OFFICE OF THE PARLIAMENTARY BUDGET OFFICER
BUREAU DU DIRECTEUR PARLEMENTAIRE DU BUDGET

# Briefing Note

# Canada's Near-Term Economic Outlook

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The *Federal Accountability Act* mandates the Parliamentary Budget Officer (PBO) to provide independent analysis to the Senate and House of Commons on the state of the nation's finances, government estimates and trends in the national economy.

Given the uncertainty of the current economic situation in the context of a global recession, it is more important than ever for parliamentarians, and the public, to have an up-to-date assessment of the economic conditions underpinning Canada's finances. This will help to provide parliamentarians with a planning environment for their debate and deliberations. For this reason, and in meeting the commitments of PBO's mandate, this note provides a detailed estimate of Canada's near-term economic outlook for five key macroeconomic variables including: real GDP, GDP inflation, nominal GDP, real gross domestic income and employment.

It should be noted, however, that any economic outlook is subject to uncertainty, particularly given the current economic climate. In this context, the PBO's outlook should be seen as a *data point*, to be considered alongside other sources of analysis for parliamentarians.

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# Summary and Key Points

At the Standing Committee on Finance meeting of March 25th 2009, PBO presented its own estimate of Canada's near-term economic outlook for the first time. Given the uncertainty of the current economic situation in the context of a global recession, it is more important than ever for parliamentarians, and the public, to have an up-to-date assessment of the economic conditions underpinning the Government of Canada's finances. This will help to provide parliamentarians with a planning environment for their debate and deliberations. However, it is important to highlight that any economic outlook is subject to uncertainty, particularly given the current economic climate.

Using a combination of high-frequency data, statistical models and professional judgement PBO has produced its own outlook for the first two quarters of 2009 for five key macroeconomic variables including: real GDP, GDP inflation, nominal GDP, real gross domestic income (GDI) and employment.

PBO expects that the global economic downturn will continue to weigh on the Canadian economy in the first half of the year through two main channels. The first channel is through the direct reduction in Canadian exports due to reduced foreign demand. The second channel is through a reduction in the purchasing power of Canadians relating to the sustained decline in commodity prices and equity markets. In addition, further job losses and a low level of consumer confidence will act to restrain consumer spending.

**Key Points**

- For the first two quarters of 2009, PBO has produced its own near-term economic outlook using publicly available data. It is not based on a survey of private sector forecasters.

- In order to produce its near-term outlook, PBO uses a combination of high-frequency data, statistical models and professional judgement – techniques commonly used by public and private sector economists.

- PBO currently expects real GDP to decline by 8.5 per cent in the first quarter of 2009 and 3.5 per cent in the second quarter following a 3.4 per cent decline in the last quarter of 2008.[1]

- With GDP inflation of -7.0 per cent and -0.8 per cent in the first and second quarters, respectively, PBO expects nominal GDP to decline by 14.9 per cent in the first quarter and 4.3 per cent in the second quarter.

- PBO expects real Gross Domestic Income (GDI) – an indicator of the purchasing power of Canadian households and businesses – to decline by 14.2 per cent in the first quarter and 4.4 per cent in the second quarter.

- Over the first half of 2009, PBO expects the Canadian economy to shed 380,000 net jobs.

What follows is a description of PBO's near-term outlook and risks to the outlook in addition to a technical description of the methodology employed by PBO.

[1] All quarterly growth rates in this note are expressed at annual rates, and all monthly growth rates are period over period.

# Canada's Near-Term Economic Outlook

## 1. Introduction

With global economy in the midst of the worst economic downturn since World War II it is more important than ever that parliamentarians, and the public, have an up-to-date assessment of the economic conditions in Canada. For that reason, and in fulfilling its mandate, PBO presented its own estimate of Canada's near-term economic outlook at the Standing Committee on Finance meeting of March 25th 2009.

PBO's outlook is not based on a survey of private sector economists, but rather based upon the analysis of high-frequency data using statistical models and professional judgement. Furthermore, all of the data PBO uses to monitor the current state of the economy is publicly available and the techniques employed are commonly used by both public and private sector economists. A detailed explanation of the near-term outlook is presented for five key macroeconomic variables: real GDP growth, GDP inflation, nominal GDP, real Gross Domestic Income (GDI) and employment.

PBO expects the weakness seen in the fourth quarter of 2008 to continue through the first half of 2009 (Table 1) as the persistent weakness of the global economy and an expected inventory adjustment on the part of Canadian firms act as a considerable drag on the Canadian economy.

Real GDP is expected to decline 8.5 per cent in the first quarter of 2009 and 3.5 per cent in the second quarter. An 8.5 per cent decline in real GDP would be the largest decline in the history of the series dating back to the first quarter of 1961.

With GDP inflation of -7.0 per cent and -0.8 per cent in first and second quarters, respectively, PBO expects nominal GDP to decline by 14.9 per cent in the first quarter and 4.3 per cent in the second quarter. This would leave the level of nominal GDP 8.4 per cent below its 2008Q3 level.

