Would a North American monetary union protect Canada and Mexico against the ravages of "Dutch disease"? A post-financial crisis perspective

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Forthcoming in: Gerald Epstein, Thomas Schlesinger, and Matías Vernengo, editors, *The Political Economy of Monetary Policy and Financial Regulation: Essays in Honor of Jane D'Arista*, Cheltenham, UK: Edward Elgar, 2014.

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INTRODUCTION

After the formation of the North American Free Trade Agreement (NAFTA) in 1994, enthusiasts of regional integration in North America turned their attention to "deeper" forms of integration, especially a customs union or monetary union.[1] Interest in proposals for deeper integration peaked around the turn of the new millennium, both north of the 49th parallel and south of the Rio Grande (Río Bravo). However, enthusiasm for deeper integration with the US has waned in both Canada and Mexico since the first decade of the twenty-first century for several reasons, including the post-9/11 US focus on national security, the failure of the US to adopt comprehensive immigration reform, the increase in drug-related violence along the US–Mexican border, and both Canada and Mexico's return to more bilateral approaches to their relations with the US. Also, the Eurozone crisis that broke out in 2010 provided a warning for smaller countries that adopting a single currency as part of a larger monetary union may not be a guarantee of economic stability or sustained prosperity. Nevertheless, proposals for further integration remain "in the air" and could easily be revived by future North American governments when the political climate changes.

One important trend that could potentially revive interest in a monetary union is the sharp rise in oil and other raw materials prices since the first decade of the twenty-first century. For both Canada and Mexico, this has meant large influxes of foreign exchange from energy exports (and, in Canada, other primary commodity exports); in Mexico, increased foreign exchange earnings from oil exports have been augmented by record levels of remittances from Mexican migrants working in the US. In both countries, the rising inflows of foreign exchange have contributed to high values of the national currencies that have inhibited the competitiveness of

their manufacturing sectors—the very industries that earlier policy initiatives, including NAFTA, were intended to promote. In this context, some economists in Canada (and to a lesser extent in Mexico) have been arguing since the mid 2000s that their countries are suffering from "Dutch disease"—a term coined in the 1970s to describe the experience of the Netherlands during the 1960s when the discovery of North Sea gas pushed up the exchange rate.[2] The high value of the Dutch guilder at the time rendered Holland's manufacturing sector less competitive and resulted in a certain degree of de-industrialization.

This chapter seeks to investigate, first, whether Canada and Mexico are indeed suffering from Dutch disease, and second, whether a North American Monetary Union (NAMU) is a viable solution—or whether this "cure" might be worse than the disease. On the first point, the data we review below will show that both the Canadian dollar and Mexican peso reached uncompetitively high values during the past decade (roughly 2001–11), and that these currency overvaluations were associated with declines (either relative or absolute) in manufacturing output and employment in each country. The surge in real oil prices to levels that exceed those of the late 1970s (see Figure 10.1) makes the Dutch disease hypothesis a plausible explanation for these phenomena. Although oil prices temporarily sank during the worst of the financial crisis in late 2008 and early 2009, they have since recovered to relatively high levels. Since both the Canadian and Mexican currencies began to appreciate prior to the latest upsurge in oil prices, it is likely that other factors, particularly monetary policies, were important causes of the rising values of the two currencies prior to the financial crisis and the ensuing Great Recession, but high oil prices could still be a contributing factor in explaining those countries' high exchange rates.

[**Figure 10.1 about here**]

Assuming that there is some truth to the Dutch disease diagnosis, the prescription of a NAMU has a fairly obvious logic: since the North American economy as a whole (which is dominated by the US) is not a major net exporter of oil, gas, and other primary commodities, a single North American currency would be unlikely to appreciate in response to a boom in energy and commodity prices. However, the potential gains for Canada and Mexico from eliminating exchange rate fluctuations driven by resource prices could be offset, depending on the exchange rate parities at which the Canadian dollar and Mexican peso would be converted to a new North American currency or (under some scenarios) to the US dollar, as well as the exchange rates that would then prevail between the North American currency and currencies in other global regions. Furthermore, creating a NAMU to combat Dutch disease would ignore an obvious alternative, which would be to adopt monetary and fiscal policies that would act to offset the pressure for exchange rate appreciation in response to a natural resource boom.

Also, based on the precedent of the European Economic and Monetary Union (EMU), the type of fiscal policies that the member countries would be allowed to pursue and the nature of the monetary policy that the regional central bank would follow are important determinants of how a monetary union would affect its member countries. Ironically, both Canada and Mexico currently (and independently) follow monetary and fiscal policies that are similar in spirit (if not in exact design) to those of the EMU: their monetary policies are focused mainly on controlling inflation,[3] while their fiscal policies are targeted on preventing large budget deficits or achieving surpluses (indeed, more successfully than some EMU members, such as Greece). How a NAMU would be regulated in this regard—what sort of monetary policy its central bank would follow, and what sorts of fiscal policies it would allow its member states—would therefore be a critical factor affecting whether the cure of monetary integration would be worse than the disease of an

overly strong currency.

Although enthusiasm for a NAMU has waned at present, the proposals for creating one have engendered a significant amount of analysis and discussion that have, at least, clarified some of the likely parameters if a NAMU is ever formed. Unlike in the EMU, where the countries are more similar in size, the extreme asymmetries in North America—where Canada and Mexico's gross domestic products (GDPs) are, respectively, only about 11 and 7 percent of US GDP[4]—seem likely to ensure a subordinate role for these two countries in the formulation of monetary policy in a NAMU. Many observers have argued that the US would be unlikely to want to create a new, euro-like North American currency, and hence the formation of a NAMU would mean that Canada and Mexico would have to adopt the US dollar. This could be done unilaterally by each country, in which case it would be called "dollarization," but it could also be accomplished by expanding the US Federal Reserve System (Fed) to include Canada and Mexico. More specifically, some have argued that Mexico and Canada would essentially have to become mere Fed districts, similar to the existing 12 Fed regions in the US—with at most one seat on the Federal Open Market Committee (FOMC) for each country.[5]

Even if a new North American currency and North American Central Bank (NACB) were created, the profound asymmetries in North America make it likely that US interests would still have a preponderant role in setting monetary policies (Smith 2002). Needless to say, the prospect of such a diminished role for Canadians and Mexicans in setting their own monetary policies has diminished support for a NAMU in their respective countries; in effect, a NAMU that was politically acceptable in the US might not be politically acceptable in the other two countries. Nevertheless, the idea of taking monetary policy even further out of the hands of national political leaders could still be appealing to business interests and free-market ideologists in

Canada and Mexico, not to mention politicians eager for a bold policy initiative, and therefore we proceed to analyze how a NAMU would or would not address the exchange rate and competitiveness problems of those two countries under today's circumstances.

CANADIAN PERSPECTIVES

Canadian interest in greater North American monetary integration since the 1990s seems to have followed the ebb and flow of the Canadian dollar vis-à-vis the US dollar. With the international value of the Canadian dollar hitting unprecedented lows and the proportion of trade with the US peaking under NAFTA during the late 1990s and early 2000s, a growing number of academics, pundits, and politicians in Canada began to propose greater monetary integration with the US.[6] Interest in this proposal reached its peak just after the launch of the euro in 1999 when, among other things, a motion proposed by Canada's political opposition to study the possibility of a currency union in North America, especially along the lines of the EMU, was entertained and defeated in the federal House of Commons. However, several alternatives to the current floating rate have been proposed, including the adoption of a fixed exchange rate, the abandonment of Canada's national currency (US dollarization), and the formation of a NAMU with a new single currency.

Historically, interest in greater monetary integration appears to have been strongest in those sectors of the Canadian economy that are most heavily involved in foreign trade. Firms in the foreign sector often view the Canadian dollar as a "nuisance cost" largely because their revenues are in US funds but their costs are in Canadian dollars. A rising value of the Canadian dollar puts a squeeze on firms engaged in the export sector. Hence, industries with a certain

degree of exchange rate exposure must engage in exchange rate risk-management strategies. Exchange rate hedging is commonplace, and companies can shield themselves over a short period by various currency options. These special administrative and transactions costs are faced only by business enterprises engaged in foreign trade, thereby making the latter more receptive to any proposal that would eliminate such costs.[7] Advocates of greater monetary integration have, therefore, traditionally emphasized the argument for the static efficiency gains from the reduction of transactions costs, relating not only to the elimination of exchange rate risk for business firms, but also to the elimination of the costs of converting currencies for the millions of Canadians who travel regularly to the US and Mexico for work or pleasure.

