

Conference Summary: Revisiting the Case for Flexible Exchange Rates

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The Bank of Canada's tenth annual research conference, held in November 2000, marked the fiftieth anniversary of Canada's adoption of a flexible exchange rate. For 43 of the past 51 years, Canada has had a floating rate. This is about 15 years longer than any other major industrialized country over this period.¹ Canada's successful post-war experience with a flexible rate, especially its most recent experience with a flexible rate and inflation targeting, has been a useful example for other industrialized and emerging-market countries, including Mexico and Brazil.

The title of the conference, "Revisiting the Case for Flexible Exchange Rates," also recognized the seminal contribution of Professor Milton Friedman to exchange rate theory. His classic article, "The Case for Flexible Exchange Rates," lucidly explains the critical arguments in favour of a flexible exchange rate and provides the intellectual foundation for Canada's flexible exchange rate regime.² Many of these arguments were re-examined in the papers presented at this conference, using recent developments in economic theory, as well as recent data and econometric techniques.

Friedman also made another more direct, but less well-known, contribution to Canadian exchange rate

policy when he participated in a radio debate on this issue on 18 April 1948 with Bank of Canada Deputy Governor Donald Gordon and W.A. Mackintosh, a professor of economics at Queen's University. During the debate, Friedman argued that Canada's direct controls on imports should be replaced by a flexible exchange rate because "[that] is the most effective way of making [import] goods more expensive to Canadians and your export goods cheaper to other people . . ." and "is it not better to let every individual decide for himself what items he wants to curtail in [the] face of higher prices than to have a government official do it in some . . . across-the-board, rough manner?" (Friedman, Gordon, and Mackintosh 1948, 6).

Less than 18 months after the radio debate, on 30 September 1950, Douglas Abbott, Canada's Minister of Finance, announced that, "today the Government . . . cancelled the official rates of exchange. . . . Instead, rates of exchange will be determined by conditions of supply and demand for foreign currencies in Canada." Friedman could not have written it any better.³

Half a century later, in the aftermath of the currency crises of the 1990s and the formation of the European Economic and Monetary Union, the debate on the choice of exchange rate regime continues. The purpose of this conference was to contribute to this debate by re-examining the case for a flexible exchange rate (with some form of price-level or inflation target) against the alternative of a more permanently fixed regime, such as a common currency, in light of new theoretical and empirical developments. The papers presented investigated the experiences of a wide

1. Canada returned to the Bretton Woods fixed exchange rate system on 2 May 1962, only to leave it for good on 31 May 1970. The other major industrialized countries joined Canada by abandoning the pegged-rate system in 1973. Canada's early experience with a flexible exchange rate, from 1950 to 1962, was often alluded to as an example of how well a floating rate could work. Not only was it cited by Milton Friedman (1953), but it inspired many academic papers and several PhD theses, including those by current Federal Reserve presidents, William Poole (St. Louis) and Robert McTeer (Dallas).

2. Friedman's article, which was published in 1953, first appeared as a U.S. government memorandum in the autumn of 1950.

3. In his autobiography, Friedman claims that the radio discussion with Donald Gordon "played a major role" in Canada's adoption of a floating rate in 1950 (Friedman and Friedman 1998, 189).

range of emerging-market economies and of several industrialized countries, including Canada.

The conference consisted of five sessions, a closing panel discussion, and the keynote address. Two papers were presented in each session: one by economists from the Bank of Canada, the other by outside academics. These were followed by comments from two designated discussants and questions from the floor. Michael Bordo of Rutgers University, John Helliwell of the University of British Columbia, and Richard Lipsey of Simon Fraser University were the distinguished members of the closing panel. Nobel Laureate Milton Friedman of the Hoover Institution gave the keynote address by video conference from Stanford University. Friedman and the panel members also took questions from the floor. Highlights of the papers presented in each session are outlined here, together with summaries of the panel discussion and the keynote address.⁴

Session 1: Welfare Analysis

Much of the existing work comparing alternative exchange rate regimes is qualitative and lacks formal welfare analysis. The papers in this session attempted to fill this gap by employing dynamic general-equilibrium (DGE) models with explicit household welfare functions and optimizing behaviour by households and businesses.⁵ To generate differences in the outcomes across the exchange rate regimes considered, both papers assumed some form of wage or price stickiness.

