REGIONAL ECONOMIC INTEGRATION: THE CANADA-U.S. EXPERIENCE

Steven Globerman
Western Washington University
College of Business and Economics
and
Simon Fraser University
Faculty of Business Administration

January 2004

Prepared for Academy of International Business Conference
in Stockholm, Sweden, July 2003.

REGIONAL ECONOMIC INTEGRATION: THE CANADA-U.S. EXPERIENCE

Abstract

This paper assesses the nature and degree of bilateral economic integration preceding and following the implementation of the Canada-U.S. Free Trade Agreement (CUSTA). Various price-based and quantity-based indicators of economic integration are assessed. Results vary depending upon the indicator; however, on balance, the results provide only modest evidence of incremental integration in the post-CUSTA period. The findings serve as a caution against managers and policymakers assuming that regional integration is an inevitable dynamic and basing strategies and policies around this assumption.

Key words: economic integration; free trade agreements; trade, foreign direct investment; price convergence.

REGIONAL ECONOMIC INTEGRATION: THE CANADA-U.S. EXPERIENCE

INTRODUCTION

A prominent issue of ongoing concern to both public and private sector decision-makers is whether international economic integration is primarily taking place on a regional basis or on a global basis. On the public policy side, some observers worry that initiatives at the regional level, such as the North American Free Trade Agreement (NAFTA) and the European Union, are contributing to ineffectual negotiations for multilateral trade and investment liberalization through the World Trade Organization (Gordon, 2003). The recent predominance of regional agreements is seen, in turn, as increasing the risk of inefficient trade and investment diversion, as well as unduly penalizing Asian and African countries whose regional trading partners are not wealthy, developed countries capable of providing a large market for labor-intensive and agricultural products.

On the private sector side, company strategists must identify the nature of economic integration in order to position their companies for competitive success. For example, a commitment to integrating a company's facilities and skilled workforce on a regional basis would have substantially different implications for capital investment plans, choices of modes for entering foreign markets and the nationalities of senior managers, among other decisions, than would a commitment to integrate on a broader geographical basis (Rugman, 2000).

While many international business strategists have stressed the need for managers to develop "global" strategies and organizational structures, others have cautioned that economic integration is, *de facto*, primarily taking place on a regional basis (Rugman 2000). The failure to acknowledge the effective "balkanization" of the world economy into regional "sub-economies" could lead managers to deploy resources inefficiently, as well as fail to couple country and firm-specific competitive advantages effectively. At the public policy level, a view that forces promoting integration at a regional level dominate forces promoting economic integration at a multilateral level might predispose

policymakers towards initiatives such as joining a regional currency arrangement that would not otherwise be favored.

Lost in the ongoing debate about whether regional or global integration is the more appropriate characterization of ongoing international business developments is the issue of how to identify international economic integration. Journalists and scholars employ a range of measures with little regard for their reliability or relevance. The primary purpose of this paper is to identify and assess alternative measures of international economic integration and to illustrate the potential for different conclusions to be drawn depending upon the measure(s) chosen. The analysis is sited in the context of the world's largest bilateral trade relationship, i.e. that between Canada and the United States, although the analysis and conclusions drawn are more generally applicable.

The paper proceeds as follows. The second section sets out a range of measures of economic integration that have been used by scholars and assesses those measures from conceptual and empirical perspectives. The main argument made is that "price-based" measures of integration are arguably more meaningful than "quantity-based" measures. The third section focuses on price-based measures of bilateral economic integration. The evidence from price-based evidence is less supportive of robust bilateral economic integration than are quantity-based measures. The last section of the paper summarizes the range of evidence on economic integration between Canada and the United States and offers some policy conclusions.

MEASURING ECONOMIC INTEGRATION

Economists and international business scholars employ various *de jure* and *de facto* measures of economic integration. The former focus on the comprehensiveness of legal arrangements between countries designed to liberalize international trade, investment and labor flows. The latter focus on a range of macroeconomic variables, as well as statistical results from so-called gravity models.[1]

[1] Gravity models are statistical models that identify the expected magnitudes of trade and foreign direct investment (FDI) flows between countries given underlying "generic" determinants of such flows. Differences between expected and actual magnitudes of trade and FDI are interpreted as measures of "border barriers." Changes, over time, in the quantitative importance of border barriers are, in turn, taken to reflect changes in economic integration.

De Jure Measures

If one assumes a high initial level of autarky among potential trading partners owing to legal barriers to international trade and investment, it is obvious that formal agreements to liberalize or eliminate the major barriers can significantly encourage economic integration. However, when substantial levels of international trade and investment already exist, the marginal impacts of additional formal agreements to further liberalize border barriers are uncertain. This is especially true if many of the remaining border barriers are difficult to address through government-to-government trade agreements. For example, even when formal restrictions on foreign ownership are eliminated as part of a trade agreement, cross-border FDI might be limited by regulatory differences between countries that create significant "liabilities of foreignness" in the form of competitive disadvantages associated with limited knowledge about how to operate profitably in a different regulatory regime.

At best, legal agreements enhance the potential for increased economic integration; however, the extent to which this potential is realized will depend upon a host of factors that are outside the scope of the formal agreement(s). In this regard, it is, perhaps, unsurprising that econometric models sometimes fail to identify any robust linkages between formal trade agreements and measures of economic integration, including the impact of NAFTA on Canada's trade and foreign direct investment with its North American partners (Acharya, Sharma and Rao, 2002).

Output-Based (Absolute) Measures

Overwhelmingly, *de facto* measures of economic integration are the dominant focus of empirical studies. In particular, researchers have concentrated on trade and FDI flows, although the precise ways in which such data are utilized vary across studies.[2] The simplest application of these data simply report absolute increases in regional trade and FDI flows as evidence of increased regional economic integration. For example, Hufbauer (2001) cites growing *absolute* trade and FDI flows between Canada and the United States subsequent to the implementation of the Canada-U.S. Free Trade

[2] Recently, increased attention has been paid to the cross-border migration of skilled workers. See, for example, DeVoretz and Coulombe (2002) and Globerman (2000).

Agreement (CUSTA) as illustrative of integration between the two economies. Rugman (2000) also highlights flows of exports from Canada and Mexico to the United States as indicators of increased regional economic integration, along with growing *absolute* U.S. FDI stocks in Canada and Canadian FDI stocks in the United States. To be sure, absolute levels of bilateral trade and FDI are impressive. For example, two-way trade in goods and services between Canada and the United States amounted to around CDN$680 billion in 2002 almost triple the 1992 value.

While relevant for many purposes, a focus on absolute levels of trade, FDI and labor migration is potentially misleading when seeking to identify the extent of regional economic integration, inasmuch as it does not take into account the implicit "counter-factual", i.e. given changes in the broad historical determinants of those measures of economic integration, are the actual levels of trade, FDI and labor migration larger or smaller than one would have expected based on historical experience? Indeed, if the overall level of economic activity (both domestic and international) is increasing faster than international trade flows, one might conclude that international economic integration is actually decreasing. Similarly, larger bilateral trade and FDI flows are not necessarily indicative of increased regional economic integration to the extent that trade and FDI flows between each of the bilateral partners and non-bilateral partners are increasing even more. In short, it is preferable to focus on relative flows of trade, FDI and skilled workers when evaluating changes in economic integration.

