Monetary Policy Transmission in Canada: A FAVAR Analysis

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Abstract

This paper employs the Factor Augmented Vector Autoregression (FAVAR) method used in Boivin, Giannoni and Stevanovic (2010) to analyze traditional channels of monetary policy transmission in Canada and to estimate the industrial and provincial effects of monetary policy. The benchmark model includes 409 quarterly macroeconomic time series from 1981Q2 to 2016Q2. The impulse response results are broadly consistent with the theoretical prediction of a small open economy model, except for CPI and total exports that are relatively nonresponsive to the monetary policy shock. The identified monetary policy shocks have heterogeneous sectorial effects, which are the largest for industrial GDP in manufacturing and wholesale trade, and for employment in manufacturing and construction. Furthermore, this paper finds that there are provincial differences in the responses to monetary policy shocks, with employment in Quebec and Ontario and housing price in Ontario and British Columbia being the most affected.

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1. Introduction

The monetary transmission mechanism in a small and open economy like Canada presents distinct features. Understanding and measuring the effects of monetary policy on the economy is key for the policy decisions of Bank of Canada to attain the desired outcomes. The purpose of this paper is to assess the transmission channels of monetary policy in Canada, and in particular the interest rate, asset price, and exchange rate channels, and to estimate the industrial and provincial effects of monetary policy.

This paper employs the Factor Augmented Vector Autoregression (FAVAR) framework of Bernanke, Boivin and Eliasz (2005) and Boivin, Giannoni and Stevanovic (2010). The benchmark model includes 389 Canadian macroeconomic series and 20 international series, covering the period from 1981Q2 to 2016Q2, and uses seven unobservable factors and one observable factor, the overnight interest rate. The main contributions of the paper are threefold. First, it extends the analysis of Boivin, Giannoni and Stevanovic (2010) by using recently revised data tables from Statistic Canada, that include data up to 2016. Second, the paper analyzes several traditional channels of transmission of monetary policy in detail. Third, it implements the FAVAR model to examine the effects of monetary policy shocks at the industrial and provincial level in Canada.

The results indicate that in response to a contractionary monetary policy shock that increases the overnight interest rate, the economy experiences a general contraction: gross domestic product (GDP) and employment fall, the exchange rate appreciates on impact and the terms of trade deteriorate accordingly, asset prices fall, and household and business consumption and investment drop. However, the responses of the consumer price index (CPI) for all item, the core CPI, and total exports, are muted, contrary to the results of Boivin, Giannoni and

Stevanovic (2010). This paper also finds that the most interest-rate-sensitive industries are manufacturing and wholesale trade for GDP, and manufacturing and construction for employment. In the provincial analysis, Quebec and Ontario are the most adversely affected provinces in terms of employment, and Ontario and British Columbia in terms of housing prices. In addition, robustness analysis shows that excluding the world variables from the benchmark model does not significantly alter the predicted responses of the economy to a monetary policy shock. On the other hand, an earlier sample including data from 1976Q1 to 2007Q4 delivers different patterns in the responses of CPI, TSE (Toronto Stock Exchange) stock dividend yield, and the U.S. dollar exchange rate, suggesting a possible change in the transmission of monetary policy shocks in recent decades.

The rest of the paper is organized as follow. Section 2 reviews the related literature in this area. Section 3 describes the FAVAR model. Section 4 reports and analyzes the results for the model. Section 5 discusses the robustness of the results, and finally Section 6 concludes.

2. Literature review

Understanding the monetary transmission mechanism is fundamental for the design of sound monetary policy. VAR models have often been used for this purpose, as they allow one to study the responses of target macroeconomic variables to the identified monetary policy shocks, without the need to specify a full, structural model of the economy. However, examining the monetary policy transmission mechanism using a VAR framework is challenging for several reasons.[1] Two main issues are the choice of the assumptions needed to identify the structural of

[1] For an extensive discussion, see Bernanke, Boivin and Eliasz (2005), and Boivin, Giannoni and Stevanovic (2010).

monetary shocks, and the lack of information caused by the small number of variables used in standard VAR models. Grilli and Roubini (1996) document a number of anomalies arising from a VAR identified using ordering restrictions, for several countries including Canada. Later contributions extend the study of the monetary transmission mechanism in Canada by adopting more complex identification schemes, and show that the assumptions used to identify the VAR model can crucially affect the results of the analysis (see Cushman and Zha, 1997; Bhuiyan and Lucas, 2007; and Kim and Roubini, 2000). In addition, VAR models are not straightforward to implement when a large number of variables are required to be estimated in a model, for example in cases where the researchers are interested in investigating the transmission of monetary policy in different regions of the same country, or in different sectors of the economy. In these cases, separate VARs are often used for the sector-level and provincial analysis, as for instance in Fares and Srour (2001) and Georgopoulos (2009).

To solve the above problems, Bernanke, Boivin and Eliasz (2005) introduce the FAVAR model, which augments a standard VAR with a small number of factors extracted from a large number of variables. The extracted factors are used as extra endogenous variables in the model, thereby introducing additional information into the VAR. FAVAR models can alleviate the problems of choice of the assumptions and lack of information in standard VAR models and have several advantages. Bernanke, Boivin and Eliasz (2005) show that a FAVAR model with a simple recursive identification scheme produces plausible responses of the economy to a monetary policy shock. Since the factors are extracted from a large set of economic series, one do not need to select specific variables as proxies for the behavior of entire markets or sectors of the economy. Moreover, a FAVAR model can generate impulse responses of any variables included into the model to the identified shocks. As a result, it can provide a more

comprehensive picture of the effects of monetary policy shocks on the economy.

FAVAR models have already been exploited to study the monetary transmission mechanism and its stability over time. For instance, Boivin, Kiley and Mishkin (2010) use this framework to examine the effect of monetary policy in the U.S. economy, and to investigate whether the "Great Moderation" is caused by structural breaks or variations in exogenous shocks. The FAVAR framework has also been employed to study the transmission of monetary policy at the regional and sectoral level, as its structure allows to include aggregate and disaggregate macroeconomic variables in a single consistent model. As an example, Boivin, Giannoni and Mojon (2008b) use a FAVAR model to examine the changes in the monetary transmission mechanism across European countries after the introduction of the Euro. On the other hand, Boivin, Giannoni and Mihov (2009) and Baumeister, Liu and Mumtaz (2010) employ FAVAR models to study the disaggregated prices response to a monetary policy shock in the U.S.

FAVAR models are also applied to study the monetary policy effects on the Canadian economy. Boivin, Giannoni and Stevanovic (2010) use the FAVAR framework of Bernanke, Boivin and Eliasz (2005) to provide a thorough analysis of the mechanisms of transmission of monetary policy in a small open economy, Canada. Using a dataset composed of 348 monthly and 87 quarterly Canadian macroeconomic series from 1969Q1 to 2008Q2, they estimate a plausible impact of a monetary policy shock on many macroeconomic variables. In addition, they demonstrate that, in a small open economy like Canada, the FAVAR model helps correct price and exchange rate puzzles, even using a simple recursive identification.

This paper aims at studying transmission of monetary policy shocks in Canada. As discussed above, the FAVAR framework seems to be particularly suitable for this purpose. The paper follows the same approach as Boivin, Giannoni and Stevanovic (2010), but uses an

updated dataset going from 1981Q2 to 2016Q2. Moreover, this work assesses the different channels of transmission of monetary policy in detail, and analyzes the industrial and the provincial responses to monetary policy shock, in addition to the responses of the macroeconomic variables at the national level. This study is among the firsts to investigate the impact of monetary policy at the industrial and provincial level in Canada using an integrated FAVAR framework.

3. FAVAR framework

3.1 Model

The paper employs a Factor Augmented Vector Autoregression (FAVAR) framework, as in Bernanke, Boivin and Eliasz (2005) and Boivin, Giannoni and Stevanovic (2010). Let Y be a T × M matrix of observable economic series and F be T × K matrix of unobservable factors, where T is the length of the sample, M the number of series in Y, and K the number of factors. The dynamics of F_t and Y_t are estimated in the following VAR model, (called "transition equation"):

$$\begin{bmatrix} F_t \\ Y_t \end{bmatrix} = \Phi(L) \begin{bmatrix} F_{t-1} \\ Y_{t-1} \end{bmatrix} + e_t$$

$$= \begin{bmatrix} \phi_{ff}(L) & \phi_{fy}(L) \\ \phi_{yf}(L) & \phi_{yy}(L) \end{bmatrix} \begin{bmatrix} F_{t-1} \\ Y_{t-1} \end{bmatrix} + e_t \quad (1)$$

where $\Phi(L)$ is a lag polynomial of finite order p (the number of lags) and e_t is the error term with mean zero and covariance matrix Q.