Tiff Macklem, Patrick Osakwe, Hope Pioro, and Lawrence Schembri use a calibrated three-sector DGE model of the Canadian economy (resources, manufacturing, and non-traded goods) to analyze the impact of stochastic shocks to the terms of trade under alternative exchange rate and monetary policy regimes. The two regimes considered are a flexible exchange rate with a price-level target, which is similar to Canada's current regime, and a permanently fixed exchange rate such as that under a currency union. The model explicitly incorporates the trade-off between the macroeconomic stability gains of a flexible exchange rate and the reduction in transactions costs offered by a fixed rate. Transactions costs in international trade are endogenously determined in

the model as a function of the variability of the flexible rate. Fifty per cent of consumers are assumed to be credit-constrained, to reflect the fact that most agents cannot borrow in world capital markets to smooth the impact of exogenous shocks on their consumption. The results indicate that Canada would gain more by accommodating terms-of-trade shocks with a flexible exchange rate than it would by reducing transactions costs through the choice of a currency union. This difference arises because terms-of-trade shocks produce a variance in output that is almost 50 per cent greater under fixed than under flexible exchange rates. In addition, the authors find that, for fixed rates to dominate flexible exchange rates, the transactions costs saved under a common currency would have to be 0.8 per cent of GDP or about four times greater than commonly estimated. They also examine the sensitivity of the results to increases in the degree of risk aversion and to increases in the probability of large shocks. In both cases, the welfare benefit of a flexible exchange rate would increase. They argue that their model is biased in favour of fixed rates because it assumes that the shocks have the same effect on all workers, when in practice, the impact is very uneven. The results would, however, be less supportive of flexible rates if Canada's dependence on the production and export of primary commodities were to decline in the future.

In his paper, **Michael Devereux** stresses the importance of the pricing behaviour of firms in the traded-goods sector on the choice of exchange rate regimes. In his model, the critical trade-off in the utility function is between the variability of inflation and output. In his monopolistically competitive price-setting framework, volatile inflation implies volatile markups and thus large departures from the optimal outcome. He argues that if firms in the traded-goods sector practice pricing to market and thus prevent the immediate pass-through of exchange rate movements into domestic prices, then a flexible exchange rate will likely be preferred over a fixed exchange rate system. A flexible exchange rate will reduce the variability of output in the face of external shocks and will not significantly increase the volatility of inflation, if there is limited exchange rate pass-through to domestic prices. Devereux notes that exchange rate pass-through is likely to be more prevalent in emerging markets than in mature economies, making flexible rates a more attractive choice for mature economies than for emerging-market economies. His model incorporates a forward-looking Phillips curve, and he considers five alternative monetary policy rules,

4. These summaries draw on summaries prepared by John Helliwell for the closing panel.

5. Moran (2000–2001) provides a recent survey of DGE models.

including a pegged exchange rate and two inflation-targeting rules with flexible exchange rates. With limited exchange rate pass-through, the flexible exchange rate rules produce higher welfare outcomes. Indeed, targeting the price of non-traded goods rather than the consumer price index basket is optimal.

Session 2: The Role of the Exchange Rate in Adjustment and Integration

In choosing an exchange rate regime, it is important to consider which regime best facilitates macroeconomic adjustment and economic integration. A flexible nominal exchange rate generally makes it easier for the real exchange rate to adjust in the face of exogenous shocks when prices or wages are sticky. Conversely, fixed exchange rates, especially in the form of a currency union, encourage economic integration in terms of trade and factor flows among countries by reducing the cost of international transactions.