PBO expects real GDI - an indicator that best reflects the purchasing power of Canadians – to decline by 14.2 per cent in the first quarter and by 4.4 per cent in the second quarter.[2]

By the end of the first half of 2009, PBO expects the Canadian economy to shed 380,000 net jobs.

The remainder of the note is organized as follows. Section 2 provides a brief explanation of the methodology employed by PBO to produce its near-term economic outlook. Section 3 includes a detailed description of PBO's near-term economic outlook of five key macroeconomic variables. Section 4 discusses potential risks to the outlook.

**Table 1 – Outlook Summary**

| | Actual | Expected | |
|---|---|---|---|
| | 2008Q4 | 2009Q1 | 2009Q2 |
| Real GDP growth | -3.4 | -8.5 | -3.5 |
| GDP inflation | -10.4 | -7.0 | -0.8 |
| Nominal GDP growth | -13.4 | -14.9 | -4.3 |
| Real GDI growth | -15.3 | -14.2 | -4.4 |
| Employment growth | 0.5 | -5.5 | -3.5 |

[2] For a more thorough discussion of real GDI see PBO document, "Canada's Recent Economic Performance" http://www2.parl.gc.ca/Sites/PBO-DPB/documents/Recent_Economic_Performance.pdf

**2. Methodology**

For the one-quarter-ahead outlook (i.e. the quarter ending within three months of the most recent published quarterly estimates) PBO monitors each expenditure component of GDP separately and adds up their contributions to growth to estimate aggregate real GDP growth. In addition to paying particular attention to the dynamics present in the data, statistical models and professional judgement are used to analyse a number of high-frequency indicators.

Given that the quarterly levels of most data series are calculated as the average of the monthly levels it is critically important to understand the monthly dynamics when forecasting near-term quarterly growth. Calculating the magnitude of the statistical momentum is an easy way to judge the influence of the monthly dynamics on quarterly growth (see Annex 1).

An additional way to assess the impact of a monthly indicator is via a statistical model. These models typically exploit a statistical relationship between a component of GDP (e.g. quarterly residential investment) and a set of relevant monthly indicators (e.g. housing starts and existing home sales). Finding good indicators in this context means finding indicators whose variation helps to explain the variation of the quarterly expenditure component being analysed. If such a statistical relationship exists it can be used to forecast future movements in the expenditure component based on changes in their respective indicators.

The importance of professional judgement and a thorough understanding of the data cannot be overlooked in this context. In order to ascertain the amount of influence a particular series should have on a quarterly estimate it is imperative to have an in-depth understanding of the data properties (i.e. monthly volatility and the size of potential revisions) of each indicator.

As a check against the expenditure add-up method, PBO also monitors monthly GDP (at basic prices). Monthly GDP is a measure of the output of the Canadian economy while the expenditure-based GDP in the National Income and Expenditure Accounts is a measure of the expenditures of households and business on the goods and services produced in the economy (see Annex 2). Despite the differences, monthly GDP growth tracks quarterly expenditure-based GDP growth quite closely.

For the two-quarter-ahead outlook (i.e. the quarter ending within six months of the most recent published quarterly estimate) PBO uses a macroeconomic model that incorporates expected values of important indicators of Canada's macroeconomic performance including: U.S. economic activity, commodity prices, consumer confidence, the Canada-U.S. exchange rate and interest rates.

## 3. The Near-Term Economic Outlook

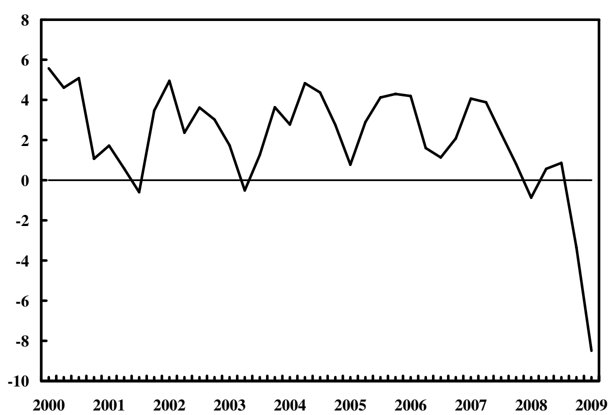
*Real GDP (2009Q1)*

Canadian real GDP declined 3.4 per cent in the fourth quarter of 2008 following a small increase of 0.9 per cent in 2008Q3. On a monthly basis, real GDP at basic prices has declined significantly in the last three months declining by 0.7 per cent in January, 1.0 per cent in December and 0.7 per cent in November producing weak statistical momentum for the first quarter of 2009. PBO currently expects real GDP to contract further in the first quarter of 2009 as this unfavorable monthly dynamic, the persistent weakness of the global economy and an expected inventory adjustment on the part of Canadian firms act as a considerable drag on the Canadian economy. PBO currently expects the Canadian economy to contract by 8.5 per cent in the first quarter of 2009 (Figure 1).

