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Globalization and Canada's Exchange Rate Options

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Mabel Timlin was one of the prominent Canadian economists of her generation and was responsible in part for bringing Keynesian economics to Canada. Keynesians of her generation did not typically concern themselves greatly with the exchange rate, but I am certain that would not be the case were she alive today. The current debate within Canada on the future of the Canadian dollar and Canada's monetary arrangements would certainly have attracted her interest. The discussion of exchange rates and monetary integration has been driven at the international level by two sets of events. First, The completion of the European Monetary Union with the emergence of the Euro as a major global currency. Second, the ongoing set of financial crises in emerging markets and the possibility of 'dollarization' in many of these countries. The Canadian debate has been impacted by both these sets of developments, but of course is different in a number of fundamental respects.¹ Broadly speaking the Canadian debate has proceeded along three distinct tracks. First, the political arguments against the loss of the monetary instrument and ceding monetary control to the United States. The loss of sovereignty argument I think is well known to most of you and the unique circumstances of Canada relative to the United States. The economic debate breaks down roughly along two lines. First, the **buffer shock argument** for exchange rates. This is an argument about the extent to which Canada's economic structure is sufficiently different than the United States such that for the purpose of economic stabilization against economic shocks it needs exchange rate adjustment as a means of accommodating those shocks at least cost in terms of reduced output or increases in unemployment. The second set of economic arguments revolve around the **degree of economic integration** between Canada and the United States, and the extent to which this integration has raised the benefits, or reduced the costs, or monetary integration. It is important to recognize that these arguments on the costs and benefits of exchange rate rigidity are not new and were well developed in what is known as the Optimal Currency Area literature pioneered by Canadian economist Robert Mundell. They were intensively applied and further developed in the run up to the emergence of the Euro. Flexible exchange rate regimes now exist in an ever shrinking set of countries which includes the US, the Euro zone as a whole, Australia,

¹ There are now a large number of papers that have been written on this issue. An

New Zealand, Japan, Britain, and a smattering of emerging market economies. Currently we are waiting to see whether Britain will or will not join the Euro zone, and in some respects the British debate parallels that within Canada.

I will not re-visit all of these arguments here. I want first to focus on one aspect of the cost-benefit analysis of rigidly fixing Canada's exchange rate against the U.S. dollar which is largely Canadian specific, and therefore somewhat different than the issues raised in the European cases. In the second part of the talk I want to address some specifics on the nature of how the two countries could manage a transition to such an arrangement in light of some of these and other problems unique to the Canadian situation in North America.

Canadian Economic Growth

In the last two decades economists have paid increasing attention to the determinants and processes of economic growth. Any chart of long term growth in GDP per capita will draw the observers attention to the relatively smooth trend rate of increase as opposed to those cyclical downturns associated with recessions. Questions as to why one country grows faster than another, or why in some case differences in income levels persist for very long periods has been the subject of intense study and debate amongst economists particularly over the last two decades. At the policy level in Canada we speak of this largely in terms of Canada's living standards relative to the United States. In particular Canada's "failure" to keep pace with US increases in living standards has become a topic of national preoccupation. The rough orders of magnitude are that in 1980 Canada's real GDP per capita stood at about 90 percent of US levels and has now fallen somewhat short of 80 percent of US levels. Estimates vary due to the way in which real output is calculated and corrections made to price level differences using Purchasing Power Parity corrections to market exchange rates.

excellent overview of pro and con positions is contained in the symposium published in the *North American Journal of Economics and Finance*, Vol. 11, No. 1 August 2000.

This development on relative living standards has fed importantly into perceptions about the role of exchange rate arrangements in Canada's overall economic performance. The decline in living standards within Canada during the 1990's relative to those in the US is largely attributed to a poorer productivity performance, as opposed to weaker performance in labour markets. That is growth in GDP per capita can be decomposed into two parts--growth in real output per hour worked, and growth in hours worked per person in the population. The latter is explained by changes in either hours worked per person employed, or by changes in the number of people working in the population. In Canada US comparisons the 1990's differences were largely about productivity differences. Canada's aggregate productivity performance relative to the US is depicted in chart 1. What explains this widening gap is the fact that after 1995 the US experienced a remarkable acceleration in the rate of productivity growth. From 1972 to 1995 output per hour in the U.S. Business sector grew at 1.27 percent. From 1995 through the end of 1999 it grew at 2.65 percent. The bulk of this acceleration is due to the remarkable growth of productivity in manufacturing. See chart 2. This was a "trend" which was heralded as the arrival of the New Economy and has persisted even throughout the recent near recession. It is worth noting that looking at US -Europe comparisons, real incomes in Europe fell even more dramatically, but much of that was due to relatively weak labour market performance. Some recent estimates put German real income levels for example at 67 percent of US levels, a gap much larger than the Canada-US gap. The new economy aspect of the debate is central to the larger issue. In looking at Canada versus the United States the other striking fact is the dramatic difference in the growth of the ICT sectors. Not only was productivity growth much higher in the United States than Canada within these sectors, but growth of these sectors was substantially greater as indicated in Chart 3. Not only did Canada have a weak productivity performance it did relatively badly at allocating resources to high growth sectors.

The fact that the Canadian dollar declined from the 85 cent range at the beginning of the 1990's, very close to its Purchasing Power Parity value by the way, to the current 62-63 cent level has led to a debate as to cause and effect. The conventional wisdom on the subject is that

the currency decline, measured in real terms, is 'explained' by the fall in Canada's relative productivity and the changes in our terms of trade. Our Central Bank in particular has been vigorous in its defense of the current exchange rate regime, and has argued that it does not bear any blame for the currency decline. By its argument the decline in the dollar is explained by the two real factors whose developments they argue are exogenous to the currency regime--the fall in non-energy commodity prices and the decline in productivity. Actually in most of its research the Bank puts more emphasis on the commodity price explanation, but when the productivity issues comes up denies the exchange rate may have had anything to do with it. I have taken issue with this view and will re-iterate some of these arguments here. The first question to ask is ' what determines productivity growth?'. In looking at the answer to that question I believe one comes to a conclusion about the exchange rate regime somewhat different than the orthodox view. In particular I think there is reverse causality at work running from exchange rates to productivity which is a new dynamic in the Canadian economy--at least new relative to much of our economic history. Moreover it is a dynamic which is not likely to go away and therefore demands our attention when looking at the currency issue.