Ramdane Djoudad, Céline Gauthier, and Pierre St-Amant address the issue of macroeconomic adjustment by extending the structural vector autoregression (VAR) models of Dupasquier, Lalonde, and St-Amant (1997) and Clarida and Galí (1994) to incorporate commodity prices in the Canada–U.S. case. The motivation for including commodity prices in the model was the finding by Amano and van Norden (1993) that real commodity prices, primarily real non-energy commodity prices, are statistically significant explanations of movements in the Canadian real exchange rate. Using quarterly data for Canada and the United States from 1973 to 1999 to estimate their structural VAR model, the authors obtain several important results. First, Canada’s flexible nominal exchange rate facilitates macroeconomic adjustment by accelerating the realignment of the real exchange rate. Second, including the real prices of primary materials in the model does not change the key results of earlier studies, which find that most of the variation in the real exchange rate and output is explained by real demand shocks and supply shocks. Third, monetary shocks do not play a large part in explaining movements in the real exchange rate.

Andrew Rose examines the impact of common currencies on economic integration. By drawing on his previous research and performing some new empirical work, he compares the economic integration of

countries within currency unions with the integration of regions within a country and with integration among countries with different currencies. In general, he finds that countries within a currency union are more integrated than non-currency-union countries, but are much less integrated than regions within a nation. Rose first considers the basic characteristics of currency-union members; they are typically small and poor countries and are more specialized than non-members. He then examines trade flows, real exchange rates, the synchronization of business cycles, and the sharing of consumption risk. Using a large panel-data set of over 150 countries at five-year intervals, he estimates an equation that includes a wide range of control variables and finds that trade is 340 per cent higher among members of a currency union than among non-members. Real exchange rate persistence is similar within and outside currency unions (i.e., the speed of real exchange rate adjustment is virtually the same), while real exchange rate volatility is lower within currency unions, while still being much greater than between cities within the same country. The business cycles of countries within currency unions are more synchronized than among countries not in currency unions but much less synchronized than those of regions within a single country. Finally, Rose asks whether consumption correlations are higher within currency unions; after controlling for synchronization of output, he finds no significant evidence of such an effect. In conclusion, drawing on results from Frankel and Rose (2000), he argues that the greater trade integration of currency unions is important because increased trade generates more output. As a caveat, he notes that it would require a leap of faith to apply these results, based on a sample of mainly small and poor currency-union members, to larger, more developed countries, such as Canada or members of the European Economic and Monetary Union.

Session 3: Exchange Rates, Currency Markets, and Trade Flows

Flexible exchange rates are often criticized as being excessively volatile. Indeed, some observers believe that they are largely disconnected from macroeconomic fundamentals. This supposed disconnection is often used to justify central bank intervention in the foreign exchange market because, on its own, the market is unable to quickly return the exchange rate to its equilibrium level. Moreover, this exchange rate volatility is believed by many to have a significant deleterious impact on trade flows.

Ramdane Djoudad, John Murray, Tracy Chan, and Jason Daw investigate the significance of economic fundamentals in determining exchange rate movements in Canada as well as in Australia and New Zealand, two other major commodity-exporting countries. They begin by extending the Amano-van Norden (1993) error-correction model of the Canadian exchange rate to New Zealand and Australia. This model attempts to explain bilateral real exchange rates using non-energy commodity prices, energy prices, and interest rate differentials. The authors estimate these exchange rate models for all three countries (Australia, Canada, and New Zealand) and obtain similar results with good statistical fits. They then use these estimated exchange rate equations to approximate the behaviour of fundamentalist traders and apply regime-switching techniques to distinguish periods during which either chartists (technical traders) or fundamentalists dominate the foreign exchange market. A number of different technical trading rules are used to capture the behaviour of chartists. The authors find that on the more tranquil trading days (which represent roughly 70 per cent of all trading days), chartists dominate, while fundamentalists are more active during more turbulent times. The authors maintain that these results suggest that central bank intervention is not needed to help stabilize markets, since sharp increments in the exchange rates of the three countries are typically driven by fundamentalists pushing these currencies back to their equilibrium values. Finally, they argue that changes in monetary conditions caused by exchange rate movements should not necessarily be resisted by policymakers because such exchange rate movements usually reflect changes in the underlying fundamentals.

