



GOING FOR GOLD

## National Stabilization Policy and its Implications for Western Canada

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GOING FOR GOLD

The Western Canadian Economy  
in the International Arena

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# GOING FOR GOLD

Western Canada's economic prosperity is not only good for the West, but for Canada as a whole. But the West can not rest on its laurels. Like the athletes training for the forthcoming Winter Olympics in Vancouver, western Canada needs to be at the top of its game if it is to continue to compete successfully in the international economic arena, especially as its competitors step up their games. If we are not successful, our standard of living will fall.

The Going For Gold Project is examining how best to position western Canada in the global economy through a series of research papers, provincial research roundtables, public opinion and expert surveys, and will end with a seminal international economic conference in Vancouver in the fall of 2009.

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## Executive Summary

■ All economies suffer the consequences of business cycles. The growth of production and economic activity is rarely steady or predictable. Recessions and booms both impose costs on society. Recessions leave resources unemployed while booms spark periods of inflation which distort price signals and so lead to misallocations of resources. Recessions and booms also place strains on government finances. These stresses appear in the form of lost revenues and increased demands for income transfers during recessions and increased demands for infrastructure spending during booms.

■ The Canadian economy consists of many regional economies each characterized by its own business cycle. These cycles differ both in terms of timing (some are expanding when others are stagnant) and amplitude (the depths of the typical recession and height of the typical boom differ by region). The economy of western Canada follows a different cycle than that in the rest of Canada. Within western Canada, the economy of Saskatchewan follows a cycle of expansion and contraction which is remarkable for being largely independent of cycles elsewhere in Canada.

■ In a regionally-diverse economy, the free movement of labour, capital and goods across regional boundaries acts in ways to dampen the amplitude of business cycles. Thus, if Region A is booming with rapidly growing wages and Region B is stagnant with little growth in wages, we would expect labour to flow from Region B to Region A. This adjustment would cause the growth of wages to moderate in Region A and increase in Region B. Both responses, then, act to stabilize incomes in the regional economies. Public policy intended to lessen the amplitude of business cycles therefore encourages the free movement of labour, capital and goods across regions. Recognition of this is the basis of the first policy recommendation: *To increase the stabilizing effects of the free movement of labour, capital and goods, the effort to reduce provincial barriers to such movements, typified by the TILMA agreement between Alberta and British Columbia, should continue and be expanded to include all provinces.* Resistance by the government of Saskatchewan to joining TILMA is surprising given that the business cycle in Saskatchewan is only weakly or negatively correlated with cycles elsewhere. The economy of Saskatchewan would therefore benefit more

than most from agreements to ease the free movement of labour, capital and goods across provincial boundaries.

■ The costs incurred as a result of business cycles provide a motivation for public policies to dampen those cycles. Monetary policy is shown to be a blunt tool of stabilization policy as its influence must be applied equally across regions with considerably different business cycles. While Canadian monetary policy has for the most part been applied in a way conducive to stabilizing the business cycle in western Canada, it has rarely been able to benefit from the ideal monetary policy for its economic circumstances.

■ Fiscal policy influences the business cycle by way of “automatic stabilizers.” Automatic stabilizers are features of taxes and government expenditures that have the effect of reducing the amplitude of income fluctuations without the need for changes in tax rates or changes in the design of expenditure programs. During an economic expansion, automatic stabilizers cause tax revenues to automatically increase and expenditures such as employment insurance to automatically decline. During an economic contraction tax revenue automatically decreases and expenditures automatically increase. In this way, government budgets are made to stabilize the economy by reducing after-tax incomes during expansions and supplementing lost incomes during contractions.

■ Provincial government budgets, in western Canada and elsewhere, exert only a small stabilizing influence on their economies. Provincial transfers to municipalities, public hospitals, universities and colleges exert a destabilizing influence. Recognition of this is the basis of the second policy recommendation: *Provincial governments should consider imposing on their own budgets a long-term commitment to stable funding of local jurisdictions.* While this recommendation will not cause provincial transfers to become stabilizing, it will stop them from contributing a destabilizing influence and, in this way, increase the overall stabilizing influence of provincial budgets.

■ The budget of the Canadian federal government exerts a strong and equal stabilizing influence on the economies of all regions of Canada. The stabilizing influence comes mainly from the expenditure side of its budget.

■ An examination of the European Union's experience with stabilization policies is relevant because in many respects the governing institutions of the EU resemble those in Canada. The experience of member states of the EU is that they behave in ways that threaten the effectiveness of their automatic stabilizers. Tax rates and spending programs have been established that cause government budgets to realize budget deficits very near allowable maximums even during economically favourable periods. As a consequence, recession places those governments in the position of having to raise tax rates and cut spending. In this way, their budgets are forced to exert a destabilizing influence on their economies.

■ Evidence suggests that most Canadian provinces are behaving in ways similar to member states of the EU and so are threatening the ability of their budgets to provide a stabilizing influence on their economies. To this point the

federal government has avoided making these choices and so has behaved in a way that allows its budget to continue to play a stabilizing role. To ensure this continues, and to resurrect the stabilizing influence of provincial budgets is the motivation for the third and last policy recommendation: *In order to preserve the effectiveness of automatic stabilizers, federal and provincial governments should define targets for annual budget balances in cyclically-adjusted terms.*

■ The benefits of adopting this policy recommendation is that governments can set lower tax rates and establish more generous spending programs than is possible given their current policy choices. The cost is that they must accept budget deficits during economic downturns; something they have been loath to do for political reasons. Interestingly, these costs would be smallest for provinces in western Canada.

## Abstract

*This paper investigates the extent to which business cycles in Canada are stabilized in the sense of reducing the depths of recessions and the excesses of booms. It shows that the Canadian economy consists of regional economies whose business cycles differ considerably. The free movement of labour, goods and capital across provincial boundaries is shown to exert a considerable, though not complete, stabilizing influence. Monetary policy is shown to be a blunt tool of stabilization policy as its influence must be applied equally across regions with considerably different business cycles. While the federal budget is shown to exert a significant stabilizing influence on all regional economies, the stabilizing influence of provincial government budgets is much less. The experience of the European Union is described with an eye to drawing useful lessons for Canada. The paper concludes with three policy recommendations designed to increase the extent to which economic cycles are stabilized.*

## 1. Introduction

Western Canada is currently enjoying a period of unprecedented prosperity. Unemployment rates are very low, government budgets are in surplus, and tax rates are falling. In central Canada, manufacturing industries are suffering a fall in demand for their products, employment growth is slow, and provincial governments are looking for relief. Twenty years ago the relative experiences of these two regions of the country were reversed; the economy of western Canada was in relative decline.

National economic policy-makers are generally considered to have a role to play in stabilizing the economy and promoting sustainable rates of growth. The tools used by national policy-makers, however, tend to be blunt in the sense that they can

often only be aimed at national targets. If the national economy consists of a collection of regional economies, each with its own economic cycle, what economy are national policy-makers seeking to stabilize and which growth rate are they seeking to promote? What is the impact of national economic policy in a regionally-diverse economy such as Canada's—one where different regions of the country can simultaneously experience rapid employment growth and rising inflation on the one hand and widespread layoffs and stagnant prices on the other? What does this imply for western Canada's prospects for the future? Is there scope for a greater role for provincial governments in economic stabilization? What can we learn in this regard from the experiences of other nations or supranational unions such

as the European Union? These are the problems and possible solutions that will be examined in this paper.

The plan for the paper is as follows. The next section expands on the issue of conducting effective stabilization policy within a regionally-diverse national economy. Section 3 presents evidence on the difference between the economy of western Canada and the economy in the rest of the country. Section 4 examines evidence of whether national stabilization policies have differentially impacted western Canada versus the rest of the country. In Section 5, the paper turns to the experience of member states of the European Union and seeks lessons from that experience for Canada. Finally, in Section 6, the paper concludes and offers policy recommendations that might increase the effectiveness of stabilization policy in western Canada.

## 2. The Issue

The economy of western Canada is heavily reliant on the exploitation of natural resources, the prices of which are determined on world markets. As a consequence the prices of oil, natural gas, grain, potash, and forest products, all so important to the economy of western Canada, from time-to-time experience wide fluctuations sparked by events such as war, politics and weather. (1) These fluctuations in turn result in wide fluctuations in incomes and well-being. Such fluctuations are problematic for at least two reasons.

First, fluctuating incomes lead to periods of unemployment and periods of over-employment and both of these produce what economists broadly define as “welfare losses.” Thus, recessions leave resources unemployed while booms spark periods of inflation which distort price signals and so lead to misallocations of resources. Individuals and households respond to minimize the welfare losses due to fluctuations in their own incomes by saving during personal “booms” and running down savings during personal “busts.” They do so because the benefits of consuming a more or less constant amount of goods and services over time exceed the benefits of bingeing and scrimping as incomes temporarily rise and fall. What is true of individuals is broadly true for society in aggregate.