The unobservable factors capture important information about the economy and are extracted from a large set of variables, whose values at time *t* are included in the vector X_t. This vector is related to F_t and Y_t by the following observation equation:

$$X_t = \Lambda^f F_t + \Lambda^y Y_t + u_t \quad (2)$$

where Λ^f and Λ^y are the factor loadings relating F_t and Y_t to the data in X_t. Λ^f is a $N \times K$ matrix and Λ^y is a $N \times M$ matrix where N is the number of variables in X. u_t is the vector of error terms, which are assumed to have zero mean and to be uncorrelated to the elements of F_t and Y_t. The idiosyncratic components in u_t are allowed to have some weak cross-sectional correlation. All factors are allowed to enter the observation equation for each series in X_t. Since all factors are used to explain the variation in each variable and are not attached to a specific category of variables, they do not have a specific economic interpretation, as explained in Bernanke, Boivin and Eliasz (2005).

In the benchmark model, Y_t contains only one variable, the monetary policy instrument. For Canada, the official monetary policy instrument is the overnight interest rate. The FAVAR system is identified using a normalization restrictions on the factors and a recursive indentification on the structural shocks. The normalization is applied to equation (2), in which the factors are restricted by imposing $F'F/T = I$.[2] The recursive identification applies to the structural shocks in equation (1). More specifically, a Cholesky identification scheme is applied where the overnight interest rate in Y_t is ordered last, which implies that the factors in F_t do not respond to a monetary policy shock contemporaneously. In other words, the recursive

[2] For more details about the role of this normalization, see Boivin, Giannoni and Stevanovic (2010).

identification assumes that the monetary authority reacts immediately to the developments in the economy, while the other variables included in the model do not react to the interest rate in the current period.

3.2 Estimation

To estimate the model, this paper employs a two-step principal component approach, as originally proposed by Bernanke, Boivin and Eliasz (2005). In this approach, the factors are first extracted from the observation equation (2) by principal component analysis, and then the dynamics of the factors are estimated using the transition equation (1). This two-step approach is computationally simple and does not impose any assumptions on the distribution of the variables in the observation equation.[3]

As in Boivin and Giannoni (2008), the model is estimated using a variant of the two-step principal component approach, which imposes the constraint that the overnight interest rate is one of the factors in the first step. The unobservable factors are then extracted from the dataset X. This approach ensures that the unobservable factors can recover the information contained in the data that is not captured by the overnight interest rate. In addition, as the identification assumption for (1) imposes that the latent factors do not respond to the monetary policy shock contemporaneously, the use of the overnight interest rate as an additional factor allows equation(2) to capture the response of those variables that react quickly to monetary policy shocks. Finally, it is worth remarking that this setup also implies that the factors will be orthogonal to the overnight interest rate, because this variable is removed from the information space from which the latent factors are extracted.

[3] The two-step approach does not exploit the structure of the transition equation in the estimation of the factors in the first step. Another estimation method is the likelihood-based Gibbs-sampling; the reader is referred to Bernanke, Boivin and Eliasz (2005) for more details.

The benchmark model includes seven unobservable factors in addition to the observable factor (the overnight interest rate). This paper employs the criterion used by Bernanke, Boivin and Eliasz (2005) to determine the number of factors to be included in the model, which selects the number of factors at which the impulse responses generated by the model do not change if additional factors are included. The lag length in the VAR model (1) is chosen to be four, as suggested by the Akaike Information Criterion (AIC), but the results are robust to the inclusion of more lags. Once the factors are obtained according to the described procedure, the VAR model (1) is estimated using standard methods.

It is worth mentioning that, as the unobserved factors are estimated first and then used as regressors in the transition equation, the two-step approach suffers from the "generated regressors" problem. This paper employs the method proposed by Bernanke, Boivin and Eliasz (2005) to account for the uncertainty in the factors estimation, and construct confidence intervals for the impulse responses using 5,000 replications of a residual bootstrap procedure for the FAVAR system.[4]

3.3 Data

The analysis uses roughly the same set of macroeconomic time-series as Boivin, Giannoni and Stevanovic (2010), updated to account for the observations that became available after 2008.[5] The data is quarterly frequency. Data sources include: CANSIM tables in Statistic Canada, FRED (Federal Reserve Bank of St. Louis) economic data, OECD economic outlook data, and the OECD main economic database. Further details about the data series used in the analysis are

[4] This procedure is called bootstrap-after-bootstrap technique, and was proposed by Bernanke, Boivin and Eliasz (2005). Further information can be found in this paper.

[5] We use recently revised data tables for the variables in Boivin, Giannoni and Stevanovic (2010) that have been discontinued.

provided in Appendix B.

The benchmark dataset spans from 1981Q2 to 2016Q2 and contains 409 series, which are composed of 389 Canadian data series and 20 international series. The Canadian series include measures of economic activity (for instance: GDP, employment, consumption, and investment), price measures (for instance: deflators of GDP, CPI, industrial price indices and crude oil prices), monetary and financial variables (various commercial interest rates, stock indices, housing indices, exchange rates, and monetary and credit aggregates), international trade series, and current and capital account series. In addition to the series used by Boivin, Giannoni and Stevanovic (2010), this paper also includes disaggregated personal expenditure series, business confidence indices and selected international series in the dataset. International data include a few main U.S. economic series, and OECD aggregate series. The U.S. series consist of GDP, measures of international trade, short run and long run interest rates, CPI, GDP deflator, and housing market indicators. The OECD series includes OECD aggregate GDP, measures of international trade, and CPI series.

In the latter part of the empirical results analysis, the benchmark dataset is extended to include industrial GDP by NAICS (North American Industry Classification System) and provincial New Housing Price Index (NHPI) data. These additional variables are used to study the effects of monetary policy at the industrial and provincial level. The industrial GDP series are only available until 2012; for this reason, they are not included in the benchmark model and are only employed for the analysis by industry. On the other hand, the provincial NHPI series are only available after 1986, and for this reason are only used to study the provincial housing prices response to a monetary policy shock.

All series are normalized and transformed to induce stationarity, following the standard

procedure in factor analysis. More specifically, the series are first made stationary by taking logarithms, first log-differences, or first differences; the transformation method used for each series is described in Appendix B. The only series that are not transformed are interest rates, unemployment rates, household saving rates, and stock dividend yields. All series are then standardized so that they have zero mean and unit variance. Seasonally adjusted series are used when available.[6]

4. Empirical results

In this section, the empirical results emerging from the benchmark FAVAR model are discussed in detail. First, the patterns of the estimates factors are presented. Next, the dynamic effects of a contractionary monetary policy shock are described using impulse responses, and then the variance decomposition analysis is reported. Finally, the disaggregated impact of monetary policy shocks at the industrial and provincial level are discussed.

4.1 Estimated factors

As previously discussed, eight factors are included in the benchmark model: seven unobservable factors extracted from the macroeconomic time-series, and one observable factor, the overnight interest rate. Figure 1 displays the patterns of these factors. The overnight interest rate has been decreasing since the 1980s, reaching its lowest levels during the 2007 recession and remaining low and stable ever since. The other factors do not have a specific economic interpretation.

[6] Seasonally adjusted series include GDP and GDP by industry series, personal expenditure, international trade series, employment, housing starts, current and capital account series, monetary and credit aggregates, business indicators and some U.S. variables.

Factor 1 shows a significant downward trend, which seems to mimic the pattern of the overnight interest rate. The other factors do not have identifiable trends, but some of them roughly follow business cycle dynamics. The recent financial crisis is reflected in the patterns of some of the factors, since a deep decline can be observed around 2008Q2 in Factor 2, Factor 3 and Factor 4.

Appendix B reports the R-squared for each series in the benchmark model. This measure is computed as the fraction of the volatility of each variable that is explained by the unobservable and observable factors according to the observation equation (2). The R-squared results confirm that the factors explain a significant fraction of the variation of the variables included in X, which implies that the benchmark model is able to capture a substantial part of the movements in the data under analysis.

