



From gross domestic product (GDP) to gross domestic income (GDI)

Canada's economy is in better shape than expected: possibility of new rate cuts reduced

With the recent development in real GDP, Canada's economy is currently on the verge of a recession. And yet signs of economic prosperity seem to abound everywhere around us, leading many to doubt the signal stemming from the real GDP. As an alternative measure, the real gross domestic income (GDI) takes into account the impact of fluctuations in terms of trade on income and overall well-being. This measure paints a much more optimistic portrait of Canada's economy, which has largely benefited from improvements to its terms of trade since 2003. Some provinces, however, reap greater benefits than others. Provinces that export raw materials - especially oil and gas - show much stronger growth in the real GDI. The economic difficulties in Ontario, and to a lesser extent, in Québec, remain entrenched in the real GDI. In the United States, the real GDI is tracking closer to the real GDP, although we have noted a slight variance of late.

REAL GDP: A BENCHMARK REFERENCE

The benchmark that is most widely used by agencies that track statistics and government organizations to measure an economy's activity is the gross domestic product (GDP). The version expressed in real terms deducts the effects of price fluctuations and represents the volume of production in a given economy. In its most common form, the real GDP corresponds to the value of goods and services consumed by economic agents (consumers, businesses and governments) as well as variations in inventories. Exports are then added, and imports deducted.

The last results posted for national accounts published by Statistics Canada show a significant pullback in Canada's real GDP. After posting an annualized quarterly growth of only 0.8% at the end of 2007, Canada's real GDP declined by 0.3% in the first quarter of 2008. For many, this is the first step toward a possible recession in Canada's economy, which is usually defined when the real GDP declines for at least two consecutive quarters.

And yet it is difficult to believe that Canada's economy is currently on the verge of a recession. Except for certain manufacturing industries, we get the impression that economic activity across the country is in pretty good shape. The unemployment rate is hovering close to its historic low, wages are increasing rapidly, and consumer spending and investment are doing rather well despite a recent slowdown. This assessment is in stark contrast to the situation portrayed by the overall real GDP. Many stakeholders are asking themselves if the real GDP is painting an accurate picture of the health of Canada's economy.

AN ALTERNATIVE TO THE REAL GDP

This divergence in perceptions stems from the fact that Canada's economy is not only open to the world due to its strong external trade, but that it also benefited from considerable improvements in terms of trade, which correspond to the price of exports vs. the price of imports. As such, any improvements in the terms of trade usually have a beneficial impact on overall well-being. The increase in prices for raw materials exported by Canada these past few years is boosting

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income while lower prices for the goods and services we import (competition from Asia and the loonie's rise) are cutting expenses. In short, Canadians get more while paying less. This improvement in the terms of trade is, however, considered as a simple price phenomenon when setting national accounts, which does not lead to any change in the real GDP. And yet the improvement in our material well-being is quite obvious. It's like saying that the real GDP would be unable to totally capture the increase in real added value that is the net result of improved terms of trade.

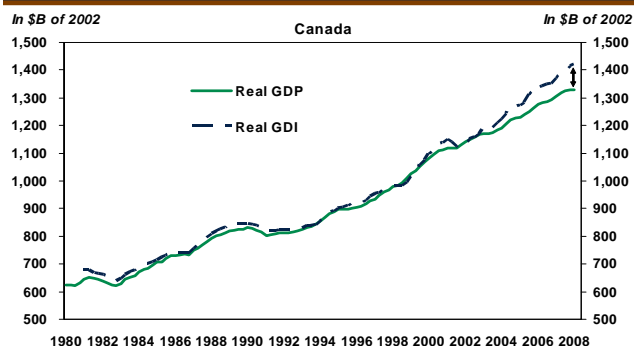
To remedy this, several other alternative benchmarks are available, the most recognizable being the gross domestic income (GDI) expressed in real terms. The real GDI takes into account changes in purchasing power and production. In fact, the GDI corrects exports and imports using the same price index. If several index options are available, a consensus is reached to use the price index for domestic demand. In a context of sharply rising export prices (changes in the terms of trade), growth in export deflators is usually stronger than that of domestic demand deflators. When the domestic demand deflator is used, the deflated value of exports is higher than when the export deflator is used. The real GDI thus allows for fluctuations in volumes once changes have been made to the terms of trade. Technically speaking, the real GDI is obtained via the deflating of the nominal GDP by the domestic demand price index. This way, the real GDI takes into account not only trade term fluctuations but variations in production volumes as well.

