

The Euro-zone, Canada, and the Optimum Currency Area Theory

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The adoption of the euro by 12 European countries in 1999 marked the creation of the largest common currency area in recent history. This was accompanied by the creation of the European Central Bank, which practices inflation targeting policies to ensure low and stable increases in the price level across all member countries.

A common currency shared between countries carries significant benefits: it eliminates foreign exchange and hedging transaction costs, facilitates price comparison, and increases competition across regional borders. Transparent prices decrease arbitrage opportunities, improving efficiency. According to the European Commission, the combined benefit of these factors for the euro-zone is significant, amounting to nearly 0.5% of the combined GDP of member countries.^[1]

While these benefits make common currency areas attractive, there are also potentially large downsides for a country in a currency union. Most important is the loss of control over domestic monetary policy, which must be surrendered to a common monetary authority. Second, a country can no longer manipulate – through devaluation, for example – its exchange rate. The loss of these two policy instruments poses significant problems when a country is faced with economic conditions that do not match those of its

currency partners, as only fiscal policy remains available.^[2]

This dilemma has led economists to develop a body of theory which outlines criteria for an “optimum currency area.” How well a given region, such as the euro-zone, satisfies the criteria provides some guidance as to the long-term sustainability and viability of any given currency union.^[3]

The Optimum Currency Area Criteria

The “optimum currency area” theory, which was originally proposed by Robert Mundell³ in 1961, has been revised and expanded by economists over the past few decades. The current theory consists of four criteria that should be met in order for regions to benefit from adopting a common currency: (1) members trade extensively with each other, (2) the economic cycles in the different regions are in phase (i.e., the regions face symmetric shocks), (3) labour markets are integrated and workers are both able and willing to travel between regions, and (4) there are automatic mechanisms to transfer funds to regions suffering from asymmetric shocks.^[4]

This survey will examine how well euro-zone countries and Canadian provinces satisfy the optimum currency area criteria. Although it is not often considered in this light, a country such as Canada can also be described as a monetary union: its provinces are

distinct geographic entities that share a common currency. While European countries decided to move from individual currencies to the euro, Canadian provinces have shared the Canadian dollar since the country's creation.

A comparison of how well each union is suited for a single currency raises interesting questions for the future political and economic directions of the two regions. Will the economic integration of the euro-zone countries lead to a political union, or can the countries effectively share a common currency while still functioning as distinct states? Conversely, could economic pressures arising from regional differences between Canadian provinces lead to the disintegration of the Canadian dollar monetary union, and what would this mean for Canada as a single political entity?

Trade: The Premise for a Common Currency

Of the four optimum currency area criteria, the degree to which member regions trade with each other triggers the drive for monetary integration. Firms wishing to trade with counterparts in another country must normally perform a foreign exchange transaction to convert their domestic currency into the foreign currency required to buy or sell the goods of interest. Transactions on the foreign exchange market typically involve a hefty commission, which can represent an increasingly burdensome barrier to trade as the value of the goods exchanged between the two countries rises.[5]

Price comparisons between two regions with different currencies are also an inconvenience to business, so a common currency would improve efficiency and decrease arbitrage opportunities by allowing for instant

comparisons. Thus, from a purely trade-oriented perspective, the desire for a common currency is clear: two or more countries trading extensively with each other would stand to benefit immediately from sharing a single currency due to increased efficiency from decreased arbitrage opportunities and the elimination of foreign exchange transaction costs.[6]

While it is difficult to establish a specific threshold for how much inter-regional trade is sufficient to justify a common currency, the evidence suggests that the 12 euro-zone countries satisfy this portion of the optimum currency area criteria. Data comparing the value of merchandise traded by each member country with its fellow European Union countries (intra-EU trade) as compared to the value of merchandise traded with all other international destinations (extra-EU trade) are presented in Figure 1.[7] While the data are for the European Union as a whole, the 12 major EU economies have all adopted the euro, so the portion of trade within the EU that is not denominated in euros is relatively small.

The data in Figure 1 show that the portion of merchandise traded with EU partners varies between 55% and 85% for each country. Thus, EU countries trade disproportionately more with each other than they trade with nations outside of the EU, which represents only 15% to 45% of all trade. Germany, the largest economy in the currency area, trades 64% of its merchandise (imports and exports) with EU countries, while trade with the rest of the world makes up 36% of the total.[8] The benefits of the common currency are clear, as eliminating foreign exchange transaction costs on 64% of the country's trade represents a drastic reduction in one of the barriers to trade. While transaction

costs still apply to the remaining 36% traded with outsiders, these costs would remain regardless of whether Germany used the euro or the D-mark. As such, when the trade criterion is considered, the euro-zone countries represent an optimum currency area.