4.2 Impulse responses

Next, impulse responses are used to trace out the dynamic effects of an unanticipated monetary policy shock on selected macroeconomic series in the benchmark model. Figure 2 and 3 plot the responses of the main variables of interest to a contractionary monetary policy shock normalized to increase the overnight interest rate by 25-basis-points. The error bands are the 5th and 95th percentiles of the responses obtained from a residual bootstrapping procedure in which 5,000 replications are saved. The monetary policy shock is identified as an unexpected increase in the overnight interest rate, according to the approach discussed in Section 3.1.

The results reported in Figures 2 and 3 are broadly consistent with the expected impact of a contractionary monetary policy shock. As Figure 2 shows, the mean response of GDP is negative, with a maximum decrease of 0.15 percentage points after 9 quarters. However, this response is almost always statistically insignificant. Employment declines and the unemployment rate rises after the monetary policy shock. Employment reaches a maximum

decrease of 0.14 percentage points after 10 quarters, and the effect is significant in the short and medium term. The unemployment rate increases up to 0.06 percentage points, and the increase persists even after 4 years.

The inflation rate, measured by both the CPI for all items and the core CPI, does not seem to respond to the monetary policy shock. More specifically, CPI inflation is almost unresponsive to the shock, while core CPI inflation decreases slightly throughout the horizon, but both responses are highly insignificant. The exchange rate between the Canadian dollar and the U.S. dollar (FX: US/CAN) appreciates in the short term, while total exports and total imports are not significantly affected by the monetary policy shock.[7] It is worth noting that, in the main results, one does not observe the price puzzle (i.e. a positive reaction of prices) or the exchange rate puzzle (i.e. a depreciation of the exchange rate) found in some structural VAR frameworks (see Grilli and Roubini, 1996). However, the results show that inflation and total exports exhibit little response to the monetary policy shock.

Figure 2 also shows that the household saving rate increases, and household final consumption has a tendency to decrease, after the shock. In more detail, the household saving rate increases on impact of about 0.13 percentage points and remains significant for the first 10 quarters, while household final consumption decreases to maximum of 0.12 percentage points, but the effect is not significant. Business fixed capital formation decreases to a maximum of 0.53 percentage points in the 10^{th} quarter, but the effect is significant only in for a few periods. The Toronto Stock Exchange (TSE) stock dividend yield increases on impact after the shock. Since stock dividend yields move inversely with stock prices, an increase in stock dividend yields indicates a general decrease in stock prices. Finally, Figure 2 reports that the New Housing Price

[7] A decrease in the exchange rate of the US dollar against Canadian dollar indicates an appreciation of the Canadian dollar.

Index (NHPI) is also affected negatively by the monetary policy shock, and the impact is significant in the short and medium term.

Figure 3 focuses on the responses of several commercial interest rates to the monetary policy shock. This figure shows that interest rates generally follow the behavior of the overnight rate, and rise on impact as a consequence of the unexpected monetary policy shocks. The response of the U.S. Federal funds rate (FFR) is also reported in Figure 3. This variable increases after the contractionary monetary policy shock in Canada. However, this change is possibly due to the fact that, because of the strict connections between the U.S. and the Canadian economies, contractionary monetary policy shocks in Canada are correlated with the same type of shocks in the U.S.

In the next subsections, the transmission channels of monetary policy in Canada are examined. As discussed by the Bank of Canada,[8] the main channels through which monetary policy shocks can transmit into the economy are the interest rate channel, the asset price channel, the exchange rate channel and expectation channels. The results of the first three channels are discussed in the following.

Interest rate channel

The interest rate channel operates through the effect of monetary policy on commercial interest rates and short-term bonds rates. The higher policy rate transmits through the money market by influencing financial institutions to increase various interest rates on loans and mortgages. This consequently raises interest payments and the cost of borrowing, thus encouraging saving and restraining spending behaviors. Figure 2 shows that the effects of a

[8] Bank of Canada (2012). How monetary policy works: The transmission of monetary policy.

monetary policy shock on the overnight rate last for about 9 quarters before eventually returning to zero. As mentioned, the responses of various interest rates (reported in Figure 3) follow a similar pattern. The chartered bank prime business rate and the consumer loan rate increase on impact by about 0.21 percentage points and 0.15 percentage points respectively. The average residential mortgage lending rate increases by 0.14 percentage points. The chartered bank deposits rate, the 5-year personal fixed term rate, and the non-chequeable saving rate increase in a similar way.

The expectations hypothesis of the term structure indicates that long-term interest rates should increase as well following an increase in the policy rate, to reflect higher expected future short-term interest rates. Figure 2 shows that the over 10-years government marketable bond rate increases by 0.06 percentage points after the monetary policy shock. However, this variable increases less than the 3-month T-bill rate, perhaps indicating that future interest rates are expected to return back to their original levels.

When commercial interest rates increase after the contractionary monetary policy shock, consumers and business prefer to hold less money in bank deposits, because of the increased opportunity cost of holding money, and demand less bank loans, because of their higher cost in terms of interest payments. The change in bank deposits and loans can affect money aggregates. Figure 2 shows the responses of narrow money (gross M1+) and broad money (gross M2) growth to the monetary contraction. Gross M1+ decreases after the shock, reflecting the higher opportunity cost of holding money in bank deposits. Gross M2 does not seem to be very much affected by the monetary policy shock, and the response is always statistically insignificant. The responses of different types of loans in chartered bank accounts are reported in Figure 3. General loans and business loans slightly increase initially, and then start to decline after about 8 quarters;

however, the responses are only marginally significant in the first two quarters. Total personal loans increase after the monetary contraction and then revert towards zero in the long run, but again the response is significant only right after impact. The initial increase in these loans measures is counter intuitive, as a contractionary monetary policy shock that increases interest rates at different horizons is expected to reduce bank loans. However, general loans and business loans do show a tendency to decrease in the long run, and in any case all responses have a high degree of uncertainty and are quite inconclusive. In terms of household credit and business credit, Figure 2 shows that both measures tend to decline in the long run, but the response of consumer credit is more clearly identified, while the response of business credit is always insignificant.

Asset price channel

The asset price channel operates through changes in the price of various assets, such as bonds, stocks, and housing prices. A contractionary policy measure is expected to decrease asset prices, and eventually restrain spending and aggregated demand. As financial markets react quickly to change in the interest rates, the response patterns of bonds and stocks should be front-loaded. Figure 3 illustrates that the 3-month T-bill rate increases on impact by 0.22 percentage points, and the 3-month prime corporate paper rate by 0.23 percentage points. The increase in bond rates indicates that the value of the existing bonds decreases after the shock. In terms of stock prices, Figure 3 shows that the TSE stock dividend yield increases significantly in the first two years. An increase in stock dividend yields implies a change in stock prices of the opposite sign. Thus, stock prices decrease after the contractionary monetary policy shock, as expected. For housing prices, the increase in interest rates that follows from the monetary policy shock raises the costs of financing house purchases. As a consequence, housing prices should drop as a

result of the decrease in housing demand. Figure 2 demonstrates that indeed the NHPI decreases to a maximum of 0.29 percentage points after 2 years; the change becomes insignificant afterwards. Overall, one can conclude that, in the benchmark model, the asset price channel behaves as expected in Canada since bonds, stocks, and housing prices all tend to decrease after a contractionary monetary policy shock.

Exchange rate channel

The exchange rate channel transmits through the effects of monetary policy on the exchange rate, and consequently on international trade. Higher interest rates make investment in Canada more attractive to foreign investors, thus leading to an appreciation of the Canadian dollar. The improvement in the terms of trade should cause a decrease in net exports, because Canadian goods and services become relatively more expensive compared to foreign goods. As previously discusses, the results show that the exchange rate between the Canadian dollar and the U.S. dollar appreciates after the monetary policy shock, as expected. However, the responses of total exports and total imports are less clear.

To further examine the role of the exchange rate channel, the response of the Canadian effective exchange rate index[9] to a monetary policy shock is analyzed. Figure 2 shows that the Canadian effective exchange rate increases 0.29 percentage points on impact. Similarly to the pattern of the US dollar exchange rate, the response is front-loaded and significant for the first year. Thus, the exchange rate does react to the monetary policy shock in the expected direction, but this reaction does not translate into a clear change in total imports and total exports. This result might indicate that the exchange rate channel has been weak in recent decades.