When economists explain economic growth they resort to four sets of factors broadly speaking. These are institutions, factor endowments or factor accumulation, innovation, and a set of factors related to the way in which economies select losers and winners at the individual, firm, and sectoral level. In small open economies there are significant complications that have to do with the role of international trade, external competition, and international market conditions. In looking at Canada-US differences it is difficult to come up with a good explanation based on institutional differences. Our legal, political and educational systems are sufficiently close that they do not give rise to a convincing account as to the persistence of the productivity gap. On factor endowment grounds Canada has historically has had a good record on investment and in the skill and educational characteristics of its workforce. The 1990's productivity debate has led to identification of a set of factors which appear to be at least approximately suspect. We can see the body (the productivity gap), no one saw the bullet being fired, but the smoke is lingering.

These factors are as follows:

- the trend or secular decline in real commodity prices against an economist structure relatively heavily weighed in commodities--a fact that I am sure is obvious to most people in Saskatchewan even if it may not be apparent in Toronto;
- a very weak innovation performance as measured by indicators such as percent of value added devoted to R&D or patent applications relative to our competitors;
- a poor performance relative to the US in investment in Machinery and Equipment, and in particular over the latter part of the 90's in investment in information technology;
- a number of indicators which suggest Canada is not doing well at either weeding out the losers or of attracting the winners. In the case of the former Canada has a very weak small firm sector with unusually low productivity. In the case of attracting winners the most damning evidence is Canada's falling share of inward FDI to North America.

I want to be clear that there are many possible explanations for each of these productivity developments which go beyond the exchange rate issue. World trends in supply of commodities, tax policy differences, and globalization all exert an independent influence on productivity trends. Nevertheless I want to argue that the 1990's trend depreciation of the dollar made matters worse on each of these counts, and set up an unfortunate dynamic in which depreciation contributed to a weaker productivity performance which in turn contributed to a weaker currency. Currency depreciation became if not a 'dangerous obsession' with policy makers, a narcotic whose repeated application left the patient in vastly worse shape than it began. But before pursuing that metaphor further let's look at each of the productivity explanations in turn.

Commodity Prices and Resource Dependence

Commodities are still important to Canada but less so than in the past. In 1980 commodity exports accounted for 60 percent of total merchandise exports. By 2000 that number had fallen to 34 percent. If commodity prices fall a standard argument is that one can 'buffer' this shock by a temporary exchange rate depreciation. I emphasize the word temporary. There is no good theoretical reason that I am aware of that justifies a permanent exchange rate depreciation in the face of a permanent or trend decline in commodity prices. Let me elaborate. If the dollar fell throughout the 90's due to lower commodity prices, the net impact was twofold. First, the good effect, was to maintain at least initially output and employment in the resource intensive sectors. However even in the short run one wants to temper enthusiasm for this adjustment mechanism. In the face of a global slump demands for these goods becomes very price inelastic and currency depreciation when matched by one's international competitors is a negative sum game or a beggar-thy-neighbor policy. Let's suppose however that it works initially in that international exports do not fall as much as they would otherwise. But let us also assume that the initial fall in world commodity prices is not temporary but rather permanent and part of a long term secular trend. The economy as a consequence of the exchange rate depreciation has now committed more of its scarce resources to what is a declining sector measured in terms of real value added per worker.

I think the evidence is that for Canada this process went on during much of the 90's. Canada's traditional comparative advantage in commodity intensive exports may have actually been increased by the depreciation. The shift in our trade balances from 1989 to 1999 is depicted in Chart 4. As can be seen despite large increases in the volume of trade in all sectors, the pattern of trade has shifted towards even larger trade surplus in the traditional resource sectors. Within each of these sectors there is also an exchange rate sheltering effect--firms faced with a tougher external environment that would have been forced to upgrade its equipment and labour force were given the option of not having to do so given the currency depreciation. Moreover inefficient firms that might have exited had the exchange rate remained in the 75 cent range remained active producers. Both of these effects lower the productivity

growth rate of the sector as a whole, despite the fact that on a global basis they have a revealed comparative advantage relative to other sectors in the economy.

It is important to recognize what the efficient or growth maximizing resource reallocation would be in a world with fully adjusting prices in all goods and factor markets. A fall in the relative price of commodities externally would be matched by an adjustment in wages and other factor returns. Resources would have moved out of commodity production (permanently) and into other higher value added sectors. Of course these type of structural adjustments are never painless, but an exchange rate depreciation largely results in a postponement of the day of reckoning and lowers long run growth in the interim. Lastly there is a potential problem of HYSTERESIS in the industrial structure--the mere act of accommodating the fall in commodity prices may result in preventing resources from moving to higher productivity growth sectors in the economy who then subsequently never develop. This results in a perpetuation of the initial structure of comparative advantage, a lower national rate of economic growth, and in the long run a weaker currency.

Weak Innovation

Why does Canada do so poorly on R&D? Canada stands well below the other G7 (except for Italy) in terms of the relative amount of resources devoted to innovation, with a R&D/GDP ratio of 1.5%, as opposed to 2.0-2.8% for Germany, Japan and the US. Well part of the answer has just been alluded to. It is still doing too much Old Economy production which is not innovation intensive. Secondly, the exchange rate sheltering hypothesis may also have been at work here. Firms who have the choice of allocating scarce internal resources to current market expansion versus future oriented innovation were given strong incentives to concentrate on market expansion. Related evidence on the innovation gap hypothesis is the slow TFP growth of the two high-tech industries --Industrial Machinery and Electrical Equipment. Work by Industry Canada shows that in Canada these two sectors alone account for 90% of the total TFP growth gap between Canadian and U.S. manufacturing for the 1979-1995 period.