**Figure 1**

**Real GDP, 2000Q1 to 2009Q1**

(Percentage change at annual rates)




Sources: Office of the Parliamentary Budget Officer; Statistics Canada; Haver Analytics

Notes: The 2009Q1 value is based on PBO's current expectations for real GDP growth in the first quarter of 2009.

**Table 2 – Real GDP and Components**

| | Actual 2008Q4 | Expected 2009Q1 |
|---|---|---|
| **Real GDP growth** | **-3.4** | **-8.5** |
| Consumption | -3.3 | -2.5 |
| Government spending | 3.0 | 2.9 |
| Residential investment | -22.1 | -16.0 |
| Business investment | -15.1 | -17.5 |
| Exports | -17.5 | -35.0 |
| Imports | -23.3 | -30.5 |
| Inventory investment* | -0.8 | -2.4 |

* Contribution to quarterly growth, at annual rate.

*Consumption*

Personal expenditures on goods and services declined 3.3 per cent in 2008Q4, the first decline since 1995Q4. Consumption of both goods and services declined in the quarter as a heightened level of uncertainty led to a significant decline in consumer confidence (Figure 2) and led Canadians to raise their savings rate to its highest level since the first quarter of 2002. Moreover household consumption was restrained by a reduction in household wealth due to the sharp drop in commodity and equity prices in the second half of 2008.

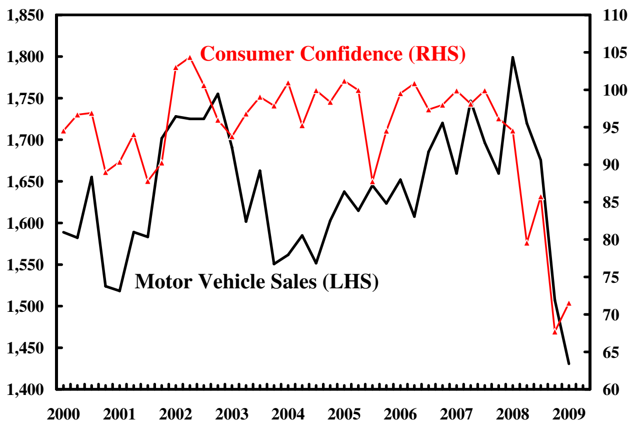
Monthly indicators suggest continued consumption weakness in the first quarter. While real retail sales recovered somewhat in January (+1.8 per cent) following a significant decline in December (-4.0 per cent), real retail sales are still poised to decline by almost 5.0 per cent in 2009Q1 assuming no growth in the last two months of the quarter. Also, despite a 5.5 per cent increase in motor vehicle sales in January, sales are still on track to decline by 18.9 per cent assuming no change in February or March (Figure 2). Moreover, preliminary estimates by Statistics Canada suggest that motor vehicle sales declined by 2.0 per cent in February, which will push down retail sales in that month.

As a consequence, PBO currently expects consumption to decline by 2.5 per cent in the first quarter of 2009, with both goods and services contributing to the decline. Further job losses, the low level of consumer confidence and the decline in household wealth will continue to restrain consumption in the first quarter.

**Figure 2**

**Motor Vehicle Sales and Consumer Confidence, 2000Q1 to 2009Q1**

(Levels)




Sources: Office of the Parliamentary Budget Officer; Statistics Canada; Conference Board of Canada; Haver Analytics

Notes: Motor vehicle sales are expressed in thousands of units, seasonally adjusted at an annual rate. The 2009Q1 value is equal to its January level.

The Index of Consumer Confidence is based on four attitudinal questions related to: financial position relative to six months ago, expected financial position in six months, expected job situation in six months and whether it is a good or bad time to make a major purchase. The Index of Consumer Confidence equals 100 in 2002.

### *Residential Investment*

Residential investment contracted by 22.1 per cent in the fourth quarter of 2008, the fourth consecutive quarterly decline since peaking in 2007Q4. Ownership transfer costs were particularly weak in the fourth quarter as Multiple Listing Service (MLS) existing home sales declined 63.7 per cent. While ownership transfer costs registered the largest decline, all components of residential investment contributed negatively in the fourth quarter. In particular, following eight years of exceptionally strong growth, renovation activity contracted considerably.

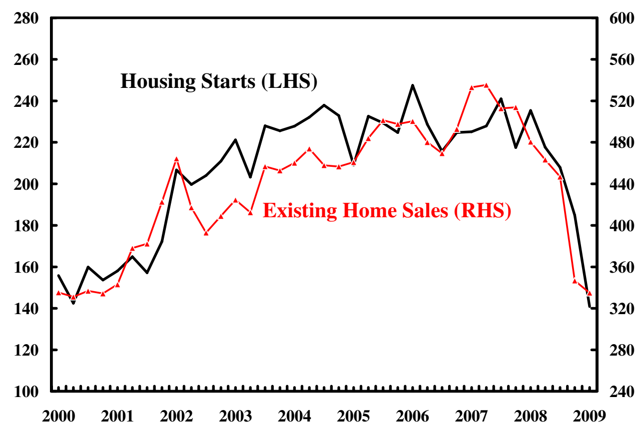
Monthly indicators suggest that both new housing construction and ownership transfer costs will continue to contribute negatively to residential investment in the first quarter. Housing starts have declined for six consecutive months and assuming no change in March are set to decline by 66.2 per cent in the first quarter. Likewise, MLS existing home sales also continue to suggest weakness in the first quarter and despite having increased by 8.6 per cent in February are still set to decline by almost 13 per cent in the first quarter (Figure 3).