Output-Based (Relative) Measures

A simple approach towards measuring economic integration between specific countries or regions is to measure changes in the relevant variables, e.g. trade flows, between the specific countries relative to the changes between each of the countries and the rest-of-the-world. Hence, in measuring bilateral trade intensity between Canada and the United States, one might focus on each country's share of exports and imports with the other. Tables 1-4 report measures of bilateral trade and FDI intensity for the post-1980 period. Specifically, Table 1 shows Canada's share of U.S. merchandise exports and imports, while Table 2 shows the U.S. share of Canada's merchandise exports and imports. Of particular interest is the behavior of these measures of bilateral integration in

the post-1986 period, as the CUSTA was implemented in 1986. The only notable increase in bilateral integration is the substantial increase in the U.S. share of Canada's exports.

Bilateral FDI intensity can be evaluated by focusing in each country's share of the other country's inward and outward FDI stocks or flows. In this regard, it is noteworthy that Canada's share of U.S. inward and outward FDI decreased in the post-1986 period (Table 3), while the U.S. share of Canada's outward FDI stock also decreased. Only a very modest increase in the U.S. share of Canada's inward FDI stock (Table 4) is consistent with an increase in bilateral economic integration. In short, only an increase in the relative share of Canada's exports going to the U.S. attests to a robust increase in regional economic integration in the post-CUSTA period.

The use of the indicators summarized in Tables 1-4 implicitly assumes that the influence of factors not directly related to trade policy initiatives (i.e. CUSTA) stayed constant over the sample period. This may not be true. For example, economic growth rates may have varied across countries such that trade and FDI between the U.S. and European and Asian countries were especially stimulated. Changes in exchange rates may also have influenced the behavior of the indicators of economic integration summarized in Tables 1-4. In this regard, gravity models represent a potential improvement over simple comparisons of relative bilateral trade and FDI by utilizing structural models of trade. That is, gravity models explicitly or implicitly incorporate other influences besides formal trade liberalization initiatives in empirical evaluations of economic integration.

Gravity Models

Gravity models incorporate the influence of factors such as national economic growth on the direction of trade and FDI flows so that the impact of trade liberalization measures can be reliably identified.[3] Estimates of so-called border effects build upon the structure of gravity models by comparing actual trade and FDI flows across and within countries or regions to potential flows between and within countries or regions, where the "potential" volumes of trade and FDI are estimated through structural (gravity) models. McCallum (1995) and Helliwell (1998) document the existence of substantial border effects in the Canada-U.S. context. Simply put, there is much less North-South trade

[3] A technical discussion of gravity models and their interpretation can be found in Helliwell (1998).

relative to intra-Canada trade than one would expect given the size of the U.S. economy relative to provincial economies in Canada. Helliwell (1998) specifically examines the impact of the CUSTA on border effects for Canada's trade flows. His estimates cover the period 1988-1996. He finds that the average border effect was constant from 1988-1990 and then fell substantially from 1990-1993. No change was identified from 1993-1996 so that the border effect in 1996 was the same as in 1993 and about 60 percent of the estimated 1990 value.

Interestingly, Helliwell finds that export border effects fell more than import border effects over the sample period. Given the substantially lower average tariff levels in the U.S. compared to Canada in the period immediately preceding the implementation of the CUSTA, one would have expected the direction of the relative border effect change to be the opposite of that identified by Helliwell, if *de jure* reductions in trade barriers were important factors stimulating increased economic integration. In this regard, Lee's (2002) review of a number of statistical studies is suggestive. Specifically, he concludes that the buoyant U.S. economy and the depreciation of the Canadian dollar were mainly responsible for the dramatic increase in Canadian exports to the United States in the 1990s. In contrast, the CUSTA and NAFTA Agreements are estimated to account for only around 9 percent of increased Canadian exports to the United States.

Gravity models have also been used to estimate the impact of formal trade agreements on regional economic integration through FDI flows. Buckley, Clegg, Forsans and Reilly (2000) find that U.S. FDI in Canada into Canada was encouraged by the implementation of CUSTA and NAFTA, although changes in the exchange rate also promoted FDI. Globerman and Shapiro (1999) identify an increase in Canadian inward and outward FDI in the period subsequent to CUSTA (including the period covered by NAFTA) holding other determinants of FDI flows constant. Outward flows are larger than inward flows; however, it is doubtful that the CUSTA, *per se*, encouraged an increase in Canadian outward FDI, since the increase was primarily directed at Western Europe. Eden and Monteils (2000) are also skeptical about the impact of formal free trade agreements on the magnitude of regional FDI flows. Specifically, they conclude that MNCs making intra-regional foreign investments in North America engaged in "locational reshufflings" as they rationalized their investments on a continental basis.

Other gravity-type models examine the linkages between trade growth and trade liberalization at the industry level. For example, Clausing (2001) focuses on trade flows at the 10-digit (harmonized) industry level. She finds that U.S. tariff reductions mandated by the CUSTA were responsible for over one-half of the $42 billion increase in U.S. imports from Canada over the 1989-1994 period. Trefler (1999) examines the change in the growth rate of Canadian imports from the United States over two time periods corresponding to before and after the implementation of the CUSTA. He concludes that Canadian tariff reductions explain roughly half of the observed increase in Canadian imports from the United States. Schwanen (1997) compares the growth in trade of liberalized and non-liberalized sectors (under the CUSTA), as well as the increase in trade with the United States compared to other countries. He finds that over the 1988-1995 period, Canadian exports to the United States grew 139 percent in liberalized sectors and 64 percent in non-liberalized sectors. Exports to non-U.S. destinations in liberalized sectors grew only around 35 percent, whereas exports to non-U.S. destinations in non-liberalized sectors increased by around 54 percent. Imports show a similar pattern with growth highest for Canadian imports from the U.S. in liberalized sectors. It might be noted that Schwanen excludes motor vehicles from his analysis. This is the single largest source of bilateral trade, and it is a sector that enjoyed free trade prior to the CUSTA. Had this sector been included, the findings linking CUSTA to increased bilateral trade flows would have been substantially weakened.

Summary of Output-Based Measures

In summary, most studies of regional economic integration have focused on changes in output-based quantity flows, most notable merchandise trade and FDI flows, between regional trading partners. Increased intra-regional trade and FDI intensities are taken to be indirect measures of increased regional economic integration. Within the Canada-U.S. context, most measures of intra-regional trade and FDI intensity at the aggregate level show surprisingly little evidence of increased bilateral economic integration, notwithstanding large absolute increases in bilateral trade and FDI flows. Statistical gravity models estimate the summary impact of all manner of “border barriers” to trade and FDI between countries. The few available post-CUSTA studies at the

macroeconomic level suggest some decrease has taken place in border barriers between Canada and the United States, although the relevant evidence is weak and inconsistent across the available studies. Stronger evidence that CUSTA promoted bilateral economic integration is provided by gravity-type statistical studies at the industry level. However, the results of industry studies are sensitive to the inclusion or exclusion of specific industries.

Measures of Competitive Impact- Productivity

The most immediate impact of reduced barriers to cross-border trade and investment is increased competition within the region. Hence, it seems reasonable to evaluate changes in the degree of economic integration within a region by examining indicators of competition. In this regard, economists have focused attention on productivity performance as an important indicator of competitive pressure. In particular, Canadian economists have long argued that free trade with the United States would encourage Canadian firms to better exploit available economies of scale at the product and plants levels, and thereby promote a convergence of productivity levels in Canadian and U.S. industries (Cox and Harris, 1985). Specifically, the reduction or elimination of barriers to trade should make lower cost imports available to domestic consumers. Domestic firms, in turn, must be able to meet the competition supplied by lower priced available imports. If domestic firms have higher unit costs than foreign suppliers, the former can only meet the latter's competitive threat by improving their productivity relative to foreign suppliers.