Philippe Bacchetta and Eric van Wincoop develop a theoretical general-equilibrium model with multiple sources of uncertainty to analyze the relationship between trade flows and fluctuations in the nominal exchange rate. In general, this relationship is ambiguous, but because it depends on the pricing behaviour of exporting firms, the authors first determine the optimal pricing strategy between producer currency pricing and local currency pricing (also known as pricing to market). They find that under reasonable parameter values, most firms would price to market because it reduces risk by stabilizing sales volumes. They also show that once the pricing strategy is set, a fluctuating flexible exchange rate reduces trade only if exporting firms practice pricing to market because exchange rate fluctuations will directly affect their revenue in their own currency. Whether or not trade is

reduced in general depends on household preferences between consumption and leisure, monetary policy, and the extent of pricing to market. Their model predicts that as asset markets become more complete, firms will hedge their risks directly and move away from pricing-to-market behaviour. Thus, the influence of the exchange rate regime on trade is likely to diminish.

Session 4: Exchange Rate Uncertainty, Investment, and Productivity

Fluctuating nominal exchange rates may create uncertainty over the longer term, and this uncertainty may reduce investment because it worsens the risk-return trade-off and encourages investors to put off their investments. Lower investment levels reduce labour productivity and, potentially, total or multifactor productivity because new technology is often embedded in new capital. In addition, McCallum (1999), among others, has argued that a depreciating nominal exchange rate will hurt productivity because it dulls the incentive to invest in productivity-enhancing improvements in physical, human, and research and development capital.⁶ This argument, however, ignores the fact that most sustained movements in the nominal exchange rate are shifts in the underlying real exchange rate that would have occurred regardless of the exchange rate regime. The papers in this session examine the effect of exchange rate movements on investment and productivity in Canada.

Robert Lafrance and David Tessier investigate the effect of exchange rate variability on investment in Canada. They distinguish between the effects that may be caused by the potential misalignment of the exchange rate level and those that may result from the volatility of the exchange rate. The authors use Granger causality tests to investigate both types of effects and find that neither the misalignment of levels nor the volatility of the bilateral real exchange rate affects total domestic investment spending, investment in machinery and equipment, or foreign direct investment. They do find an effect from the level of the real exchange rate to the level of investment, but this disappears if the level of profits is controlled for by including it as a third variable in the test.

Richard Harris argues that the recent depreciation of the nominal exchange rate in Canada has had a negative impact on Canadian productivity. He notes that

6. Lafrance and Schembri (1999–2000) examine the “lazy manufacturers” argument more closely and find numerous faults.

although most theory would predict that exchange rate depreciations should raise demand, factor utilization, measured productivity, and investment, the reverse has been true for Canada. Based partly on work by Michael Porter (1990), Harris maintains that real depreciations, by sheltering inefficient industries and raising input costs, lead to lower productivity. The interesting questions, in his view, relate to the nature of the channels or mechanisms through which productivity is reduced and the size of the effects. He identifies three mechanisms: relative factor costs, a gap in innovation, and a slowdown in creative destruction. The 1990s saw steady increases in the relative price of machinery and equipment to wages in Canada compared with the United States. Hence, over the 1990s, investment per hour worked grew substantially in the United States relative to Canada. The link between an innovation gap and the exchange rate is more difficult to discern. Harris argues that the nominal exchange rate depreciation increased the relative price of new technology and of technology workers, encouraging firms to shift away from technology-producing activities. Finally, he maintains that the depreciation also allowed marginally profitable small firms to survive in Canada when firms with similar low profit margins were forced out of business in the United States. Using panel data on 14 OECD countries over the period 1970–97, Harris finds that recent exchange rate depreciations actually increase labour productivity but that longer-term deviations from purchasing-power parity (as a measure of misalignment) worsen it, both by relatively small amounts.