Recent declines in housing starts will likely push down housing construction in the first quarter of 2009. In addition, the weakness in renovation activity seen in 2008Q4 is likely to persist into the first quarter of 2009 driven by the same fundamental factors that are expected to push down consumption although this may be partially offset by the effects of the Home Renovation Tax Credit announced in Budget 2009. As a consequence PBO expects residential investment to decline by 16.0 per cent in the first quarter of 2009.

**Figure 3**

**Total Housing Starts and Existing Home Sales, 2000Q1 to 2009Q1**

(Thousands)




Sources: Office of the Parliamentary Budget Officer; Canada Mortgage and Housing Corporation; Canadian Real Estate Association; Haver Analytics; Conference Board of Canada

Notes: Housing starts are expressed in thousands of units, seasonally adjusted at an annual rate (left scale). The 2009Q1 value is the level of housing starts assuming no growth in March.

Existing home sales are expressed in thousands of units, seasonally adjusted at an annual rate (right scale). The 2009Q1 value is calculated as the level of existing home sales assuming no growth in March.

### *Business Investment*

Business investment declined 15.1 per cent in 2008Q4 which was entirely attributable to a significant decline in machinery and equipment (M&E) investment as non-residential construction remained virtually unchanged in the quarter. The decline in M&E investment was widespread with declines registered in all its subcomponents, but was primarily affected by a 34.9 per cent decline in industrial machinery investment. On the non-residential construction side, both building construction and engineering activity were essentially unchanged in the fourth quarter with growth rates of 0.1 per cent and -0.2 per cent, respectively.

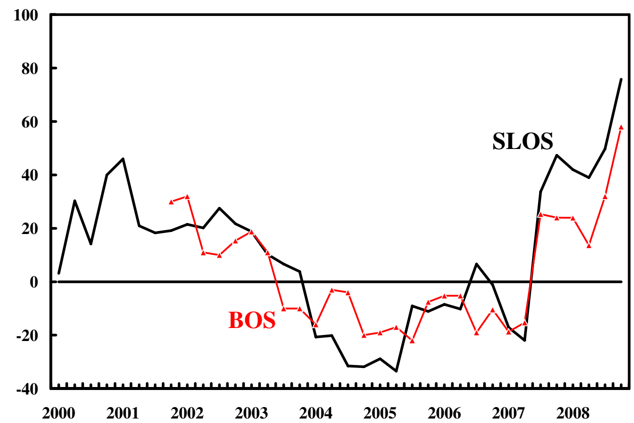
Most indicators suggest that business investment will continue to contract in the first quarter of 2009. First, corporate profits fell by almost 60 per cent in 2008Q4 as commodity prices retreated from historical peaks reached earlier in the year. Furthermore, commodity prices, as measured by the Bank of Canada's commodity price index, declined in the first quarter of 2009 and will likely remain weak until the global recovery takes hold. Second, credit conditions continued to tighten at the end of 2008 as indicated by both the Bank of Canada's Senior Loan Officers Survey and its Business Outlook Survey (Figure 4). Third, real M&E imports declined significantly in December and January (-6.3 per cent and -8.3 per cent respectively) and with no further change in the remainder of the quarter are set to decline by 39.7 per cent in 2009Q1. Finally, based on Statistics Canada's Private and Public Investment Intensions (P&PI) private sector capital spending is expected to fall by 13.1 per cent in 2009. This decline is primarily due to a large decline in the mining and oil and gas extraction industry, which is consistent with the recent weakness in commodity prices.

Therefore, PBO currently expects business investment to decline by 17.5 per cent in the first quarter of the year.

**Figure 4**

**Credit Conditions, 2000Q1 to 2008Q4**

(Balance of Opinion)




Sources: Bank of Canada; Haver Analytics

Notes: The Senior Loan Officer Survey (SLOS) reflects the balance of opinion of business lending practices in Canada. The balance presented is for the overall balance of opinion and is calculated as the weighted percentage of surveyed financial institutions reporting tightened credit conditions minus the weighted percentage reporting eased credit conditions.

The Business Outlook Survey (BOS) is a summary of interviews conducted by the Bank's regional offices with the senior management of about 100 firms, selected in accordance with the composition of Canada's gross domestic product. The question on credit conditions asks whether the terms and conditions for obtaining financing over the past three months have tightened, eased or remained unchanged compared with the previous three months. The balance of opinion is obtained by subtracting the percentage of respondents answering "eased" from the percentage answering "tightened".