One thing I think we can all agree on is that the dollar depreciation helped export growth into the US market. This may have come at a cost in terms of foregone innovation however. This effect however should come to an end if and when the trend depreciation comes to an end, as firms will have to move back to a longer term view in which innovation matters more relative to building market share. Finally, the dollar depreciation undoubtedly added to Brain Drain of some of our best people. While perhaps not the dominant factor, it certainly made matters worse in the High Technology Sectors.

Investment in M&E

Canada's record on M&E during the 1990's relative to the US was poor. The spending share of nominal M&E investment relative to GDP averaged 11% below the US. From 1980 to 1996 Canada ranked fourth worst amongst the OECD in terms of its M&E spending relative to GDP. The main explanation is the **factor cost effect**. US priced capital goods, including high tech IT equipment, did not fall in relative price terms anywhere close to the same extent they did in the US. From the end of 1991 to the end of 1999 the Canadian ratio of equipment prices to hourly wages rose by 30 percent relative to the United States. Since approximately 80 percent of Canadian M&E is imported, and the bulk of that from the U.S. a substantial portion of this difference is directly attributable to the fall in the Canadian dollar over the same period. Consequently Canadian producers faced with relatively more expensive equipment purchases as the dollar depreciated either did not invest to the same extent, and in some cases substituted into cheaper labour. On both grounds productivity suffered. New technology is largely embodied in new capital, and therefore the investment that didn't happen contributed directly to lower Total Factor Product growth. The substitution toward labour from capital meant that capital deepening in Canada was not as extensive in Canada as the US and this lowered overall average labour productivity growth.

Winners, Losers and Darwinian Competition

There is now an extensive research which documents that somewhere between 40 to 60 percent of all productivity growth in very narrowly defined industries occurs as a result of the

reallocation of output growth from low productivity firms to high productivity firms. This is growth which is distinguished from that due to changes in best practice technology--what is usually referred to as technological change. The process of economic growth reflects both technological change and the extent to which an economy makes use of the opportunity technology offers. Economies in which this selection process occurs at a greater rate and with less cost will tend to grow faster than others. Sometimes referred to as Smithian (after Adam Smith) or more commonly Darwinian competition, it is an important attribute of the market system over highly regulated or government controlled resource allocation. In the case of winners the manner in which the system rewards success is important. But equally important is the discipline exercised against losers--creative destruction to use Schumpeter's phrase. The US has been particularly good in this category on both counts. Europe much less so, and Canada probably falls in between. The currency depreciation however put a distinct tilt on this process during the 90's. The sheltering effect already alluded to worked strongly in favor of keeping a lot of inefficient-low productivity enterprises alive. One of the predictions of free trade proponents, myself included, was that international competition would force rationalization of Canadian industry, as tariff walls came down. While this process did occur it did not to the extent predicted. The reason is simple. As tariffs came down import competing sectors were more than compensated with an increase in protection through a currency depreciation. There is telling evidence of this process in detailed work at Statistics Canada by John Baldwin and others on the poor performance of Canada's small firms for example.

The failure of creative destruction, as I refer to this process², had as its mirror image weaker growth in the winners. Resources were not reallocated to the high productivity firms. While export growth of large exporters has been impressive what really seems to be a problem is the missing middle. Medium size exporters did not grow as fast we might have expected. Part of the problem goes back to the factor cost effect. As the exchange rate depreciated the cost of new technology and highly skilled people was rising. Firms that might have grown faster did not. Canada's dot.com boom was not as large in proportionate terms as in the US and I suppose we should be grateful for that. Nevertheless it is symptomatic of the general Canadian problem of moving out of the Old and into the New. If the New Economy is here to stay this is a significant problem for Canadian wealth creation.

The 1990's Counterfactual Experiment

The above arguments suggest we do what economic historians refer to as an historical counterfactual. What would have happened to the Canadian economy, had the exchange rate remained fixed at say 80 cents throughout the 90's.? Of course this begs the question of how it would have been fixed. If it could only have been fixed by massive increases in interest rates this would have had another set of consequences. To make it simple let us simply assume Canada was part of the US monetary union with say interest rates at US levels plus 50 basis points. Standard economic reasoning also suggests Canada would have had about the same inflation rate as the US, slightly higher than the Canadian inflation rate over the same period. The appropriate way to do such an analysis is through the use of an appropriate general equilibrium model using the modern methods of quantitative modeling. Since this has not been done one can only speculate as to what the results would show. Common sense however

² This argument is elaborated upon in my paper "The New Economy and the Exchange Rate Regime" in *T. Courchene(ed.) Money, Markets and Mobility: Celebrating the Ideas of Robert A Mundell, Nobel Laureate in Economic Sciences* (Kingston and Montreal: John Deutsch Institute for the Study of Economic Policy and IRPP) (2002)

suggest that at least two broad results are likely to emerge. First, the resource regions-ex energy-would have had a more difficult time than they did particularly in the aftermath of the Asia crisis. However I do not believe it would have been a disaster. If one looks at comparable resource dependent regions in the US, for example BC versus Oregon or Saskatchewan versus the plain states, while growth slowed in those states it was not a disaster. Second, productivity growth in aggregate terms would have been higher than it was for the reasons discussed above. The New Economy would have taken a much firmer hold in Canada and the standard of living issue, while always with us, would not be as important as it is today. Generally the export boom that Canada experienced would have been more muted and import growth stronger. The longer run forces driving the integration of Canada and the US would continue to play out. In short I think the average Canadian province would have performed about like the average US state. At worst the income gap that prevailed in 1990 would have remained unchanged rather than having got much worse. The implication of that of course is that Canadian growth in per capita incomes would have mirrored that in the US and therefore have been much higher. My conclusion therefore is that one of the costs of having a flexible exchange rate relative to our major trading partner has been an unfortunate decade in which economic growth faltered.