The second reason why income fluctuations are problematic is that they can inhibit longer-term economic success. This is so because people made unemployed during a recession may suffer so-called “hysteresis” effects whereby skills deteriorate leading to falls in productivity even after regaining employment. In small open economies, a temporary recession may also result in the loss of mobile labour and capital to other jurisdictions and so a permanent loss of productive capacity. In these ways a temporary bout of unemployment may result in a permanent loss of well-being. (2)

The use of fiscal and monetary policy by government to reduce the depths of recessions and the heights of booms—what is called stabilization policy—is motivated by a desire to minimize these costs of income volatility. While well-motivated, the ability of Canadian governments to conduct effective stabilization policy is constrained by two key factors: the existence of region-specific economic fluctuations and centralization of certain key tools of stabilization policy.

### 2.1 The Implication of Region-Specific Cycles

The design and application of effective policy is made challenging when the national economy is made up of regionally-diverse economies. Due to differences in industrial structure and population, regional economies will respond differently to common shocks. Thus, in a regionally-diverse economy the same economic shock will cause the economy of Region A to respond differently than the economy of Region B.

Examples of this experience are common. An example from Canada is the effect of an increase in the price of fossil fuels. This is generally beneficial to the economies of Alberta, Saskatchewan, and Newfoundland and Labrador, but is generally harmful to the economies of the rest of the country. Another example from Canada is the recent rapid rise in the value of the Canada-US exchange rate which has been particularly harmful to manufacturing industries producing for export markets in Ontario and Quebec. In the European Union, the President of France has recently complained that the interest rate policy of the European Central Bank, while possibly appropriate for some members of the EU, is harmful to the economic prospects of his country. Finally, while consumers of oil heating in the New England states of the US feel threatened by the prospect of

\$150 oil, the people of oil-producing states such as Texas and Alaska look on it more favourably.

It is important to stress that the existence of regional cycles does not necessarily call for a policy response from government. When regions are open to the in- and out-flow of labour and capital we can expect the marketplace to provide a form of stabilization. Thus, if Region A is booming with rapidly growing wages and Region B is stagnant with little wage growth, we would expect labour to flow from Region B to Region A. This adjustment will cause the growth of wages to moderate in Region A and increase in Region B. Both responses, then, act to stabilize incomes in the regional economies and encourage an adjustment whereby interregional employment shifts eventually halt. Such adjustments, however, tend to respond more in the long- than the short-term. Larger movements of labour and physical capital between regions occur only when changes in relative economic conditions appear permanent. For this reason, market adjustments are unlikely to be able to fully stabilize incomes over the short-term and so we look for a response from policy-makers to complement the response of the market.

## 2.2 The Tools of Stabilization Policy

In regionally-diverse economies, policy-makers desiring to respond appropriately to a shock can do so only if they can apply different stabilization policy solutions to different regions. Unfortunately, applying different stabilization policy solutions to different regions within an economy is sometimes impossible and often fraught with difficulty. Thus, France seeks a lower interest rate than Germany, but the same interest rate, determined by the European Central Bank, applies in both countries. Similarly, Ontario's manufacturing exporters seek a lower value to the Canadian dollar than Saskatchewan farmers who import machinery from the US, but the same exchange rate, determined by the Bank of Canada, applies to both regions.

As these examples suggest, applying different policy solutions to different regions is impossible for the nation's central bank. It is impossible because the central bank's stabilization policy levers—changes in interest rates and exchange rates—can only be applied equally in all regions. This fact is problematic in a nation of economically-diverse regions because, when the central bank has adopted a flexible exchange rate (as in Canada

and virtually every modern industrial economy), monetary policy is the most powerful policy lever for influencing economic variables such as output, employment, interest rates, and price inflation. Thus, the most powerful tool in the stabilization policy arsenal is incapable of promoting regionally-differentiated policies. It can either promote a monetary policy appropriate for one region to the detriment of others or, more likely, promote a monetary policy that is appropriate only for the average of the regional economies. From this perspective, then, the western Canadian economy can never benefit from the ideal monetary policy for its economic circumstances. Evidence on this will be presented in Section 4.

The fact that the central bank is incapable of applying the appropriate monetary policy in every part of a regionally-differentiated economy means that effective regionally-differentiated stabilization policy depends on fiscal policy; choices with respect to taxation and public expenditures. The most effective way of using fiscal policy to stabilize the economy—whether or not it is regionally diversified—is to allow the unfettered operation of so-called “automatic stabilizers” in the government budget. Automatic stabilizers are discussed more fully in what follows, but for now it is useful to understand that as the name suggests an automatic stabilizer is a feature of the tax or expenditure system that has the effect of reducing the amplitude of income fluctuations without the need for legislated changes in tax rates or the design of spending programs. (3) Examples of automatic stabilizers are the income tax and employment insurance. During an economic expansion, income tax revenues automatically increase (since more people are earning income) and employment insurance payments automatically decline (since fewer people remain unemployed) while during a contraction income tax revenue automatically decreases and employment insurance payouts automatically increase. In this way, income tax revenues and employment insurance expenditures move in a counter-cyclical fashion, acting to reduce fluctuations in consumption and aggregate income.

Automatic stabilizers operate in any government budget which has access to income-sensitive revenues and responsibility for income-sensitive expenditures. In Canada, the division of government powers and responsibilities has left both the federal government and all provincial governments with access to a

wide range of revenue sources and expenditure responsibilities. Thus, both levels of government collect income taxes and both have responsibilities for spending programs that reallocate income as the economy expands and contracts. In this way, the budgets of both levels of government have access to automatic stabilizers. The effectiveness of those automatic stabilizers is examined in Section 4. Before turning to that issue, however, we examine the evidence of regional-specific business cycles and so the need for region-specific stabilization policies.

### 3. Evidence of Regionally-Diverse

#### Business Cycles

If all regions of Canada experienced business cycles with the same period and amplitude, then any stabilization policy applied equally to all regions would be equally effective at influencing those cycles. In that case, a nationally-coordinated stabilization policy targeting measures of the national business cycle would be equally beneficial to all regions. If, however, cycles differ in period and amplitude across regions, then a national stabilization policy targeting measures of the national business cycle and applied equally in all regions must benefit some regions more than others and, if regional cycles are significantly out of phase, may even prove destabilizing for some regions. In this section, I present evidence that business cycles in Canada do indeed differ across regions. The first step is to define an appropriate measure of the business cycle.

#### 3.1 Identifying the Business Cycle

In what follows, the basis of the measure of the business cycle is real per capita values of Gross Domestic Product (GDP). GDP measures the dollar value of all goods and services bought and sold in a specified region over the course of a specified period. As it measures the value of goods and services bought and sold, GDP offers a rough measure of economic well-being. (4) When it is calculated as a “real” value, the effects of inflation are removed. It makes sense to do this because inflation is a measure of a general increase in prices. If all prices were to double over night, then the dollar value of all goods and services bought and sold, GDP, would also double, but clearly nothing else would have changed. To conclude that we

collectively were made better off by the doubling of all prices would be inappropriate. To avoid this problem, we remove the effects of inflation from our measure of GDP and so measure what is known as a “real” value. Our measure of the business cycle also makes an adjustment for population size. This makes sense because a 10% increase in GDP accompanied by a 15% increase in population would leave the average person with a smaller share of GDP than before. In recognition of this, our measure of GDP is also adjusted for population and so is measured on a per capita basis.