This alternative benchmark seems to be gaining in popularity. A Deputy Governor at the Bank of Canada referred to a similar concept during a speech in 2006 (see box) and the most recent Monetary Policy Report Update issued by the Bank of Canada signalled that the «real gross domestic income had increased by an annualized rate of 2.4% in the first quarter, owing to a further 8.1% improvement in Canada's terms of trade.»

« In my view, a better indicator of the standard of living would be gross national product (GNP) per capita deflated by domestic demand prices. By focusing on GNP rather than GDP, this measure includes Canadians' earnings from abroad and excludes non-residents' income earned in Canada. By deflating GNP by the price index for domestic purchases rather than by the GDP deflator—the price of domestic output—it captures the terms-of-trade effect. »

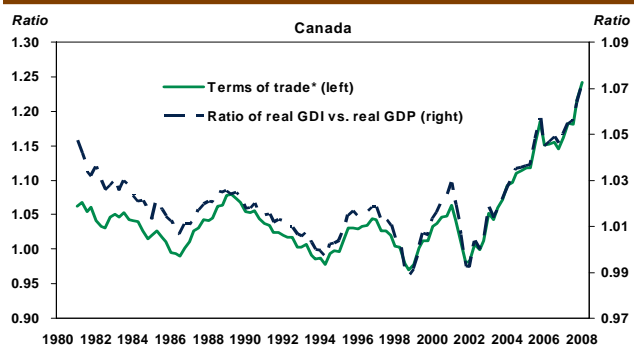
*Pierre Duguay
Deputy Governor of the Bank of Canada
August 28, 2006.*

Graph 1 – Real GDI shows faster growth since 2003



Sources: Statistics Canada and Desjardins, Economic Studies

Graph 2 – Improved terms of trade favour the real GDI



* Ratio of export prices vs. import prices.
Sources: Statistics Canada and Desjardins, Economic Studies

REAL GDI GROWTH AND COMPARISON

As illustrated in graphs 1 and 2, real GDP and real GDI growth have evolved in a fairly similar fashion over time. However, a significant difference between both measures is observed as of 2003, when the terms of trade started to show notable improvement in Canada.

As such, the real GDI has grown by 21.4% since early 2003, compared to only 13.8% growth in the real GDP. This translates into an average gap of slightly more than 1% (annualized) per quarter (see table 1). In short, the real GDI has presented a much more positive picture of the Canadian economy for some time now.

This divergence between the real GDP and the real GDI raises a substantial issue, however. Should we be relying on real GDP or on real GDI? Since the real GDP is the most widely used measure around the world to assess the activity of any given economy, it is an essential component that must remain the primary reference used to analyze Canada's economic cycles. The real GDI still allows us to assess the health of Canada's economy under a different angle that can be