An examination of similar data for Canada, however, is most interesting. Data comparing the portion of merchandise traded by each province with the other provinces (interprovincial trade) to the portion of merchandise traded with the rest of the world (international trade) are shown in Figure 2.^[9] The portion of the total represented by interprovincial trade ranges from 19% to 55%, which is much less than the corresponding portion of intra-EU trade for the euro-zone countries (55% to 85%). As such, for different Canadian provinces, international trade represents 45% to 81% of the total.^[10]

It is important to note, however, that 78.6% of Canada's international trade involves imports from and exports to the United States.^[11] As such, making the approximation that this portion of trade with the United States is the same for all provinces, Figure 2 can be modified to separate trade with the United States from international trade (Figure 3). It thus becomes clear that many Canadian provinces actually trade more with the United States than they do with the other provinces of Canada; indeed, trade with the United States ranges from 35 to 64% of total trade depending on the province. As such, one could argue that a common currency between Canadian provinces and the United States would do more to remove barriers to trade than only having a common currency among the Canadian provinces, as is presently the case. If trade were the only factor to consider, then Canadian provinces do not

represent an optimum currency area to nearly the same degree as the countries of the euro-zone, as trade between provinces represents a smaller portion of total trade than trade with the United States, which is excluded from the monetary union.

Asymmetric Shocks and Common Currency

The second optimum currency area criterion concerns the business cycles of the member economies. In order to realize the most benefit from a currency union, the different regions should be faced with similar economic shocks and affected by them equally.¹ Symmetric shocks occur in this case, which implies that the different economies have similar compositions. Asymmetric shocks occur when an external force (e.g., a rise in the price of oil) affects two regions differently, or when one region is experiencing a boom while another is mired in recession.

Asymmetric shocks between regions become particularly problematic when the member economies share a common currency, as individual regions no longer have control over two important monetary policy instruments. By virtue of the common currency, they can neither count on a floating exchange rate to adjust for the different economic conditions between regions, nor can they use a devaluation, for example, to attempt to escape a recession. The currency union also necessitates the sacrifice of control over the interest rate to a common monetary authority. Thus, a member country experiencing a recession can no longer lower the interest rate to fuel investment and bring about a recovery.^[12]

This central monetary authority, however, is often fraught with dilemmas. Since one interest rate must be set for all

regions sharing the common currency, conducting effective monetary policy becomes difficult. Growth rates between regions will vary, so while one region might command a contractionary policy to curb the inflationary pressures of a boom, another region could require an expansionary policy to lift it out of a recession.

The net result is that the interest rate is set at some intermediate value for all regions, making the applied monetary policy ineffective: inflation rises in the booming region due to policy being too loose, while the interest rate is too high to encourage any new investment that might bring about a recovery in the region experiencing a recession.

This lack of control over monetary policy would not be such a problem if fiscal policy were able to pick up the slack. Although member governments do still control such measures in a currency union, fiscal policy is rarely sufficient to fully substitute effective monetary policy, which can certainly be seen by examining the experiences of the countries in the euro-zone.^[13]

Do the countries of the euro-zone experience asymmetric shocks? Figure 4 shows annual percent change in GDP for the six major euro-zone economies over the 1980-2005 period.^[14] While there are certain continuities on the plot, such as the recession in 1993, GDP growth is by no means similar across all regions throughout the period. This suggests that the countries have experienced asymmetric shocks. For example, while four economies experienced a fall in growth in 2003, Spain and Belgium experienced an expansion.^[15]

The euro-zone countries have sacrificed control over monetary policy to the European Central Bank, leaving them with only fiscal policy to direct their domestic economies. While this should

work well in theory, the existence of the European Union's "stability and growth pact" severely limits the effectiveness of fiscal policy. The legislation mandates that no country within the EU, all twelve euro-zone countries included, may run a budget deficit in excess of 3% of GDP. It also recommends that countries tend towards keeping budgets in balance. This single-handedly eliminates the most effective use of fiscal policy, a large budget deficit during a recession followed by a surplus in the subsequent recovery, from the toolbox of EU countries.^[16] As such, they are extremely limited in their potential policy applications, exacerbating the effect of the poorly-tuned monetary policy when faced with an asymmetric shock.