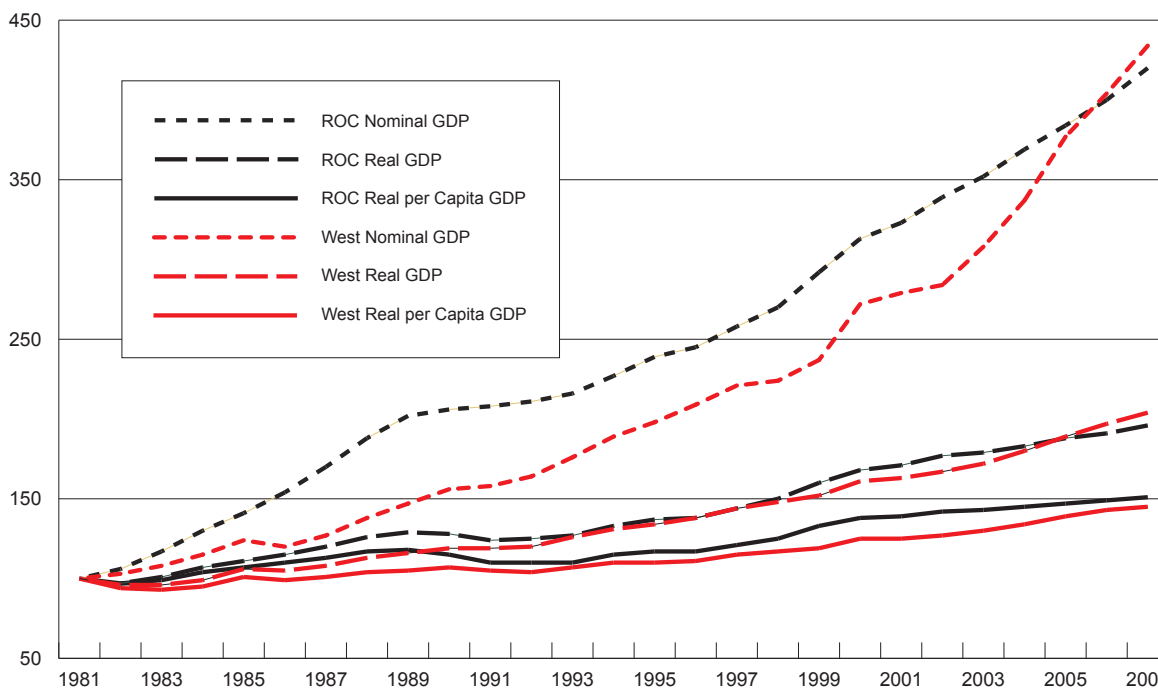
#### 3.2 Sources of Stabilization

Recognizing that the purpose of stabilization policy is to reduce fluctuations in real per capita measures of output, an effective stabilization policy can attack on many fronts. One prong of attack is to encourage migration to (from) regions of rapid (slow) output growth and in this way reduce the growth (fall) in per capita output. A second prong of attack is to allow price levels to vary by region. Thus, a region experiencing rapid growth will also typically experience inflation relative to regions experiencing slower rates of growth. This difference in rates of price inflation will act to dampen the increase in real GDP in the growing region relative to that in the more slowly growing region. The third prong of attack available to policy-makers is to make the tax system and government transfer programs sensitive to real per capita income and in this way cause citizens to pay less in taxes and receive more by way of income transfers during an economic downturn.

In Canada, governments have done well to allow for the free movement of people across provincial jurisdictions. Some exceptions exist to this broad statement: many analysts believe, for example, that the federal Employment Insurance program discourages those who are unemployed from moving to faster growing regions of the country. (5) Despite such impediments evidence provided below suggests that population movements across regions have had the effect of dampening regional cycles in real per capita GDP.

Rates of inflation also differ across regions in Canada. For example, from 1999 to 2007, the rate of price inflation averaged 6.1% in fast-growing Alberta but only 1.7% in economically-stagnant Ontario. (6) Such differences in rates of inflation have

**Figure 1: Indexes of Alternative Measures of GDP**



the effect of dampening measures of real output in Alberta vis-à-vis Ontario and stabilizing measures of real per capita GDP in each province. Evidence presented below will confirm that regionally-differentiated rates of inflation have had an effective stabilizing influence on measures of real per capita GDP.

Figure 1 presents three measures of GDP for each of two regions: western Canada, composed of the provinces of Manitoba, Saskatchewan, Alberta, and British Columbia, and the rest of Canada (ROC). (7) The short-dashed lines plot values of an index (1981 = 100) of values of nominal GDP (the value of all goods and services purchased in that region before adjustments made for inflation and population). Relative to 1981 values, these data show that up until 1999, GDP in western Canada grew less quickly than in the rest of Canada. (8) After 1999, GDP in western Canada grew much more quickly, and by 2007, GDP in western Canada had increased more relative to its 1981 value than GDP in the ROC had increased relative to its 1981 value. The long-dashed lines show what happens when we adjust for inflation and measure GDP in real terms. Now we see that much of the increase in GDP was due to inflation and that the movements in GDP were in fact more similar in the two regions than we would have concluded without the adjustment for inflation. We also observe that fluctuations in inflation-adjusted GDP values are smaller than the unadjusted values so that regional differences in rates of inflation have a

stabilizing effect. Finally, the solid lines, plotting values of real GDP per capita, show the effect of adjusting for both inflation and population. This measure of GDP indicates that, over the 27-year period of this sample, output in western Canada increased by less relative to its 1981 value than did output in the rest of Canada relative to its 1981 value; something the other measures fail to show. We can also observe that fluctuations in this measure have lessened relative to the previous measures suggesting that both the free adjustment of prices and the free mobility of people across regions have had a stabilizing effect on real per capita incomes. (9)

Figure 2 highlights the implications of accounting for inflation and population growth for understanding data on GDP. Over the full sample, 1981-2007, the average rate of growth in

**Figure 2: Decomposing the Rate of Growth in GDP**

	1981-2007		1999-2007	
	West	ROC	West	ROC
Average annual rate of growth in:				
Nominal GDP	5.8	5.7	7.8	4.7
Inflation	3.0	3.0	4.0	2.0
Population	1.3	1.0	1.2	0.9
Real GDP per capita	1.5	1.7	2.6	1.7



nominal GDP was only slightly higher in western Canada than in the rest of Canada. The average rate of population growth, however, was higher in western Canada (rates of inflation were the same on average) so that real per capita GDP in fact grew slightly more slowly than in the ROC. More recently, over the period 1999–2007, western Canada has enjoyed a substantial advantage over the rest of Canada when it comes to growth in nominal GDP. However, both the average rate of inflation and the average rate of population growth have also been significantly higher in western Canada. As a result, although the average rate of growth in real GDP per capita has been higher in western Canada, the advantage is not nearly as large as suggested by the unadjusted nominal GDP figures.

### 3.3 Identifying Region-Specific Cycles

In this section, I focus more closely on the question of whether fluctuations in real per capita GDP differ in important ways in western Canada relative to the rest of Canada. Figure 3 presents measures of the correlation of real per capita GDP over the period 1981–2007 on a province-by-province and on a regional basis. A number of things stand out. First, real per capita GDP in Saskatchewan exhibits very little correlation with that of any other province outside of western Canada. This is quite different from Alberta, BC, and Manitoba where real per capita GDP is highly correlated with that in the rest of Canada. Second, movements in real per capita GDP in Alberta and Saskatchewan have no relationship with movements in

real per capita GDP in the Atlantic Provinces. Finally, real per capita GDP in the rest of Canada (ROC) is much more highly correlated with that in Canada ( $r = 0.97$ ) as a whole than is real per capita GDP in western Canada ( $r = 0.64$ ).

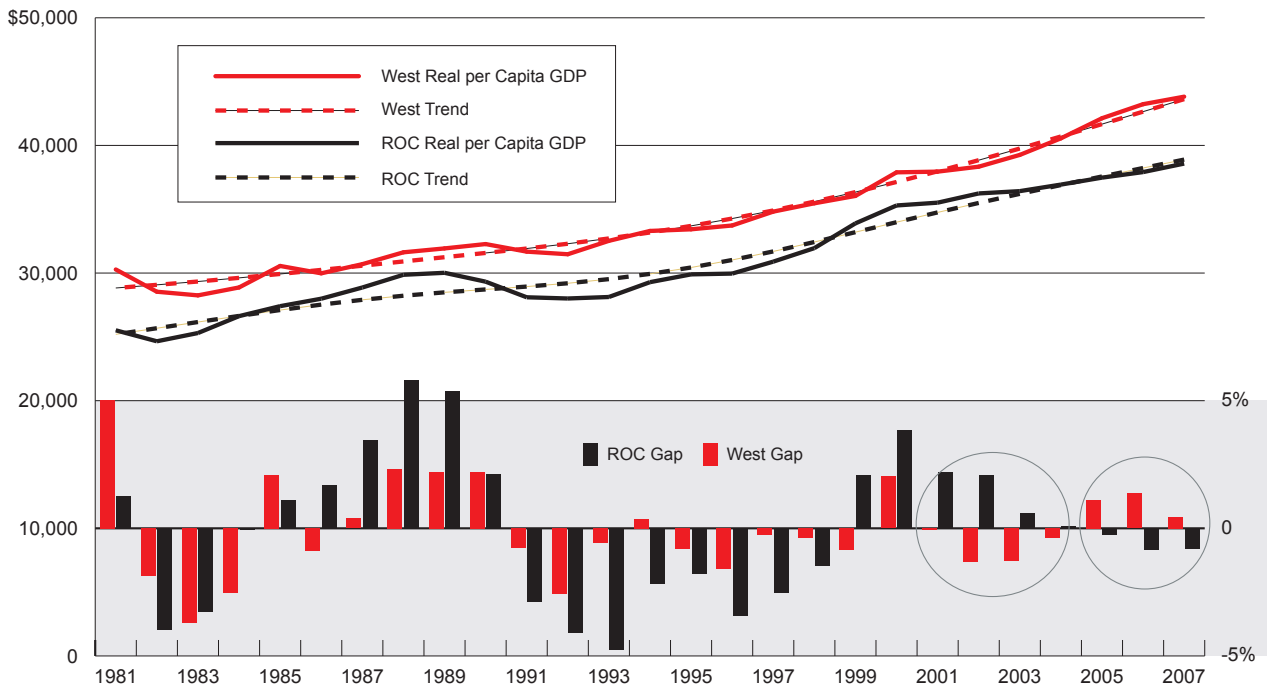
While helpful for understanding the relationships between movements in real GDP per capita in regions of the country over the long term, the numbers in Figure 3 do not allow us to see how these relationships may have changed over time. Figure 4 focuses on the variation of real per capita GDP in western Canada versus the rest of Canada over time. These data are now presented in dollar terms as opposed to an index. The variation in these series—the variation in GDP which remains after the stabilizing influences of inter-regional migration and regionally-differentiated rates of inflation—is the proper target of stabilization policies of the sort that might be affected by the fiscal or monetary policies of government.