*Trade*

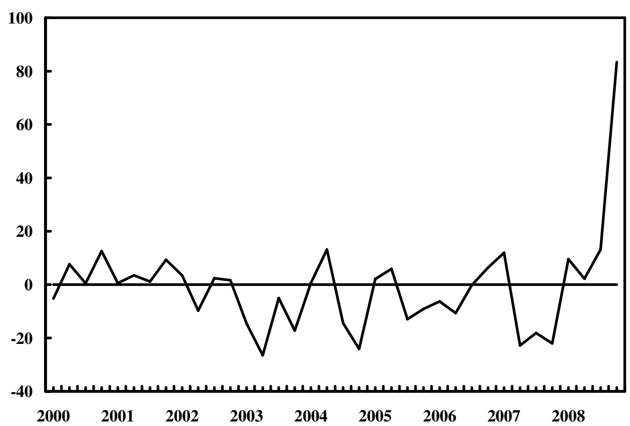
Trade, on a net basis (i.e. exports minus imports), contributed positively to real GDP growth in 2008Q4 as a large decline in exports (-17.5 per cent) was more than offset by a significant fall in imports (-23.3 per cent). The sharp decline in imports in the fourth quarter reflected both weak final domestic demand and a significant price effect from the largest percent change in the Canada-U.S. bilateral exchange rate since Canada moved back to a floating exchange rate in 1970 (Figure 5). PBO currently expects net trade to subtract from real GDP growth in the first quarter of 2009 as the decline in exports accelerates and is only partially offset by a large decline in imports.

Exports are expected to contract further in the first quarter of 2009 declining by 35.0 per cent in 2009Q1. Continued weakness in the U.S. economy, particularly in industries that are important for Canadian exporters, is expected to pull down exports in the first quarter. Specifically, weakness in U.S. industrial production and U.S. motor vehicle sales are expected to restrain demand for industrial goods and motor vehicles and parts. Goods exports continued to decline in January (-7.0 per cent), mainly due to a sharp drop in motor vehicle and parts exports. Assuming no change in February or March real goods exports are set to decline by 37.8 per cent in 2009Q1.

**Figure 5**

**Canada-U.S. Exchange Rate, 2000Q1 to 2008Q4**

(Percentage change at an annual rate)




Sources: Office of the Parliamentary Budget Officer; Statistics Canada; Haver Analytics

Notes: A positive growth rate corresponds to a depreciation of the Canadian dollar.

Imports are also expected to be weak in the first quarter of 2009 declining by 30.5 per cent. Declining final domestic demand and weaker inventory investment are expected to restrain imports in the first quarter of the year. Like exports, goods imports continued to decline in January falling by 5.9 per cent. Assuming no change in February or March real goods imports are set to decline by 35.3 per cent in 2009Q1.

*Government Spending*

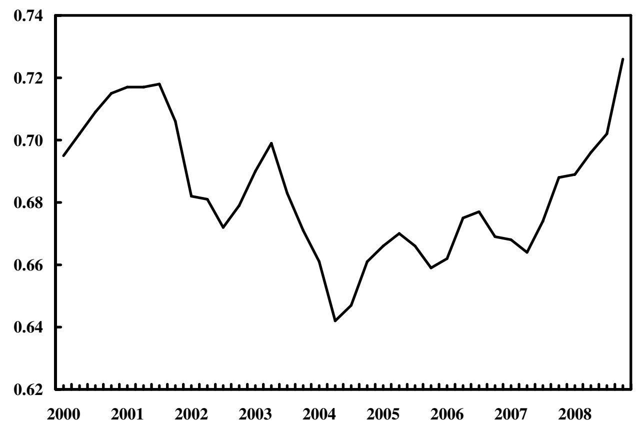
Total government expenditures rose by approximately 3 per cent in the fourth quarter of 2008. Government current expenditures on goods and services increased 2.8 per cent, while government gross fixed capital formation grew by 4.3 per cent.

PBO currently expects total government expenditure to remain around 3.0 per cent in the first quarter.

**Figure 6**

**Real Stock-to-Sales Ratio, 2000Q1 to 2008Q4**

(Level)




Sources: Office of the Parliamentary Budget Officer; Statistics Canada; Haver Analytics

Notes: The stock-to-sales ratio is calculated as the stock of inventories divided by the level of sales.

*Inventories*

Businesses continued to accumulate inventories in fourth quarter, but at a slower pace than in the previous quarter. The increase in inventories combined with a large decline in sales in the fourth quarter led to a significant increase in the real total economy stock-to-sales ratio (Figure 6). PBO has interpreted this increase in the stock-to-sales ratio as unanticipated on the part of firms reflecting the fact that sales have fallen faster than anticipated. PBO currently expects firms to adjust production bringing their inventory levels relative to sales back to those observed over the 2002 to 2006 period. As a consequence, PBO currently expects inventory investment to subtract 2.4 percentage points from growth in the first quarter.