Two relatively recent studies focus specifically on the linkages between the CUSTA and productivity performance at the industry level. Trefler (1999) relates changes in value-added per worker at the 4-digit level to Canadian tariff reductions under the CUSTA. He finds that Canadian tariff reductions increased value-added per worker in Canadian industries, although this was not uniformly true in all statistical specifications. More recently, Head and Ries (2003) examine the relationship between tariff levels and multi-factor productivity (MFP) for 22 two-digit Canadian manufacturing industries. In one exercise, they calculate the average of tariff reductions and the average of MFP for each industry group over the period 1961-1997. High tariff industries lagged in average

productivity until the late 1980s. Following the implementation of the CUSTA in 1989, the high tariff industries rapidly caught up to the low tariff industries in terms of MFP and even surpassed them for several years. On the other hand, when the authors attempted to hold constant other factors that might influence MFP besides tariff changes by specifying and estimating a multivariate regression model, they were unable to identify a robust statistically significant MFP difference between high and low tariff industries.

Product and Factor Prices

As barriers to the movement of inputs and final outputs between members of a regional trading arrangement are reduced or eliminated, there should be an intensification of trade among member countries. In the neoclassical economic model, an intensification of trade should lead to an equalization of prices net of transport costs and taxes (Hine, 1994). Furthermore, since trade is a substitute for factor movements in the neoclassical model, increased trade should also lead to a convergence of wages and returns to capital within the region. To the extent that direct factor movements are stimulated by differences in wage rates and rates-of-return, increased cross-border flows of capital and labor, perhaps facilitated by formal trade agreements, should further contribute to a convergence of returns to factors of production within the integrating region.

Is there any reason to favor price-based measures of economic integration over quantity-based measures? The theory of contestable markets suggests that price convergence is perhaps a more generally relevant indicator of regional economic integration than are quantity flows of outputs and inputs. Specifically, the theory of contestable markets makes the fundamental point that the *threat* of substantial new entry into domestic industries can cause monopoly prices to decline to competitive levels without actual entry taking place. Moreover, the threat of new entry can lead to reductions in *X-inefficiency* or higher than necessary costs that, in turn, are encouraged by the protection from more efficient competitors enjoyed by incumbent producers. This, in turn, should also contribute to domestic suppliers charging lower prices. In the limit, the mere threat of new competition from imports can promote cross-border price convergence without any significant increases in import volumes.

As a consequence of this insight, as well as the fact that much less attention has been paid to price-based measures of regional economic integration, we focus particular attention upon that measure of bilateral economic integration.

CONVERGENCE OF PRICES

As noted above, an important measure of increased economic integration is the convergence of costs borne by businesses and of prices paid by consumers. With integrated markets, there should be a single price for any commodity if transportation costs, price-cost margins and taxes don't impede price equalization. In the presence of such impediments, prices should converge to relative equality. That is, prices should differ by no more than the relevant transaction costs. Hence, the degree of convergence of prices and costs is a measure of the degree of economic integration.

Final Goods Prices

The effect of trade liberalization on price convergence has been examined in studies by Engel and Rogers (1998) and Beling Yan (2002). Engel and Rogers examine city and province-level consumer price index (CPI) series for 14 broad expenditure categories. Their method involved calculating relative prices for pairs chosen from fourteen cities (in the U.S.) and ten provinces (in Canada). Their hypothesis is that changes in cross-border relative prices for a given CPI category should be smaller the greater the degree of market integration. The size of a relative price change was, in turn, calculated by the standard deviation of the relative price. The authors conclude that changes in cross-border relative prices were no smaller after the implementation of the CUSTA than they were before the CUSTA by comparing the period 1978-88 to 1994-97. Hence, they conclude that price convergence between Canada and the United States was not accelerated by formal trade liberalization.

Unlike Engel and Rogers, Yan (2002) uses actual prices rather than price indexes and can thereby focus on differences in price levels. Yan uses paired Canada-U.S. final user prices of 168 business commodities for 1985, 1990, 1993 and 1996 to calculate deviations from the law of one price for each commodity. Specifically, she looks at averages of logged values of deviations for three types of general groups: 1. non-tradable

commodities such as services and trade-restricted goods such as milk; 2. differentiated tradable goods such as appliances and clothing, and 3. homogeneous tradable goods such as rice, fresh fruit and fish. Yan identifies a "V-shaped" pattern in the average deviation data. That is, average deviations for the three categories of products declined from 1985-1990 and then increased. Hence, there is no persistent tendency for absolute prices to converge over the sample period.

What the results for average deviations don't reveal is the degree of convergence of deviations from the law of one price for individual goods, i.e. the degree of *relative* price convergence. The deviation from the law of one price (calculated by Yan as the variance of the average price difference) for individual products is reported in Figure One, albeit as an average for each of the three general groups. Relative price deviations generally increased for homogeneous traded goods after 1985. Indeed, in 1996, the overall variance was roughly double its 1985 value. Conversely, calculated variances actually fell for both non-tradable commodities and differentiated tradable goods, with non-tradable commodities showing the largest decline in variance.[4] Since, by definition, cross-border competition in non-tradables does not exist, the convergence of relative prices in this category is presumably unrelated to economic integration. On balance, therefore, Yan's evidence offers equivocal evidence on the degree to which final goods prices in Canada and the U.S. tended towards greater equality from 1985-1996.

Costs of Labor

To date, there has been relatively little analysis of the labor market effects of trade liberalization on relative wages in Canada and the United States. This is partly due to a lack of comparable occupational data, at least for long periods of time. In particular, Canada does not provide earnings data by occupation and the industry data in Canada are not always comparable to industry definitions in the United States.[5] One existing source of Canada-U.S. labor cost comparisons is the U.S. Bureau of Labor Statistics (BLS)

[4] The patterns in Figure One seem to contradict Yan's results based on price differences averaged across individual products. The key to reconciling her results is the recognition that the variance of individual product price differences can increase even as the average value of the differences across prices gets closer to zero. Simply put, positive and negative deviations from the law of one price can cancel out when averaged over a basket of goods.

[5] This problem will be reduced as data using the NAICS industry classification become available for both countries in 2003.

indexes of hourly manufacturing compensation that are available for the U.S. and several foreign countries, including Canada. These series are available from 1991 through 2001, and the results are shown in Figure Two. This graph shows diverging trends in labor costs over the post-CUSTA period, with declining relative labor costs in Canada.[6]

Similar trends appear when average weekly earnings are compared for manufacturing, transportation equipment and lumber. For each industrial sector, the weekly wage increased in the United States relative to Canada, so that labor costs are uniformly lower in Canada by the end of the sample period (1991-2001).[7] While the levels of relative labor cost differ by industrial sector, the trends are almost identical for each sector. The increased divergence between industrial wages in Canada and the U.S. is consistent with a declining Canadian dollar combined with "sticky" nominal wages.

Costs of Capital

Integration of the Canadian and U.S. economies should lead to a convergence of costs of capital and rates-of-return on investment. At the margin, the cost of capital should equal the return on capital. Cross-border investment flows should tend to equate these returns and costs. Divergence between returns on capital in the two countries could reflect, among other things, barriers to non-resident investment in certain sectors (such as banking, broadcasting, or health care in Canada) or risk premia related to exchange rate risk or political risk.