The solid lines in Figure 4 plot values of real per capita GDP in western Canada versus the rest of Canada. The dashed lines present an estimate of the trend value of real per capita GDP in each region. (10) Throughout our sample period, real per capita GDP, both actual and trend values, were higher in western Canada than in the rest of Canada. The vertical distance between the dashed and the solid line identifies the deviation from trend. Movements above (below) the trend line indicates that real per capita GDP is higher (lower) than we might expect would be observed over the long-term. The wave-like motion of the solid line around the dashed trend line is our measure of the business cycle.

**Figure 3: Provincial Output Correlations**

	NL	PE	NS	NB	PQ	ON	MB	SK	AB	BC	WEST	ROC	CANADA
NL	1.00												
PE	0.37	1.00											
NS	0.43	0.08	1.00										
NB	0.45	0.60	0.50	1.00									
PQ	0.34	0.31	0.57	0.49	1.00								
ON	0.30	0.42	0.63	0.52	0.93	1.00							
MB	0.18	0.00	0.42	0.01	0.59	0.58	1.00						
SK	-0.06	-0.06	-0.17	-0.08	0.09	0.00	0.32	1.00					
AB	0.05	-0.09	0.08	-0.11	0.57	0.45	0.59	0.26	1.00				
BC	0.31	0.07	0.30	0.28	0.70	0.55	0.51	0.15	0.70	1.00			
WEST	0.17	-0.07	0.24	0.03	0.67	0.52	0.71	0.40	0.89	0.87	1.00		
ROC	0.37	0.41	0.65	0.55	0.97	0.99	0.58	0.01	0.48	0.61	0.56	1.00	
CANADA	0.31	0.26	0.72	0.44	0.96	0.95	0.61	-0.06	0.54	0.63	0.64	0.97	1.00

**Figure 4: Real GDP per Capita: Level, Trend, Gap**



The bars in Figure 4 measure the deviations from trend as a percentage of the trend value. In 1993 for example, real per capita GDP in the ROC was below its trend value by an amount equal to nearly 5% of the trend value of real per capita GDP. The data represented by these bars tell us a number of things. First, both regions suffer from significant deviations from trend values. Over the 27 year period of our sample, the average amount by which real per capita GDP was above or below trend was 2.4% in the ROC and 1.5% in western Canada. (11)

Two sub-periods have been circled in Figure 4 in order to highlight the fact that during certain periods the economies of western Canada and the rest of the country move in completely different directions. During the period from 2001 to 2004, real per capita GDP in the rest of Canada was above trend by an average of 1.2%, while in western Canada it was below trend by an average of 0.7%. By contrast, during the period from 2005 to 2007, real per capita GDP in the rest of Canada was below trend by an average of 0.6%, while in western Canada it was above trend by an average of 1.0%.

## 4. The Regional Impact of National Stabilization Policies

To this point we have found evidence that the free mobility of labour and capital and the free adjustment of prices have exerted significant stabilizing influences on measures of regional income. This leads us to concentrate on regional measures of income after removing the influences of population growth and changes in prices (i.e., real per capita GDP). This is the variation in income remaining after the stabilizing influences of prices and migration and is the proper target for efforts at stabilization by government. In the previous section, we saw evidence that real per capita GDP fluctuates differently across provinces and regions. In particular, movements in real per capita GDP in western Canada differ quite considerably in both timing and magnitude of change vis-à-vis changes in the rest of Canada. The most recent period, from 2001 to 2007, has been remarkable in the sense that the economic cycle in western Canada has borne very little similarity to the cycle in the rest of Canada.

## 4.1 Monetary Policy

As noted earlier, applying different policy solutions to different regions is impossible for the nation's central bank. It is impossible because the central bank's stabilization policy levers—changes in interest rates and exchange rates—can only be applied equally in all regions. In an economy composed of economic regions whose economic cycles differ in period and/or amplitude—such as Canada—the central bank can either promote a monetary policy appropriate for one region to the detriment of others or, more likely, promote a monetary policy that is appropriate only for the average of the regional economies. From this perspective, then, the western Canadian economy can never benefit from the ideal monetary policy for its economic circumstances. In this section, I try to provide some idea of the magnitude of this problem.

The Bank of Canada attempts to influence economic variables via changes in a key interest rate under its control: the Bank Rate. Economic theory suggests that changes in the Bank Rate set in motion a chain of events that influences the exchange rate and all other interest rates in the economy. In this way, the Bank influences spending and production decisions with the goal of influencing the rate of inflation in the economy. Increases in the Bank Rate are used to decrease spending and reduce the rate of inflation while decreases in the Bank Rate are used to increase spending and allow the rate of inflation to increase. The connection between changes in the Bank Rate and changes in levels of output and inflation is subject to uncertainty and is generally considered to exert its influence only with a lag.

**Figure 5: Regional Cycles and Monetary Policy**

	Western Canada	Rest of Canada	Canada
1982-2007	-0.20	-0.37	-0.36
1982-1990	-0.25	-0.80	-0.70
1991-1998	-0.36	-0.28	-0.28
1999-2007	-0.25	0.38	0.31

The values reported in Figure 5 identify the correlation between changes in the Bank of Canada's Bank Rate and the change in real per capita GDP. (12) In recognition of the consensus that monetary policy influences the economy with a lag, the figure reports correlations between the change in real GDP per capita and the change in the Bank Rate that took place in the previous year. (13)

Considering first the entire period of our sample, 1982-2007, we find a negative correlation between changes in the Bank Rate and real per capita GDP. Thus as predicted by economic theory, increases (decreases) in the Bank Rate appear to exert an influence that reduces (increases) real per capita output. It is noteworthy that over this period the correlation of movements in the Bank Rate with movements in real GDP per capita is greater in the rest of Canada than in western Canada. (14)

Previously, we recognized that movements in real GDP per capita have not always been in phase in these two regions. For that reason, we consider the correlation of monetary policy with changes in real GDP per capita for a number of sub-periods. Correlations for the period 1982-1990 suggest that monetary policy was far more tightly tied to changes in economic conditions in the rest of Canada than to those in western Canada. Although the direction of policy was appropriate for exerting a stabilizing influence on real per capita GDP in western Canada (i.e., the correlation was negative), the strength of the relationship was considerably less than in the rest of Canada. This was followed by a period, 1991-1998, during which monetary policy was more or less equally influenced by (or equally influencing) economic conditions in western Canada as elsewhere. The correlations reported for last sub-period, 1999-2007, suggest that monetary policy was targeting (or influencing) economic conditions in a way appropriate for western Canada, but inappropriate for the rest of Canada.

The results presented in Figure 5 suggest that monetary policy, being a blunt instrument of stabilization policy because its policy tools cannot be regionally differentiated, has at times imposed too strong or too weak a stabilizing influence on one or more regions in Canada. This suggests it will in general be

necessary to supplement the (mainly) stabilizing influence of monetary policy with effective fiscal stabilization efforts.

## 4.2 Automatic Stabilizers

The results described in the previous section suggest that in order for regional economies within a monetary union to obtain policy-induced stabilization of appropriate direction and strength, monetary policy needs to be supplemented by a regionally-differentiated fiscal policy. Fortunately, so-called “automatic stabilizers” operating within government budgets are well-suited to this task. In this section I briefly describe these automatic stabilizers and produce measures of their stabilizing influence.