*GDP at Basic Prices*

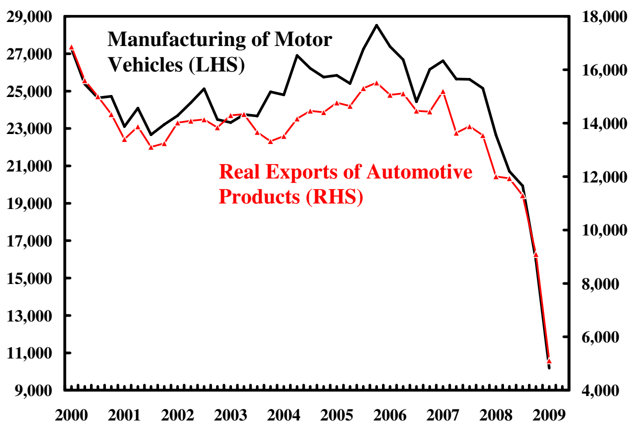
GDP at basic prices declined 0.7 per cent in January following declines of 1.0 per cent in December and 0.7 per cent in November. The decline in January was the sixth consecutive monthly decline and left the level of GDP at basic prices 6.2 per cent, at an annualized rate, below its level in the fourth quarter.

The main contributors to the decline in January were the manufacturing, construction and wholesale trade industries, which all declined by at least 3.0 per cent. Manufacturing of motor vehicles was particularly weak in January declining by 37.6 per cent due to weak external demand in light of weak motor vehicle sales south of the border (Figure 7).

**Figure 7**

**Motor Vehicle Manufacturing and Real Exports, 2000Q1 to 2009Q1**

(Millions of 2002 dollars)




Sources: Office of the Parliamentary Budget Officer; Statistics Canada; Haver Analytics
Notes: Both series are quarterly, expressed in millions of chained 2002 dollars and seasonally adjusted at annual rates.

*Real GDP (2009Q2)*

PBO's outlook for the second quarter of 2009 is based on a statistical model, sometimes referred to as an IS curve, that models Canadian real GDP growth as a function of the following key macroeconomic variables: U.S. real GDP growth, real commodity prices, the real exchange rate, real interest rates and the change in consumer confidence. While this type of statistical model does reasonably well characterising the response of GDP to movements in these key economic variables, estimation results indicate that the model overestimates growth during the last two Canadian recessions, which is likely due to the fact that these types of episodes are relatively infrequent. After adjusting for this factor in the first and second quarters of 2009, PBO expects Canadian real GDP to contract by 3.5 per cent in the second quarter of 2009.

*GDP Deflator*

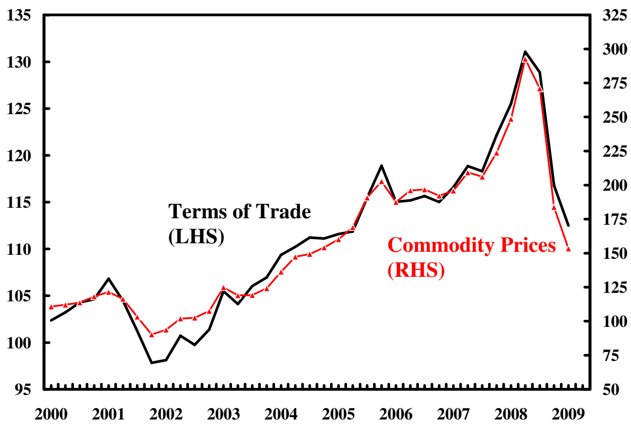
The GDP deflator (a broad measure of the level of prices) declined 10.3 per cent in 2008Q4 as the terms of trade (export prices relative to import prices) contracted by 31.4 per cent in the quarter largely due to falling commodity prices (Figure 8). The export price deflator declined 15.3 per cent in the quarter as commodity prices retreated in light of the global recession and import prices increased 23.5 per cent due to the sharp depreciation of the Canada-U.S. bilateral exchange rate. Due to its high import content the price of machinery and equipment also increased significantly (+39.5 per cent) in the fourth quarter, but this was partially offset by a 2.0 per cent decline in the personal expenditure deflator.

Monthly indicators suggest that the terms of trade continued to deteriorate in the first quarter of 2009. First, commodity prices, as measured by the Bank of Canada's commodity price index declined by 46.6 per cent in the first quarter following a 78.8 per cent decline in 2008Q4. Second, the terms of trade from the monthly merchandise trade statistics also declined in January and is currently 17.6 per cent, at an annualized rate, below its fourth quarter level. Finally, the exchange rate has remained relatively stable in the first quarter which should keep import and M&E prices relatively constant in the first quarter.

**Figure 8**

**Terms of Trade (Goods) and Commodity Prices, 2000Q1 to 2009Q1**

(Levels)




Sources: Office of the Parliamentary Budget Officer; Bank of Canada; Statistics Canada; Haver Analytics

Notes: Commodity prices are based on the Bank of Canada's commodity price index which is expressed in U.S. dollars (1982-1990 = 100).

The terms of trade is for goods only and is calculated as the ratio of the goods export chained deflator divided by the goods import chained deflator (2002 = 100).

Therefore, PBO currently expects the GDP deflator to decline by 7.0 per cent in 2009Q1, but then to remain relatively unchanged (-0.8 per cent) in the second quarter of the year as commodity prices stabilize.