Similar data for Canadian provinces suggest that they are also particularly prone to asymmetric shocks. Figure 5 shows annual percent change in GDP for different Canadian provinces from 1982 to 2004.^[17] A quick glance at the data reveals that the provincial economies are clearly not in phase, particularly in the 1980s; indeed, the economies of Alberta and Saskatchewan were perfectly out of phase in 1988, even though they are geographical neighbours: Alberta experienced a major boom and GDP growth of nearly 10%, while Saskatchewan was mired in recession and saw its GDP contract by 4%.^[18]

The observed differences in growth highlight the regional orientation of the Canadian economy, which is still largely based on natural resources.^[19] The uneven distribution of these resources leads to different economic cycles between provinces, and the volatility of world commodity prices further exposes the provinces to asymmetric shocks.^[20] As such, due to the composition of their economies,

Canadian provinces experience greater asymmetric shocks than the euro-zone countries, whose economies are largely based on value-added manufacturing and services. This assertion is supported by the difference in the sheer magnitude of the volatility present in Figures 4 and 5.

The presence of asymmetric shocks within both the euro-zone and Canada suggests that these regions do not represent optimum currency areas; however, no geographically diverse region of the world is likely to contain perfectly identical economies. Nonetheless, several mechanisms exist to mitigate the effects of asymmetric shocks, most notably a common labour market between regions and fiscal transfers to the region experiencing the shock.^[21]

It is here, however, that the euro-zone countries and the Canadian provinces most differ in their suitability as common currency areas.

The Need for a Common Labour Market

While the free movement of goods between regions is both an important precursor to and a binding force within a common currency area, the free movement of labour between regions is equally important in maintaining its long-term viability. A common labour market is essential for the proper mitigation of asymmetric shocks between regions. If one region is experiencing a recession while another is expanding, labour can move from the depressed region to the booming one; however, workers must be both able and willing to move between regions.^[22]

A common labour market can mitigate the effects of asymmetric shocks through adjustments in wages. If wages in a depressed region fall, this causes

prices to fall as well. Similarly, wages rise in the booming region, and prices rise as well. The fall in prices boosts demand for the depressed region's products in the booming region, while the booming region's products experience less demand in the depressed region due to their higher prices. This acts as an automatic stabilizer between the two regions, effectively lifting the depressed region out of recession and reining in the expansion in the booming region.^[23] Labour markets are thus essential in mitigating economic shocks between regions of a currency area, especially since monetary policy is much less effective.

The unfortunate reality is that the eurozone does not possess a common labour market. Significant government regulations, often differing dramatically in both magnitude and scope between countries, curb the flexibility of the labour market. European workers, often for reasons of national interest, are extremely unlikely to move to another country that has greater employment opportunities. They are also unlikely to move even within their own country.

Enormous amounts of red tape surround the hiring and firing of workers, so firms find it very difficult to shed labour in a downturn, deepening the recession. For example, German companies are required to justify all lay-offs to both the local labour office and the government's work council, and all such lay-offs must be accompanied by a costly social benefits scheme to compensate both the workers and the state.^[24] Similar regulations govern wages, which are also notoriously inflexible due to the lack of worker mobility. When the 35-hour work week was introduced in France, companies were required to keep wages constant while their employees worked four fewer

hours each week.[25] The net result is that the euro-zone misses out on the mechanisms by which the labour market can dispel economic shocks; instead, the inflexibility of the system exacerbates asymmetric shocks and poses a severe liability to the region's viability as a common currency area in the longterm.[26]

The picture in Canada is a little brighter. Workers are much more likely to move between provinces in the event of prolonged regional downturns, even though they are separated by larger geographic distances. The collapse of the Atlantic fisheries in

Newfoundland, for example, has led to a large amount of interprovincial migration to Alberta, which has recently been experiencing a boom in its natural resource sector.[27] Wages are generally flexible as well, although the low amount of trade between provinces limits the effectiveness of the stabilization mechanism involving prices and wages. Despite the magnitudes of the asymmetric shocks experienced in Canada being greater than those experienced in the euro-zone, the difference would be far more pronounced if labour markets were equally inflexible in Canada as in European countries.[28] As such, Canadian labour markets are an asset to the country's effectiveness as a common currency area, although the efficiency of the corrections provided by this mechanism would be greater still with increased interprovincial trade.