[9] Canadian dollar effective exchange rate index (CERI) (1992=100). For further information, see Statistic Canada, table 176-0064

Overall, this paper results are broadly consistent with Boivin, Giannoni and Stevanoivc (2010), who use a FAVAR model estimated using data from 1969Q1 to 2008Q2 to trace out the effects of a contractionary monetary policy shock in Canada. These authors use the 3-month T-bill as a proxy for the monetary policy instrument, because data about the official policy instrument (the overnight interest rate) is only available after 1975. Their results show that Canada experiences a general decline in economic activity after a contractionary monetary policy shock. My impulse responses are consistent with the results of Boivin, Giannoni and Stevanoivc (2010), in both magnitude and pattern, for the following series: GDP, employment, money supply, consumer credit, business credit and total imports. However, I also observe different responses for a few other series, in particular total exports, CPI for all items, and core CPI. These differences could be due to the different sample periods under analysis, as the data of this paper spans from 1981Q2 to 2016Q2, so it excludes the 1970s but it includes the "Great Recession" that started at the end of 2007. I will investigate whether this is indeed the case in the Robustness analysis section (i.e. Section 5).

4.3 Variance decomposition

The variance decomposition measures the fraction of the forecast error variance that is due to the monetary policy shock, thus quantifying the role of this shock in the overall volatility of the underlying variables. The variance decomposition is computed for the 5-year ahead forecast error in the benchmark model; the results for a selected set of variables are reported in Table 1.

The results show that monetary policy shocks do not contribute much to the volatility of the variables, except for the interest rate series, for which an average of about 44% of the forecast error variance can be attributed to the monetary policy shock. For the other series, the percentage

is much lower, and averages at about 6.1%. Some variables that are fairly affected by the monetary policy shock are the CPI-rented accommodation (32%) and the CPI-owned accommodation (24%); the household saving rate (23%), and chartered bank personal deposits (23%). In the Canadian labor market, 14% of the forecast error variance of employment and 8.9% of the forecast error variance of unemployment are explained by the monetary policy shock. In terms of asset prices, 11% of the unpredicted variation in the NHPI and 14% of the unpredicted variation in the TSE stock dividend yield are explained by the monetary policy shock. Finally, a small but non-trivial amount of the forecast error variance of GDP (8.2%) is explained by the monetary policy shock.

For some other of the series, monetary policy shocks have a smaller contribution to the 5-year ahead forecast error variance, which suggests that shocks from other sources (either from the unobservable factors in the transition equation, or from the idiosyncratic component of the observation equation), are more important in explaining the dynamics of these variables. The forecast error variance of the CPI for all items and of the core CPI, for instance, are barely explained by the monetary policy shock (1.9% and 5.8%, respectively). For the exchange rate series, this shock accounts for 7.6% of the unpredicted variation of the U.S dollar exchange rate, and 5.8% of the unpredicted variation of the Canadian effective exchange rate. Finally, the dynamics of the international trade series are not much affected by the monetary policy shocks, which only explain 1.4% and 2.9% of the forecast error variance in total exports and total imports respectively.

4.4 Industrial effects of monetary policy

This section examines whether the transmission of monetary policy shocks is characterized by heterogeneity at the industrial level by studying the responses of output and employment in

different sectors of the Canadian economy.

4.4.1 GDP by industry

In this exercise, GDP by industry series, as defined by the North American Industry Classification System (NAICS), are added to the benchmark model. The specification of the model is otherwise the same as before; however, due to the availability of the NAICS GDP data, the sample is reduced to 1981Q2 - 2012Q3.

Figure 4 displays the responses to a 25-basis-point contractionary monetary policy shock, together with their 90% confidence interval. Overall, in most industries GDP responds in the same direction as aggregate GDP, i.e. it shows a tendency to decline. Manufacturing and wholesale trade are the most adversely affected sectors in terms of mean responses, but for almost all the industries, the responses are insignificant at all horizons. Selected disaggregated manufacturing sectors are also included in Figure 4. The results show that wood-product manufacturing and machinery manufacturing are the most adversely affected by the monetary policy shock. Some other industries (construction; retail trade; professional, scientific and technical services; accommodation and food services) also exhibit a large negative mean response to the shock.

With respect to the responses of GDP in the different sectors of the economy, the results are consistent with those of Fares and Srour (2001). These authors use separate VAR models, estimated with data from 1961 to 1999, to study the monetary transmission mechanism in broad sectors of the Canadian economy defined at the production level (primary sector, manufacturing, services, constructions, and government). Fares and Srour (2001) conclude that construction and manufacturing are the most interest rate sensitive sectors, while the response of the services sector is half as strong as that of manufacturing. My results show that manufacturing is the most

affected industry, and that construction is also affected to a large extent. In addition, I find that the responses of the services-producing industries are about one third in magnitude compared to those of the goods-producing industries.

4.4.2 Employment by industry

Next, the responses of employment in different sectors of the Canadian economy to a monetary policy shock are analyzed. As before, the shock is normalized to increase the overnight interest rate by 25-basis-point. The results are reported in Figure 5.

After a contractionary monetary policy shock, one can observe a general tendency of employment to decline. Figure 5 shows that the effect is significant in the goods-producing and services-producing sectors, with a decrease that reaches 0.27 percentage points and 0.09 percentage points, respectively. Thus, employment seems to be more sensitive to the increase in the interest rate in the goods-producing sector compared to the services-producing sector. With respect to the more disaggregated industries, manufacturing and construction are the most adversely affected by the contractionary monetary policy shock, with a decline that reaches 0.40 percentage points and 0.28 percentage points, respectively. For the other industries, the patterns reported in Figure 5 are insignificant at all horizons, although for several of them the mean response to the shock tends to be negative.

4.5 Provincial effects of monetary policy

In addition to the analysis of the country-level impact of a monetary policy shock, the FAVAR model can also be employed to characterize province-specific responses. This section focuses on the transmission of a monetary policy shock to provincial level employment and housing prices.

4.5.1 Provincial employment

Figure 6 reports the responses of provincial employment to a 25-basis-point contractionary monetary policy shock. As discussed in section 4.2, national employment in Canada decreases following the monetary policy shock. The responses of provincial employment are also negative in general, but there are some slight differences among different regions.

Employment in the Central region of Canada is the most adversely affected by the monetary policy shock. Quebec's employment decreases significantly in the short and medium term, with a maximum decline of 0.16 percentage points. Ontario's employment also exhibits a large and significant decrease similar to Quebec. In British Columbia, employment decreases by a maximum of 0.14 percentage points, but the response is insignificant over time. The responses in the Prairie region are weaker compared to the Central provinces. Manitoba's employment reaches a maximum decrease of 0.12 percentage points, while for Alberta and Saskatchewan the decrease reaches 0.12 and 0.06 percentage points, respectively, but the responses for these two last provinces are insignificant. Finally, employment in the Atlantic region declines in average (with the exception of Prince Edward Island, which does not seem to be affected by the monetary policy shock), but for most provinces the response is insignificant at all horizons.

Georgopoulos (2009) uses monthly data from 1976 to 2000 in a recursive VAR model to study the responses of provincial employment to a monetary policy shock in Canada. The author finds that Newfoundland and Prince Edward Island are strongly affected by the monetary policy shock, and argues that the response patterns are related to the structure of the underlying provincial economies. More specifically, provinces that are largely based on primary sector industries are found to be affected the most, while in manufacturing-based economies, such as Quebec and Ontario, employment seems to be only modestly impacted. My results differ from

Georgopoulos (2009), as I find that Quebec and Ontario are the provinces where the monetary policy shock has the largest impact. This difference could be due to the different framework and/or different sample period that this paper employ. First, my framework is very different from the one used by Georgopoulos (2009), and is able to exploit the information contained in a much larger number of Canadian-level and provincial-level macroeconomic series. Second, I also employ a more recent dataset, which includes more than 10 additional years of data.

4.5.2 Provincial new housing price index

In order to examine the effect of a monetary policy shock on regional housing prices, provincial New Housing Price Index (NHPI) data are included in the benchmark specification of the model. Because of the availability of the provincial NHPI series, and to avoid the effects of the recent financial crisis on housing markets, data for the period 1986Q1 - 2007Q4 are used in this exercise. Figure 7 reports the responses to a 25-basis-point contractionary monetary policy shock, together with their 90% confidence intervals.

In general, the mean responses tend to be negative, thus suggesting that after the monetary policy shock, housing prices decrease across different provinces in Canada. In the Central provinces, Ontario's NHPI experiences the strongest decrease, which reaches 1.0 percentage point after about two years; the response is significant for the first six quarters. Quebec's NHPI reacts in a similar way, with a response that reaches a decline of 0.35 percentage points in two years and is significant for the first year. For British Columbia, the decline of the NHPI is similar to the one observed for Ontario, both in pattern and in magnitude. For the Prairie region, Atlantic region, and Alberta, the responses tend to be negative, but are largely insignificant at all horizons. There is not enough data for Prince Edward Island.