Looking Forward

The 1990's are now behind us, so what does this analysis tell us about future exchange rate options. One could take the view that the set of shocks the Canadian and US economies were exposed to were unique, and that looking from 2002 forward there is no reason to believe that a floating exchange rate would exacerbate future productivity developments. After all the argument goes Canada is now well poised to catch-up with the US and hopefully to catch some of the second wave effects of the New Economy, as recent evidence suggests the productivity acceleration in the US remains intact. Does this suggest we can expect a significant period of Canadian dollar appreciation? First I think one needs to exercise a lot of caution in the interpretation of any short term data regarding productivity trends as we move through what may or may not have been a recession. Only time will tell. But in general I do not find the

'Canadian dollar optimists' arguments compelling and worry that what was observed in 90's may be repeated in the next economic cycle. I do not want to rule out that we may witness a period in which the Canadian dollar goes up, particularly if the world finds US assets to be less attractive. But even if capital flows out of US assets there is no necessary reason it will go into Canadian assets.

Under the current regime Canada has been being stuck with an Old Economy/Commodity brand name which is reinforced in international markets every time the Canadian dollar declines in response to weaker commodity prices. The risk is that this label becomes permanent and Canada is increasingly identified as a commodity exporter--somewhat similar to what has happened to both Australia and New Zealand. This has a number of effects. First, the currency itself becomes more closely tied to commodity price movements which are in a clear long term downward trend. Canadian living standards could still rise against this trend if wages were to rise significantly relative to prices, but this would imply some steady productivity gains while the currency was simultaneously depreciating!!! This is not a logical impossibility but one that strains credulity. Second, it must be recognized that factors of production are much more mobile now than they were a few decades ago. This applies not only to financial capital, but to people, technology, and other firm specific assets such as brands and know-how. We have growing evidence of this increase in mobility from a wide range of studies in taxation, FDI, technology transfer, Brain Drain and so forth. Outside of the resource sectors in Canada, in the long run you can view all resources as mobile within roughly one generation--call that a period of say two decades. How will these mobile people and firms choose to locate between Canada and the United States if the permanent expectation on exchange rates is trend depreciation roughly in line with external world commodity prices? I think the answer is fairly simple. On the people side talented and ambitious young Canadians will choose to leave Canada particularly as job opportunities in the new sectors are increasingly located in the US. More importantly however and on a much faster time frame there is the risk that jobs will move even if the people do not. This happens on a couple of levels.

a) Canada is now facing competition from within the US with what I would call lower wage, capital intensive basic manufacturing. The automobile industry is a classic example of

such an industry--Automobiles today are what textiles were to the economy 20 years ago. The US together with Mexico are increasingly going to dominate these sectors with North America based on lower wages. Much of it will be located in the US South and in Mexico. To keep this industry Canadian locations may have to compete on wages or have the industry move. At some point not even low wages achieved through currency depreciation will do it given the forces of agglomeration. The Ontario advantage in particular may be seriously eroded. These risks may be offset if the skill intensity of the industry rises due to technological change. This is Canada's best hope.

b) For New Economy firms in Canada the issue is different. For a company like Nortel their major competitors and markets are the US. To locate in the US is many ways quite natural. A steadily weakening currency essentially gives a signal to these firms that the underlying economy is weak- this in turn would tend to weaken the balance sheet of the firm, make it more difficult to attract capital and people, and generally to push them out of the Canadian location. To the extent the much smaller Canadian market is important to them it can easily be serviced from the US. Once they have re-located to the US the process is asymmetric. There is relatively little to attract them back to Canada. I would note that similar arguments can be made with respect to tax competition.

If the trends identified in a) and b) continue then Canada by definition will steadily lose high value added activity within North America. It will be increasingly specialized in commodities in low wage manufacturing. There are of course other factors which impinge on these developments. But steady currency depreciation is certainly one of the most important.

So what are Canada's policy options? If one could pull the correct levers a remarkable reversal in productivity growth--either higher in Canada or lower in the US would help. Clearly the former would be preferable. However for the reasons argued I think an essential component of securing Canadian living standards will be eliminating the nominal exchange rate from the picture. Economic decline or progress will then be shifted from a national perspective

to one based on individual firm and sector performance. Canadian located firms will be judged relative to their North American peers. As a consequence firms will be on a level playing field in North American with regard to exchange rate adjustments.

The Exchange Rate Regime and Transition to Monetary Union

Professor Tom Courchene of Queen's University and I have argued that the best option for Canada in the long term is a North American Monetary Union -a **NAMU**-along the lines of the European Monetary Union. Getting to a NAMU however requires the US to pay attention to the problem. Currently what seems to be happening is the 'Parallel Currency' route to monetary union--otherwise known as dollarization. US dollars and Canadian dollars are competing as both a medium of exchange and unit of account within Canada--not within the US of course. In the very long run (two decades perhaps) the net result of this currency competition will be one in which the Canadian dollar loses. Like language there are strong **network economies** from doing business in a single currency. Globalization and IT has raised the benefits of these economies significantly. The US dollar is to the Canadian Dollar is as Microsoft Word was to WordStar a decade ago. Network economists would say the 'installed base' of the US dollar is enormous relative to the Canadian dollar. Market participants given a choice will choose to use the US dollar. Recent announcements by the TSE that they will list stocks in US dollars is just one of the signs we witness every day that this competitive process is going on. As cross border e-commerce grows the Canadian service sector which has hitherto been protected from currency competition will be faced with similar pressures. As business and individuals within Canada switch to using US dollars this inherently weakens the Canadian currency. Every time the Canadian dollars takes another significant fall there are ever larger number of individuals unwilling to hold the currency or assets which are denominated in Canadian dollars.