One method of examining the convergence of rates-of-return in Canada and the United States is to examine firm-level data on profitability such as return on equity (ROE) or return on investment (ROI). The Compustat database has measures of these two returns using the following definitions:

ROE = Income Before Extraordinary Items/Common Equity
ROI = Income Before Extraordinary Items/(Long-term Debt + Common Equity +
.Preferred Stock + Minority Interest)

[6] The graph in Figure 2 uses the market exchange rate to convert Canadian dollars.
[7] Wage comparisons for these individual sectors are not shown in order to conserve space. The relevant data are available upon request.

Values for these two measures of the return on capital invested are presented in Figure Three. The U.S. series is the average of returns for the companies in the S&P 500 index while the Canadian series is for the TSE 300 index. Unfortunately, the Compustat data for Canada begins in 1988 (for ROI) and 1989 (for ROE), and this does not permit a long-term comparison. In the event, the bottom panel of Figure Three examines the spread between returns in the United States and Canada and shows little evidence of convergence of rates-of-return on capital, with the possible exception of 2001 where the deeper economic downturn in the U.S. is apparent.

Another source of profitability data is the national accounts. Professor John Rodgers of Western Washington University has compiled comparable measures of the profit rates for Canada and the United States. Rodgers defines the net profit rates (NPR) as:

NPR = (Output – Total Compensation – Depreciation)/Net Capital Stock

One advantage of using Rodgers' data to measure the return on capital is that it does not require the use of firm-level accounting data but rather relies on national accounts data. Recent concerns over standards at public accounting firms has led to increased reliance on profitability measures based on national accounts. Rodgers' data (shown in Figure Four for the manufacturing sector) does show a definite trend toward convergence of profit rates in Canada and the U.S., but it appears that this trend mainly occurred before 1980. Moreover, the convergence is mainly due to a marked decline in the net profit rate in U.S. manufacturing from 1965-1980. While increased integration between the two economies during this period (particularly integration related to the Canada-U.S. Auto Pact) could have reduced differences in rates-of-return to capital, it seems implausible that integration-driven equalization would have happened almost exclusively through adjustment of the net profit rate in the United States.

In summary, data for final output and factor inputs suggest that there has been little convergence of prices in the two countries in the post-CUSTA period. Furthermore, the limited convergence that can be observed does not appear to be a consequence of formal trade liberalization. The persistent and substantial departures from absolute, or

even relative, price convergence are strongly at odds with widespread claims that the CUSTA and NAFTA have led to a tightly integrated North American economy.

SUMMARY AND CONCLUSIONS

The available evidence on the extent of bilateral economic integration in the post-CUSTA period is both eclectic and ambiguous. In particular, standard output-based measures of economic integration show no consistent evidence of intra-regional trade and FDI intensity at the macroeconomic level. Industry-level studies of trade flows provide stronger support for bilateral economic integration, although there is some sensitivity of the results to the inclusion or exclusion of major trade sectors. Arguably the most relevant measure of economic integration is the convergence of prices of tradable goods in Canada and the United States. This measure provides no consistent support for the claim that the two economies have become more integrated in the post-CUSTA period. In this regard, available evidence highlights the potential for drawing different conclusions about the nature and extent of regional economic integration depending upon the specific measure(s) of integration utilized.

The ambivalent evidence on bilateral economic integration also raises substantive questions about why CUSTA, NAFTA and other government initiatives have not produced more compelling indications of bilateral integration and what policies to promote further integration might be implemented. It is beyond the scope of this paper to offer any extended answers to these questions. One explanation offered for the observed integration experience following the CUSTA, offered by Helliwell (2001), among others, is that the Canadian and U.S. economies were already so tightly integrated prior to the CUSTA that additional efforts by governments and businesses to link the economies even more tightly were bound to have modest results. This explanation is unsatisfying, since there was, in fact, a marked increase in Canada’s export intensity with the United States which is consistent with the previously cited finding of Helliwell that border barriers to exports from Canada to the U.S. showed a significant decline in the post-CUSTA period, albeit not so for U.S. exports to Canada. A robust explanation of the post-CUSTA regional economic integration experience seemingly needs to explain the substantial

growth in Canada's bilateral export intensity along with continuing departures from price convergence in tradable goods' markets.

An obvious explanation candidate is the bilateral exchange rate regime. The available empirical evidence is persuasive in showing that exchange rate volatility has substantial impacts on trade and FDI flows. The most impressive empirical evidence on the linkage between stable currency values and trade flows is provided by Frankel and Rose (2002). They show that belonging to a currency union or currency board triples trade with other union or board members, and there is no evidence of trade diversion at the expense of non-members.[8] In a similar spirit, Globerman and Shapiro (2003) show that countries with exchange rates pegged to the U.S. dollar attract more U.S. FDI than do other countries.[9] To the extent that the bilateral exchange rate regime became more volatile in the post-CUSTA period, it might help explain the modest extent of bilateral economic integration characterizing the post-CUSTA period. It might also help explain the failure of absolute or relative prices to converge across the two countries. Specifically, fluctuating exchange rates combined with relatively sticky domestic prices contribute to larger departures from the law of one price.

Figure 5 illustrates the volatility of the Canada-U.S. bilateral exchange rate over the past thirty years.[10] It suggests an upward trend in volatility in the post-CUSTA period, which is confirmed by an (statistically significant) increase in the average value of the 12-month moving standard deviation volatility measure of about 15 percent between 1980-88 and 1989-2003. The increase in volatility is most pronounced after 1997. The potential for the bilateral exchange rate regime to have discouraged post-CUSTA economic integration becomes even more plausible when the volatility of the Canada-U.S. exchange rate is compared with that of the U.S. dollar relative to other currencies. Figure 6 shows the volatility of the Canada-U.S. exchange rate to that of the trade-weighted U.S. exchange rate with major currencies. While the Canada-U.S. dollar

[8] To be sure, there is no unanimity surrounding the linkage between trade flows and the stability of exchange rate regimes. For an argument that the level of trade is not necessarily higher under a fixed rate regime, see Bacchetta and Wincoop (1998).
[9] Other research reporting similar results are discussed in their study.
[10] Following Deveraux and Lane (2003), we measure exchange rate volatility by calculating the standard deviation of the first difference of the natural log of the monthly exchange rate.

relationship is generally more stable than the trade weighted foreign currency index-U.S. dollar relationship, the former becomes significantly more volatile relative to the latter in the post-CUSTA period. Taking the pre- and post-CUSTA averages, the average value of the relative exchange rate volatility index increases by (a statistically significant) 42 percent.

Figure 7 reports an index of the value of the U.S. dollar relative to the Canadian dollar and also relative to other major currencies. It shows that the Canadian dollar has experienced two periods of pronounced depreciation in the post-1973 period along with an appreciation over the period 1987 to approximately 1992.[11] Relative to an index of major currencies (including the Canadian dollar), the Canadian dollar appreciated relative to foreign currencies over the period 1973-1987 and depreciated against those currencies over the period 1992-2002.

