in driving fluctuations in the Central American economies. The increased trade and financial flows could result in a higher degree of business cycle interdependence through stronger demand and supply channels. Moreover, CAFTA could amplify the spillover of sector specific shocks through its impact on the nature of trade flows.

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