The predominant view amongst economists is that fiscal stabilization should be based on *rules* rather than *discretion*. By this it is meant that a useful stabilization policy is one that announces specific policy responses to particular types of shocks or situations. Thus the policy-maker announces, “Whenever I observe economic situation X, I will do Y.” The effectiveness of such policy rules depends on them being clearly announced and consistently obeyed. Policy based on discretion, on the other hand, involves responding differently at some points in time than others in response to the same economic conditions: “Whenever I observe economic situation X, I may do W, or I may do Y, or I may do Z.”

An effective way of implementing a fiscal stabilization policy rule is to make use of automatic stabilizers. As noted earlier, an automatic stabilizer is a feature of the tax or expenditure system that has the effect of reducing the amplitude of income fluctuations without the need for changes in tax or expenditure rates. Examples include the income tax and employment insurance. During an economic expansion, income tax revenues automatically increase (since more people are earning income) and employment insurance payments automatically decline (since fewer people remain unemployed) while during a contraction income tax revenue automatically decreases and employment insurance payouts automatically increase. In this way, income tax revenues and employment insurance expenditures move in a counter-cyclical fashion, acting to reduce fluctuations in consumption and GDP. (15)

Automatic stabilizers operate through government budgets in a number of ways; through the progressive tax system, through income transfers such as employment insurance and social assistance, and through intergovernmental grants. It is a feature of the Canadian federal system of government that both the federal government and the governments of each province have access to similar sources of taxation and have responsibility for providing income transfers which are sensitive to income. (16) Both levels of government also provide transfers to lower levels of government: the federal government makes transfers to provincial governments and provincial governments make transfers to local governments. (17) Federal government transfers include those made as part of the federal equalization program—an expenditure program designed to ensure provincial governments with different revenue-raising capacities have more or less equal ability to provide government goods and services. Transfers made as part of the equalization program favour those provinces with lower average incomes and so exert a stabilizing influence on those provincial economies.

To obtain a measure of the influence of automatic stabilizers on regional economies in Canada, we follow the general approach of Bayoumi and Masson (1995). Their approach involves the estimation of the following equation:

$$\Delta \left( \frac{(Y - Tax + Transfer + Grant)_{region}}{(Y - Tax + Transfer + Grant)_{Canada}} \right)_t = \alpha_{region} + \beta_{region} \Delta \left( \frac{Y_{region}}{Y_{Canada}} \right)_t + e_{region,t}$$

where subscript *t* denotes a time period, subscript *Canada* denotes data describing values for Canada as a whole, and subscript *region* denotes data describing values for either the region of western Canada or the region we denote as the Rest of Canada. *Y* represents the value of GDP, *Tax* defines the sum of personal and business taxes, *Transfer* defines the sum of transfer payments to persons and to business, and *Grant* defines the sum of all intergovernmental transfers. All variables are measured in real per capita terms. The symbol  $\Delta$  defines “change in” and indicates that we are using the first difference of the identified measures.  $\alpha$  and  $\beta$  are regression coefficients to be estimated and *e* denotes a random error term.

The equation measures the size of various measures of pre- and post-budget values of income in a region relative to the national average. The coefficient of interest is  $\beta$ . It measures the

sensitivity of post-budget measures of relative income (on the left hand side) to changes in pre-budget measures of relative income (on the right hand side). If a government’s budget has a stabilizing influence we should expect  $\beta$  to have a value of less than unity. That is, a one dollar decrease in regional GDP relative to the national average should cause regional after-budget income to decrease by less than one dollar relative to the national average. In this way, the budget “cushions” the relative loss in pre-budget income and so stabilizes regional income.

By estimating a series of regressions we can determine, in a way described below, the stabilizing influence of each of *Tax*, *Transfer*, and *Grant*. The equation is estimated using data describing federal budget variables and again using data describing provincial budget variables. In this way, we determine the separate stabilizing influences of federal and provincial government budgets. We begin with the results obtained using federal budget data. (18)

**Figure 6: The Stabilizing Influence of the Federal Budget**

Adjustment to income	$\beta$	R <sup>2</sup>
Taxes	0.98 (0.09)	0.95
Taxes plus Transfers	0.84 (0.20)	0.84
Taxes plus Transfers plus Grants	0.78 (0.25)	0.77

Standard errors appear in braces below the estimated coefficient. The R<sup>2</sup> statistic provides a measure of goodness of fit.

The first row in Figure 6 reports the sensitivity of after-tax relative income to changes in pre-budget relative incomes. The coefficient value, 0.98, indicates that after-tax relative income increases by 98 cents for every one dollar increase in relative pre-budget income. Federal taxes, then, stabilize regional income by 2 cents for every one dollar increase in pre-budget income relative to the national average. The second row reports the sensitivity of after-tax and after-transfer income to changes in pre-budget relative incomes. The addition of personal and business transfers significantly increases the stabilizing influence of the federal budget. Federal transfers contribute an additional 14 cents (0.98 - 0.84) of stabilization for every one dollar increase in pre-budget regional income relative to

the national average. Finally, the addition of intergovernmental grants contributes yet another 6 cents (0.84 - 0.78) of stabilization from the federal budget. In total, the federal budget stabilizes post-budget regional income by 22 cents for every one dollar increase or decrease in regional pre-budget income relative to the national average.

**Figure 7: The Stabilizing Influence of Provincial Budgets**

Adjustment to income	$\beta$	R <sup>2</sup>
Taxes	0.94 (0.11)	0.94
Taxes plus Transfers	0.89 (0.08)	0.94
Taxes plus Transfers plus Grants	0.91 (0.05)	0.96

Standard errors appear in braces below the estimated coefficient. The R<sup>2</sup> statistic provides a measure of goodness of fit.

Figure 7 reports the results from applying provincial government budget data to estimating the equation. Provincial taxes exert a larger stabilizing influence on regional incomes (6 cents) than do federal taxes (2 cents). On the other hand, provincial transfers to persons and businesses exert a significantly smaller stabilizing influence on regional incomes (0.94 - 0.89 = 5 cents) than do federal transfers (14 cents). Interestingly, intergovernmental transfers (Grants) from provincial governments to local jurisdictions exert a *de-stabilizing* influence on regional incomes. That is, provincial grants *add* 2 cents (0.89 - 0.91) to post-budget relative incomes when pre-tax incomes increase by one dollar relative to the national average. In total, provincial budgets stabilize post-budget regional income by 9 cents for every one dollar increase or decrease in regional pre-budget income relative to the national average.

Figure 8 summarizes the contribution of each element of federal and provincial budgets to the stabilization of GDP. The federal budget is the more stabilizing of the two. One reason for this is that federal transfers to persons are roughly twice the size of provincial transfers to persons. As such transfers are a key source of stabilization the federal budget will exert the larger influence. (19) The second reason has to do with the nature of provincial transfers to local jurisdictions as opposed to federal transfers to provincial governments. The latter have exhibited a stabilizing influence because they include equalization

**Figure 8: The Stabilizing Influence of Provincial and Federal Budgets**

	Federal	Provincial
Taxes	2 cents	6 cents
Transfers	14 cents	5 cents
Grants	6 cents	- 2 cents
<b>Total</b>	<b>22 cents</b>	<b>9 cents</b>

transfers, which are specifically designed to transfer income to provincial governments with relatively poor access to own-source revenue, and because for much of our sample period they constituted a cost-sharing agreement with provinces to fund income-sensitive expenditures such as social assistance. Provincial transfers to local jurisdictions, on the other hand, have not typically been tied to income-sensitive expenditures of local governments, hospitals, universities and colleges and so have not been sensitive to changes in measures of provincial income. Instead, provincial transfers to local jurisdictions have been driven more by the fiscal requirements of provincial governments and so their influence on stabilization reflects the effects of discretionary fiscal policy as opposed to an automatic stabilizer. (20)

## 5. Lessons from the European Union?

The establishment of the European Union (EU) created an economic union which in many respects resembles the Canadian economy. The EU consists of countries that have surrendered control of monetary policy—the setting of interest rates and control of a common exchange rate—to the European Central Bank (ECB). The national government of each country within the EU maintains control of taxation and spending within its own borders. People and capital are more or less free to move to and from any nation within the EU. With respect to stabilization policy, members of the EU share the concern that because the levers of monetary policy must be commonly applied to all members of the monetary union, no one member can benefit from the ideal monetary policy for its economic circumstances. In recognition of this problem, member nations of the EU have recognized the need for national fiscal policies to supplement or offset, as necessary, the impact of EU monetary policy on their

economy. To that end, the governments of member states are allowed to incur budget imbalances. This allows their budgets to absorb the effects of the business cycle without the need to alter tax rates or the design of spending programs and so enable the effective operation of automatic stabilizers.