In addition to eliminating certain transaction costs, those partial to greater monetary integration have at times referred to at least one other important benefit of a NAMU that is often connected with the name of Robert Mundell, who argued that the regional configuration of a currency area is very important. Canada is characterized by a great diversity of industries across regions, such as manufacturing in Ontario (where growth depends on low energy costs) and oil in Alberta (where economic performance depends on high energy prices). A common external shock to these regions, such as a major jump in the international price of oil, naturally hurts Ontario manufacturers and benefits Alberta's oil producers. The existence of a floating exchange rate only compounds the negative effect on Ontario exporters, because Canada's exchange rate also faces upward pressure from the rising price of oil. In this case, Ontario manufacturing exporters would be better off with either a fixed exchange rate vis-à-vis the principal importer of Canada's exports—the US—or an outright monetary union. On the debatable assumption that Canada is not an optimal currency area (OCA) but, somehow, North America is, the abandonment of Canada's floating exchange rate in favor of greater monetary integration could

be viewed as beneficial to Canadian manufacturing exports.[8]

Interestingly, with a falling nominal and real exchange rate during the pre-2002 period, it was the former argument over the need to eliminate the above-mentioned transactions costs for Canadian consumers and the exchange rate risk to exporting firms (much as the euro had been sold to the Europeans—see Emerson et al. 1992) that held sway. However, from about 2002 until just before the financial crisis that erupted in 2008, with rising international energy prices accompanied by a meteoric rise in the Canadian dollar, it was the Mundellian argument relating to OCAs that became fashionable among those partial to greater monetary integration. In the Canadian media, this has been associated with the debate over whether Canada has been afflicted by the Dutch disease. As a result, some have pointed to the floating Canadian dollar as the cause of a similar growing distress in Canada's manufacturing sector (see Rajasekaran 2008). Since this controversy over the role of Canada's exchange rate hinges on whether or not the Canadian dollar has become strongly sensitive to fluctuations in international oil prices, let us first discuss briefly the debate over the growing importance of energy in the determination of Canada's exchange rate.

Is the Canadian Dollar a Commodity Currency or a Petro-Currency?

As displayed in Figure 10.2, the Canadian dollar was roughly at par with the US dollar in nominal terms at the end of the Bretton Woods era. Starting in the mid 1970s, the Canadian dollar went through two successive waves of depreciation until it hit bottom at the beginning of 2002. The first wave was associated with the oil price shocks of the 1970s followed by the major recession of the early 1980s. As the only one of the G-7 industrialized nations that is a major net

exporter of primary products (with primary commodities constituting somewhat less than one-third of Canada's overall merchandise exports), Canada was hit badly not only by the oil price hikes that caused havoc in its industrial heartland, but also by the subsequent slump in primary commodity prices internationally, as industrial economies faced slower growth and descended into recession.

[**Figure 10.2 about here**]

The situation reversed during the late 1980s, when the Bank of Canada tightened its monetary policy, thereby raising interest rates and the value of the Canadian dollar. However, following the 1990–91 recession and a loosening of monetary policy, the Canadian dollar once again resumed its downward trend. The low primary commodity prices of the 1990s coupled with strong US economic growth during the Clinton era also contributed to a soaring US dollar vis-à-vis the anemic Canadian dollar, and the latter hit bottom only after the US economy slipped into recession, particularly in the winter of 2001–02. The initial recovery of the Canadian dollar in 2002–03 preceded the subsequent run-up in world oil prices, which began in the second half of 2004 (see Figure 10.1), and hence must be attributed to other factors (especially, low interest rates in the US that were not matched by Canadian interest rate cuts in 2002–03). The rapid increase in oil prices between late 2004 and early 2008 may have contributed to the further appreciation of the Canadian dollar during that period. Nevertheless, it is worth noting that the Canadian dollar has not appreciated much more than the euro relative to the US dollar during the 2002–11 period as a whole (except for a significant jump in the former during 2010–11), even though Canada is an oil exporter and the EMU as a whole is not. This suggests that one should not exaggerate the impact of oil or commodity prices relative to other factors such as monetary policy and market expectations in driving Canada's floating exchange rate. This point has also

been made by Beine et al. (2009), who have argued that the Canada-US exchange rate has been affected more and more by factors affecting the denominator, namely the US dollar, thereby suggesting that some of the evidence in support of the Dutch disease may well be spurious.[9] For example, the Bank of Canada's failure to match the Fed's interest rate cuts in response to the US financial crisis in 2007–08, coupled with a loss of confidence in the US economy, also contributed to the Canadian dollar's surge at that time. Whatever the causes, by 2011 the Canadian dollar had returned to nominal parity with the US dollar and was near a record high value in real terms, after what proved to be a temporary decline immediately following the financial crisis in 2008–09.

The combined effects of interest rates and commodity prices are reflected in a well-established and often-cited econometric equation developed by researchers at the Bank of Canada to forecast the evolution of the Canada–US exchange rate (see Murray et al. 2003). According to the Bank of Canada equation, the Canada–US exchange rate depends on three key market "fundamentals": a primary commodity price index (excluding energy), an energy price index (mainly oil, natural gas, and electricity), and a measure of the Canada–US short-term interest rate differential (the difference in the Canada–US 90-day commercial paper rates). Estimates of this equation have always shown that an increase in (non-energy) international commodity prices and an increase in Canadian short-term interest rates vis-à-vis US rates lead to an appreciation of the Canadian dollar, as expected. However, the results concerning the role of energy prices in influencing Canada's exchange rate have varied over time. In the original estimates based mainly on the experience of the pre-1990s era, an increase in world energy prices, after controlling for the other variables, was found to lead to depreciation in the international value of the Canadian dollar (Murray et al. 2003). Hence, during the period when

Canada had not yet become an important net exporter of energy, an increase in the international price of oil would have slowed down the world economy and would have reduced demand for Canadian exports, thereby putting downward pressure on Canada's exchange rate, as occurred during the late 1970s and early 1980s (Issa et al. 2006).

Since the 1990s, however, Canada has become a significant energy exporter in the context of the North American energy market, the development of which was first facilitated by the Canada–US Free Trade Agreement of 1989 and subsequently reinforced under NAFTA. Because of Canada's vast oil sands reserves (officially second only to Saudi Arabia's conventional reserves) and the new continental energy environment, when the price of oil goes up, this now pushes up the demand for Canadian dollars and therefore leads to an appreciation in the international value of Canada's currency—as is confirmed by estimates of the Bank of Canada exchange rate equation and other estimates in recent years (Bayoumi and Mühleisen 2006; Issa et al. 2006; Maier and DePratto 2008). Some have therefore suggested that, given the growing importance of energy exports, Canadian industry is now also ailing from Dutch disease—that is, a jump in the international price of oil puts upward pressure on the Canadian dollar and bleeds manufacturing exports. In light of this, it would seem that the continued, yet fluctuating, rise in Canada's "petrocurrency" accompanying the increasing price of oil in recent years spells continuing difficult times ahead for Canada's manufacturing sector. The Bank of Canada exchange rate equation suggests that looser monetary policy (a lowering of Canadian interest rates relative to US rates) could help to prevent this outcome, but such a policy response may be less possible since the financial crisis, when interest rates in both countries reached their lower bound.

The Dutch Disease in Canada

In the media, there are numerous examples that provide anecdotal evidence of serious problems faced by Canadian firms resulting from the high exchange rate. One striking example that made headlines over the past decade was the Canadian movie industry—"Hollywood North"—which grew rapidly under the protection of a low Canadian dollar but has now been seriously battered by its appreciation. However, the most strongly hit sector is manufacturing, which, in absolute terms, has seen significant net job losses since late 2002 and early 2003. Rising oil prices, the appreciating Canadian dollar and, in more recent years, a slump in the world economy, have negatively affected the manufacturing sector.

[**Figure 10.3 about here**]

As shown in Figure 10.3, despite the relatively high growth of the Canadian economy that, until 2007, had been spurred on by high consumer spending and rising commodity prices, the share of manufacturing employment in total Canadian employment declined sharply after a local peak in 2002–03. Figure 10.3 reveals that, over the last quarter-century, the manufacturing share of employment has not suffered such a dramatic decline since the deep recession of 1990–91. When looked at from the angle of real output, Figure 10.4 shows that the real output of the manufacturing sector peaked around 2000 after the high-tech crisis, and completely lost its previous momentum compared to the output of the Canadian business sector as a whole, which continued its upward climb, at least until the financial crisis and ensuing recession in 2008–09. After 2005, the output of the Canadian manufacturing sector fell significantly, mainly as a result of declining exports. Hence, while high oil prices favored western Canadian energy producers and led to a quadrupling of the share of oil exports in the value of total merchandise exports from

about 5 percent in 1996 to approximately 20 percent in 2011 (with a temporary decline only immediately following the financial crisis), this growth occurred largely at the expense of manufacturing exports, which have declined as a share of the value of total exports.[10]

[**Figure 10.4 about here**]

Thus, although there is growing evidence that Canada is experiencing some of the symptoms of Dutch disease, it is not clear to what extent the overvaluation of the Canadian dollar and the associated decline of the manufacturing sector should be attributed to oil prices versus other causes, particularly the strict inflation-targeting stance of monetary policy that has often held up Canadian interest rates relative to US rates. In terms of the evidence shown here, it appears that the decline in manufacturing employment did accelerate after 2004 when oil prices began to skyrocket (Figure 10.3), but manufacturing output began to stagnate earlier (Figure 10.4). Some researchers have raised questions as to whether the boom in the oil sector could turn out to be a terrible curse for the Canadian economy (Bergevin 2006), while others have questioned altogether the significance of the Dutch disease diagnosis (Macdonald 2007; Beine et al. 2009). According to Macdonald (2007), much of the decline in Canadian manufacturing between 2003 and 2007, just prior to the financial crisis, was due to the so-called "China syndrome" as major emerging nations, notably China, were integrated into the global economy. Indeed, with the Chinese yuan essentially pegged to the US dollar until 2005 (and then appreciating very slowly until after the financial crisis), the Canadian dollar prices of Chinese imports were falling throughout most of the decade after 2002, thus accelerating the decline of the manufacturing sector in Canada.