Table 1
Comparisons between real GDP and real GDI

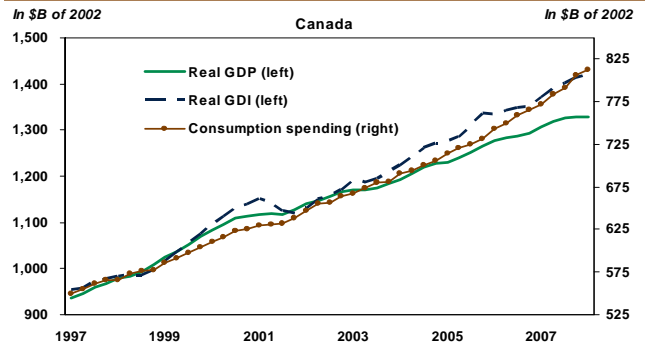
		Quarterly annualized variations in %		Annual variations in %	
		Real GDP	Real GDI	Real GDP	Real GDI
2003	Q1	1,7	7,8	1,9	3,7
	Q2	-0,5	-2,5		
	Q3	1,3	2,6		
	Q4	3,6	5,4		
2004	Q1	2,8	5,0	3,1	4,6
	Q2	4,8	6,9		
	Q3	4,4	5,7		
	Q4	2,8	3,0		
2005	Q1	0,8	1,0	2,9	4,1
	Q2	2,9	3,0		
	Q3	4,1	8,8		
	Q4	4,3	8,0		
2006	Q1	4,2	-0,5	3,1	3,3
	Q2	1,6	2,4		
	Q3	1,1	1,8		
	Q4	2,1	0,8		
2007	Q1	4,1	5,8	2,7	3,7
	Q2	3,9	5,9		
	Q3	2,3	2,9		
	Q4	0,8	3,8		
2008	Q1	-0,3	2,4	n.d.	n.d.
	Q2	---	---		
	Q3	---	---		
	Q4	---	---		
Average:		2,5	3,8	2,7	3,9
Gap:		1,3		1,1	

particularly useful in a context of widely fluctuating terms of trade, as is currently the case in Canada.

Furthermore, using the real GDI is sound, given that its development is fairly in line with the growth in imports and domestic demand (graphs 3 to 5). While the recent slowdown of the real GDP could lead you to believe that Canada's economic situation has deteriorated, the growth in real GDI signals instead that our collective well-being is quite high. This divergence between these two measures is such that the real GDI could in fact become a more widely used benchmark. The presence of the real GDI in the last Monetary Policy Report Update issued by the Bank of Canada is a good example of this measure's growing popularity and usefulness.

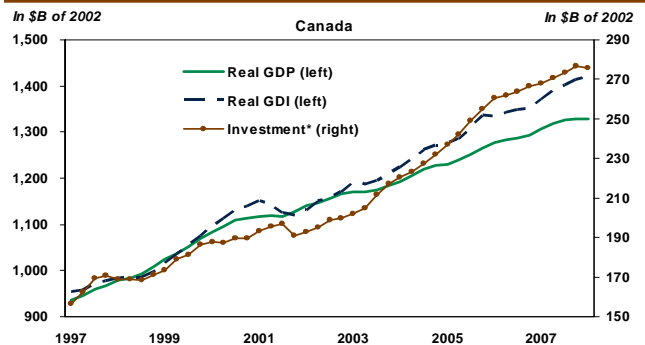
As such, the real GDI could also be used as a reference in managing monetary policy. By taking into account the wealth effect associated with sudden movements in trade terms, this measure provides a more complete overview of the health of our domestic economy. The real GDI is also particularly useful in situations where changes to key interest rates have very little influence on exports, since exports increasingly depend

Graph 3 – GDP, GDI and consumer spending



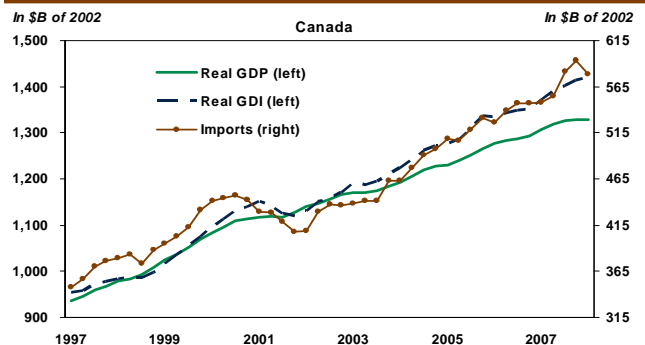
Sources: Statistics Canada and Desjardins, Economic Studies