It is well known that with incomplete pass-through of exchange rate changes to domestic prices, real exchange rates will diverge from nominal exchange rates and relative prices (expressed in a common currency) will change within a trading region, other things constant.[12] However, it would not seem that patterns of appreciation and depreciation of the Canadian dollar are closely linked to observed patterns of bilateral trade and FDI flows. For example, the consistent increasing relative importance of the U.S. to Canadian exporters over the entire period 1980-2001 is inconsistent with the appreciation of the Canadian dollar relative to the currencies of other major exporters to the U.S. over the period 1973-1987. Also, the very modest changes in the U.S. share of Canadian imports is seemingly inconsistent with the marked changes in the value of the U.S. dollar relative to other foreign currencies when measured against the Canadian dollar.[13] Changes in Canada's share of U.S. exports and imports also fail to show any obvious linkage to the exchange rate patterns exhibited in Figure 5.

---

[11] It should be noted that in Figure 5, higher values of the currency index show that more foreign currency units are required to purchase a U.S. dollar with the ratio scale indexed to a 1989 base year value of 100.

[12] A comprehensive review of the theory and available evidence on the pass-through of exchange rate changes and related phenomena is provided in Goldberg and Knetter (1997).

[13] This observation is implicit in the convergence and divergence of the two functions exhibited in Figure 5. Convergence of the functions shows that buyers can purchase more equivalent amounts of U.S. dollars and other foreign currencies per Canadian dollar with the converse interpretation for periods when the functions are diverging.

In summary, the bilateral exchange rate relationship does not appear to offer a comprehensive explanation of patterns of regional economic integration pre- and post-CUSTA, although the volatility of the exchange rate relationship may well be an important factor blunting the forces of regional economic integration. Policymakers calling for closer bilateral economic integration might be well advised to reconsider the adverse role being played by the fluctuating exchange rate regime in North America. At the same time, corporate strategists should be cautious in building diversification and competitive strategies around the hard view that regional economic integration is an immutable and dominant environmental feature.

References

Acharya, Ram, Prakash Sharma and Someshwar Rao (2003), "Canada-U.S. Trade and Foreign Direct Investment Patterns" in Richard G. Harris, ed., *North American Linkages: Opportunities and Challenges for Canada*, Calgary: University of Calgary Press, 13-88.

Bachetta, Philippe and Eric van Wincoop (1998), "Does Exchange Rate Stability Increase Trade and Capital Flows?", University of Lausanne, mimeo.

Buckley,Peter J., Jeremy Clegg, Nicholas Forsans and Kevin Reilly (2000), "Assessing NAFTA's Impact on the Strategies of Multinational Firms in Canada", Leeds: University of Leeds, mimeo.

Clausing, Kimberly (2001), "Trade Creation and Trade Diversion in the Canada-United States Free Trade Agreement", *Canadian Journal of Economics*

Cox, David and Richard Harris (1985), "Trade Liberalization and Industrial Organization: Some Estimates for Canada", *Journal of Political Economy*, 93, 115-45.

Deveraux, Michael and Philip Lane (2003), "Understanding Bilateral Exchange Rate Volatility", *Journal of International Economics*, 60, 109-132.

Devoretz, Don and Diane Coulombe (2002), "Labor Mobility Between Canada and the United States: Quo Vadis 2002?", Burnaby, B.C.: Simon Fraser University, mimeo.

Eden, Lorraine and Antoine Monteils (2000), "Regional Integration: NAFTA and the Reconfiguration of North American Industry" in John H. Dunning, ed., *Regions, Globalization and the Knowledge-Based Economy*, Oxford: Oxford University Press, 170-220.

Engel, Charles and John Rogers (1998), "Relative Price Volatility: What Role Does the Border Play?", Board of Governors of the Federal Reserve System, International Finance Discussion Paper 623, mimeo.

Frankel, Jeffrey and Andrew Rose (2002), "An Estimate of the Effect of Common Currencies on Trade and Income", *The Quarterly Journal of Economics*, 437-466.

Globerman, Steven (2000), "Trade Liberalization and the Migration of Skilled Professionals and Managers: The North American Experience", *World Economy*, 23 (7), 901-922.

Globerman, Steven and Daniel Shapiro (2003), "Governance Infrastructure and U.S. Foreign Direct Investment", *Journal of International Business Studies*, 34, 19-39.

Goldberg, Pinelopi K. and Michael K. Knetter (1997), "Goods Prices and Exchange Rates: What Have We Learned?", *Journal of Economic Literature*, XXXV (3), 1243-1272.

Gordon, Bernard, K. (2003), "A High-Risk Trade Policy", *Foreign Affairs*, July/August,

Head, Keith and John Ries (2003), "Free Trade and Canadian Economic Performance: Which Theories Does The Evidence Support?" in Richard G. Harris, ed., *North American Linkages: Opportunities and Challenges for Canada*, Calgary: University of Calgary Press, 181-206.

Helliwell, John F. (1998), *How Much Do National Borders Matter?*, Washington, D.C.: Brookings Institution Press.

Helliwell, John F.(2001), "Canada-Life Beyond the Looking Glass", *Journal of Economic Perspectives*, 15 (1), 107-124.

Hine, Robert C. (1994), “International Economic Integration” in David Greenaway and L. Alan Winters, eds., *Surveys in International Trade*, Oxford: Blackwell, 234-272.

Hufbauer, Gary C. (2001), “North American Convergence: An American Perspective”, Remarks at the Annual Policy Conference of the Canadian Association of Business Economists, Washington, D.C., 30 March.

Lee, James (2002), “Canada-Mexico Relations”, Report Prepared for the House of Commons Standing Committee on Foreign Affairs and International Trade, Ottawa: Parliamentary Research Branch, mimeo.

McCallum, John (1995), “National Borders Matter: Regional Trade Patterns in North America”, *American Economic Review*, 85 (3), 615-623.

Rugman, Alan (2000), *The End of Globalization*, London: Random House.

Schwanen, Daniel (1997), “Trading Up”, C.D. Howe Institutue Commentary no. 89, Toronto: C.D. Howe Institute, mimeo.

Trefler, Daniel (1999), “The Long and the Short of the Canada-U.S. Free Trade Agreement”, Industry Canada Research Publications Program, Paper Number 6, Ottawa: Industry Canada, mimeo.

Yan, Beiling (2002), “Purchasing Power Parity: A Canada/U.S. Exploration”, Statistics Canada, Microeconomic Analysis Division Research Paper 11Foo27MIE Number 2, mimeo.