Nevertheless, if the oil and commodity boom is indeed turning out to be a curse, then policy makers will surely want to find remedies to this problem. Policies such as limiting wage

growth (to ensure that unit labor costs do not rise thereby further compounding the problem of declining competitiveness) or limiting public and private spending in an overheated economy (so as to curb inflationary pressures) have been proposed. But these measures are hardly more than what the Bank of Canada already does indirectly through its inflation-targeting monetary policy, which (as argued above) has tended merely to worsen the problem of an overvalued currency. A more interesting proposal, based on the Norwegian experience, is to constitute a separate petroleum fund financed by oil revenues upon which governments could rely so as to intervene and compensate sectors that are suffering as a result of the Dutch disease (Tremblay 2008). However, this could become a jurisdictional nightmare, not unlike the Canadian federal National Energy Policy of the early 1980s, because of the federal-provincial squabbling that would inevitably ensue.

An alternative and more straightforward solution to the problem of the ailing Canadian manufacturing sector would be to do away with the exchange rate—and the Canadian dollar—altogether. Needless to say, this is what would be preferred by all those partial to greater monetary integration (Courchene 2007, 2010; Grubel 2008). In principle, any one country in a currency union can be effectively insulated from Dutch disease, as long as the other member countries are not specialized in the same energy or commodity exports, and as long as the conversion to a single currency occurs at a competitive exchange rate. Could a monetary union therefore be the appropriate response to the alleged Dutch disease problem for Canada, or could it turn out to be worse than the disease itself? We shall discuss this question below, after we turn to an examination of these same issues in Mexico.

MEXICAN PERSPECTIVES

In Mexico, as in Canada, enthusiasm for a possible monetary union or dollarization policy has receded since it peaked around 2000. In the late 1990s, the initial success of NAFTA in stimulating trade and foreign direct investment (FDI) led some Mexican business interests to promote a monetary union as the next step in the country's regional integration.[11] At that point, memories of the 1994–95 "tequila" crisis were still fresh, and a monetary union was seen as a possible way of stabilizing the Mexican financial system and preventing another crisis. A monetary union was also seen as a means of ensuring price stability in a country where inflation had risen to a 35 percent annual rate in 1995 following the devaluation of the peso, and did not return to a single-digit rate until 2000 (when it was a still high 9.5 percent). Since the US dollar was strong at the time, inflation hawks were interested in linking Mexico's currency to a stronger one (or simply adopting the latter). Moreover, the launch of the euro in 1999 naturally led to interest in emulating Europe's monetary integration in Mexico as well as in Canada.

Some of the reasons why Mexicans subsequently lost interest in a NAMU are well known, and mostly (although not entirely) political.[12] After Mexican President Vicente Fox Quesada made it a priority of his administration (2000–06) to obtain better treatment of Mexican migrant workers in the US, he was effectively rebuffed by the George W. Bush administration, which (following the attacks of September 11, 2001) tightened security along the US–Mexican border and turned its attention to other foreign policy concerns such as the invasion of Iraq. In spite of the growing problem of millions of "illegal" or "undocumented" Mexican migrants living in the US, the US Congress never passed a comprehensive immigration reform bill, and instead in 2006 it passed a punitive law mandating tougher enforcement of border security and

the construction of a 700-mile border fence. As the US made it harder for Mexican people and goods to cross the border, but not for drug cartels to bring money and weapons back into Mexico from the US, most Mexicans were in no mood to pursue wider integration efforts with the US.[13] Furthermore, for anyone who thought that Mexico should simply abandon an independent monetary policy and link the peso rigidly to the US dollar (for example, by establishing a currency board or unilaterally dollarizing), the Argentine crisis of 2002 provided a sharp lesson that such a policy was no sure route to financial stability.[14]

Macroeconomic Stabilization and Slow Growth in Mexico

The economic incentives for Mexico to seek a monetary union have also diminished since 2000. Given Mexico's history of recurrent financial and currency crises from the 1970s to the 1990s, the attraction of a monetary union derived mainly from the promise of greater macroeconomic and financial stability, rather than from the more conventional efficiency gains contemplated in the concept of an OCA or the reduced "nuisance costs" that were formerly seen as most important in Canada. However, in the decade preceding the crisis of 2008–09, the Mexican government was able to achieve macroeconomic stabilization via other means, thereby lessening interest in a monetary union or dollarization.

In 2000, the Banco de México set a goal of making the country's inflation rate converge with US inflation (then about 3 percent annually).[15] In combination with fiscal restraint eventually formalized in a balanced budget requirement, this inflation-targeting monetary policy led to exactly the sort of macroeconomic stabilization that advocates of a monetary union had promised. Consumer price inflation fell to just below 4 percent in each year from 2005–07; this

was only slightly above the Canadian and US inflation rates, which were in the range of about 2 to 3 percent in those years (International Monetary Fund, 2011). Mexican inflation then ticked up to about 5 percent per year in 2008–09, before falling back to 4 percent in 2010. Although the Mexican economy suffered a mild recession in 2001, there was no repeat of a major financial crisis or currency collapse of the 1982–83 or 1994–95 variety. Of course, Mexico suffered greatly as a result of the Great Recession in 2008–09, but this crisis was external in origin, even if the impact was exacerbated by misguided policy responses as discussed below. In this environment of relative macro stability (at least, the absence of any domestically generated crises) and low inflation, the financial interests that might otherwise be supportive of creating a monetary union (or dollarizing) have had no immediate reason to do so.

Mexico's real exchange rate also stabilized to a remarkable degree during the past decade compared with previous years. As can be seen in Figure 10.5, the peso exhibited tremendous volatility from the mid 1970s to the 1990s, with repeated real appreciations and sharp crashes mirroring the boom-bust cycles in the Mexican economy. Since the early 2000s, however, the peso has fluctuated within much narrower bands than in the past, especially in bilateral terms with the US dollar (the wider fluctuations in the multilateral exchange rate are mainly due to the dollar's fluctuations with other global currencies). After the peso fell briefly during the worst of the 2008–09 crisis, as of mid 2011 the peso had recovered to a level where its real value was close to the pre-crisis peak levels of 1993–94, and above its value in the late 1990s when Mexico enjoyed a brief export-led, post-NAFTA boom (or the late 1980s, when the first boom in manufactured exports occurred following Mexico's initial trade liberalization). Thus, as of 2011 the Mexican exchange rate was again at a level that could be considered overvalued, and as a result Mexico's export-led growth model has faltered (see Gallagher et al. 2008; Ibarra 2008;

Blecker 2009).

[**Figure 10.5 about here**]

Indeed, Mexico's macroeconomic stabilization has been achieved at a considerable cost in terms of both slow short-run growth and limited progress toward long-term development goals. After Mexico recovered from the debt crisis and opened its economy in the late 1980s, its growth rate averaged only 2.7 percent per year (from 1987 to 2010); starting with the year when NAFTA went into effect, the average growth rate for 1994 to 2010 was merely 2.5 percent.[16] And, during the first decade of the twenty-first century when inflation-targeting monetary policies were adopted and the peso again became chronically overvalued, Mexico's growth shrank to a paltry average annual rate of 1.7 percent from 2001 to 2010. This was very disappointing performance, considering that Mexico's growth rate averaged 6.4 percent per year during the three decades from 1951 to 1980 (Urquidi 2003).[17] It also pales by comparison with the growth of the developing countries in south and east Asia (including China and India), which averaged roughly 8 percent per year during each of those periods, as well as the growth of the east Asian "four tigers" (South Korea, Taiwan, Hong Kong, and Singapore), which averaged nearly 6 percent over the whole period 1987–2010, 5 percent for 1994–2010, and 4 percent for 2001–10.[18] In per capita terms, Mexico has not gained any ground relative to the US since it joined NAFTA in 1994, and has not recovered the ground it lost after the debt crisis of the early 1980s.[19] The migration of millions of undocumented Mexican workers to the US over the past decade, under difficult and dangerous conditions, speaks volumes about the lack of job opportunities at decent wages in Mexico, where real wages have stagnated since 1994 and have fallen further behind US levels.[20]