5. Robustness analysis

In this section, I report the results of a few exercises that have the goal to examine the robustness of the findings.

First, the specification of the benchmark model is altered by including additional factors in the observation equation (1) and additional lags of the variables in the transition equation (2). The main results are not affected by these changes in model specification. Second, the U.S. and OECD series are excluded from the benchmark dataset, and only the Canadian series are used in the analysis. In this case as well, the main results are not affected. This outcome is consistent with Boivin, Giannoni and Stevanoivc's (2010) argument that in a FAVAR model of the Canadian economy, the domestic factors should already be able to incorporate the trends underlying the international series. Third, the benchmark model is estimated using a shorter sample, going from 1981Q2 to 2007Q4. This sample excludes the recent "Great Recession", during which nonstandard measures of monetary policy were implemented. Figure 8 displays the responses for a selected subset of the variables employed in the analysis. Overall, the patterns are similar to those obtained using the benchmark sample period, although some series, in particular gross M1+, household final consumption, and over 10-year Government bonds, display weaker responses. Thus, the data relative to the "Great Recession" does not seem to affect the results of the analysis in a substantial way.

Next, I perform a few exercises with the purpose of gaining a better understanding of how my results compare to those of Boivin, Giannoni and Stevanoivc (2010). I am particularly interested in investigating the reasons for the muted effects of the monetary policy shocks on CPI and total exports in the benchmark analysis. I start by using the 3-month T-bill instead of the overnight rate as the monetary policy instrument. More specifically, everything is kept as in the

benchmark model specification, but the overnight rate, i.e. the observable factor, is replaced with the 3-month T-bill. In this way, the setup is the same as in Boivin, Giannoni and Stevanoivc (2010), with the only difference being the sample period (1981Q2 - 2016Q2 instead of 1969Q1 - 2008Q2). Figure 9 shows that the results are roughly unchanged if one uses the 3-month T-bill instead of the overnight rate. Thus, the variable used as the monetary policy instrument does not seem to be the reason for the difference in the results.

Furthermore, I look for possible changes in the transmission of monetary policy shocks over time. More specifically, I focus on the period before 1981, which was included in Boivin, Giannoni and Stevanoivc (2010) but not in the present analysis. I start by performing an exercise in which the same data series as Boivin, Giannoni and Stevanoivc (2010) are used for the period 1976Q1 - 2007Q4. However, the overnight rate is still used as the policy instrument, as in the benchmark framework.[10] Figure 10 reports the responses to the monetary policy shock obtained from this exercise. In this case, one can observe noticeable differences in the responses of the CPI for all items and the core CPI, along with the TSE stock dividend yield, the US dollar exchange rate, and total exports. In particular, the mean responses for the CPI and the core CPI now decrease in the long run, as in Boivin, Giannoni and Stevanoivc (2010). To further investigate the impact of the years before 1981 on the results, I perform one last exercise in which I again use the same data as in Boivin, Giannoni and Stevanoivc (2010) and the original monetary policy instrument, but restrict the sample to 1981Q2 - 2007Q4. Thus, relative to the previous exercise, only the starting point of the sample is changed, so that it now matches the starting period used in the benchmark analysis. The results, reported in Figure 11, mimic the responses obtained in the benchmark analysis (shown in Figure 2). This suggests that the differences emerging in Figure 10 (and similarly in Boivin, Giannoni and Stevanoivc, 2010)

[10] This is the reason why the sample starts in 1976Q1, and not in 1969Q1 as in Boivin, Giannoni and Stevanoivc (2010).

could just be caused by the inclusion of the years from 1976 to 1980 in the analysis. Overall, this result hints to the possibility that the monetary policy transmission mechanism changed in Canada; however, I do not have enough information to assess the sources and exact time of this change.

6. Conclusions

This paper studies the transmission of monetary policy shocks in Canada using a FAVAR framework, which exploits the information contained in a large set of economic variables, and is able to analyze the impact of monetary policy from a broad perspective. This work follows the methodology of Boivin, Giannoni and Stevanoivc (2010), but uses a more recent sample and employs the overnight rate as the policy instrument. Using this approach, I can study the transmission channels of monetary policy in Canada, and assess the industrial and provincial effects of monetary policy shocks.

My framework produces responses to a contractionary monetary policy shock that are consistent with the theoretical predictions for a small open economy, and mostly in line with the results of Boivin, Giannoni and Stevanoivc (2010). A higher overnight interest rate raises various commercial interest rates, bond yields increase, stock dividend yields increase, housing prices decrease, the exchange rate appreciates, and household and business consumption decrease. In the aggregate economy, GDP decreases significantly and unemployment rises persistently. Unlike in Boivin, Giannoni and Stevanoivc (2010), in my framework the CPI series and total exports do not seem to be much affected by the monetary policy shock.

Sectorial heterogeneity is observed in the transmission of monetary policy shocks. In

general, goods-producing sectors are affected more than services-producing sectors, with the most interest-rate-sensitive industries being manufacturing and wholesale trade for GDP, and manufacturing and construction for employment. Monetary policy generates different responses across different provinces. The employment responses of Quebec and Ontario show the strongest decrease following the monetary policy shock, while in terms of housing prices, Ontario and British Columbia are affected the most.

The stability of the mechanism of transmission of monetary policy over time is questioned, since the exercise using data from 1976 to 2007 generate somehow different results for the CPI and exchange rate series. This difference may reflect a change in the impact of monetary policy during the late 1970s, and it is possible that other structural changes affected the economy in more recent years. In this direction, this study could be extended by employing a time-varying FAVAR model to investigate the occurrence, and the timing, of changes in the transmission of monetary policy shocks in Canada.

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Appendix A Figures and Tables