In all of these ways, the governments of member states of the EU closely resemble Canadian provincial governments. A key difference between Canada and the EU is that in Canada there exists a federal government that controls a large fraction of the budget of the total government sector. In the EU, although there is some centralized spending, it is small and directed towards long-term objectives as opposed to short-term stabilization.(21) Thus, in the EU almost the entire total government budget is under the control of “regional fiscal authorities” (the member nations of the EU) while in Canada roughly one-half of the total government budget is under the control of the “regional fiscal authorities” (the provinces) with the rest under the control of the “centralized agency” (the federal government).

Bayoumi and Masson (1995) report that, over the period 1972–1989, the budgets of governments of member states of the EU exerted a stabilizing influence as effective as that exerted by the federal governments of Canada and the United States over roughly the same time period. They conclude on the basis of this that there is no need for the EU to contemplate an overarching “central agency” budget to provide income stabilization; the budgets of member states do as effective a job as the federal government of two comparable federal states.

More recent analysis of EU budgets suggests, however, that their stabilizing influence may be short-circuited in a serious downturn. (22) The reason for this is that members are admitted into the EU on condition that they restrict the size of their annual budget deficit to be no more than 3% of that country’s GDP. If an economic downturn is large enough, then automatic stabilizers which cause tax revenues to fall and spending to increase may cause the budget deficit (defined as spending less tax revenue) to grow larger than 3% of GDP. If this occurs, member states are obligated to introduce some combination of higher tax rates and less generous social spending to hold the size of the deficit to the restricted amount. In this way, the stabilizing effect of

the budget is short-circuited and, indeed, the budget begins to exert a de-stabilizing influence on income.

Recent experience has shown that this is an increasingly important issue as a number of members of the EU are struggling to satisfy the 3% limit on budget deficits. In 2008, Italy reported a budget deficit of 1.9% of GDP, but only after undergoing substantial cuts to spending that reduced it from 3.4% in 2006. Portugal similarly introduced large spending cuts to reduce its deficit from 3.9% of GDP in 2007 to 2.6% in 2008. Many other countries are sailing close to the limit, notably France at 2.7% of GDP, and the UK at 2.9%. (23)

Those countries maintaining deficits near the limit (such as France and the UK) face the prospect of being forced to short-circuit the automatic stabilizers in their budgets should they suffer a downturn in their economies—a very real prospect as high energy prices and falling housing prices are currently having a depressing effect on their economies. Those countries already cutting expenditures in order to get under the ceiling (such as Italy and Portugal) are contributing a destabilizing influence through their budgets and this influence will grow if the current slowdown continues.

Why has it become the practice of so many members of the EU to operate near the 3% deficit cap? The reason is likely associated with another feature of the EU—the removal of barriers to the free mobility of capital and labour across national borders. This mobility of labour and capital encourages competition to provide superior government services with a minimum level of taxation. This competition, then, encourages governments to take all opportunities to use any budget surplus to either cut tax rates or improve government services, and in this way, dissipate the surplus and leave the budget close to the 3% cap.

What lesson does the European experience have for Canada? An important lesson to be drawn is that a hard cap on deficits can threaten the stabilizing properties of budgets should governments choose to operate near the cap on a more or less regular basis.

In Canada, provincial governments face no cap on their deficits other than that which they impose on themselves. In recent years, however, it has become common practice for provincial governments to impose a hard cap on budget deficits—a cap

equal to 0% of GDP (i.e., a prohibition on deficits). What's more, strong growth in the Canadian economy over the past decade coupled with historically-low interest rates has enabled provincial governments to not only satisfy the self-imposed no-deficit rule, but to also introduce cuts to tax rates and increases in the generosity of spending programs. Thus, provincial governments appear to be emulating the European experience with hard deficit caps by taking advantage of an unusually long period of strong economic growth and historically low interest rates to cut tax rates and expand the generosity of spending programs. This is causing them to operate as close to the cap as possible, even during a period of unusually favourable economic conditions. By doing so, they are making choices that threaten the stabilizing properties of their budgets when those unusually favourable economic conditions come to an end. As the Canadian economy slows, many provincial governments will face the prospect of having to short-circuit the automatic stabilizers in their budgets in order to avoid moving into a deficit position.

Canada is fortunate in that roughly half of the total government budget is in the hands of the federal government and that the federal budget exerts a substantial stabilizing influence on all regions of Canada. Thus, even if provincial governments behave in ways that limit the ability of their budgets to provide a stabilizing influence on their economies, the federal budget can pick up the slack. The EU has no comparable institution and so operates at a disadvantage to Canada when it comes to government budgets operating to stabilize incomes.

Given that advantage, it is unfortunate that Canada's federal government may soon find itself in the same position as provinces and member states of the EU, with the desire to operate near a no-deficit cap. To this point however, the federal government has been focussed on debt reduction. In 2006, it announced a policy to reduce its debt to an amount equal to 25% of GDP by the year 2013 and to continue to reduce the debt ratio thereafter. (24) Targeting reductions in the debt ratio has encouraged the federal government to post budget surpluses and so operate away from the no-deficit cap. This has provided it with the flexibility to allow the size of its surplus to rise and fall and so allow the automatic stabilizers in its budget to operate. As federal debt falls near its target, the clear temptation will be to operate nearer and nearer the self-imposed no-deficit cap. If

so, a downturn will similarly threaten the stabilization properties of the federal budget.

## 6. Summary and Policy Recommendations

The focus of this paper has been on the issue of economic stabilization. It began by emphasizing that economic cycles—periods of under- and over-employment of resources relative to long-term trends—generate what economists broadly define as “welfare losses.” Thus, recessions leave resources unemployed while booms spark periods of inflation which distort price signals and so lead to misallocations of resources. Economic cycles can also be damaging to the economy due to so-called “hysteresis” effects whereby skills of those made unemployed by recession deteriorate leading to falls in productivity even after regaining employment. Thus, recessions, while temporary, can have permanent costs. Finally, in small open economies, such as western Canada, a temporary recession may also result in the loss of mobile labour and capital to other jurisdictions and so a permanent loss of productive capacity. The use of government policy to reduce the depths of recessions and the heights of booms—what is called stabilization policy—is motivated by a desire to minimize these costs of income volatility.

It was noted that stabilization policy can be understood to include government policies that facilitate the free movement of labour, goods, and capital across provincial boundaries. Evidence was provided to suggest that Canadian governments have scored well on this measure as both prices and interprovincial migration have responded appropriately to the existence of economic booms in some regions and relative stagnation in others. Two governments in western Canada have been particularly active in this regard. In 2006 Alberta and British Columbia signed the *Trade, Investment and Labour Mobility Agreement* (TILMA) to remove barriers to trade, investment and labour mobility between the two provinces. To this point, the other western provinces have not signed on to this agreement. That is unfortunate since by doing so they may increase the ability of the free movement of labour, capital and goods to stabilize income in their economies. This is particularly so for Saskatchewan because, as shown in Figure 3, movements in real per capita GDP in Saskatchewan are only weakly or negatively correlated with movements elsewhere. Thus, a boom in Saskatchewan is often

accompanied by slowdowns elsewhere, and so that province would benefit from being able to more easily attract labour and capital. This leads to the first policy recommendation:

**Policy Recommendation #1:** *To increase the stabilizing effects of the free movement of labour, capital and goods, the effort to reduce provincial barriers to such movements, typified by the TILMA between Alberta and British Columbia, should continue and be expanded to include all provinces.*

The paper then turned to an evaluation of how well national institutions promote economic stabilization. Figure 5 presents empirical evidence to support what is well-known about monetary policy: it is not possible for a central bank to apply different policy solutions to different regions because the bank’s stabilization policy levers—changes in interest rates and exchange rates—can only be applied equally in all regions. Thus, monetary policy can either promote a monetary policy appropriate for one region to the detriment of others or promote a monetary policy that is appropriate only for the average of regional economies. From this perspective, then, the western Canadian economy can never benefit from the ideal monetary policy for its economic circumstances.

An interesting conclusion suggested by Figure 5 is that Canadian monetary policy has had a stabilizing influence on the economy of western Canada. That is, monetary policy has tightened during periods when real per capita GDP in western Canada has grown and loosened when real per capita GDP has fallen. It is noteworthy that recently, over the period 1999–2007, monetary policy has exerted a stabilizing influence in western Canada but a de-stabilizing influence in the rest of the country. It is also the case, however, that the size of the correlation between GDP and monetary policy has at times been considerably weaker in western Canada than in the rest of the country. This was true, for example, throughout the 1980s, suggesting that during periods like these, western Canada is not benefiting from a monetary policy that would be ideal given its circumstances. The conclusion from our examination of the stabilizing influence of monetary policy is that, because its policy tools cannot be regionally-differentiated, it will in general be necessary to supplement the stabilizing influence of monetary policy with effective fiscal stabilization efforts.