In addition to their negative impact on long-term growth and development, Mexico's

supposedly stabilizing macroeconomic policies actually turned out to be destabilizing during the financial crisis and Great Recession of 2008–09. As noted earlier, this was the first time in the modern era that Mexico faced an economic crisis that was initiated mainly by external shocks, the origins of which could not be attributed to domestic macro policy failures (since Mexico did not have large budget deficits, high inflation rates, excessive international debt, or any of its other former maladies). Mexico was indeed hard hit by the combined effects of sharply fallen exports, dramatically decreased oil prices, and reduced migrant remittances, as well as the *sui generis* impact of the H1N1 flu epidemic in 2009. Nevertheless, Mexico's response to the crisis was crippled by the extremely rigid form of inflation targeting followed by the Banco de México (which kept raising interest rates throughout 2008, due to the slight up tick in inflation, while ignoring the likely impact of a severe US recession) combined with the balanced budget rule for fiscal policy (which led the government to adopt one of the smallest discretionary fiscal stimuli of any OECD member country, aside from highly indebted ones like Iceland and Greece that were forced to adopt severe austerity measures). As a result, Mexico had the largest decrease in GDP (-6.1 percent) of any country in Latin America in 2009, while GDP fell only by 2.6 percent in the US and 2.5 percent in Canada in the same year (IMF 2011).[21]

Paradoxically, then, Mexico has effectively accomplished some of both the promises and the pitfalls of an EMU-type monetary union, without actually joining one. Similar to the European countries that have joined the EMU, Mexico has achieved low inflation and price stability at the expense of inadequate job creation in its formal sector (there is relatively little open unemployment in Mexico, but a large number of workers are consigned to the informal sector at low incomes or else driven to emigrate), along with sluggish output growth, stagnant real earnings, and an overvalued currency. Mexico uses its monetary policy strictly to achieve

price stability—more like the European Central Bank (ECB) , and less like the US Fed or even the Bank of Canada, which demonstrated a relatively greater willingness to engage in countercyclical monetary policy during the financial crisis. Price stability (low inflation) has been accomplished at the cost of sacrificing long-term growth and exacerbating short-run cyclical responses to external shocks. Nevertheless, in the absence of a monetary union that would completely deprive it of an independent monetary policy, Mexico has the potential to change its policy framework, for example, by targeting a lower real value for the peso or using monetary policy to stimulate output and employment, if the political climate in the country should change.

Dutch Disease in Mexico?

Since a brief oil boom in the late 1970s—which ended abruptly in the debt crisis of 1982–86—Mexico has become increasingly specialized in manufactured exports, which reached a peak of about 85 percent of the total value of exports in the period 1998–2001.[22] Nevertheless, Mexico remains a significant oil exporter, and the importance of oil exports has revived along with the high prices of the past several years. The Dutch disease concept is therefore possibly relevant to Mexico, especially if it is widened to incorporate other sources of sudden windfalls of foreign exchange inflows that Mexico has experienced, such as the "hot money" financial inflows of the early 1990s and more recently, at least until the Great Recession, the upsurge in remittances from migrant workers in the US.

The same Bank of Canada research team that developed an econometric equation for Canada's real exchange rate also developed a parallel one for Mexico (see Murray et al. 2003).

Primary commodity prices other than oil are not included in the Mexican equation, since Mexico is not a major exporter of other primary products. With data estimated through the late 1990s, the equation shows unambiguous evidence for a positive, long-run effect of oil prices on the real value of the peso. Presumably, the rise in oil prices since 2000 and the continued strength of the peso most of the time since then (along with the fall in both oil prices and the peso in 2008–09) would confirm the same positive relationship, if the data set were extended to include more recent years. Murray et al. (2003) did not include worker remittances in their exchange rate equation for Mexico, but because those have since become more important, one may surmise that inflows of foreign currencies (mostly US dollars) from migrant workers would have analogous effects to inflows of oil export revenue. However, Murray et al. (2003) found that interest rate differentials also affect the Mexican–US exchange rate, as they do the Canadian–US rate. Thus, monetary policy and oil prices both affect the value of the peso.

As noted above, prior to the 2008 crisis, the peso leveled off at a real exchange rate that inhibited Mexico's success in export-led growth focused on manufacturing.[23] As a result of the once-again overvalued peso, Mexico's non-oil export revenue grew more slowly and its FDI inflows stagnated in the early 2000s (Blecker and Esquivel 2010). Moreover, manufacturing employment—which Mexico had hoped would grow strongly, following the creation of NAFTA—has stagnated, if not actually declined, in recent years. According to data from Mexico's quinquennial Economic Census (shown by the vertical bars in Figure 10.6), total payroll employment in Mexican manufacturing grew from 2.5 million in 1988 to 3.8 million in 1998, following the country's liberalization of trade and the enactment of NAFTA, but then declined to 3.3 million in 2008. More detailed data show that most of the increases in manufacturing employment in the 1990s occurred in the export-oriented "maquiladora" assembly

plants, but even maquiladora employment fell and then stagnated in 2000–06 (separate data for the maquiladora industries are not available after 2006). Comprehensive annual data, while only available since 2007, confirm that total Mexican manufacturing employment has stagnated: it fell sharply in the recession of 2009 and recovered only partially in 2010 and the first four months of 2011 (see Figure 10.6). The decline and stagnation in manufacturing employment during the past decade correspond precisely to the period when the peso became chronically overvalued, as shown in Figure 10.5.

[**Figure 10.6 about here**]

To corroborate the evidence from the (admittedly incomplete) employment data, measures of manufacturing output as a percentage of GDP (using the overlapping real GDP series with 1993 and 2003 base years) are shown in Figure 10.7. The manufacturing share of GDP increased significantly in the late 1980s and again in the late 1990s, following Mexico's trade liberalization and the adoption of NAFTA (note also that the peso was temporarily lower in each of these periods). However, after the peso became overvalued again in the 2000s, this share declined back to about its pre-NAFTA level by 2010–11, even after recovering from a bigger dip during the recession in 2009.

Much as for the Canadian dollar, it remains to be seen to what extent the real appreciation of the Mexican peso can be attributed to higher oil prices, as is required for a Dutch disease diagnosis. Most of the rise in the peso occurred between about 1999 and 2002 (see Figure 10.5), before the boom in oil prices, which really didn't take off until late 2004. In fact, the peso exhibits remarkable stability during the years of the recent jump in oil prices, although this could be due in part to Banco de México purchases of foreign exchange reserves that have prevented the peso from rising more.[24] Furthermore, the stagnation of manufacturing employment and the

decline in the manufacturing share of GDP both began several years before the biggest spikes in oil prices in 2007–08 and 2010–11. Thus, while Mexico exhibits some symptoms of the Dutch disease, the application of this diagnosis remains at best uncertain.

[**Figure 10.7 about here**]

WOULD A NAMU SOLVE THE DUTCH DISEASE PROBLEM FOR CANADA AND MEXICO?

It is of course true that creating a supranational North American currency comparable to the euro, such as the "amero" proposed by Grubel (1999)—or even the adoption of the US dollar by Canada and Mexico—would protect Canadian and Mexican industries from future increases in their countries' bilateral exchange rates with the US. However, adopting a single regional currency would not protect the industries of the member countries from future increases in the value of that currency relative to other national or regional currencies, such as the euro, British pound, and Japanese yen. For both Canada and Mexico, however, the US is by far their largest trading partner, so those fluctuations might not be as important for them as they would be for other countries that might want to link to the US dollar—as, for example, when Argentina adopted its fixed (1:1) peso–dollar exchange rate, in spite of having relatively little trade with the US.

In terms of avoiding Dutch disease, North America as a whole has a pattern of trade and migration flows that would probably dampen fluctuations in the value of a single regional currency related to energy prices and worker remittances.[25] If anything, the three NAFTA countries combined are probably net importers of energy products, since the US absorbs most of

Canada and Mexico's oil and gas exports but still buys about two-thirds of its imported oil from other countries.[26] Since so much of the three countries' energy trade is intra-regional, global "oil shocks" would probably have much less impact on the exchange rate of a North American single currency (amero or dollar) with other global currencies than it presently has on the exchange rates of the Canadian dollar and Mexican peso.

By the same token, however, fixing the Canadian and Mexican exchange rates permanently to the US dollar (or to a new currency) would prevent those rates from depreciating in the event of unfavorable "shocks," including future declines in oil prices, albeit for a different reason, as it has also been the major problem faced by Greece, Spain, and other southern European countries during the Eurozone crisis of 2010–11. Unless a compensating regional fiscal transfer mechanism was put in place (an unlikely prospect), Canada and Mexico would suffer more severe adjustment costs when hit by those sorts of shocks. This is especially true because the US is a large net importer of oil and other commodities from non-NAFTA countries, and hence would benefit from such a supply shock that was detrimental to Canada and Mexico—in which case, the dollar (or amero) might actually go up in value, just when the latter two countries would need it to go down. Adjustment would then require a severe deflation in prices and incomes within each of those countries to absorb future negative oil price shocks, with potentially devastating effects on their manufacturing sectors. Thus, the loss of this important instrument of adjustment would mean that any future adverse shocks would have greater negative repercussions on incomes domestically in Canada and Mexico (see Bougrine and Seccareccia 2004).[27]

A further problem would arise if a NAMU was formed during a period in which both Canada and Mexico's manufacturing sectors were already suffering from overvalued currencies

and depressed international demand. If the Canadian dollar and Mexican peso were converted to a North American currency (ameros or US dollars) at anything like the exchange rates of 2011, for example, this would merely lock-in a situation of currency overvaluation for Canada and Mexico. This would permanently institutionalize the negative effects of the overvaluation in both countries—or else it would require severe deflation to adjust to the fixed conversion rates, not unlike what happened when Britain pegged the pound to gold at an overvalued exchange rate after World War I, as famously described by Keynes (1925), or the "internal devaluation" (mostly via wage cuts) that southern European countries have had to face more recently.[28] Therefore, it would be a profound and tragic mistake to lock-in overvalued exchange rates in a NAMU in the name of preventing an epidemic of Dutch disease, especially of if there is some likelihood that this disease may turn out to be perhaps less important than other shocks to either of these two economies.