Graph 4 – GDP, GDI and investments



* Residential and non-residential.
Sources: Statistics Canada and Desjardins, Economic Studies

Graph 5 – GDP, GDI and imports



Sources: Statistics Canada and Desjardins, Economic Studies

on demand from outside Canada. The most optimistic picture of Canada's economy painted by the real GDI could signal that it is no longer necessary for the Bank of Canada to reduce more key interest rates.

REAL GDI IN PROVINCES

Since the structure of exports differs from one province to another, growth in trade terms since 2003 has influenced each

province in a different way. On the one hand, the western provinces, as well as Newfoundland and Labrador, are benefiting from a strong wealth effect owing to the sharp increase in the value of their exports on the international market. On the other hand, manufacturers in Québec, Ontario and in some other provinces are suffering from the loonie's rise and increased competition from Asia. That said, all the provinces are benefiting from the stronger Canadian dollar and its downward impact on the cost of goods and services purchased abroad.

As illustrated on pages 6 and 7, the real GDI in most provinces (except for Prince Edward Island), now exceeds the real GDP posted in 2007. The divergence is more pronounced in Alberta, Saskatchewan, Newfoundland and Labrador (no surprise) where rising energy prices have had a stronger impact on the value of exports and the terms of trade.

In Québec and Ontario, the only two provinces that track quarterly data for economic accounts, the recent growth of the real GDI is a concern, however. While the recognizable slowdown in Canada's real GDP these past few quarters has not had a significant impact on Canada's real GDI overall, the picture is quite different in Québec and even more so in Ontario¹ where we have seen a considerable slowdown in the real GDI since the start of 2008 (graph 6).

Graph 6 – Recent slowdown seen in real GDI in Ontario and Québec

	Quarterly annualized variations (in %)			
	Ontario		Québec	
	Real GDP	Real GDI	Real GDP	Real GDI
2007: Q1	3.3	1.9	1.7	2.9
2007: Q2	3.1	3.6	6.2	5.6
2007: Q3	0.7	2.1	0.2	3.9
2007: Q4	0.2	2.3	0.2	4.2
2008: Q1	-1.4	-1.2	-0.8	0.5

Sources: Ontario Ministry of Finance, Institut de la Statistique du Québec and Desjardins, Economic Studies

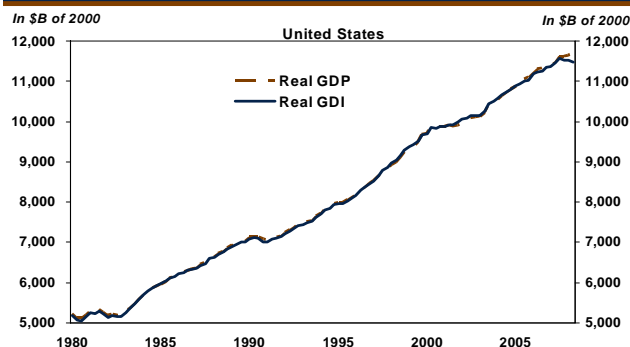
The recent growth in the real GDI confirms what the real GDP has shown: the economic difficulties are clearly more heavily concentrated in Canada's central-eastern region. In fact, this confirms the relatively high probability that Ontario's economy could go into a recession in the first half of 2008 while Québec will in all likelihood dodge a recession, but barely.

¹ While Ontario's economy is very open to international trade, the gap in Ontario's real GDI and real GDP is very slim. This is explained by the far fewer gains in trade terms due to weak growth in the prices of exported goods and services.