Turning attention to fiscal policy, the paper presented an examination of the effectiveness of automatic stabilizers in the budgets of federal and provincial governments. There we found that the automatic stabilizers operating through provincial government budgets exert only a weak stabilizing influence. Provincial budgets were found to reduce post-budget income disparities by only 9 cents for every one dollar disparity in pre-budget incomes. Contributing to this weak stabilizing influence is that provincial government transfers to local jurisdictions—municipalities, public hospitals, universities and colleges—exert a de-stabilizing influence on incomes. The reason for this is that these transfers are not tied to income-sensitive expenditures of local jurisdictions and instead are driven more by the fiscal requirements of provincial governments and the effects of discretionary fiscal policy choices. As a consequence, we tend to see increases in provincial grants to local jurisdictions only when provincial budgetary conditions are good and decreases in grants when provincial budgetary conditions are poor. Understanding this leads to the second policy recommendation:

**Policy Recommendation #2:** *Provincial governments should consider imposing on their own budgets a long-term commitment to stable funding of local jurisdictions.*

While this policy recommendation will not cause provincial transfers to local jurisdictions to become automatic stabilizers, it will prevent them from exerting a de-stabilizing influence and so increase the net stabilizing influence of provincial budgets. As an added benefit, budget-makers of local jurisdictions will rejoice in realizing stability and predictability in what for them is a major revenue source.

A similar examination of the stabilizing influence of automatic stabilizers in the federal government's budget shows that they are a major contributor to income stabilization. Automatic stabilizers in the federal budget were found to reduce post-budget income disparities by 22 cents for every one dollar disparity in pre-budget incomes. Moreover, this influence was felt equally in all regions of the country.

The predominant role played by federal government automatic stabilizers caused us to consider a comparison with the European Union which, while in many respects is very much like the Canadian union, has no central fiscal agency on par with

Canada's federal government. Studies of fiscal stabilization in the EU show that over a comparable period (roughly the 1970s and 1980s) the budgets of member states exerted a stabilizing influence as effective as that exerted by the federal governments of Canada and the United States. This suggests that it is not the fact that automatic stabilizers operate in the federal budget that matters, but only that they operate in some budget—whether federal or provincial is not important.

A further examination of the experience of the EU indicates that member states tend to operate close to a legislated limit on the size of their budget deficits and that they do so even during times of relative economic prosperity. The implication is that, should their economies move into recession, then budget-makers will need to short-circuit the operation of automatic stabilizers in order to stay under the deficit cap. Since the mid-1990s, it has become common practice for Canadian provincial governments to target and then impose a hard cap on budget deficits—a cap equal to 0% of GDP (i.e., a prohibition on deficits). Since that time, strong growth in the Canadian economy along with historically-low interest rates has enabled provincial governments to not only satisfy the self-imposed no-deficit rule, but to also introduce cuts to tax rates and increases in the generosity of spending programs in ways that keep them close to the self-imposed deficit cap. Thus, provincial governments appear to be emulating the European experience with hard deficit caps and operate as close to the cap as possible even during a period of unusually favourable economic conditions. By doing so, they are making choices that threaten the stabilizing properties of their budgets when those unusually favourable economic conditions come to an end.

Finally, it was noted that Canada is fortunate in that roughly half of the total government budget is in the hands of the federal government and that the federal budget exerts a substantial stabilizing influence on all regions of Canada. Thus, even if provincial governments behave in ways that limit the ability of their budgets to provide a stabilizing influence on their economies, the federal budget can pick up the slack. The EU has no comparable institution and so operates at a disadvantage to Canada when it comes to government budgets operating to stabilize incomes. It is unfortunate however, that Canada's federal government may soon find itself in the same position as provinces and member states of the EU with the desire to operate near a no-deficit cap. To this point however,

the federal government has been focussed on debt reduction and so has planned for and achieved budget surpluses in order to reduce debt. This has provided the federal government with the flexibility to allow the size of its surplus to rise and fall and so allow the automatic stabilizers in its budget to operate. A concern is that, as federal debt falls near its target, there will be a temptation to operate nearer and nearer the no-deficit cap. If so, a downturn will similarly threaten the stabilization properties of the federal budget. Understanding this leads to the third policy recommendation:

**Policy Recommendation #3:** *In order to preserve the effectiveness of automatic stabilizers, federal and provincial governments should define targets for annual budget balances in cyclically-adjusted terms.*

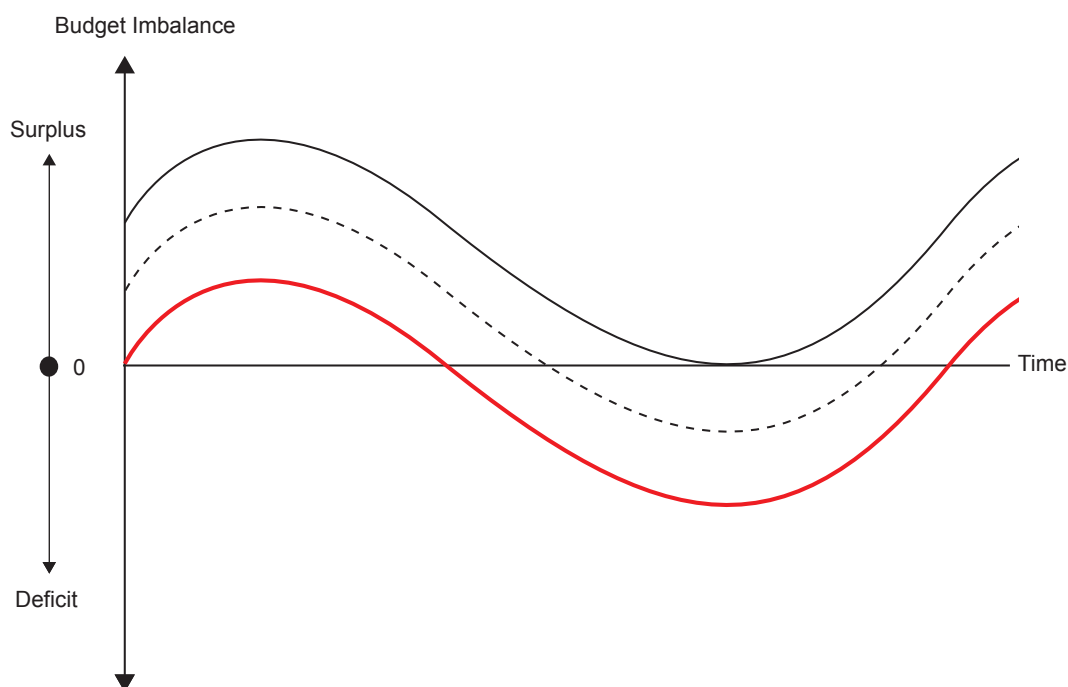
A cyclically-adjusted budget balance is the difference between government revenues and expenditures after each has been adjusted to remove the influence of the business cycle. As noted earlier, a downturn in the economy affects government budgets through automatic stabilizers. Thus, in a recession tax revenues fall and expenditures rise. The opposite is true in an economic expansion. By removing the amount by which tax revenues change whenever the economy moves above or

below its long-term trend, one obtains a measure of cyclically-adjusted revenues. Similarly, by removing the amount by which spending changes whenever the economy moves above or below its long-term trend, one obtains a measure of cyclically-adjusted spending. The difference is the cyclically-adjusted budget balance.

The implication of defining a target for the annual budget balance in terms of cyclically-adjusted revenues and expenditures can perhaps most easily be understood with the aid of a diagram (Figure 9).

The solid black line shows the implication for budgeting of a hard cap being placed on the actual budget balance. Here the cap is assumed to be such that no deficit is allowed. To avoid a deficit, the government must set tax rates and must design spending programs in a way that produces, on average, a budget surplus. The surplus realized in favourable economic conditions must be large so that the same tax rates and spending propensities produce no worse than a balanced budget during unfavourable economic conditions. Thus, the worse-case scenario must be that, during a recession, the wavy line just touches the horizontal axis (denoting a balanced budget) and never dip below. (25)

**Figure 9: Alternative Deficit Caps**



If conditions have been favourable for a long period, governments may be tempted to reduce the size of the surplus by cutting tax rates and/or by making spending programs more generous. By doing so, they cause the line to shift downward to a position represented by the dotted black line. Now the government runs the risk that, when recession comes, the no-deficit cap will be violated and it will need to raise tax rates or make spending more generous. In this way, the government short-circuits the automatic stabilizers in its budget and so introduces greater volatility into the economy. This is the danger many members of the EU and many provinces find themselves in today.