Fiscal and Monetary Policies under a NAMU

There is, however, a further problem concerning whether an EMU-type arrangement would be a positive improvement over the current status quo of independent floating exchange rates for Canada and Mexico. As pointed out elsewhere (see Seccareccia and Lequain 2006), the establishment of the euro has been a historic monetary experiment that, some have argued, for the first time in centuries has given birth to a monetary system that formally separates money from the individual nation-state. The policy system that underlies the two main pillars of the EMU—the Maastricht Treaty (1992) and the Amsterdam Stability and Growth Pact (1997)—was put in place specifically to secure this separation. This has meant a loss of the two principal

instruments of macroeconomic stabilization policy—monetary policy and, perhaps to a lesser, yet still very significant extent, discretionary fiscal policy—at the national level, even though the recent experience of Greece suggests that national governments can circumvent such restrictions until the financial markets catch up with them, with severe consequences on the servicing costs of their debt and their ability to refinance it over time.

According to the rules of the Treaty, fiscal policy is supposed to be severely constrained. Governments of EMU member states not only must fulfill the two fiscal requirements of keeping budget deficits within 3 percent of GDP and public debt-to-GDP ratios within a 60 percent of GDP ceiling, but also are required to target zero budget balances over the medium term. Supposedly, strong sanctions are imposed against those who do not meet these legal obligations, unless countries file cumbersome petitions for exceptions under the "severe recession" clause of the Treaty. Even before the Greek crisis in 2010, there had been some prominent short-term violations of the 3 percent rule. However, these were not always subject to the legally mandated penalties—which suggest that the legal framework for fiscal policy in the EMU is impractical and unrealistic, as the recent experience of many of the countries of southern Europe now confirms. Nevertheless, the Maastricht Treaty militates against the regular and accepted use of countercyclical fiscal policy, even if some countries follow its mandates more strictly than others. Indeed, as already noted by Seccareccia and Lequain (2006), until just prior to the Great Recession, the Maastricht Treaty and the Stability and Growth Pact actually forced discretionary fiscal policy to behave pro-cyclically.

With the relegating of activist fiscal policy exclusively to times of "severe" recession (as happened in 2008–09), the current 12 member states' control over the macroeconomy rests primarily on monetary policy conducted by the ECB—a supranational, independent institution

over which the European Parliament has no direct power. The only policy innovation that was permitted under the Maastricht Treaty, but never implemented until the Greek crisis in 2010, was the intervention of the ECB in providing support for governments facing acute liquidity needs via the purchase of previously issued national government securities in the secondary bond market. The ECB has now been forced into the uncomfortable role of indirectly influencing fiscal policy via the back door, as a political arbiter of fiscal decisions made by national governments. However this situation is not politically tenable in the long term (Auerback 2010–11). Hence, if such an EMU structure were to be parachuted into the North American context, more active fiscal policy would no longer be possible in any one NAMU member, except during periods of severe crisis, and, even then, would depend on the capacity of a national government to raise sufficient funds in the financial markets. At the same time, with a "one size fits all" monetary policy within the NAMU, the NACB (or expanded Fed) would not cater sufficiently to Canada's or Mexico's regional needs, since the latter countries would, as noted earlier, probably hold only one seat each on the governing board of a NACB or an expanded FOMC.[29]

However, North America is not Europe, and the likely predominance of the US in a NAMU would create some special opportunities and challenges for the two smaller partners. In terms of monetary policy, because of its dual mandate of seeking to achieve high employment and low inflation, the Fed has shown itself to be more willing to adopt countercyclical interest rate cuts during recessions than the ECB, which only targets price stability. Indeed, following the financial crisis, the Fed has pegged interest rates at historically low levels and introduced less conventional policy measures, such as quantitative easing which, although not particularly successful, got the Fed to intervene directly in the bond market so as to reshape somewhat the yield curve. Even though the Fed is strictly concerned with US business cycle conditions at

present, Canada and Mexico nevertheless benefit from the Fed's more flexible stance to the extent that their business cycles are positively correlated with US cycles.[30] If Mexico and Canada were to join a NAMU in which the central bank (NACB or expanded Fed) followed current Fed procedures, those countries would be subject to a less strict inflation-targeting monetary policy than they currently have today. Nevertheless, they would not give up inflation control, since the Fed—in spite of its lack of legally mandated inflation targets—effectively pursues a low inflation rate as part of its "dual mandate" to achieve both price stability and full employment.

It is unclear whether Canada and Mexico would have to agree to strict fiscal targets in a NAMU, similar to those that have been imposed on EMU members. On the one hand, the US is unlikely to want to tie its own hands by giving up the right to run large budget deficits or to have the Fed hold US government debt. Therefore, if Mexico and Canada were to be treated as co-equals with the US, they should not be subject to any fiscal restrictions as a condition of joining a NAMU or having a seat on the FOMC. On the other hand, insofar as Mexico and Canada might be treated as mere Fed districts, they could possibly be required to have balanced budgets or to meet certain arbitrary fiscal targets, more on the model of the US states, many of which cannot run budget deficits as the US federal government does. In this case, Canada and Mexico would face conditions similar to those of individual US states that would also be under financial market pressure to restrict deficit spending, much as is the case with national governments in the Eurozone. Hence, it is possible that an expanded North American Fed or NACB would not be allowed to hold Canadian or Mexican government debt, and that the Bank of Canada and Banco de México might similarly be prohibited from doing so (although the Banco de México does not currently hold any Mexican government debt anyway).

In some ways, Mexico would have an easy time adjusting to EMU-like fiscal restrictions

today, because the Mexican government already operates a fiscal policy that targets the fiscal balance itself, and which is therefore largely procyclical rather than countercyclical (see Moreno-Brid and Ros 2009: Ch. 8; Esquivel 2010). Furthermore, the procyclical bias of Mexican fiscal policy is amplified by the reliance of the government on the national oil company Pemex for a substantial part of its tax revenue (see Puyana 2006). But for this very reason, a monetary union could lock-in a type of fiscal policy that Mexico would otherwise retain the option of changing in the future (for example, if the country were to focus more on infrastructure investments aimed at promoting long-run development, and stop targeting the fiscal balance itself).

Indeed, one should not discount the possibility that, at some future time, some interests in Mexico might seek a NAMU as a means of locking in the current monetary and fiscal policy regime. After all, one of the chief arguments in favor of NAFTA in the early 1990s was precisely that it would lock-in Mexico's liberalizing reforms of the late 1980s, especially the opening to foreign trade and investment, by preventing future Mexican governments from abandoning the country's commitment to liberalized trade and investment policies (Lustig 1998). A similar case could be made by proponents of the current macro policies, in the not-too-distant future, that Mexico should similarly lock-in its commitments to price stability and a balanced government budget by joining a monetary union that would force it to maintain those commitments in perpetuity—especially if there appeared to be a realistic prospect of a future left-wing government that might seek to change those policy priorities—as noted previously by Bowles and Moreno-Brid (2008: 137).

Canada also would not encounter any significant political or institutional barriers in abiding by EMU-style fiscal rules under present conditions. In the Canadian context, with the exception of the immediate post-financial crisis period, successive governments since the mid

1990s have been committed not only to balanced budgets, but also to targeting budget surpluses so as to achieve a pre-established, long-term decline in the ratio of federal debt to GDP, to which it recommitted itself at the G20 Toronto summit in June 2010. As shown elsewhere, these persistent federal surpluses have been achieved at the cost of destabilizing private household finances, thereby leading to ever declining personal saving rates and rising household indebtedness (Seccareccia 2005). In much the same way, on the monetary front, Canada's central bank has already achieved the EMU's commitment to price stability via its official inflation targeting and, much like the federal government's commitment to "sound finance" and fiscal surpluses, the Bank of Canada has been officially targeting a 2 percent inflation rate over the last the last two decades (see Seccareccia and Lavoie, 2010).

Nevertheless, there is some evidence for countercyclical fiscal policy in Canada, in spite of the high average level of the budget surplus that the Canadian government had achieved until the Great Recession. According to Seccareccia and Lequain (2006), primary (cyclically adjusted) fiscal balances respond negatively to the unemployment rate in both Canada and the US, unlike in the EMU where the authors find a perversely positive response. Therefore, if a NAMU imposed any restrictions on Canada's fiscal autonomy, it could lessen the ability of the Canadian government to adopt countercyclical fiscal policies attuned to short-run conditions in the Canadian economy (and it would also prevent Canada from rethinking its current commitment to long-run, average budget surpluses).