Table 1
Canada's Share of U.S. Merchandise Exports and Imports
(Percent of Total)

	1980	1981-85	1986-90	1991-95	1996-2001
Exports	17	19	20	18	19
Imports	16	18	17	17	18

Source: US Department of Commerce, Bureau of Economic Analysis

Table 2
U.S. Share of Canada's Merchandise Exports and Imports
(Percent of Total)

	1980	1981-85	1986-90	1991-95	1996-2001
Exports	61	70	72	79	85
Imports	68	69	65	64	68

Source: International Monetary Fund, Direction of Trade Statistics, various issues

Table 3
Canada's Share of U.S. Inward and Outward FDI Stocks
(Percent of Total)

	1980 (Stock)	1986 (Stock)	1992 (Stock)	1996-2001 (Flow)
Inward	14	9	9	7
Outward	21	17	n.a.	10

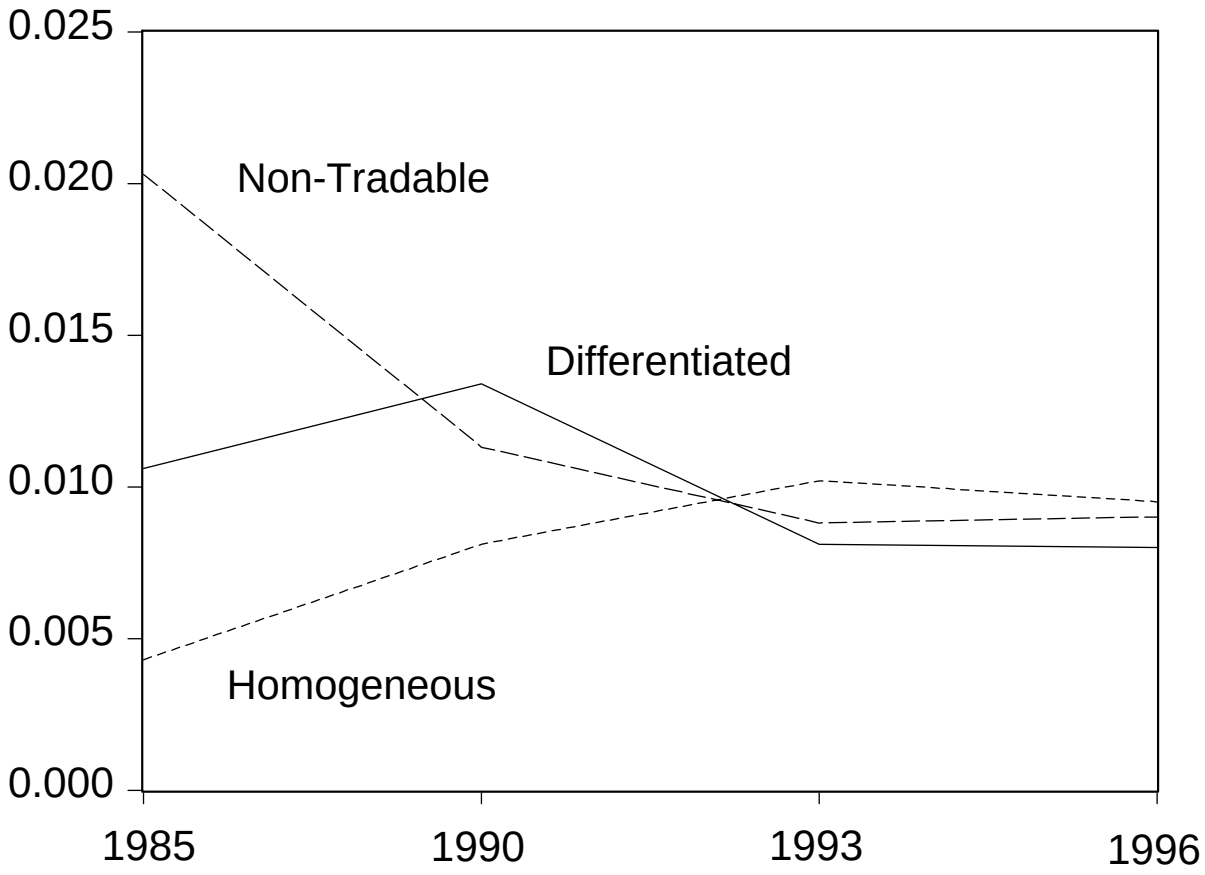
Source: Rugman and Gestrin (1994), Graham and Krugman (1995) and the US Department of Commerce, Bureau of Economic Analysis.

Table 4
U.S. Share of Canada's Inward and Outward FDI Stocks
(Percent of Total)

	1986	1990	1995	2001
Inward	72	64	67	67
Outward	69	61	52	51

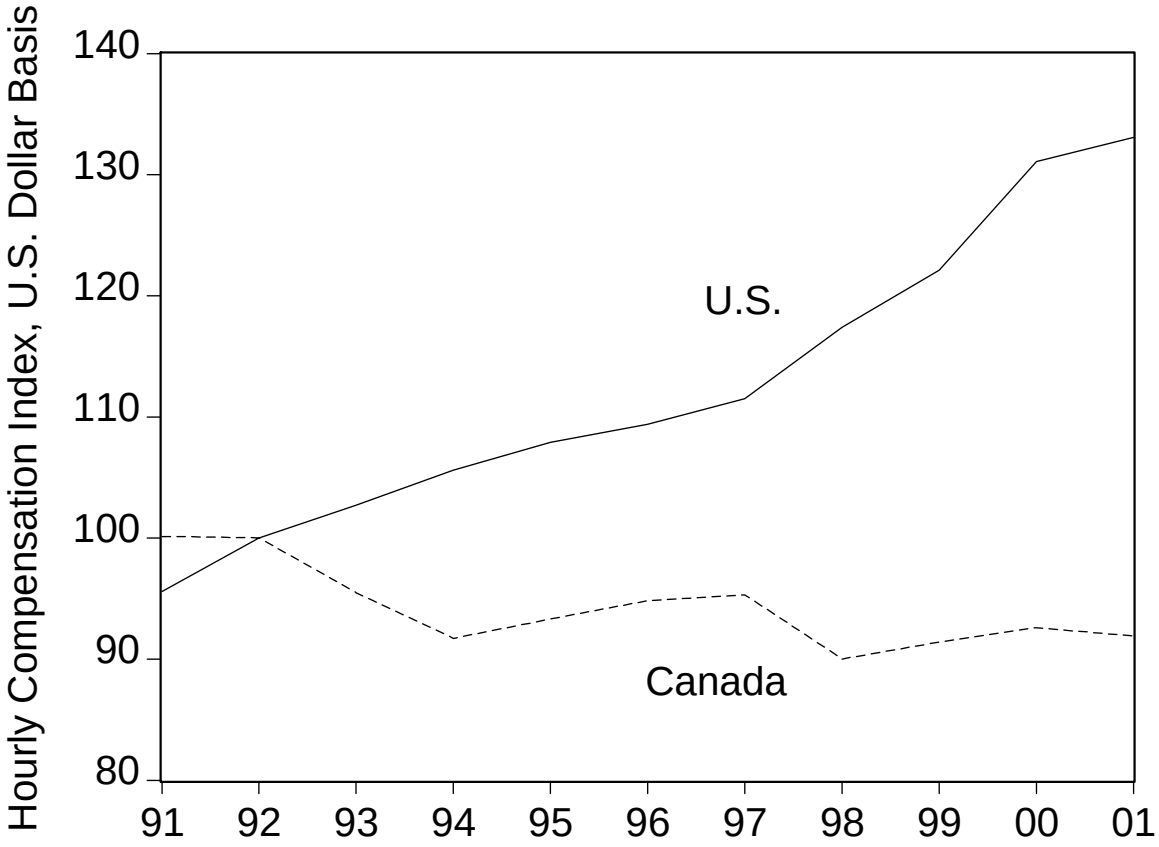
Source: Evans (2002) and Industry Canada (2001)