I believe that the time to do something on the currency issue is now. Delay will only make the adjustment path more difficult and more costly. The view that the currency issue is not on the radar map in the US I believe is erroneous. The US would have its own reasons to involve Canada and Mexico in a continental monetary union. At the moment the US has a large current account deficit and Canada has a correspondingly large surplus. The trade imbalance is even more dramatic. Canada has a 39 billion (US) surplus while the US is running a 420 billion (US) deficit. There are many in the US who feel that the low Canadian dollar is partially responsible for this. On the trade side US exporters are increasingly concerned about their loss of competitiveness, and 'cheap Canadian competition'. All too often exchange rate flexibility and free trade become incompatible, and generally free trade loses. The current Canada-US softwood lumber dispute would never have gone on as long or as far if Canada had a dollar fixed at 80 cents. For all of these reasons pressures to bring the US dollar down are growing, and Canada and Mexico could use their positions as the largest trading partners of the US to gain some leverage on entry to a North American Monetary Union, but one based on the continued use of the US dollar, while at the same time enhancing the potential for NAFTA to bring about continental free trade.

Fortunately one issue that will not be problem for a NAMU should one ever be created are the objectives of monetary policy. Almost everyone agrees that the central bank should target inflation most of the time except when risks to growth become substantial. There are disagreements about the details but not ones that make the Bank of Canada noticeably different from the Federal Reserve. A one-size fits all monetary policy for the continent though is the clear price of admission to Canada of such an arrangement. Canada would lose monetary independence under NAMU.

There has been a fair bit of discussion about the consequences of a NAMU but for the most part there has been almost no discussion of how one gets there. As is often the case with major institutional reform where you end up may not be independent of how you get there. We need to think more seriously what type of the transition arrangements would be needed get to

a monetary union in North America. History provides a number of models and moreover points to the various pitfalls would be reformers should pay heed to.

One possible model is an immediate integration or an 'overnight monetary union' such as occurred in the unification of East and West Germany for example. This would be essentially an immediate transition arrangement, a conversion rate is set and Canadian dollars are swapped for US dollars, and all legal contracts currently set in Canadian dollars would be converted at the announced rate. There are a large number of reasons I think this type of transition will never occur. First, and foremost, given the extreme capital mobility between Canada and the US, speculative capital flows would be enormous one way or the other in anticipation of the date of integration. These could be potentially de-stabilizing. Moreover the sheer complexity of the task in such a short time horizon without significant amounts of advance planning simply makes such an alternative impractical. Lastly there is some danger that the rate set for the conversion could lead to either recession or inflation in Canada over the medium term which might threaten the ultimate political viability of the monetary union.

My preferred model is a gradual transition towards eventual integration along the lines pioneered in Europe by the EMS-EMU model of transition to a monetary union but with some significant differences. A correctly designed transition should for example at least help in arriving at an ultimate conversion rate which minimizes the cost of adjustment and moreover during the transition leads to stable inflation. The EMS, while badly maligned after the crisis in '92- '93 was a remarkably successful institution at bring about exchange rate stability. In simple terms the system consisted of a set of target zones for exchange rate, rules about intervention, and rules about adjustment within the zone. Applied to Canada-US the system would work as follows. A target zone of a given width -say plus or minus 5 percent-would be set about a given trend value for the Canada-US exchange rate. The central banks, the Federal Reserve and Bank of Canada, would be committed to **bilateral intervention** in the case the currency got close to the margins of the band. Suppose for example the band was centered at 65 cents US with an upper band limits at 68.25 and a lower band limit at 61.75. The rules for intervention

would be that if the Canadian dollar hit the upper bound the Bank of Canada would intervene and buy US dollars and sell Canadian dollars. Should the Canadian dollar hit the lower band the Federal Reserve would intervene buying Canadian dollars and selling US dollars. The EMS system was originally designed so that the exchange rate intervention was intended to be unsterilized-meaning that the total stock of money in Europe stayed constant as a result of exchange intervention. In the Canada-US case this no longer make any sense given the manner in which monetary policy is now conducted which essentially involves interest rate targeting. Nevertheless there is a need on grounds of credibility that some mechanism be in place so that actions in the exchange market are backed up by changes in monetary policy. Given the extreme asymmetry in the size of the US and Canada, Canada's actions are for all intent purposes irrelevant to the level of US interest rates. But in exchange for the US commitment to support the Canadian dollar at the lower limits of the band the Bank of Canada could be expected to adjust Canadian interest rates when the band limits were hit. One of the ultimate objectives of the monetary union would be interest rate convergence over the transition period. In parallel with the currency interventions the Bank of Canada would agree to adjust its Bank Rate relative to the US when the bands were hit. On hitting the upper band the Canadian rates would be lowered and on hitting the lower bands the Canadian rate would be raised. Over time this would be done in such a manner and with sufficient transparency that all market participants would understand the objective was to have the same interest rates in Canada and the US, preferably prior to the ultimate conversion date. In this framework both the Bank of Canada and the Federal Reserve would be committed to defending the target bands. Over the course of the transition when the exchange rate was within the band the Bank of Canada would attempt to bring the Bank Rate into line with the US fed funds rate. It has been argued that once market participants understand this system and believe it to be credible it has certain self stabilizing properties. As exchange rates approach band limits speculators will take positions such as to push the exchange rate back toward the middle of the band. More over bond market participants would be encouraged to take actions such as to bring a convergence of the Canadian yield curves to that in the US.