DIVERGENCE IN REAL GDI LESS PRONOUNCED IN THE UNITED STATES

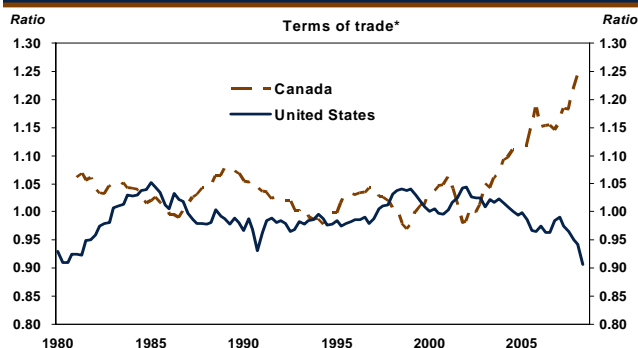
Since the real GDI is especially useful in countries that are open to international trade, this measure loses its appeal however when dealing with less opened economies. For example, the growth of the real GDI and the real GDP is almost identical in the United States, indicating that price fluctuations on exports and imports have had little incidence on the well-being of Americans in the past few years. It must be said that the terms of trade have had fewer fluctuations in the U.S. than in Canada (graphs 7 and 8). The recent trend, however, points to a deterioration in the terms of trade in the U.S., which could lead to slower GDI growth, the opposite of what is happening in Canada. A slight gap was observed in the second quarter of 2008, while the real GDI fell by 1.2% at an annualized pace, compared to growth of 1.9% in the real GDP. Could this be the start of deteriorating income and well-being for Americans through variations in export and import prices? This situation bears monitoring in the coming quarters.

Graph 7 – Divergence in GDP and GDI less marked in the U.S.



Sources: Statistics Canada, U.S. Bureau of Economic Analysis and Desjardins, Economic Studies

Graph 8 – Terms of trade starting to deteriorate in the U.S.



* Ratio of export prices vs. import prices. Sources: Statistics Canada, U.S. Bureau of Economic Analysis and Desjardins, Economic Studies

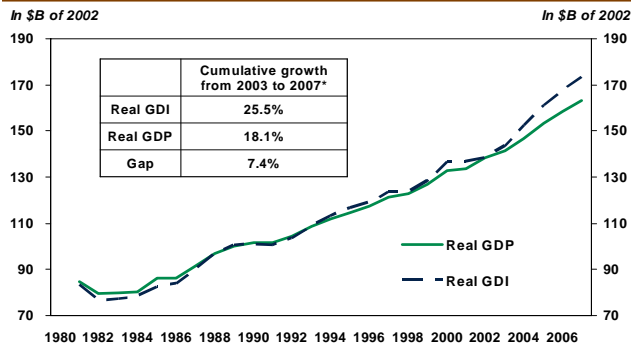
**REAL GDI: A HANDY MEASUREMENT, ESPECIALLY
IN CANADA**

In short, the real GDI is a handy way to measure economic activity, especially in open economies that are subject to significant fluctuations in their terms of trade. This benchmark is therefore particularly well suited to Canada, and we should expect to see it used more frequently in the years to come. The real GDI also paints a much more optimistic portrait of Canada's economy and collective well-being than the most recent real GDP would lead one to believe. This observation does not favour additional key interest rate cuts from the Bank of Canada, unless the economic situation deteriorates further.

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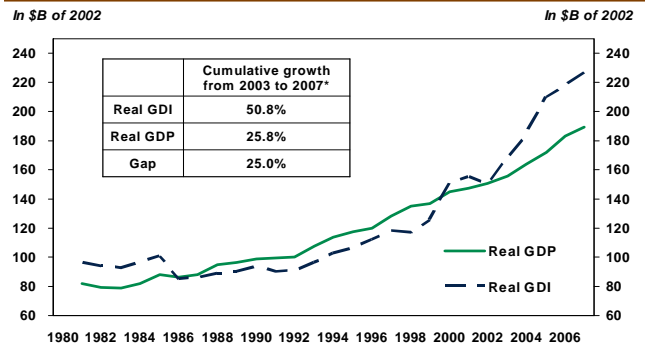
ANNEX