Figure 1: Observable policy interest rate and estimated factors

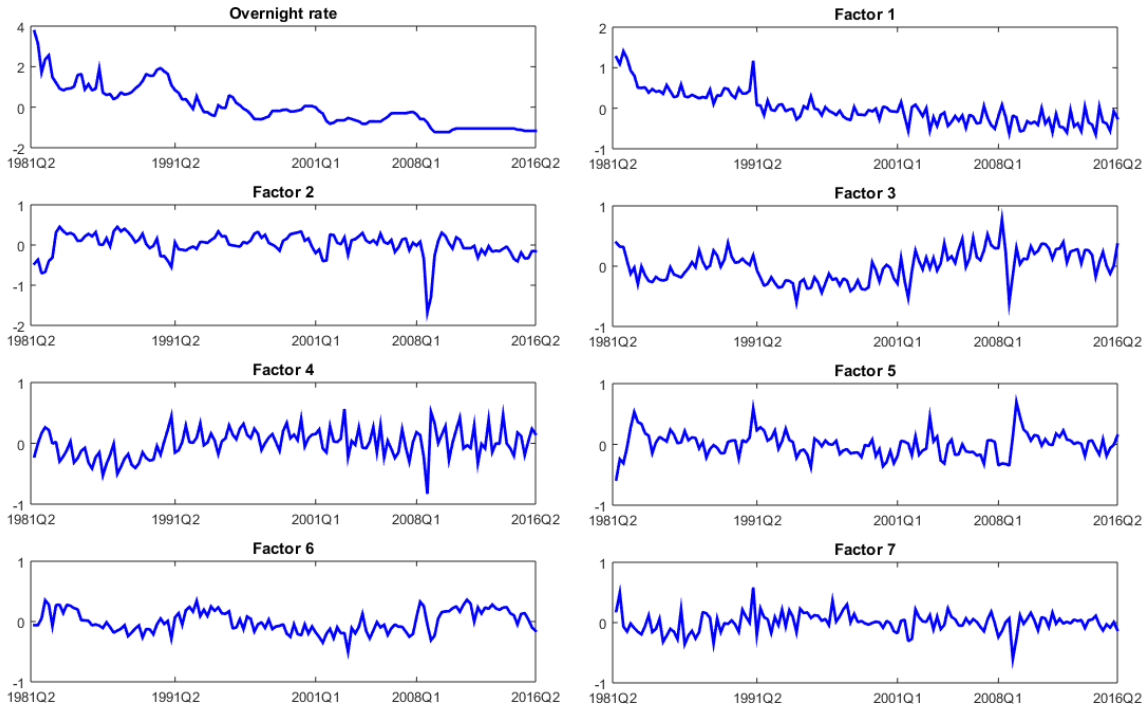
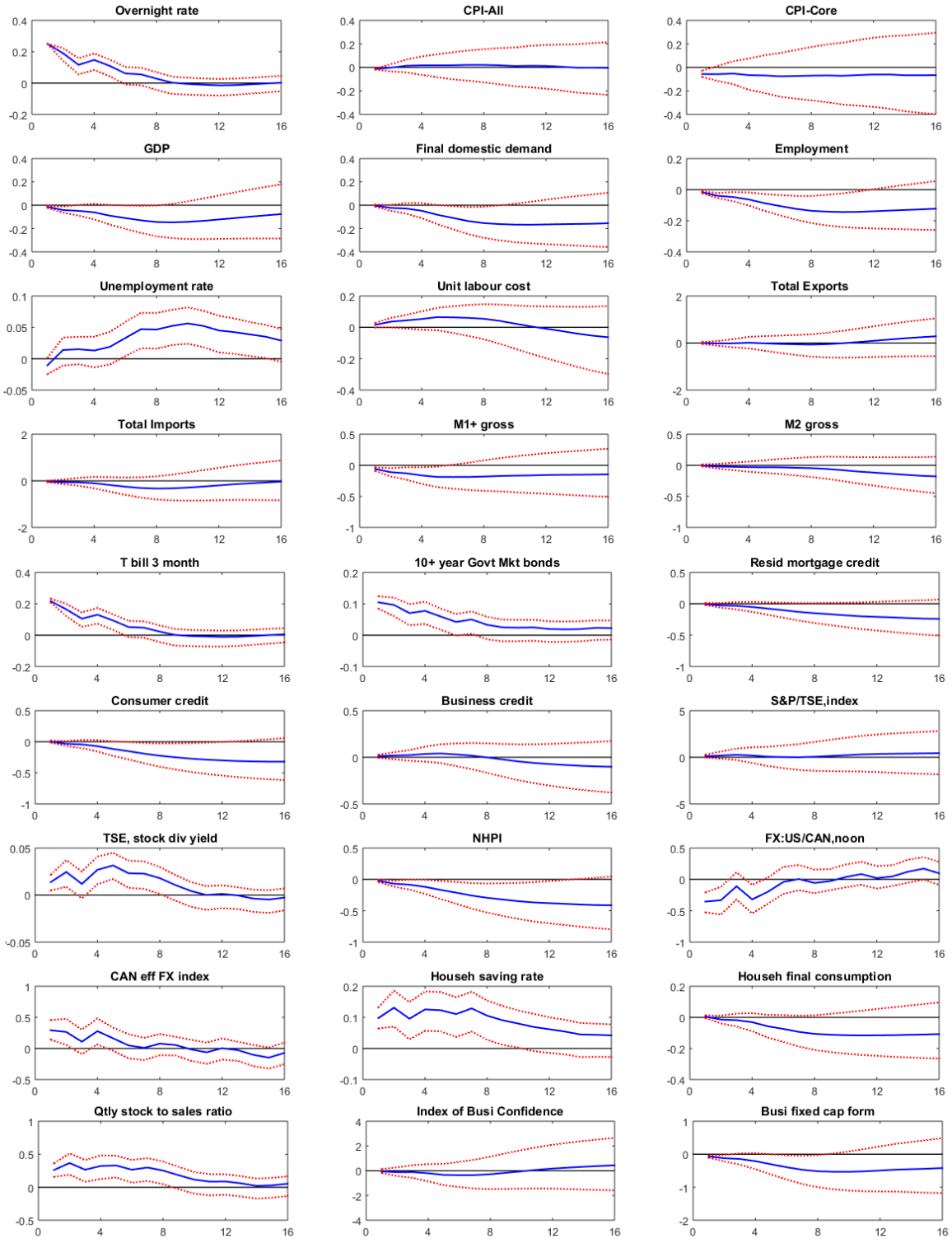
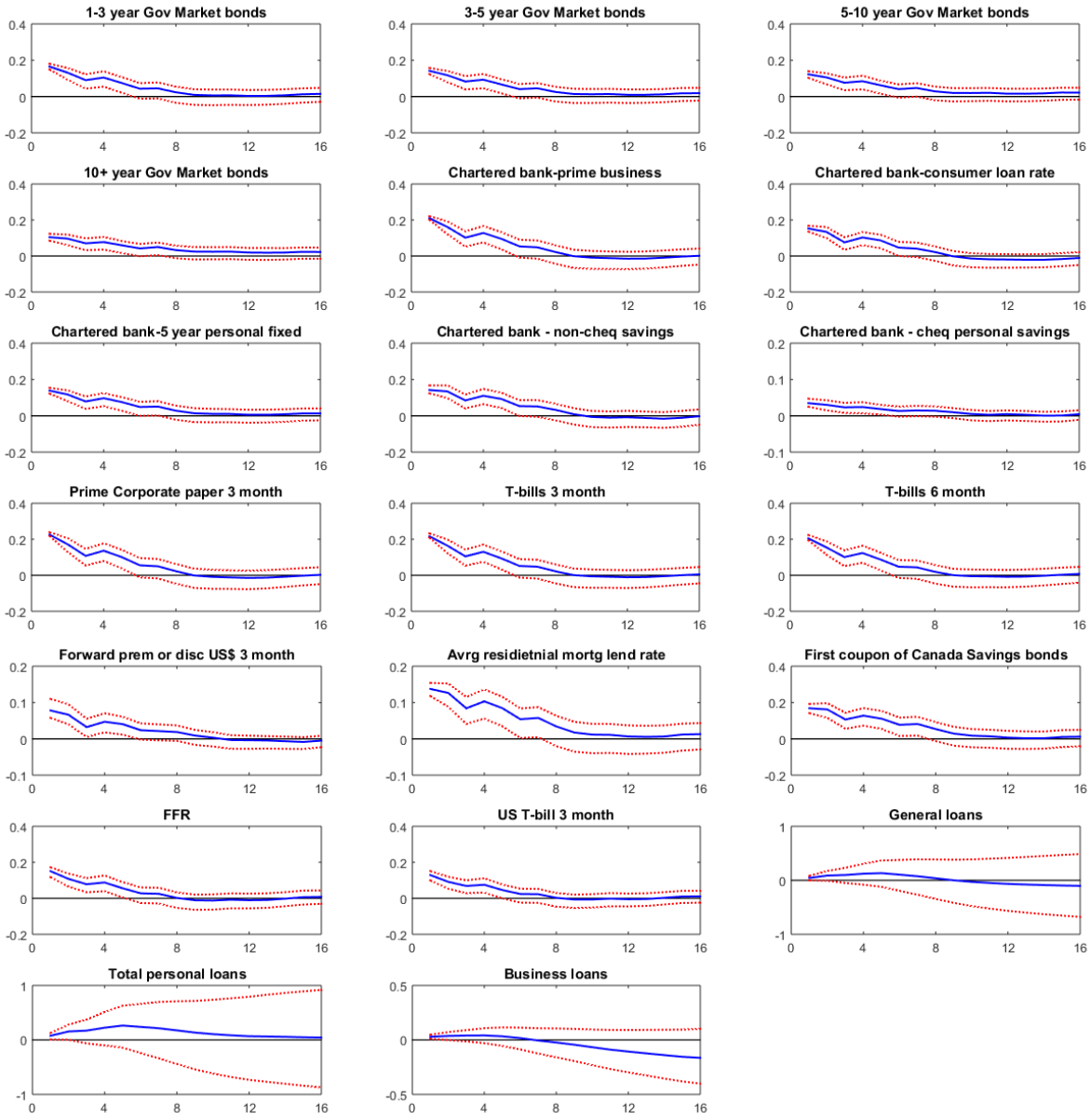