CONCLUSIONS

Both Canada and Mexico experienced currency appreciations in the first decade of the twenty-

first century that stymied the growth of their manufacturing sectors and reduced manufacturing employment. Since oil prices have also risen rapidly in recent years, some observers (see Rajasekaran 2008, Courchene 2010, and Francis 2011 on the Canadian case) have leapt to the conclusion that these countries are suffering from Dutch disease, and that monetary integration with the US might be a solution. In the Mexican case, however, the currency appreciation largely preceded the rapid increase in oil prices (and there is some evidence of the central bank resisting further upward pressure on the peso by buying foreign exchange reserves), while in Canada the currency appreciation began earlier than the rise in oil prices and at most may have been aggravated by the latter. With the possible exception of the period immediately following the financial crisis, strict inflation-targeting monetary policies in both countries have led the monetary authorities to tolerate overvalued currencies to the detriment of real economic activity. Overall, currency overvaluation in these two countries seems to have resulted from a combination of monetary policy and commodity prices (and other sources of foreign exchange inflows, such as remittances), not commodity prices alone—and alternative monetary policies could have prevented some of the appreciation that has occurred (for example, by matching US interest rate cuts).

If, nonetheless, Canada and Mexico were to participate in a North American scheme for monetary integration, under any politically conceivable set of arrangements neither country would be likely to retain adequate instruments to implement national stabilization policies in response to foreign demand shocks or to pursue other, longer-run objectives (such as addressing Mexico's profound development needs). Even though a NAMU could prevent future outbreaks of Dutch disease, it could also lock-in potentially overvalued exchange rates of the Canadian dollar and Mexican peso, while also creating a deeper problem of disarming national authorities

from pursuing macroeconomic stabilization policies or long-term growth strategies. An example of this is the incapacity of European countries even before the euro crisis to address their problems of deindustrialization and mass unemployment through both macroeconomic and exchange rate policies. Despite Europe's problem of long-term unemployment, under the EMU's constraining framework no national government is able to pursue a rigorous pro-growth policy, and the Eurozone as a whole lacks the capacity to do this. Hence, greater monetary integration with the creation of currency blocs of either "peer groups" (as with the EMU) or "client states" (as with a NAMU) is not a viable solution to international currency problems, such as Dutch disease. What is needed is a more fundamental reform of the global payments system that would maintain intact the ability of national governments to pursue independent macroeconomic policies while still retaining their respective national currencies.[31] But such could only be achieved at a broader international level that the proliferation of regional currency blocs would preclude.

NOTES

*Earlier versions of this chapter were presented at the Congress of the Latin American Studies Association (LASA), Montreal, Quebec, Canada, September 2007, and "The Political Economy of Monetary Policy and Financial Regulation: A Conference in Honor of Jane D'Arista," Political Economy Research Institute (PERI), University of Massachusetts Amherst, Massachusetts, USA, May 2008. The authors would like to thank Ellen Meade, Juan Carlos Moreno-Brid, the LASA panelists, and the D'Arista conference participants for helpful comments on the earlier drafts. The usual caveats apply.

1. In theory, a group of countries should form a customs union—and a common market (with free mobility of labor as well as capital)—*before* forming a monetary union, as occurred in Europe (where the European Economic Community and its successor, the European Union, preceded the European Economic and Monetary Union). However, this has not stopped supporters of a monetary union in North America from proposing one before a customs union or common market could be formed in this continent.

2. In this chapter, “exchange rate” always refers to the value of the home country currency, unless otherwise stated.

3. Technically speaking, Canada and Mexico are considered to have “inflation-targeting” monetary policies, while the EMU has an apparently looser commitment to more vaguely defined “price stability,” but we believe that in practice the ECB has effectively focused on the inflation rate as the main (de facto) target of its monetary policies. For a critical analysis of the inflation-targeting regime in Canada, see Seccareccia and Lavoie (2010).

4. Data are for 2010 from International Monetary Fund (IMF, 2011).

5. Smith (2002: 386–87, 394 n31) cites Bergsten (1999: 6) as making this argument. Smith (2002: 390) also cites Drummond et al. (2001) as arguing that “dollarization is the only viable fixed exchange rate regime for Canada since a pegged rate is not sustainable and the US is not interested in a currency union.” See, as well, Seccareccia (2006), and Kenen and Meade (2007: Ch 5) for a discussion of proposals to construct an augmented Fed including Canada and Mexico.

6. See Smith (2002) for a balanced but largely sympathetic discussion of proposals for greater monetary integration in North America from that time period. See Grubel (1999) for a specific proposal involving the creation of a new currency, the “amero,” to be issued by a North American Central Bank. See also Kenen and Meade (2007: Ch. 5) for further discussion of Canadian support for North American monetary integration.

7. Estimates of the likely magnitude of Canadian savings in transactions costs from switching to a North American currency vary widely, but those savings are not likely to be large (and at most would be a one-time gain) that must be pitted against the cost of converting to a single currency. Grubel (1999: 9) provides some casual estimates in the range of 0.1 to 0.4 percent of GDP. See Seccareccia (2002, 2006) for a critical discussion of these estimates.

8. See Courchene (1999, 2007, and 2008) and Grubel (2008); see also Bayoumi and Eichengreen (1994), who argue to the contrary that North America is not an OCA. Indeed, as emphasized by McKinnon (2000), Mundell’s (1961) original insight was to show that OCAs ought to be smaller rather than larger. Both Mundell (1961) and Bayoumi and Eichengreen (1994) argue that, based on OCA criteria, North America should be divided north/south instead of east/west in terms of optimal currency zones. Hence, OCA criteria traditionally do not favor a large North American currency area as some current supporters of greater monetary integration have argued.

9. See Beine et al. (2009). From their respective troughs in January and February 2002 through the last full month available at the time of this writing (June 2011), the Canadian dollar and the euro appreciated by very similar amounts (49 and 50 percent, respectively, measured by differences in natural logarithms). Data are from US Board of Governors of the Federal Reserve System, statistical release H.10, Foreign Exchange Rates, downloaded July 4, 2011, from http://www.federalreserve.gov/datadownload/default.htm.

10. See Statistics Canada, CANSIM II series V173905, V173931, and V173932 (data for 2008 are the average for January–May).

11. For example, Kenen and Meade (2007: Ch. 5) cite the Mexican Bankers Association as voicing support for a single currency in North America in 1999. Bowles and Moreno-Brid (2008: 130–1) cite the Centro de Estudios Económicos del Sector Privado and the Mexican Council of Businessmen (the latter

of which is described as “the voice of the Mexican entrepreneurial elite”) as supporting dollarization in 1998–99.

12. See Ibarra and Moreno-Brid (2001) and Bowles and Moreno-Brid (2008) for critical perspectives on Mexican proposals for monetary integration or dollarization circa 1989–2000; the latter also provide a retrospective on why the idea subsequently lost support in Mexico.

13. Mexico, like Canada, formally participated in the Bush administration’s “Security and Prosperity Partnership” (SPP), since neither country could afford to say “no” to the US government. This initiative was then quietly dropped by President Barack Obama, who—while not keeping his campaign promise to renegotiate NAFTA—has shown no inclination to promote greater continental integration.

14. One could argue that Mexico is very different from Argentina and might be a more appropriate candidate for dollarization or fixing its currency to the US dollar, given the much greater commercial integration of Mexico with the US compared with Argentina. Nevertheless, the Argentine crisis effectively deflated the credibility of the fixed exchange rate cum currency board option for large Latin American nations.

15. According to Ramírez de la O (2004), the initial target date for this convergence was 2003—a date which he viewed as too ambitious, and which was not actually met. He argued presciently that this policy was likely to result in a real appreciation of the peso that would be detrimental to the country’s long-run growth.

16. Calculated from data in IMF (2011).

17. For various perspectives on the slow growth of the Mexican economy in recent years, see Ibarra (2008), Blecker (2009), Moreno-Brid and Ros (2009), Hanson (2010), and Kehoe and Ruhl (2010), among others.

18. According to IMF (2011), the average growth rates for the “developing Asia” region were 7.8, 7.9, and 8.5 percent, respectively, during each of the periods indicated, and for the “newly industrialized East Asian countries” (four tigers) they were 5.9, 4.9, and 4.2 percent, respectively.

19. In the most recent year (2009) for which data were available on a purchasing power parity basis at the time of this writing, Mexico’s real per capita GDP was 28 percent of the US level, the same as in 1994; this percentage had reached as high as 41 percent in 1982. Data from Heston et al. (2011).

20. See Hanson (2006) for evidence on the wage differentials and incentives that induce Mexicans to migrate to the US and estimates of the number of migrants.

21. Ros (2011) shows that Mexico and Canada suffered similar magnitudes of external shocks, yet Mexico’s performance was significantly worse during the crisis. See also Esquivel (2010) on the procyclical nature of Mexico’s monetary and fiscal policies and Blecker (2011) for further analysis of Mexico’s crisis response.