*Nominal GDP*

Nominal GDP, the broadest measure of the tax base, declined by 13.4 per cent in 2008Q4 the first decline since the second quarter of 2003. From an income perspective, the fourth quarter decline was primarily attributable to the 59.3 per cent decline in corporate profits before taxes.

Based on PBO's outlook for real GDP and the GDP deflator, PBO currently expects nominal GDP to decline by 14.9 per cent and 4.3 per cent in 2009Q1 and 2009Q2, respectively. Combined with the decline in fourth quarter of 2008 this would leave nominal GDP 8.4 per cent below its 2008Q3 level.

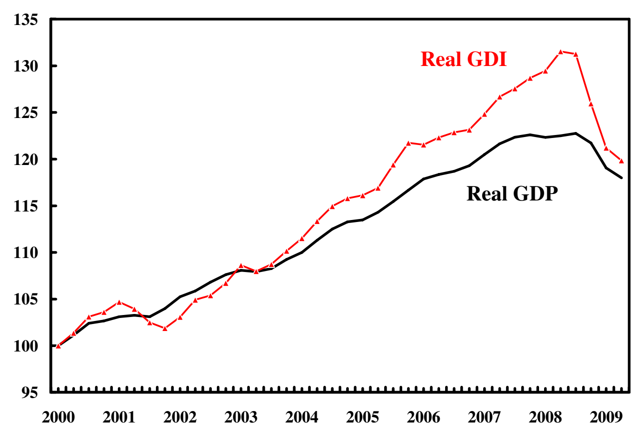
*Real GDI*

Real GDI, an indicator of the purchasing power of Canadian households and businesses, declined 15.3 per cent in the fourth quarter of 2008. Over the 2003Q1 to 2008Q3 period, real GDI grew by 3.7 per cent, on average, compared to real GDP growth which averaged 2.3 per cent over the same period (Figure 9). The substantial difference between the growth rates of the two measures was primarily driven by the significant run-up in commodity prices and the related appreciation of the Canadian dollar, which raised the purchasing power of Canadian households and businesses at a significantly faster rate than real GDP would have suggested. However, the sharp decline in commodity prices and the Canadian dollar since the middle of 2008 has pulled down Canada's terms of trade and led to a significant decline in real GDI. PBO expects real GDI to continue to decline at a faster rate than real GDP in the first half of 2009, contracting by 14.9 per cent in 2009Q1 and 4.4 per cent in 2009Q2.

**Figure 9**

**Real GDP and Real GDI, 2000Q1 to 2009Q2**

(Index, 2002Q1=100)




Sources: Parliamentary Budget Office; Statistics Canada; Haver Analytics

Notes: Both real GDP and real GDI are expressed in levels index to 100 in 2002Q1. The 2009Q1 and 2009Q2 values are based on PBO's current estimates for real GDP and GDI growth rates in the first and second quarters of 2009.

*Employment*

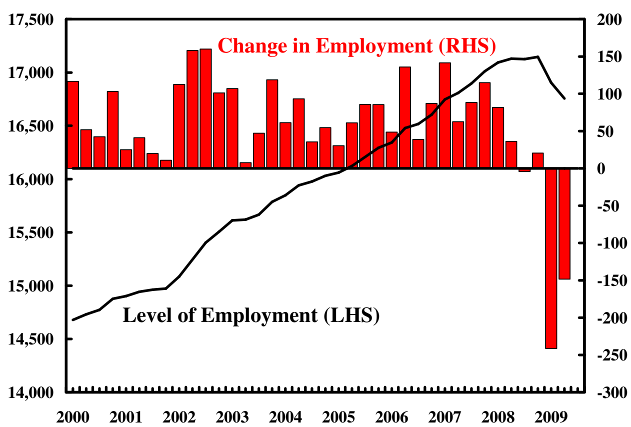
Canadian firms, on net, continued to shed workers in January and February, and since peaking in October, approximately 295,000 workers have lost their jobs, equal to 1.7 per cent of total employment. Roughly two-thirds of the job losses have occurred in the goods sector where the level of employment has declined by 4.8 per cent since October. Most of the job losses in the goods sector have been in manufacturing and construction. Service employment is also down since October having declined by 0.8 per cent. Job losses in the service sector have been fairly widespread with notable declines in education, trade, transportation and professional, scientific and technical services.

PBO expects that firms will likely continue to shed workers in the months ahead as real economic activity continues to decline. Since average hours worked have already declined to a low level by historical standards, PBO believes that firms are likely to reduce their workforce rather than reducing average hours worked further. Therefore, employment is currently expected to decline by 5.5 per cent and 3.5 per cent in 2009Q1 and 2009Q2 respectively (Figure 10).

**Figure 10**

**LFS Employment, 2000Q1 to 2009Q2**

(Thousands)




Sources: Office of the Parliamentary Budget Officer; Statistics Canada; Haver Analytics

Notes: Employment levels are from the Labour Force Survey and expressed in thousands. The change represents the quarter-over-quarter changes in the level of employment. The 2009Q1 and 2009Q2 values are based on PBO's current expectations for employment in the first and second quarters of 2009.