Figure 2: Impulse responses of main economic activity indicators



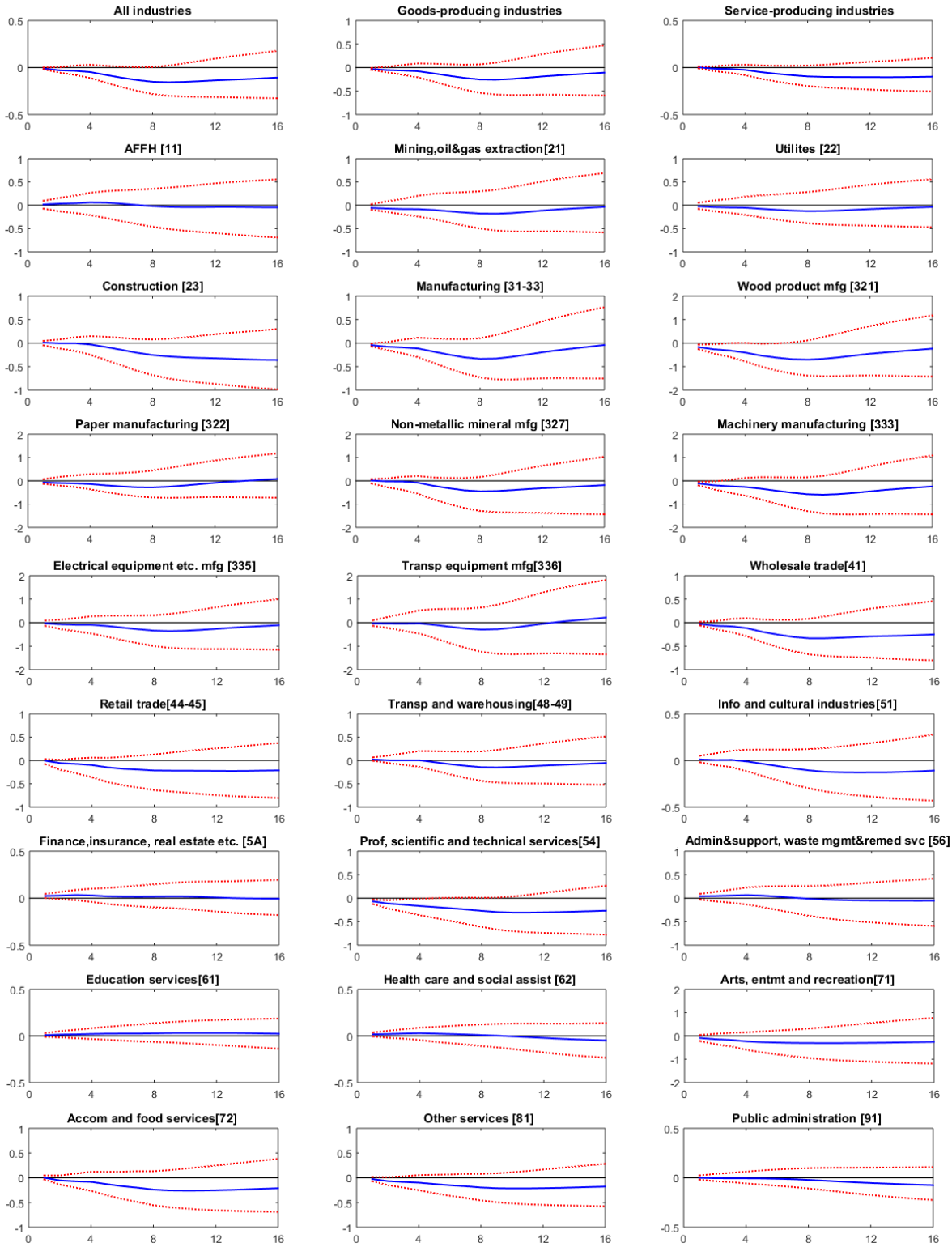
Note: Responses to a 25 basis point contractionary monetary policy shock in the benchmark model

Figure 3: Impulse responses of interest rate series



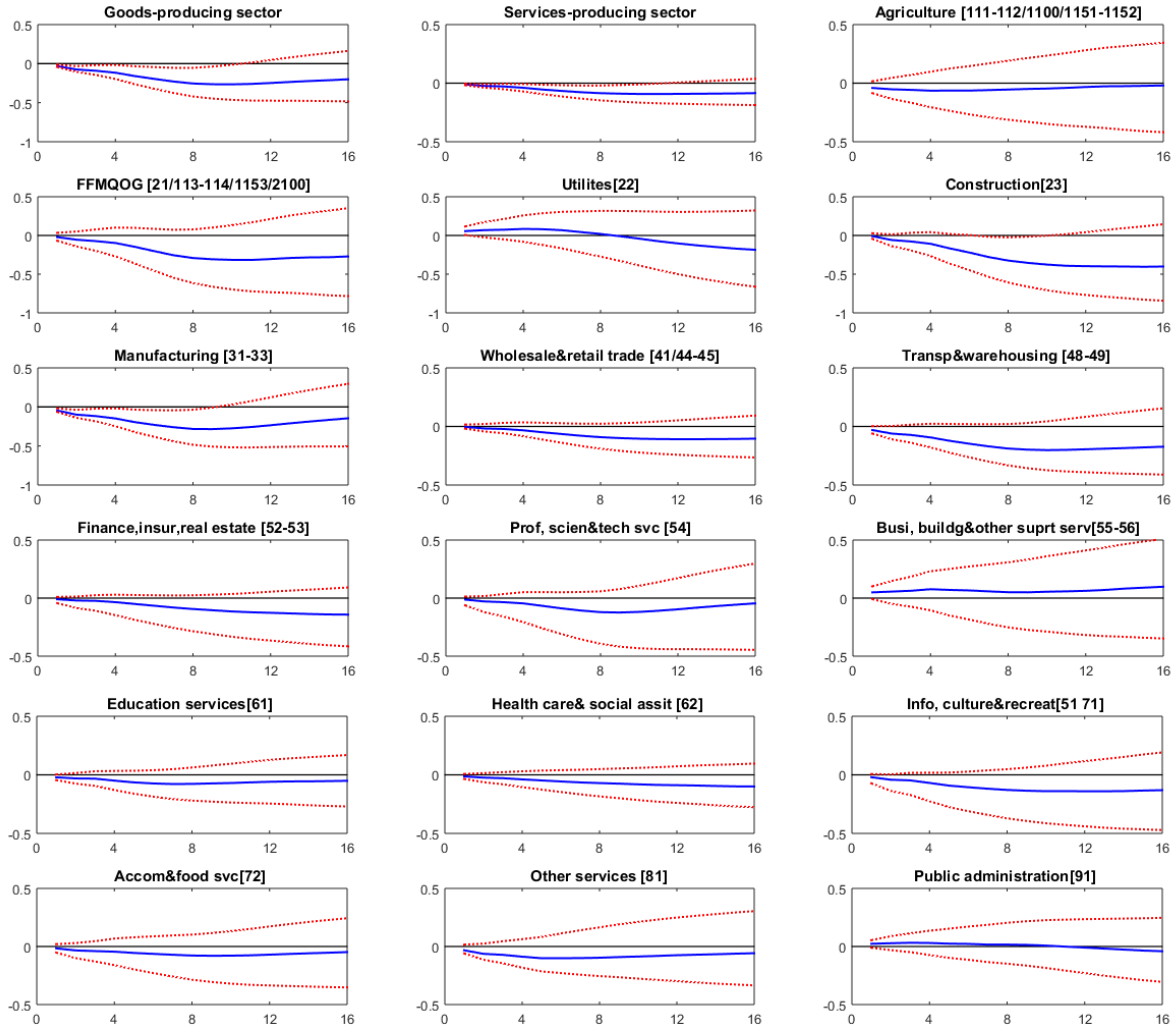
Note: Responses to a 25 basis point contractionary monetary policy shock in the benchmark model