Figure 1: Variance of Canada-U.S. Deviations from PPP



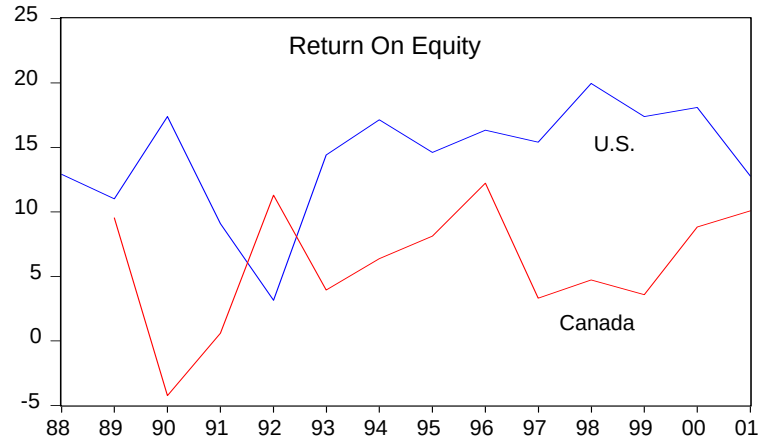
Source: Table 6 of Yan (2002)

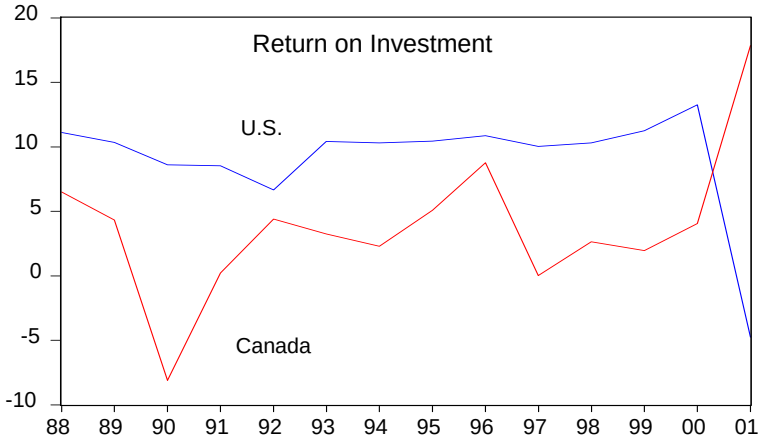
Figure 2: BLS Indexes of Hourly Manufacturing Compensation Costs
(U.S. dollar basis)



Sources: BLS web site, series INU0007US0, and INU0007CA0.

Figure 3: Returns on Equity and Investment





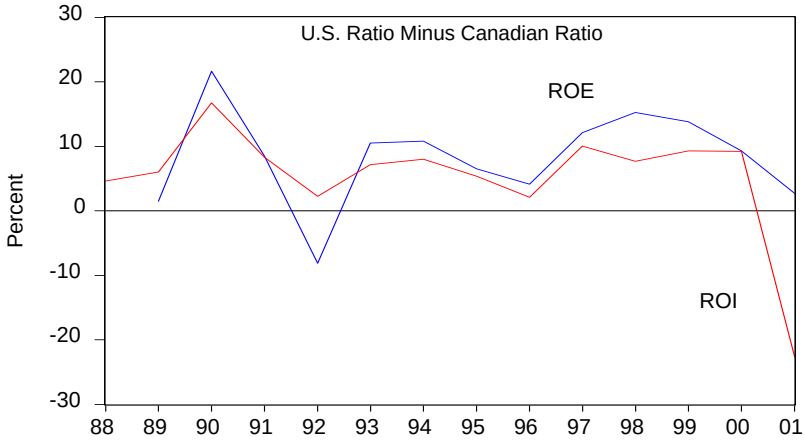
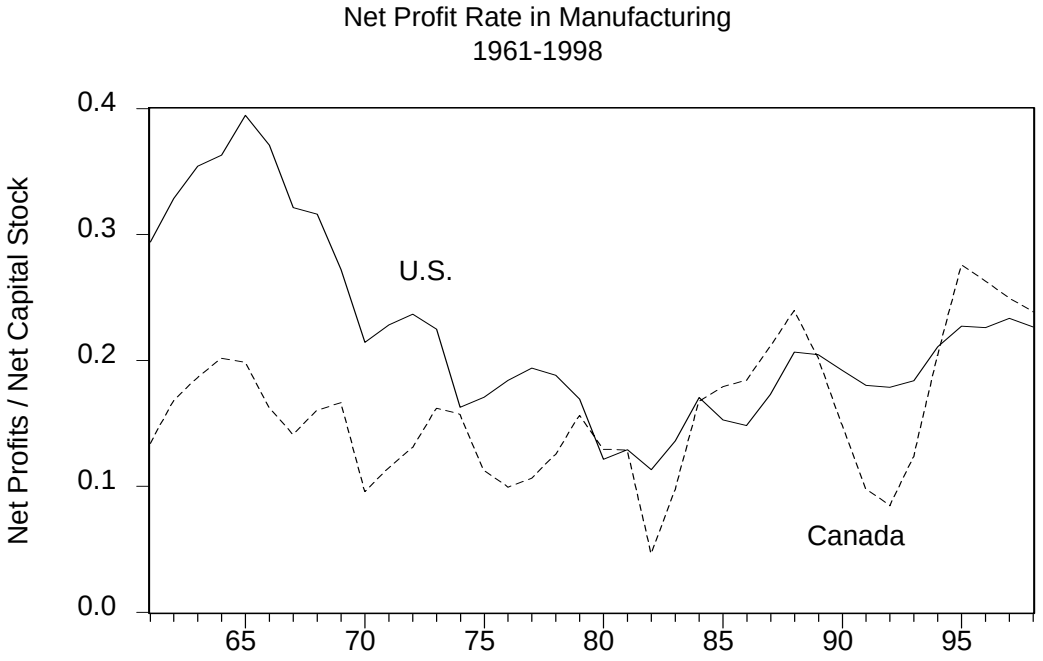


Figure 4: Manufacturing Net Profit Rates in Canada and the U.S.