Stability through Transfers

The last major component of the optimum currency area criteria concerns automatic transfers to regions suffering from asymmetric shocks. Due to the ineffectiveness of monetary policy at the regional level, transfers from expanding

regions to depressed regions represent another important method to mitigate the effects of asymmetric shocks. Such transfers would provide funds for expanded fiscal policies to lift a region out of recession.[29]

Automatic transfer mechanisms do not exist in the euro-zone. The budget of the European Commission, which all euro-zone countries finance, cannot exceed 1.27% of the combined GDP of all EU countries, providing no scope for such stabilizing transfers.[30] Significant economic literature has been expended on the subject, and most papers advise an expansion of the EU budget, perhaps to a level as high as 7% of GDP, to enable it to engage in a greater amount of interregional stabilization.[31] Considering the unpopularity of the EU budget (the vast portion of it goes to an agricultural policy that disproportionately benefits France[32]), this type of expansion is unlikely, despite the importance of transfers in maintaining an optimum currency area.

The "equalization program" that Canada employs represents one type of transfer scheme that might do well in the euro-zone. Under the program, provinces experiencing economic conditions better than the average for the country as a whole pay into a fund that is then redistributed appropriately to the regions lagging behind. The aim is to provide governments of depressed regions with additional funds to stimulate their economies by sharing the wealth from richer provinces. The problem with the system is that only two provinces, Alberta and Ontario, have been net contributors to the program in recent times.[33] This leads to discontent in these regions, since they are essentially being taxed for their success; however, since natural resources, the

source of many asymmetric shocks, are administered at the provincial level, this is largely a game of geographical roulette where Alberta has won due to its significant oil deposits.[34] A re-nationalization of natural resources would mask the effect of the asymmetric shocks at the regional level and transfer these revenues to the federal government, which could then use them directly to pay into the equalization scheme. While this would no doubt improve the scope of the program, would be quite controversial. Nevertheless, even in its current form, the equalization program helps Canadian provinces benefit from their common currency due to the transfers it provides to struggling regions.

While the equalization program is based on differences in GDP per person between provinces, a second automatic transfer mechanism involving the tax system is also present in Canada. This scheme is based on differences in GDP growth between provinces, which arguably makes it more important in maintaining an optimum currency area since it directly addresses the asymmetric shocks between regions. Under the system, provinces suffering from a recession receive increased social transfers, which amounts to a reduction in the taxes paid by citizens and an increase in the employment insurance payouts in that province.[35] Both of these measures are designed to lift the province out of recession and restore growth parity with the rest of the country, reducing the impact of an asymmetric shock.

Future Directions

If the euro-zone is designed to increase the long-term viability of the euro, then future recommendations are clear: in order to begin representing an optimum

currency area, major reforms are required to both labour markets and fiscal transfers. The current lack of stabilization mechanisms in both of these areas severely undermines the ability of the euro-zone to adjust to asymmetric shocks between regions, a matter that is further complicated by the restrictions imposed on fiscal policy by the EU's "stability and growth" pact.[36] These reforms will no doubt be painful politically, but until the economic conditions and regulations in different regions are synchronized, the yearned political integration between euro-zone countries into a single geographic entity is a complete pipe dream.

The future of the Canadian provinces as a currency area is sound. The possibility of an eventual monetary union with the United States, while perhaps practical on trade-based grounds, remains a topic of separate discussion as all of the optimum currency area criteria would have to be evaluated for the new union. Otherwise, additional trade between provinces should be encouraged, although a natural resource-based economy is bound to be oriented towards exports to the rest of the world.[37] While the resulting asymmetric shocks between provinces are pronounced, they do not endanger the unity of the currency area as the common labour market and automatic transfers shared between regions are at least somewhat effective at mitigating the effects of these shocks. Potential improvements, particularly to the equalization and tax system transfers through the re-nationalization of natural resources, have certainly been identified; however, since political opportunism often triumphs over economic logic, such reforms are not very likely.