Periodically the target zone could be adjusted through consultation between the Federal Reserve and Bank of Canada. To facilitate an orderly transition the center of the zone would be reset in a manner which suggested the exchange rate was evolving towards a long run equilibrium value based on a set of economic fundamentals, including variables such as current account balances, relative labour costs, productivity, and purchasing power comparisons. You may be surprised to learn that in the case of the Euro this process led to remarkably little disagreement. One of the virtues of a gradual transition is that even if some errors are made in picking the conversion rate, prices are given time to adjust. To take an example suppose one set the ultimate conversion rate at 70 cents US and this turned out to lead to significant cost advantage to Canada at the going wage and cost level in Canada. Over time the pressures on demand from the export market would lead to a gradual rise in Canadian wages and prices relative to those in the US such that the cost advantage would be eroded. The opposite would occur should the rate be set too high. Of course it is important that market participants be given sufficient lead time in order to order to make their own plans for the transition.

Essential to letting the market work correctly within the framework are issues regarding timing and credibility. On the timing issue it needs to be understood at the outset that the system would evolve over a fairly lengthy period, somewhere between five and ten years. For the first few years the intervention band would be fairly wide with intentions to narrow. The bands were very wide in the EMS for some countries—around + and –15 percent. For other countries such as the Netherlands they were quite narrow. Because the Canadian dollar appears to be currently undervalued I think it would be wise to start with a fairly wide band but with explicit commitments to narrow the bands after the first couple of years. In addition as discussed should the Canadian dollar start to repeatedly hit the upper boundary of the target zone there would be a timely review of the value for the center of the target zone. After some period, say two to three years the ultimate conversion rates would be announced together with an explicit date for conversion. Canadian dollars and Mexican pesos at that point would be converted to US-NAMU dollars although there is no reason they could not circulate in parallel with the US Dollar for some period.

There are a number of technical problems of running such a system and creating the monetary infrastructure necessary for a monetary union. The lesson from the Euro however is that these problems while not insignificant are surmountable. What is not so straightforward is the issue of the credibility of the entire exercise and how this affects the transition arrangements. The EMS came under severe stress in September 1992 when the market detected a disagreement between the objectives of monetary policy in Germany and those in France and Britain as a result of the recession that was then hitting Europe. Basically Britain and France wanted easier monetary policy and Germany was more concerned about inflation which led to a speculative crisis within the EMS. There is absolutely no question that in incomplete monetary unions, or monetary unions in transition, this is a major potential problem. In the case of Canada and the US the question really boils down as to how markets would react if a strong asymmetric shock were to hit Canada and the US given the existence of a target zone system.

The North American situation is however quite unlike the European case in an important respect. Given the asymmetry in the economic size of Canada relative to the US, and the very strong trade integration of the two countries in manufacturing, in practical terms Ontario and Quebec, are for all intent purposes, locked into US demand and supply conditions. Any shock which hits the US(demand or supply) will hit central Canada in an equivalent way. The only important asymmetry then between the two countries are commodity price shocks which impact mostly on Western Canada. A strong commodity price collapse for example would create incentives for lower interest rates in Canada relative to those in the United States. However given the exchange rate targets monetary authorities in Canada would be faced with the dilemma of either choosing to support the target zone or to provide lower interest rates in Canada. Speculators, if they detected an unwillingness of either government to defend the target zone may believe they were faced with a **one-way bet** on Canadian dollar depreciation. If the target zone system holds exchange rates would not move (much) but if it fails the Canadian dollar would depreciate. Therefore bet against the Canadian dollar.

Prudence dictates this contingency should be planned for by the monetary authorities, but I am less concerned than was the case in Europe for a couple of reasons. First, in terms of Canadian aggregates the non-energy commodity regions as a whole are shrinking in economic size. My own province B.C. just achieved the status of a have-not province, and Ontario now accounts for almost half of Canadian GDP. The implication is that exchange rate depreciation is becoming less effective as a means of reducing unemployment in the country as a whole when faced with an unanticipated decline in commodity prices. Second, the US has good reasons from the perspective of its own self interest to defend the Canadian dollar in the event that world commodity prices were to fall. This would essentially be a repeat of the favourable supply shock the US economy got after the 1997-98 Asia crisis when the sudden decline of growth in that region led to sharp falls in natural resource prices. In such circumstances why would US interests be served by letting the Canadian dollar depreciate? To think this through return for the moment to the situation in the EMS in 1992. One of the problems within the EMS was that when Germany had to defend the pound and franc, they (Germany) were reluctant because it meant expanding the German money supply. The Bundesbank had to supply Deutschmarks as speculators moved out of British pounds and French Francs. Unless they took offsetting actions this would imply an accelerating growth in the German money supply. A higher German money supply implied to the Bundesbank a higher future inflation rate in Germany—not something they were fond of for historical reasons, and why in that instance they eventually declined to defend the EMS target zone. In the Canada-US case the potential asymmetry creates a different set of incentives. In the event of a deflationary commodity price shock the US incentives to defend its Union partner's currency (Canada) would be exactly the opposite of those which faced Germany. By buying Canadian dollars and thus increasing the supply of US dollars the Fed's intervention at the boundary of the target zone is equivalent to undertaking the correct domestic monetary antidote to an otherwise deflationary shock to the US. The US incentive therefore are aligned with promoting Canadian dollar stability in the event of such shocks. The more serious problem is on the Canadian side. Having reached the lower end of the target zone boundary the Bank of Canada would be required to raise interest rates or at least not lower them as part of its bargain in defending the target zone. This I believe would be

the central issue. There is no question it would require a resolve on the part of the Bank of Canada, with the full support of the Minister of Finance and Prime Minister to tough it out with the speculators at this point. Joint statements by the Bank of Canada and the Federal Reserve on their commitments to jointly defend the zone would be an important signal and once followed up by action would most likely end the speculative attack. For those who want to make analogies to Argentina I would simply point out that the US Federal Reserve and Bank of Canada are the central banks of two of the G-7 countries. The average hedge fund simply pales in comparison to the power of these institutions. It is instructive to note that multilateral intervention by the large countries by and large has tended to work when it was in the interests of all parties to do so. One of the most successful multilateral interventions was in September of 1985 in the face of a seriously overvalued US dollar and rapidly growing US current account deficit. The Plaza Accord involved intervention in foreign exchange markets which over the course of the next two years resulted in a major decline in the US dollar against other major currencies, despite the critics who argued it would never work.