22. Data are from World Bank, *World Development Indicators*, www.worldbank.org.

23. Galindo and Ros (2008) found evidence that the Banco de México followed an asymmetrical monetary policy that was biased toward peso appreciation, in the sense that the Banco generally tightened credit when the peso was falling but did not loosen credit when the peso was rising. But see the next note

for possibly contrary evidence, which suggests that the Banco has attempted to limit the appreciation of the peso to some extent more recently.

24. Mexico's total foreign exchange reserves (excluding gold) nearly tripled from US$44.7 billion at year end 2001 to US$120.3 billion at year end 2010 (IMF 2011). One could question whether all of this reserve accumulation represented intentional currency market intervention, but the net impact must have been to hold the peso down somewhat in the face of pressures for it to rise even further than it actually did.

25. As already alluded to in note 8 above, Bayoumi and Eichengreen (1994) found that the effects of supply shocks vary not only between Canada, Mexico, and the US, but also across regions of each country, with resource-exporting regions in each country experiencing shocks that are more correlated on a north/south basis—that is to say, correlated with those of similar regions in the other countries than with other regions in their own country.

26. As of 2006, Canada and Mexico together accounted for 32 percent of US imports of crude oil (measured by quantity in barrels). See US Census Bureau (2007). This proportion did not change significantly over the next several years.

27. See also Murray et al. (2003), who emphasize the importance of the shock-absorbing role of the floating exchange rate in Canada, and who also note that Mexico's adherence to a fixed nominal exchange rate in the past contributed to its repeated economic crises.

28. Keynes (1925) attacked Winston Churchill's policy of returning Britain to the gold standard in 1925 and argued against the deflationary consequences of the British pound's return to its pre-war parity. One could also argue that Germany joined the EMU at an overvalued exchange rate for the deutschemark in the 1990s, following German reunification, with adverse consequences for the German economy (we are indebted to Ellen Meade for suggesting this point).

29. For a discussion of the problems faced by policy makers when trying to implement a "one shoe fits all" monetary policy in a non-optimal currency area, see Palley (2003).

30. This positive correlation has existed between Canada and the US for several decades, but is a relatively recent phenomenon for Mexico and the US, and may be diminishing for Canada and the US. Although Canada's business cycles have been strongly synchronized with those of the US in the past, this has changed over the last two decades. For example, Canada suffered a more severe "Made in Canada" recession in 1990–91 with only a milder counterpart in the US, while the latter went through a recession in 2001 when Canada experienced only slower growth but not an actual fall in output. To the extent that the US and Canada are now experiencing different shocks, of course, they represent less of a potential OCA than before. For Mexico, the correlation is strong and significant only since the formation of NAFTA and the end of the peso crisis (that is, since the late 1990s). See Chiquiar and Ramos-Francia (2004), Blecker (2009), Blecker and Esquivel (2010), Lederman (2005), and Mejía Reyes et al. (2006). Since both Canada and Mexico sell around 80 percent of their exports in the US market, however, any stabilization of the US economy is bound to help at least the export-oriented sectors of those two countries.

31. See D'Arista (1999, 2004) for suggestions along these lines.

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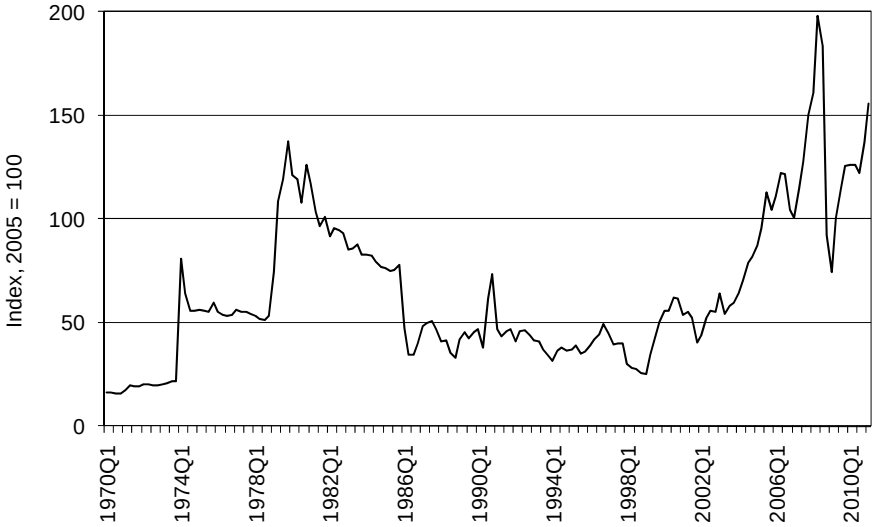
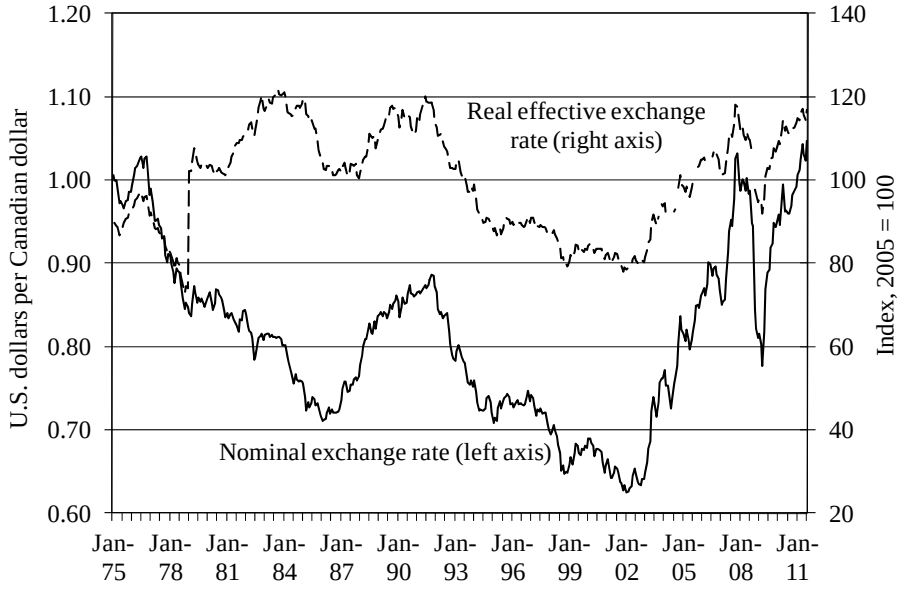


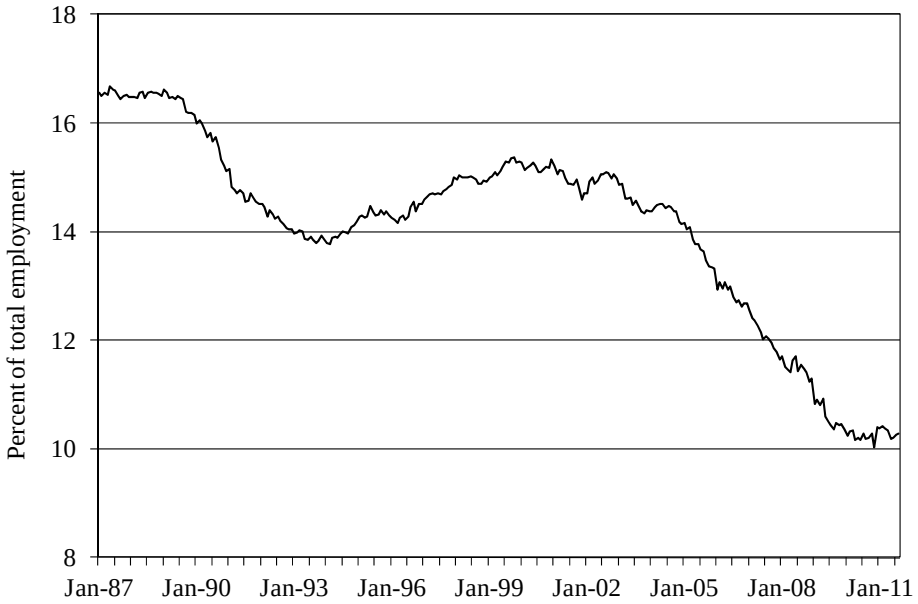
Note: This index of real oil prices was constructed by taking the ratio of the IMF's index of world petroleum prices (in US dollars) to the US producer price index for industrial commodities less fuels.
Sources: International Monetary Fund (IMF), *International Financial Statistics*; US Bureau of Labor Statistics, www.bls.gov; and author's calculations.