Graph 9 – Real GDP and real GDI in British Columbia



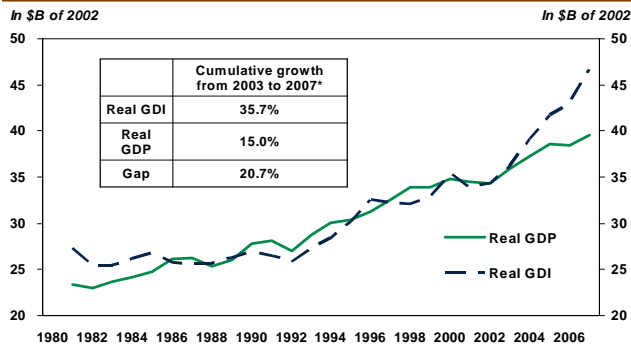
* Inclusively.
Sources: Statistics Canada and Desjardins, Economic Studies

Graph 10 – Real GDP and real GDI in Alberta



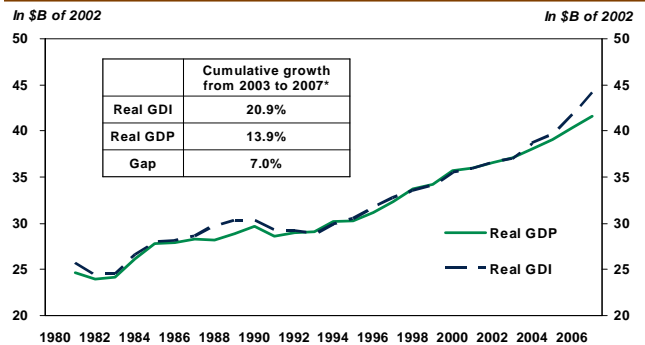
* Inclusively.
Sources: Statistics Canada and Desjardins, Economic Studies

Graph 11 – Real GDP and real GDI in Saskatchewan



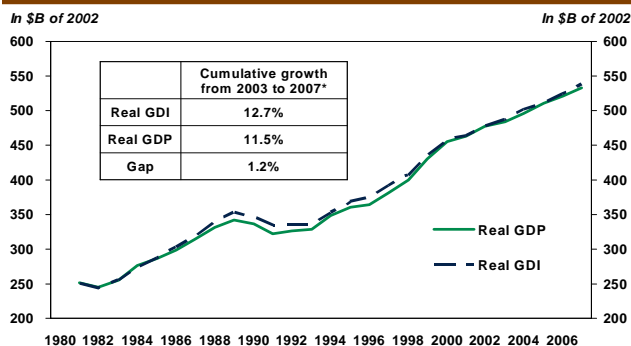
* Inclusively.
Sources: Statistics Canada and Desjardins, Economic Studies

Graph 12 – Real GDP and real GDI in Manitoba



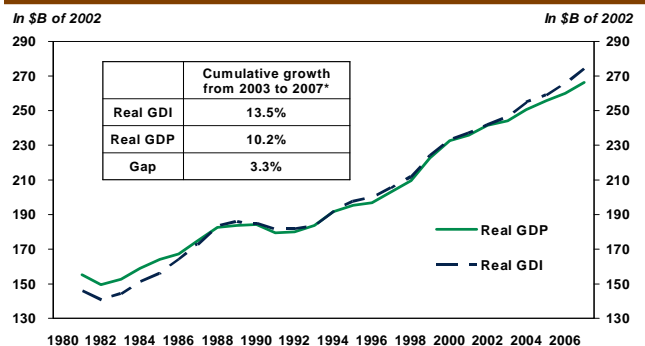
* Inclusively.
Sources: Statistics Canada and Desjardins, Economic Studies