To summarize I think this type of system of bilateral intervention would be a natural institutional mechanism by which exchange rate stability in North America is brought about as a prelude to full monetary union.

I would like to conclude with a brief comment about fiscal policy. I think the great attention that was paid to fiscal sustainability in the run-up to the completion of the Euro zone will not be an issue for NAMU. Both Canada and the US have excellent fiscal records over the last several years, and credibility of the fiscal authorities in both countries is high. From the Canadian side I imagine critics will raise the prospect of a US fiscal boom, fueled perhaps by large increases in defense spending which could ultimately prove inflationary as was the case in the Vietnam era. If locked into a transitional monetary union with the US this inflation would obviously be imported to Canada. My response is two-fold. First, I think central banks have learned a great deal about inflation and its control since the Vietnam era and thus the probability of this scenario is remote. The Federal reserve will not let inflation get too far from the kind of levels we have seen over the last decade, although one can quibble as to the exact targets. More importantly however is the following point. In a monetary union countries share the same

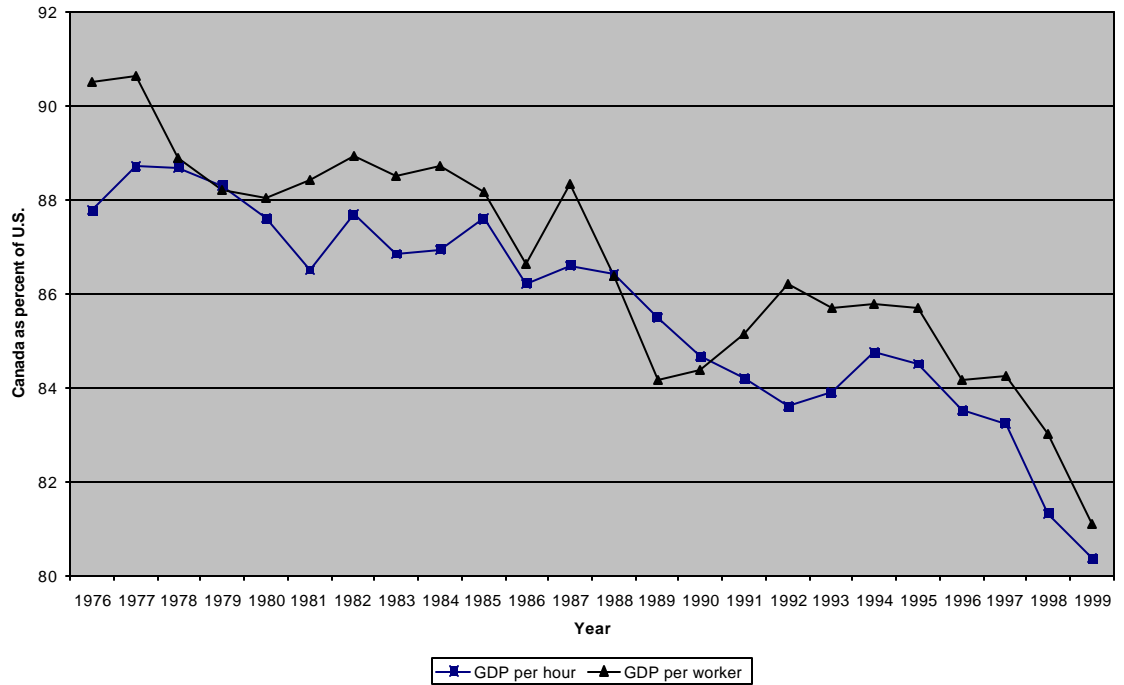
inflation and interest rates---**they do not have to share the same fiscal policy.** If the US were to increase its structural fiscal deficit and to raise its debt to GDP ratio there is nothing in the logic of a monetary union which would require Canada to do the same. The situation is analogous to that between provinces within Canada. If Ontario wants to run a deficit this does not require that other provinces do so. Differences in fiscal policy are reflected in differences in interest rate risk premia on government debt. To the extent that Canada or the US has a better fiscal record this will be reflected in the interest rate that it pays on the bonds that it issues.

Conclusion

I think that the most important economic problem facing Canada as a nation is how to maintain our standard of living relative to the United States, given that economic integration is continuing at a rapid pace. Economic growth in Canada has been compromised over the past decade by a sustained depreciation of the currency which has hurt the long run income generation process in Canada. Canada's floating exchange rate regime, which served us better in a different time, should now be retired. The most obvious replacement is a North American Monetary Union. The challenge is to do this in a way which causes the least disruption and is consistent with our other policy goals. I have suggested in this paper that a transitional monetary union, in the form of a system of bilaterally defended target zone for the Canada-US dollar, is a natural first step. I am certain the suggestions I have made can be improved on, and North Americans still have much to learn from the European experience with monetary integration.

Chart 1

Relative Labour Productivity: Canada vs. U.S.



Notes: data for GDP per worker and GDP per hour for US recalculated from 1996\$ into 1992\$ with GDP price deflator ratio 1992/1996=0.917

Note: GDP per capita and GDP per hour for Canada recalculated into 1992 US \$ with OECD bilateral 1992 PPP exchange rate estimate 1.23 \$CAD/\$US.