Session 5: Implications for Emerging-Market Economies

In the wake of the collapse of many pegged exchange rate regimes in the 1990s, there has been an important ongoing debate as to the appropriate exchange rate regime for emerging-market countries. A consensus seems to have emerged that ultimately these countries should choose either a flexible rate or some form of credibly fixed exchange rate regime. Two questions remain unanswered, however: which of the two extremes is appropriate, and how to get there. The papers in this session addressed these issues.

Jeannine Bailliu, Robert Lafrance, and Jean-François Perrault examine the relationship between the exchange rate regime and the growth rate in emerging-market economies. They also develop a method for classifying exchange rate regimes based on the observed degree of exchange rate flexibility. By means

of multivariate regression, they test several hypotheses linking growth and exchange rate regimes for a sample of 25 developing countries, using data over the period 1973–98. They find that flexible exchange rate regimes are associated with higher growth for countries that are open to capital movements. This result also holds for countries with well-developed financial markets, but the positive effect of a flexible exchange rate on growth is not as strong. When other variables are held constant, changes in the exchange rate regime are also found to be associated with lower growth, probably because many of the changes that occurred in this sample of emerging-market countries involved the collapse of a fixed exchange rate.

Guillermo Calvo and Carmen Reinhart emphasize the gap between announced and actual exchange rate regimes. After the collapse of pegged exchange rate regimes in emerging-market economies in the 1990s, many of the affected countries, such as Mexico and those in East Asia, announced the adoption of floating or managed floating exchange rate regimes. Although official data from the International Monetary Fund show a large movement towards more flexible exchange rate regimes (Fischer 2001), Calvo and Reinhart argue that these regime descriptions are misleading, since many of the countries described as floaters do not, in fact, allow their currencies to float because they fear the impact of exchange rate fluctuations on their economies. Analyzing a sample of more than 150 exchange rate arrangements, the authors find that many floaters have quite stable exchange rates and show considerable movements in reserves and interest rates because they are intervening to stabilize their exchange rates. They argue that the main reason that these countries want a stable exchange rate is that large proportions of official and private debt are denominated in foreign currencies. Thus, a depreciating real exchange rate, for example, may actually be contractionary, not expansionary, because it may create severe financial problems for domestic creditors, primarily firms and government.

Panel Discussion

Michael Bordo

Michael Bordo reviewed the history of Canadian monetary regimes from 1820 to 2000. Over this period, Canada has experienced alternating fixed and floating regimes. Bordo's remarks focused on the determinants of these regimes. For most of the early part of this period, Canada was a follower. It went along with the prevailing international monetary arrangement of the

time, which Bordo characterized as a gold convertibility contingency rule—a fixed convertibility rule between currency and gold with an escape clause that would allow convertibility to be suspended when warranted; e.g., World Wars I and II. He views the flexible exchange rate period 1950–62 as an escape-clause period rather than the beginning of a new era, and looks on the return to the fixed rate from 1962–70 as a return to the status quo. The new era began in the early 1970s with the breakdown of the Bretton Woods system and the adoption of a fiat, rather than a commodity, standard with floating rates by most Western industrialized countries. Canada's adoption of explicit inflation targets in 1991, and their adoption by several other industrialized countries at the same time, can be interpreted as a new policy rule. Bordo calls it the domestic convertibility principle, which is similar to the convertibility principle that existed under the gold standard, because, with low inflation, the domestic currency is convertible into the domestic consumption basket at an almost fixed rate.