Graph 13 – Real GDP and real GDI in Ontario



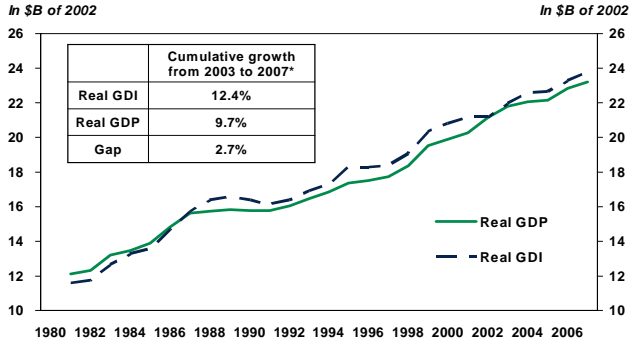
* Inclusively.
Sources: Statistics Canada and Desjardins, Economic Studies

Graph 14 – Real GDP and real GDI in Québec



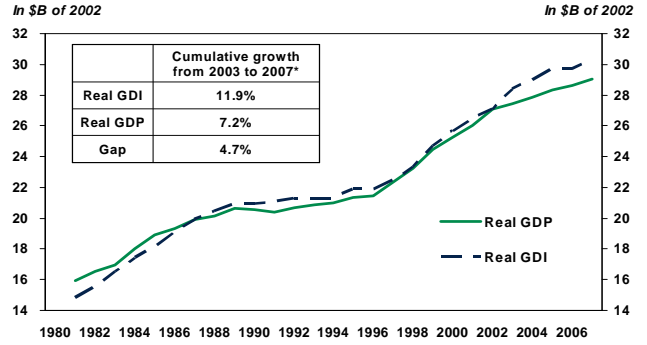
* Inclusively.
Sources: Statistics Canada and Desjardins, Economic Studies

Graph 15 – Real GDP and real GDI in New Brunswick



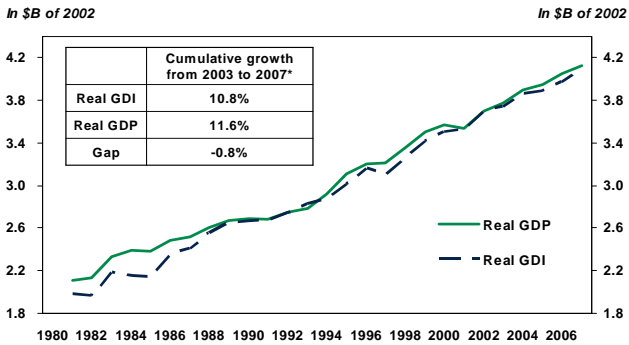
* Inclusively.
Sources: Statistics Canada and Desjardins, Economic Studies

Graph 16 – Real GDP and real GDI in Nova Scotia



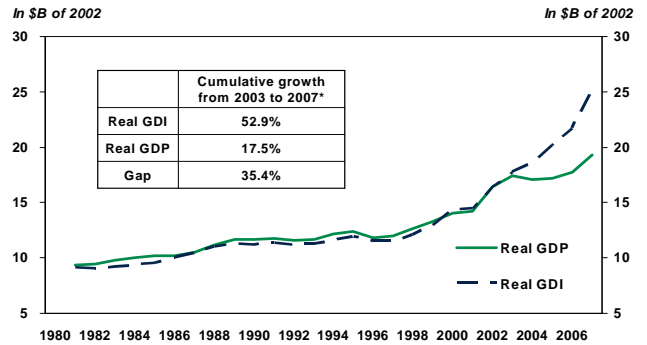
* Inclusively.
Sources: Statistics Canada and Desjardins, Economic Studies

Graph 17 – Real GDP and real GDI in Prince Edward Island



* Inclusively.
Sources: Statistics Canada and Desjardins, Economic Studies

Graph 18 – Real GDP and real GDI in Newfoundland and Labrador



* Inclusively.
Sources: Statistics Canada and Desjardins, Economic Studies