Figure 1 Real oil price index, quarterly, 1970 Q1 to 2011 Q1



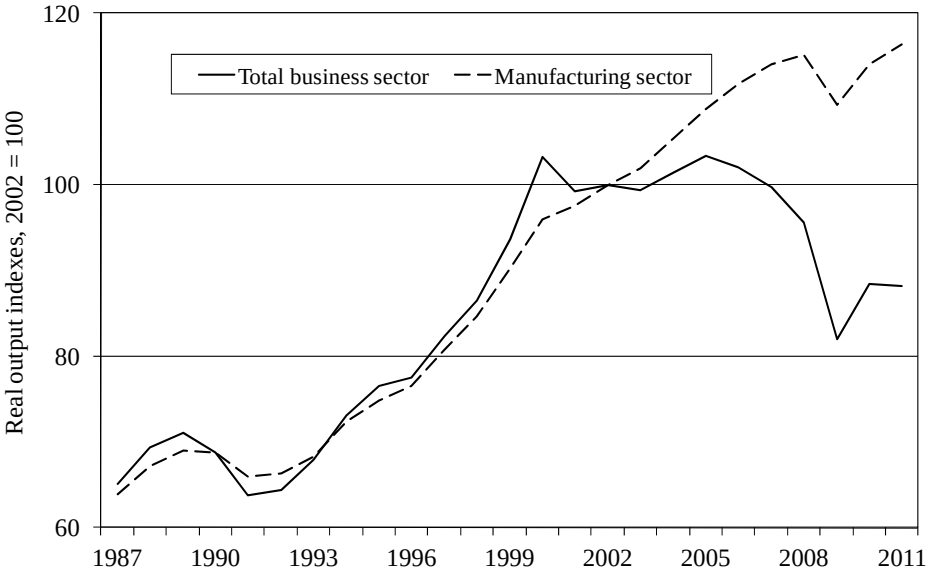
Note: The real effective exchange rate index is based on relative consumer prices and has missing values for a few months in 1975, 2003-6, and 2008.
Source: IMF, *International Financial Statistics.*

Figure 2 Canada's nominal and real exchange rates, monthly, January 1975 to July 2011



Source: Statistics Canada, CANSIM II Series V13682073 and V13682079, and authors' calculations.

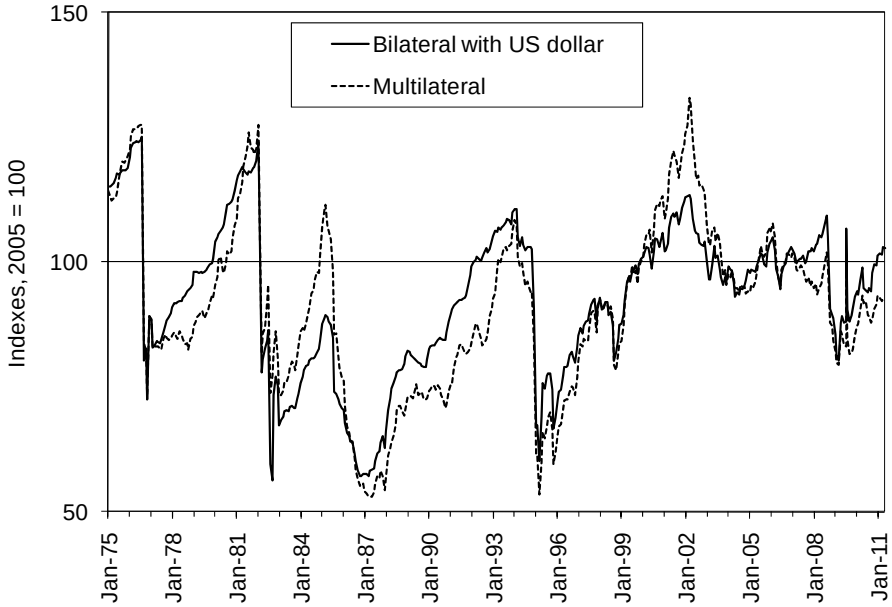
Figure 3 Manufacturing employment as a percentage of total employment in Canada, monthly, January 1987 to August 2011



Note: Data for 2008 are for the first quarter.

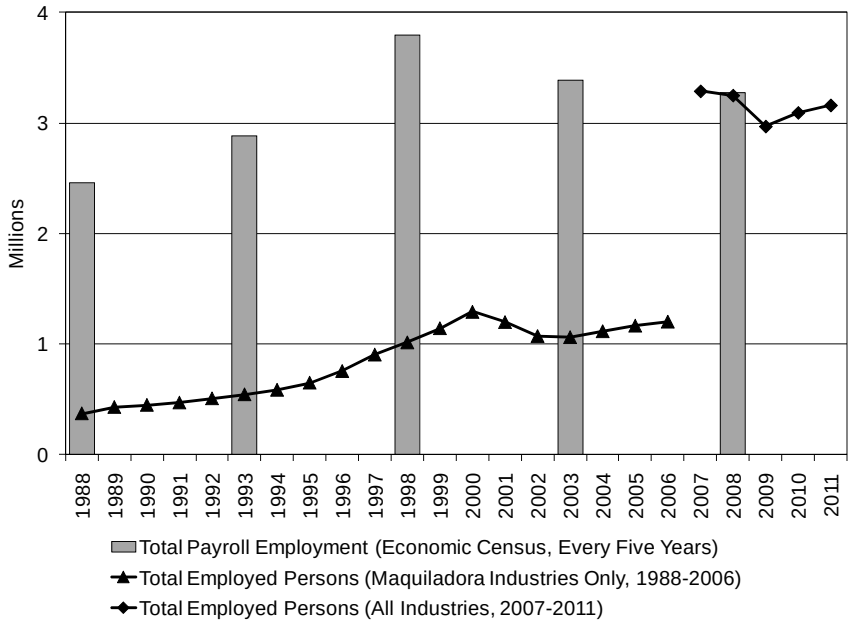
Source: Statistics Canada, CANSIM II Series V41707535, V41712932, V41881176, V41881185, and V41881886, and authors' calculations post-2007.

Figure 4 Real gross domestic product of total business and manufacturing sectors, Canada, annually, 1987-2011 (indexes, 2002 = 100)



Sources: Banco de México, www.banxico.gob.mx; IMF, *International Financial Statistics*; and authors' calculations. The multilateral series was only available through April 2011.

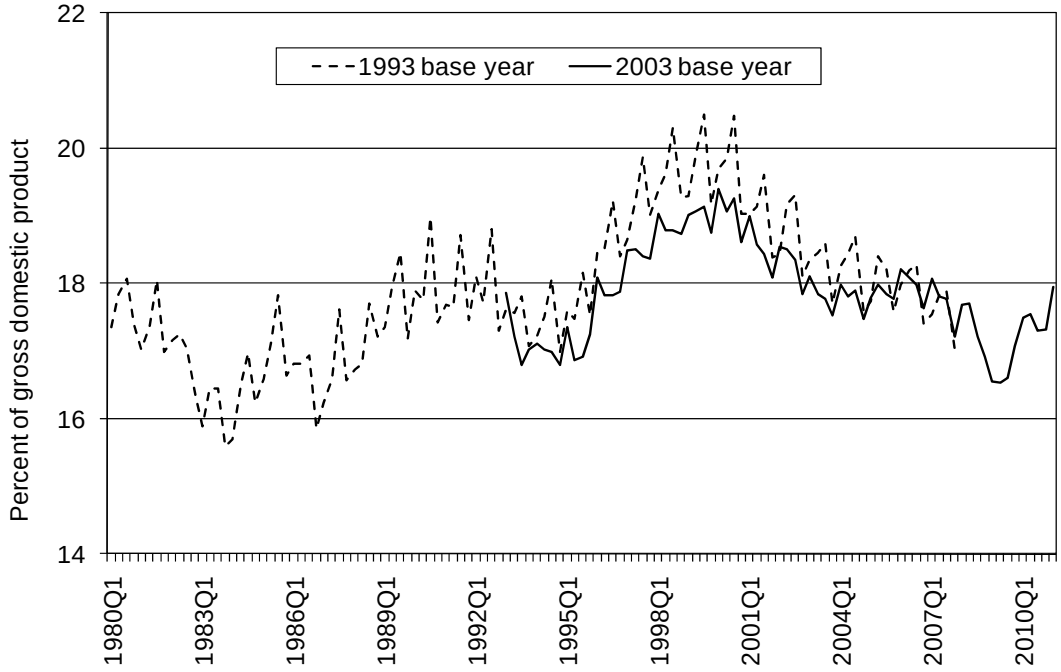
Figure 5 Real value of the Mexican peso, monthly indexes, January 1970 to May 2011



Notes: The Economic Census is conducted quinquennially. Separate data for maquiladora industries were discontinued after 2006; the new survey of total manufacturing employment began in 2007 (data for 2011 are for January-April only).

Source: Censos Económicos, Encuesta Mensual de la Industria Manufacturera, and Industria Maquiladora de Exportación, all from Instituto Nacional de Economía, Geografía e Informática (INEGI), www.inegi.gob.mx.

Figure 6 Alternative measures of employment in Mexican manufacturing, 1988–2011



Note: Based on real GDP data at constant base year prices. The 1993 base year data were discontinued after 2007 and the 2003 base year data begin in 1993. Data for 2009–2011 are preliminary.
Source: INEGI, Sistema de Cuentas Nacionales de México, www.inegi.gob.mx, and authors' calculations.

Figure 7 Manufacturing output as a percentage of gross domestic product in Mexico, quarterly, 1980 Q1 to 2011 Q1