Richard Lipsey

Richard Lipsey organized his remarks around five issues raised by the papers presented. First, he noted that, to be taken seriously, critics of the current flexible exchange rate regime in Canada cannot simply list its faults but must fully articulate a feasible alternative regime. Second, useful criticisms of the current regime must compare its costs with those of an alternative regime. Third, the Bank of Canada's exchange rate equation may fit well, but it is not well understood. The negative sign on the energy-price variable, as well as the absence of U.S. variables in a bilateral exchange rate equation, is a puzzle that needs to be explained. Fourth, although most of the evidence put forward at this conference seems to indicate that Canada is best served by a flexible exchange rate, Andrew Rose's results appear to be at odds with this conclusion. Nonetheless, Lipsey believes that neither Rose's findings, nor those of Calvo and Reinhart, apply to Canada, primarily because their samples of countries and time periods are not representative of the current economic situation in Canada. Finally, regarding productivity and technological change, the paper by Bailliu, Lafrance, and Perrault makes a useful contribution to the investigation of how exchange rate regimes affect economic growth, but the case is not closed. The paper by Richard Harris raises more questions than it answers, but should not be dismissed out of hand because in a world of uncertainty, nominal variables such as the exchange rate regime could have an

impact on real outcomes by affecting the path that the economy takes.

John Helliwell

John Helliwell's comments were a series of remarks on the various papers. He notes that much of the research presented at the conference finds systematic advantages of flexible exchange rates over fixed. Indeed, the welfare difference for Canada is surprisingly large. The puzzling negative sign on the energy-price variable in the Bank of Canada's exchange rate equation probably reflects the fact that the U.S. dollar is the currency preferred by major oil exporters for investment. Intervention in the Canadian foreign exchange market is often in the form of changes in monetary policy. Since these changes in interest rates are incorporated into the Bank's equation, it is misleading to argue that intervention is not needed because the fundamentals, as specified by the equation, will drive the market back to equilibrium. One way of interpreting the findings of Andrew Rose on the effect of a common currency on trade is to conclude that the right countries have joined currency unions, not that this result is a prescription for other countries. In other words, the causality may run from large trade flows to a common currency, not the other way around. Moreover, the Frankel and Rose results on the impact of currency unions on trade and then on growth are too large to be credible. Richard Harris's findings linking departures from purchasing-power parity to declines in productivity are misleading, because shifts in the terms of trade simultaneously reduce the value of output and, hence, productivity, and cause flexible exchange rates to depart from purchasing-power parity. Finally, national markets for goods, services, labour, and capital are more segmented than economists typically believe—border effects are surprisingly large—yet this does not seem to significantly reduce welfare in small economies. Levels of GDP per capita across industrialized countries are not very different. Moreover, this segmentation of national markets, although not fully understood, strengthens the case for flexible rates.

Keynote Address, Milton Friedman

Milton Friedman began his remarks by noting that the last time he had extensive contact with the Bank of Canada was in 1948 in the radio debate with Deputy Governor Donald Gordon, and that this was probably the first time Donald Gordon had heard a serious defence of a flexible exchange rate. He noted

that Canada's initial experience with a flexible exchange rate over the period 1950–60 was a good one, in the sense that there was some fluctuation but no crises, and that speculation appeared to be stabilizing. Canada's return to a fixed rate in 1962 provided a very instructive experience because the chain of policy mistakes began roughly two years earlier with the combination of bad monetary policy under Governor James Coyne and a market-determined floating exchange rate. After Coyne resigned, the Canadian government decided to force a competitive depreciation rather than correct monetary policy. In so doing, they created a speculative run against the Canadian

dollar, which they finally stopped with a pegged exchange rate and massive intervention in the opposite direction. Canada floated again in 1970 to stem inflationary pressure coming from the United States, and over the next 30 years experienced easier monetary policy than the United States, which caused roughly half of the Canadian dollar's nominal depreciation. Nonetheless, because of its flexible exchange rate, Canada never experienced a crisis over this period like those that occurred in various countries in the 1990s. Such crises are always and everywhere caused by pegged exchange rates.

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