Appendix

Figure 1. Intra- and Extra-EU merchandise trade as a percent of total trade for euro-zone countries, 2004

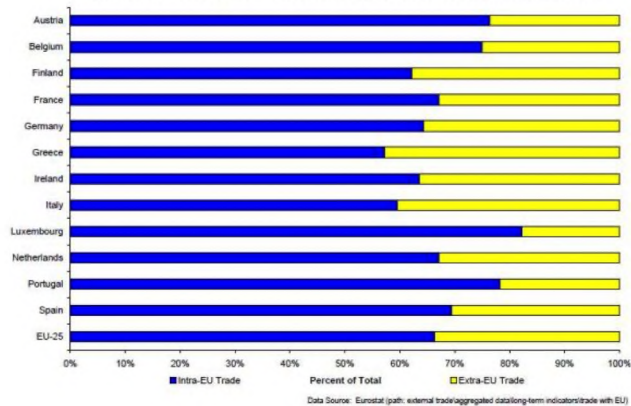


Figure 2. Interprovincial and International merchandise trade as a percent of total trade for Canadian provinces, 2001

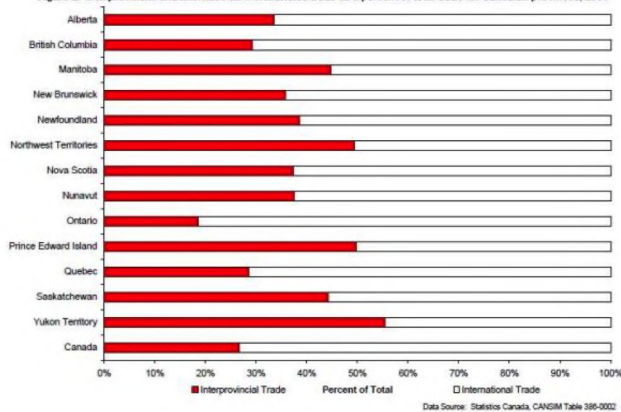


Figure 3. US, Interprovincial, and International merchandise trade as a percent of total trade for Canadian provinces, 2001

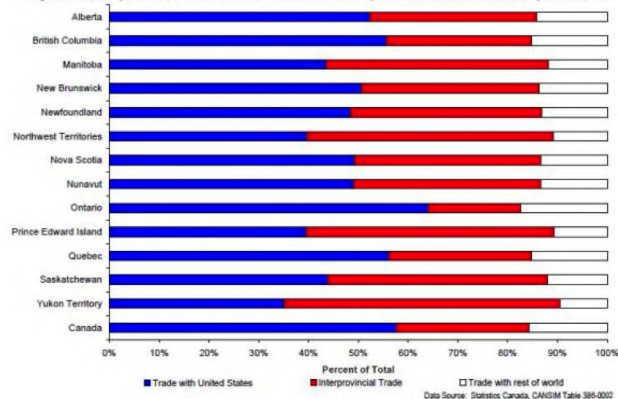


Figure 4. Annual percent change in GDP (constant prices) for select euro-zone economies, 1980-2005

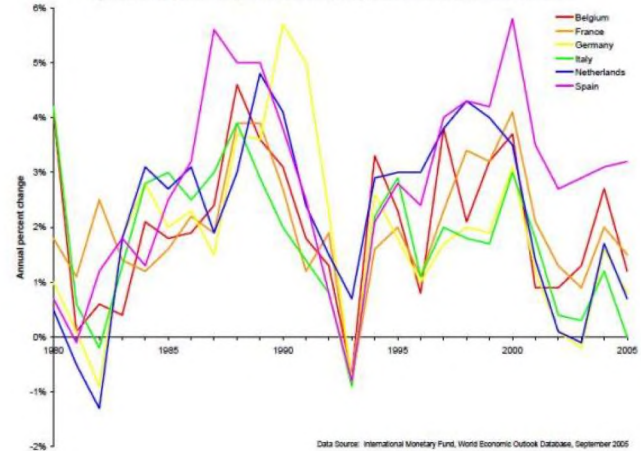
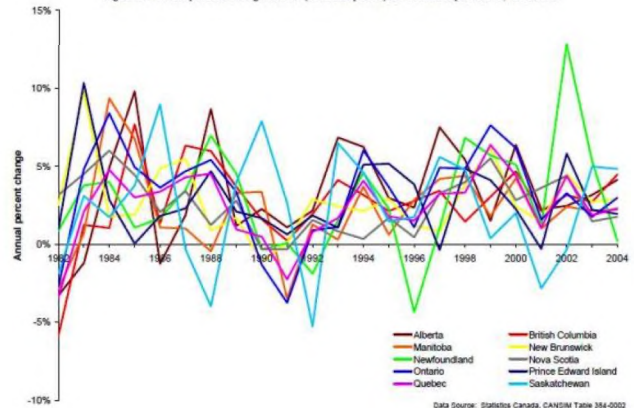


Figure 5. Annual percent change in GDP (constant prices) for Canadian provinces, 1982-2004



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