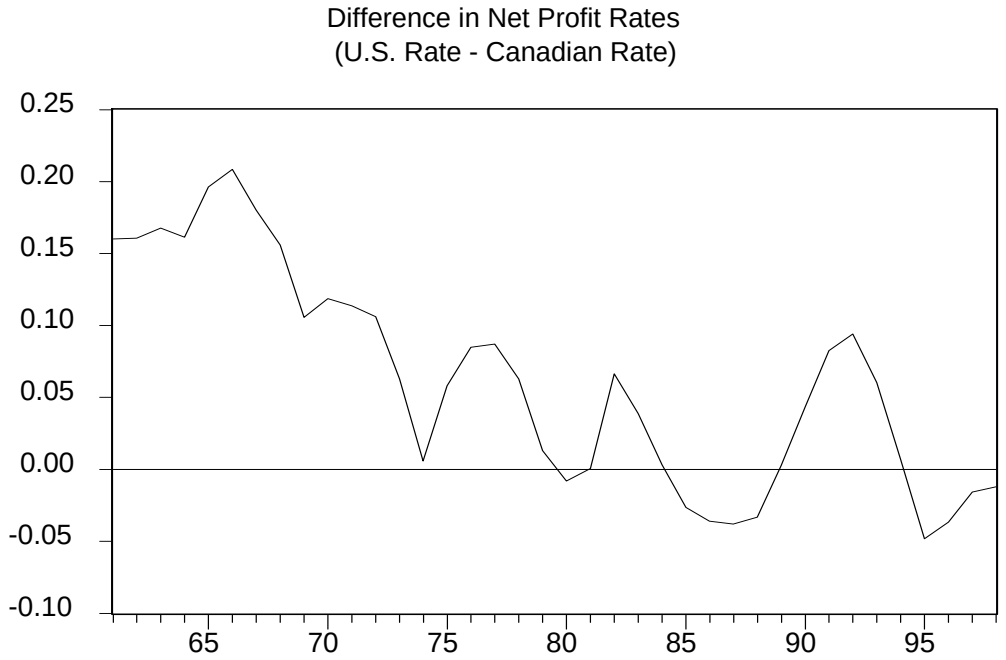


Figure 5: Volatility of the Canada-U.S. Exchange Rate

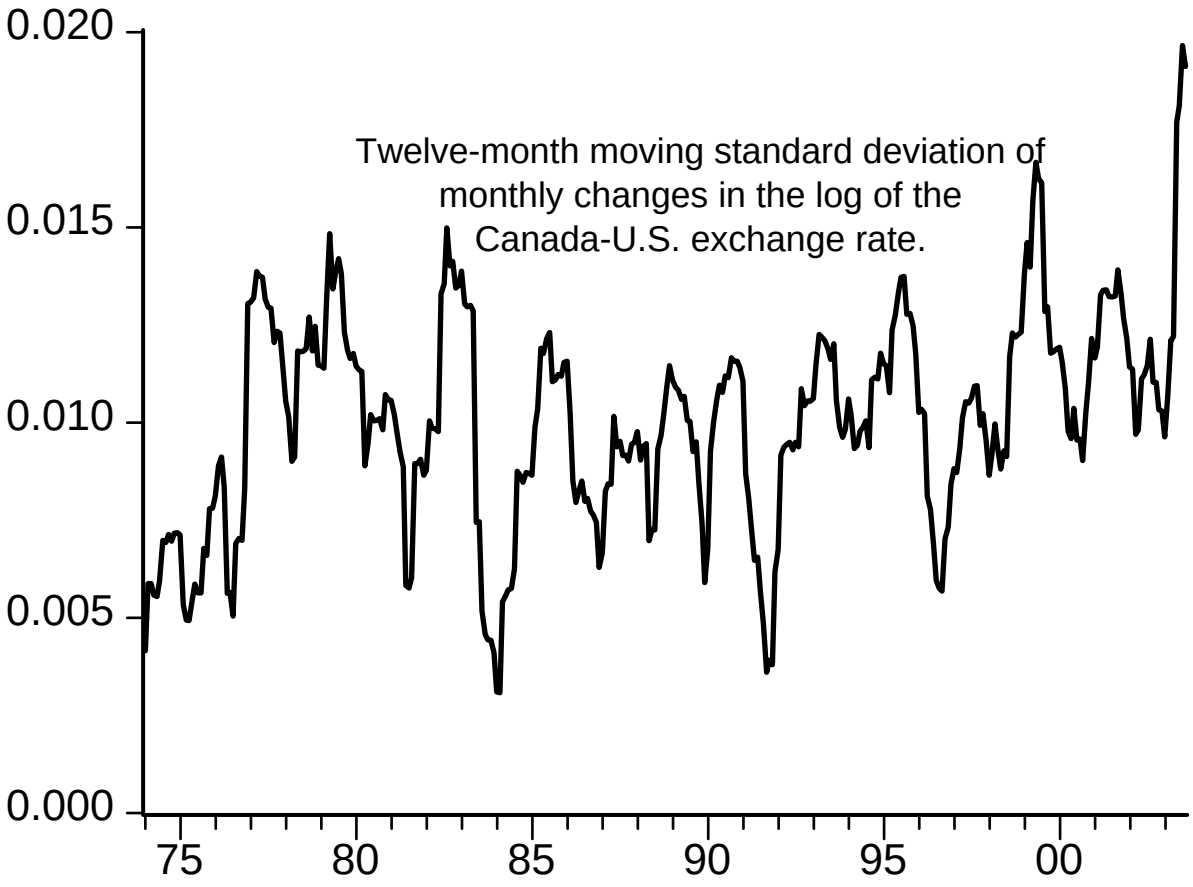


Figure 6: Relative Exchange Rate Volatility

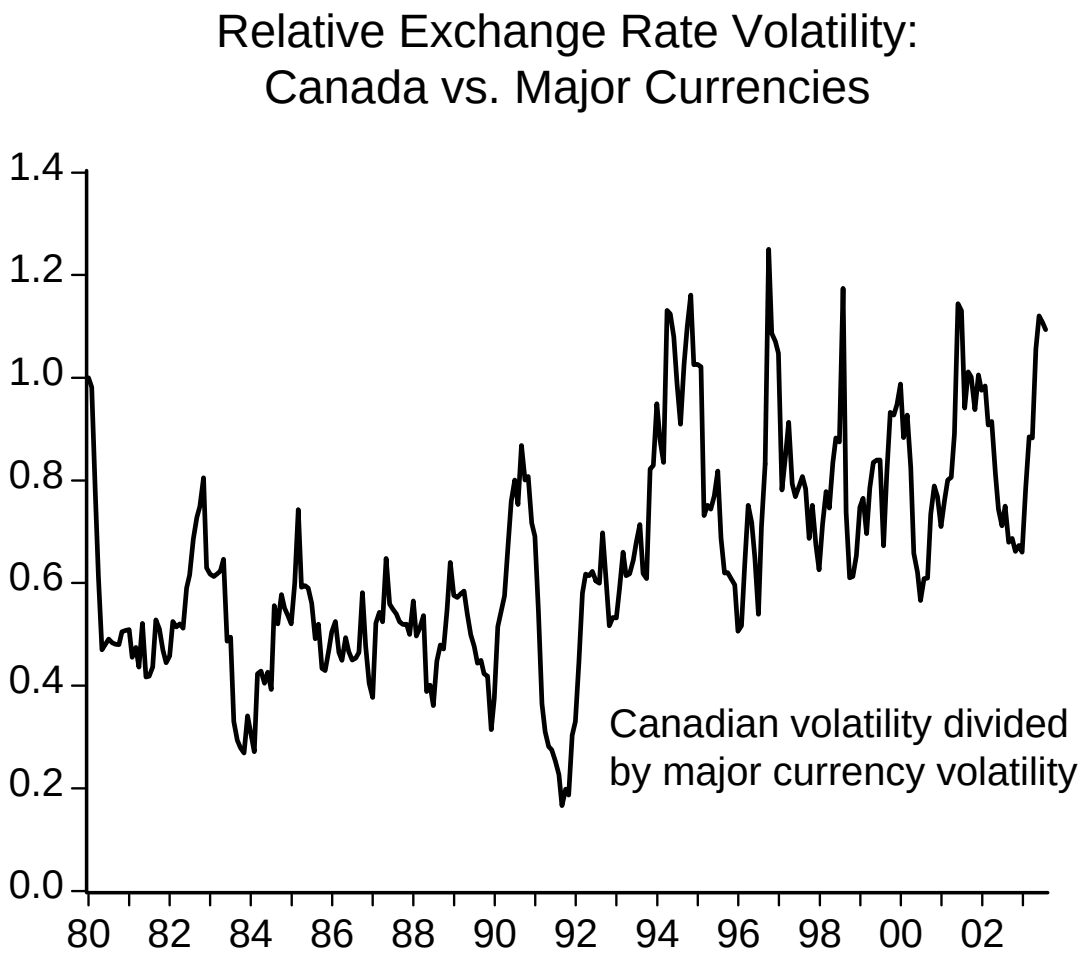


Figure 7: Behaviour of Exchange Rate Levels