Policy Recommendation #3 is intended to encourage governments to impose a cap on the size of their cyclically-adjusted budget imbalance. In terms of Figure 9, behaving in this way results in governments choosing to set tax rates and choosing to design spending programs in such a way as to cause actual budget outcomes to be described by the red line. Now the average value of the actual budget imbalance is zero and equal to the deficit cap. During favourable economic conditions, the budget moves into surplus due to the influence of automatic stabilizers, but it is a smaller surplus than observed

previously. This indicates that tax rates are lower and spending more generous than was the case previous. However, this comes at a cost; during unfavourable economic conditions automatic stabilizers move the actual budget into deficit.

It is interesting that governments have proved resistant to adopting a policy of choosing to impose a no-deficit condition on the cyclically-adjusted, as opposed to the actual, budget deficit. The benefits of doing so are significant—it enables governments to lower tax rates and increase the generosity of spending programs relative to what they can do when they impose a no-deficit condition on the actual budget deficit. It also enables governments to ensure automatic stabilizers are not short-circuited when unfavourable economic conditions threaten the budget with deficit. The cost of adopting this policy is small—governments must be accepting of budget deficits during periods of unfavourable economic conditions. It is particularly interesting that the provinces of western Canada are resistant to this policy option because, with strong balance sheets and high credit ratings, they are the provinces that would incur the least cost of realizing deficits during short-term economic downturns. ■

## Endnotes

1. Examples include, in order, wars in the Middle East affecting oil prices, the turn toward capitalism by China affecting prices for just about everything, and flooding in the US Midwest affecting the price of corn.
2. The seminal work on this issue is by Nelson and Plosser 1982. See also Perron 1989 who suggests that temporary recessions due to oil price shocks are most likely to have permanent effects on output. The potential for temporary recessions to have permanent effects may therefore be of particular concern for western Canada.
3. The fact they operate without the need for legislated changes in tax rates or spending programs differentiates automatic stabilizers from *discretionary* fiscal policy. A discretionary fiscal policy produces a change in tax revenue or levels of spending for reasons other than changes in the tax base or program usage. When enacted by the federal government, such policies run the risk of being labelled politically-opportune. An example is the allocation of government procurement contracts.
4. It is only a rough measure because well-being is affected by many activities not traded in the market and so not recorded in GDP. An example includes childcare services performed within a family without pay. Similarly, because the benefits of reduced greenhouse gas emissions are not bought and sold in markets, actions to reduce emissions are not reflected in GDP and so are not recognized as contributing to well-being. Proposals for “carbon taxes” and “carbon trading” will cause the benefits of reducing greenhouse gas emissions to enter into measures of GDP making it a more accurate measure of well-being.
5. See for example OECD 2004 which reports that, based on its design in 2003, the EI program created disincentives for the unemployed in high unemployment provinces to search for jobs and accept job offers in low provinces with low unemployment.
6. Rates of inflation are measured using provincial GDP implicit price deflators from Statistics Canada’s CANSIM databank. See Table 3840036.
7. Measures of provincial nominal GDP, provincial price levels, and provincial population are from Statistics Canada’s CANSIM databank. See Tables 3840013, 3840036 and 510001 respectively.
8. In this figure, the rate of growth is measured by the slope of the line being considered; the steeper the line, the greater the rate of growth.
9. The coefficient of variation—a measure of variability—for nominal GDP is significantly higher for western Canada (4.5) than for the ROC (3.8). The level of variability, and the difference between regions, falls after adjustment for inflation (2.4 versus 2.1) and again after adjustment for population (1.3 versus 1.4). Thus, while nominal GDP is significantly more volatile in western Canada than elsewhere, real per capita GDP is slightly less volatile in western Canada than elsewhere.
10. The trend values were determined by applying a Hodrick-Prescott filter to the data on real per capita GDP.
11. Similar calculations based on nominal GDP—values of GDP before adjustments for inflation and for population growth—produce deviations above and below trend that average 2.6% in the ROC and 2.4% in western Canada. Once again we see evidence that migration and inflation have had an important stabilizing influence on GDP in western Canada.
12. Data on the Bank Rate come from Statistic Canada’s CANSIM database, series v122530.

13. As noted, the Bank of Canada is explicit in stating that its goal in changing the Bank Rate is to keep the rate of inflation within a defined upper and lower limit. In achieving that goal, however, it also influences the level of output and income. Inflation and levels of output are positively related over the short- to medium-term and so efforts to stabilize inflation will also have a stabilizing influence on GDP. My interest is to provide some insight into the implications of monetary policy for the stabilization of real per capita GDP in western Canada and the rest of Canada.

14. The correlations presented in Figure 5 are not necessarily indicative of causation. A high correlation might indicate changes in the Bank Rate had a strong influence on real per capita GDP in the following year but may also reflect the Bank of Canada changing the Bank Rate in response to expected future changes in real per capita GDP. The first instance would suggest causation running from monetary policy to output while the second suggests causation running the opposite way. What matters for my purpose is only to establish how closely monetary policy is related to regional output.

15. It is useful to note that since an economic slowdown has the effect of causing automatic stabilizers to reduce tax revenue and increase government expenditures, the use of automatic stabilizers requires that the affected government allow its budget imbalance—the difference between its total spending and total revenue—to be non-zero and to fluctuate. In this way, the budget imbalance absorbs the budgetary effects of the automatic stabilizers without the need to change tax rates or alter spending programs. Canadian federal and provincial governments both have the constitutional power to maintain budget imbalances and so allow automatic stabilizers to function without hindrance. The ability of Canadian provincial governments to behave this way gives them an important advantage over US state governments, the vast majority of whom are constitutionally prohibited from maintaining budget imbalances.

16. Notable in this regard is the federal program of Employment Insurance and provincially-funded programs of social assistance.

17. In the empirical exercise which follows, the data defining provincial government transfers will include transfers to municipal governments as well as transfers to public hospitals, universities and colleges. The source of government budget data is Statistics Canada's CANSIM database Table 384004.

18. To allow for the possibility that changes in after-budget affect pre-budget values of GDP, the equation was estimated using the method of 3SLS. Instruments used in the regression were a constant, a time trend and the lagged value of the change in pre-budget relative GDP in each region. Tests on the more general specification defined in the equation—which allows for the possibility of region-specific values of  $\alpha$  and  $\beta$ —indicated we could not reject the null hypothesis of common coefficients across regions. For that reason we imposed the assumption that the values of  $\alpha$  and  $\beta$  were common across the two regions. This indicates, not surprisingly, that federal automatic stabilizers affect incomes in all parts of the country equally. Estimated constant terms (not shown) were always insignificantly different from zero.

19. Another reason for the greater stabilizing influence of federal transfers is the federal Employment Insurance program—a program explicitly designed to transfer income to economically-stagnant areas of the country. In unreported regressions the EI program was found to contribute one cent to the stabilizing influence of the federal budget.

20. See Kneebone and McKenzie 2003 for a more detailed discussion of the impact of provincial transfers on local jurisdictions.

21. The centralized EU budget is currently limited to no more than 1.24% of the EU's GDP. This compares to the Canadian federal government's budget which was equal to 16.3% of Canada's GDP in 2007.

22. See, for example, Anderson and Dogonowski 1999.

23. Source: *Eurostat* (<http://epp.eurostat.ec.europa.eu>).

24. To what level is unclear. The 2006 budget makes unclear statements suggestive of hitting a zero *debt* target by 2021. It is unclear, however, what debt is being referred to. For a thorough discussion see Drummond and Burleton 2006.

25. This implication of “no-deficit” caps was recently emphasized in O'Neill 2005, a report prepared for the federal Department of Finance. See Kneebone 2006 for a detailed examination of this issue with respect to the finances of the government of the province of Alberta.

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### Our Vision

A dynamic and prosperous West in a strong Canada.

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A leading source of strategic insight, conducting and communicating non-partisan economic and public policy research of importance to the four western provinces and all Canadians.

Canada West Foundation is a registered Canadian charitable organization incorporated under federal charter (#11882 8698 RR 0001).

In 1970, the One Prairie Province Conference was held in Lethbridge, Alberta. Sponsored by the University of Lethbridge and the Lethbridge Herald, the conference received considerable attention from concerned citizens and community leaders. The consensus at the time was that research on the West (including BC and the Canadian North) should be expanded by a new organization. To fill this need, the Canada West Foundation was created under letters patent on December 31, 1970. Since that time, the Canada West Foundation has established itself as one of Canada's premier research institutes. Non-partisan, accessible research and active citizen engagement are hallmarks of the Foundation's past, present and future endeavours. These efforts are rooted in the belief that a strong West makes for a strong Canada.

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