## 4. Risks to the Outlook

Any economic outlook is subject to uncertainty, particularly given the current economic climate.

PBO believes that the risks to its near-term outlook are roughly balanced over the first two quarters. The timing of the expected inventory adjustment is an important risk to PBO's near-term outlook. In particular, the expected adjustment could occur later than we currently anticipate which would result in a smaller decline in first-quarter real GDP but, all else being equal, would imply more drag from inventories in the remainder of the year.

In addition, Canadian households and business could prove more resilient to the recent slowdown given the exceptionally low level of interest rates. However, the global downturn could prove more severe than currently anticipated which would reduce exports further and continue to weigh on commodity prices.

# Annex 1

## The Impact of Monthly Dynamics on Quarterly Growth

Given that the quarterly level of most data series is the average of the monthly levels, monthly dynamics can have large impacts on quarterly growth rates. In particular, large monthly movements at the end of one quarter can have a lasting impact on growth in the next quarter.

The table below compares two monthly growth profiles; the first, with neutral dynamics, has the same monthly growth through the quarter while the second profile, with strong dynamics, has all of the growth in the quarter occurring in the last month. Since the first quarter level is the average of three months, the growth rates are identical for both profiles (equal to 1 per cent). The monthly growth profile in the second quarter is also the same over the quarter in both cases (zero growth in all months) but the second quarter growth rates differ substantially (0 versus 2 per cent). Thus focusing on the quarterly level and ignoring the monthly dynamics would lead to large discrepancies in estimates of growth in the second quarter.

| | | Q4 | Q1 | | | Q2 | | |
|---|---|---|---|---|---|---|---|---|
| | | | M1 | M2 | M3 | M4 | M5 | M6 |
| Neutral dynamics | Monthly growth | | 0.5 % | 0.5 % | 0.5 % | 0 % | 0 % | 0 % |
| | Quarterly level | 100 | | 101 | | | 101 | |
| | Quarterly growth | | | **1 %** | | | **0 %** | |
| Strong dynamics | Monthly growth | | 0 % | 0 % | 3 % | 0 % | 0 % | 0 % |
| | Quarterly level | 100 | | 101 | | | 103 | |
| | Quarterly growth | | | **1 %** | | | **2 %** | |

Note: Growth rates are period-over period.

Simply put, the size of the statistical momentum is the amount of quarterly growth that will occur with no further monthly growth. Using the above example, if the third month of data in the first quarter had just been published, the statistical momentum for the second quarter would be 2 per cent. Using a concrete example: After the 0.7 per cent decline in monthly GDP in January the statistical momentum for first quarter growth is -6.2 per cent, meaning if there is no growth in February or March, GDP at basic prices would decline by 6.2 per cent in the first quarter.

# Annex 2

## Three Measures of Gross Domestic Product

Gross domestic product can be calculated three ways; by incomes, by expenditures and by output.[3]

Nominal GDP (i.e. GDP at market prices) is calculated using the income approach by adding up all of the incomes generated from productive activity (i.e. the returns to labour and capital employed in production). Wages, salaries and supplementary labour income, corporate profits, and capital consumption allowances account for nearly 80 per cent of nominal GDP with wages and salaries making up the largest single share at over 50 per cent. To calculate nominal GDP using the expenditure approach, Statistics Canada adds up all sales to final users (consumers, businesses, governments and exports less imports). Expenditures by consumers represent the largest component, accounting for around 55 per cent percent of nominal GDP.[4]

By definition, the amount buyers of aggregate production (i.e. GDP) pay (aggregate expenditures) must be equal to the amount the sellers of aggregate production receive (aggregate income) making the calculation of nominal GDP identical using either approach. However, in practice the measures differ by a small amount and the statistical discrepancy is used in the National Income and Expenditure Accounts to ensure the two measures provide identical values for nominal GDP.

The value added method is used to calculate output-based GDP. It is equal to the sum of value added (i.e. output less intermediate inputs) of all industries in Canada. Because this measure is produced on a monthly basis, it provides the earliest and most up-to-date information on the economy. Output-based GDP is calculated at basic prices which include taxes and subsidies on the factors of production only while the income and expenditure approaches above are calculated at market prices which include all taxes and subsidies. This distinction is minor in terms of growth rates and the income, expenditure and output-based measures of GDP growth track each other very closely.

The most common measure of economic activity is real GDP (i.e. nominal GDP adjusted for inflation). Both the expenditure-based and output-based versions of GDP can be obtained on a real chain-fisher basis although the methods used to deflate the two measures are different.

[3] For a brief description of the National Income and Expenditure Accounts consult the following link: http://www.statcan.gc.ca/imdb-bmdi/document/1901_D3_T9_V1-eng.pdf. For a detailed description of GDP by industry consult Statistics Canada Catalogue no. 15-547-XIE

[4] Shares of nominal GDP are from the 2008 annual estimates in the National Income and Expenditure Accounts