Chart 2

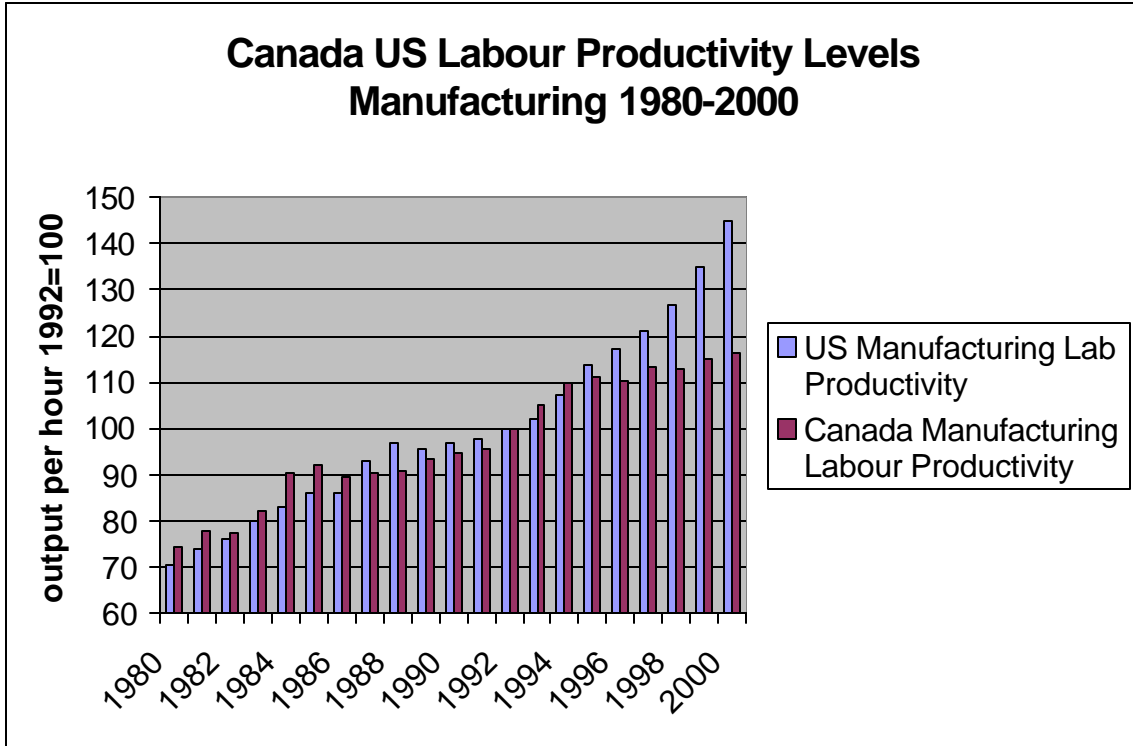


Chart 3

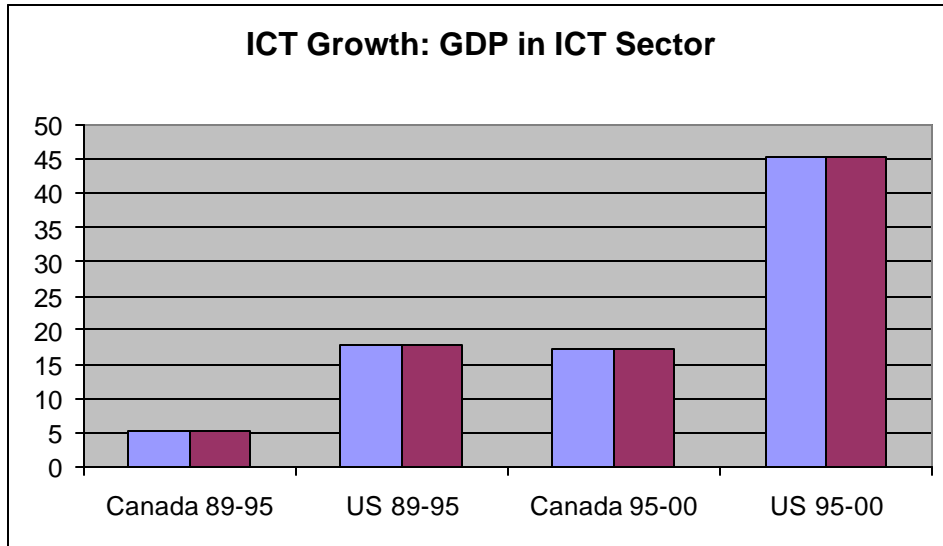


Chart 4

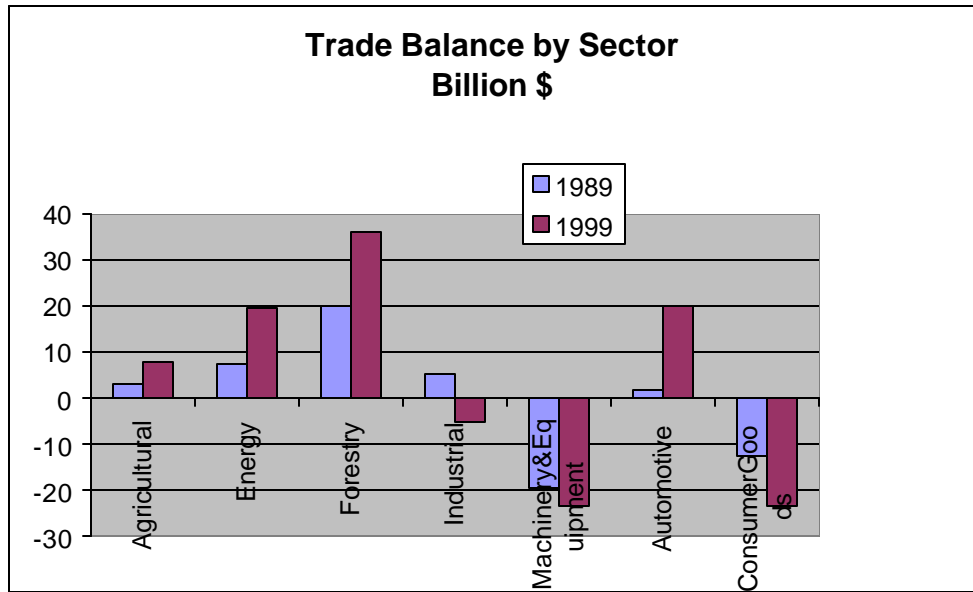


Chart 5