Figure 4: Impulse responses of GDP by industry



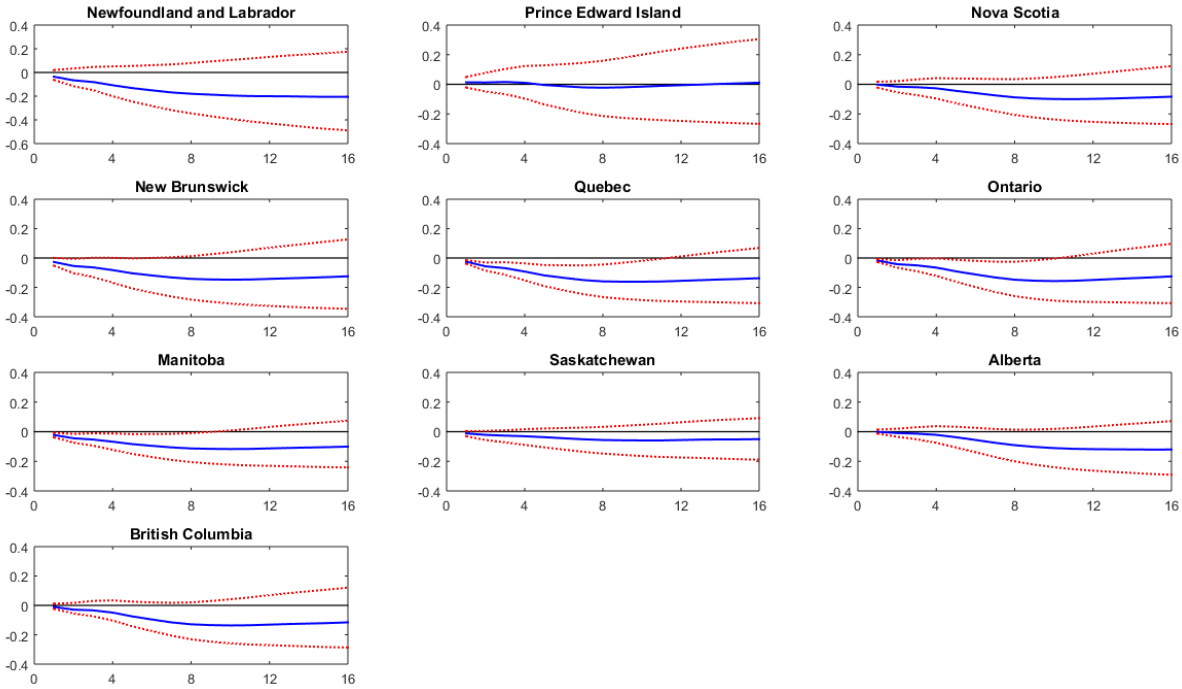
Note: Responses to a 25 basis point contractionary monetary policy shock in the model from 1981Q2 to 2012Q2 and extended industrial GDP series with benchmark model specification

Figure 5: Impulse responses of employment by industry



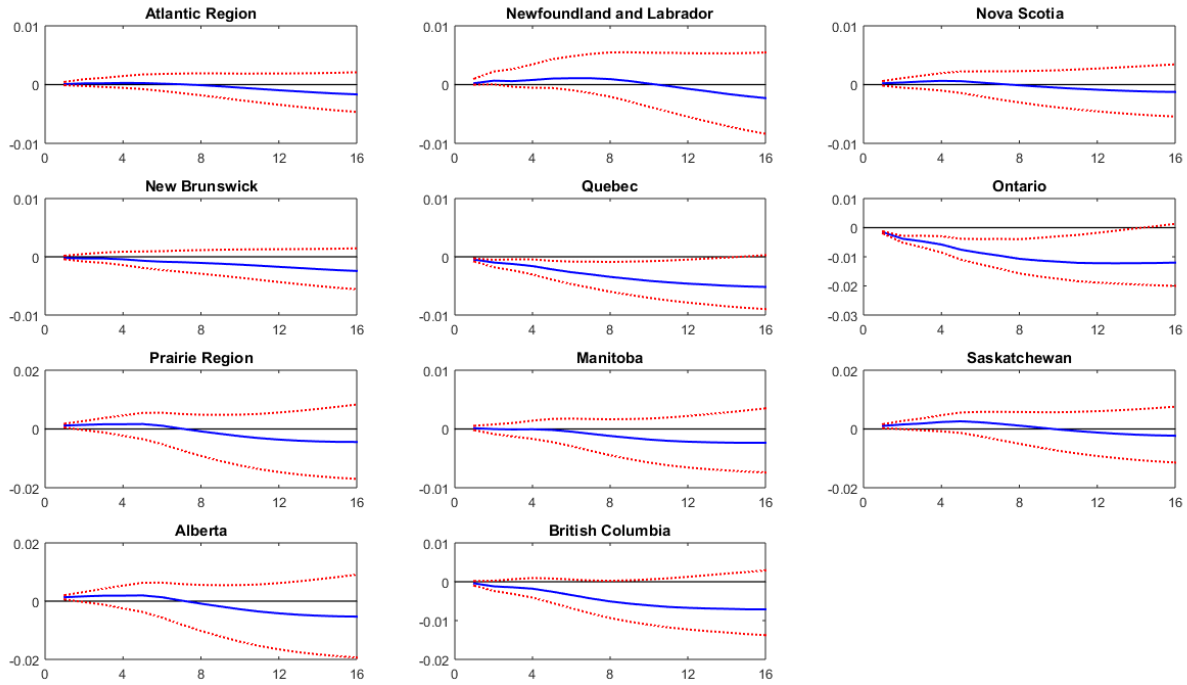
Note: Responses to a 25 basis point contractionary monetary policy shock in the benchmark model

Figure 6: Impulse responses of provincial employment



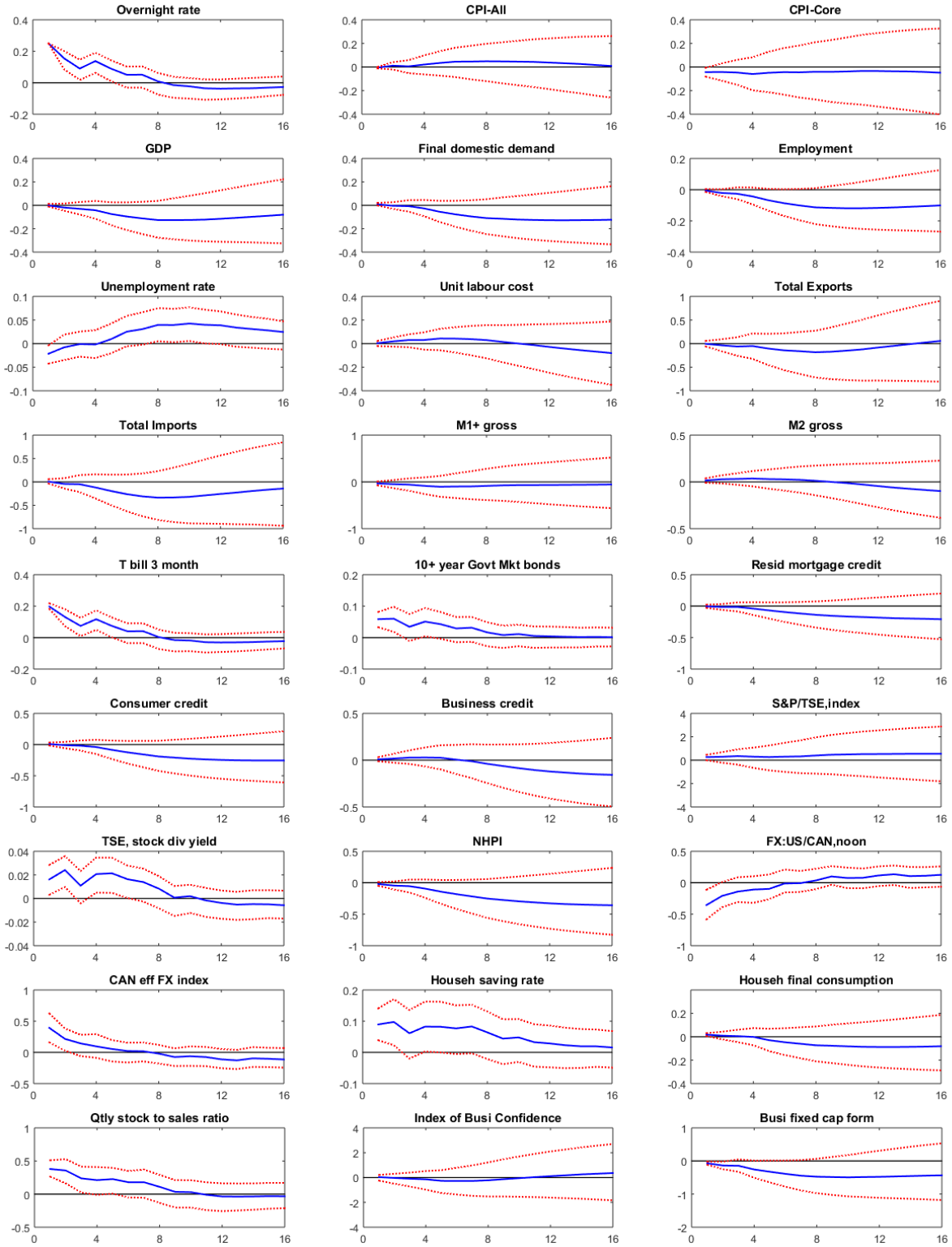
Note: Responses to a 25 basis point contractionary monetary policy shock in the benchmark model

Figure 7: Impulse responses of provincial NHPI



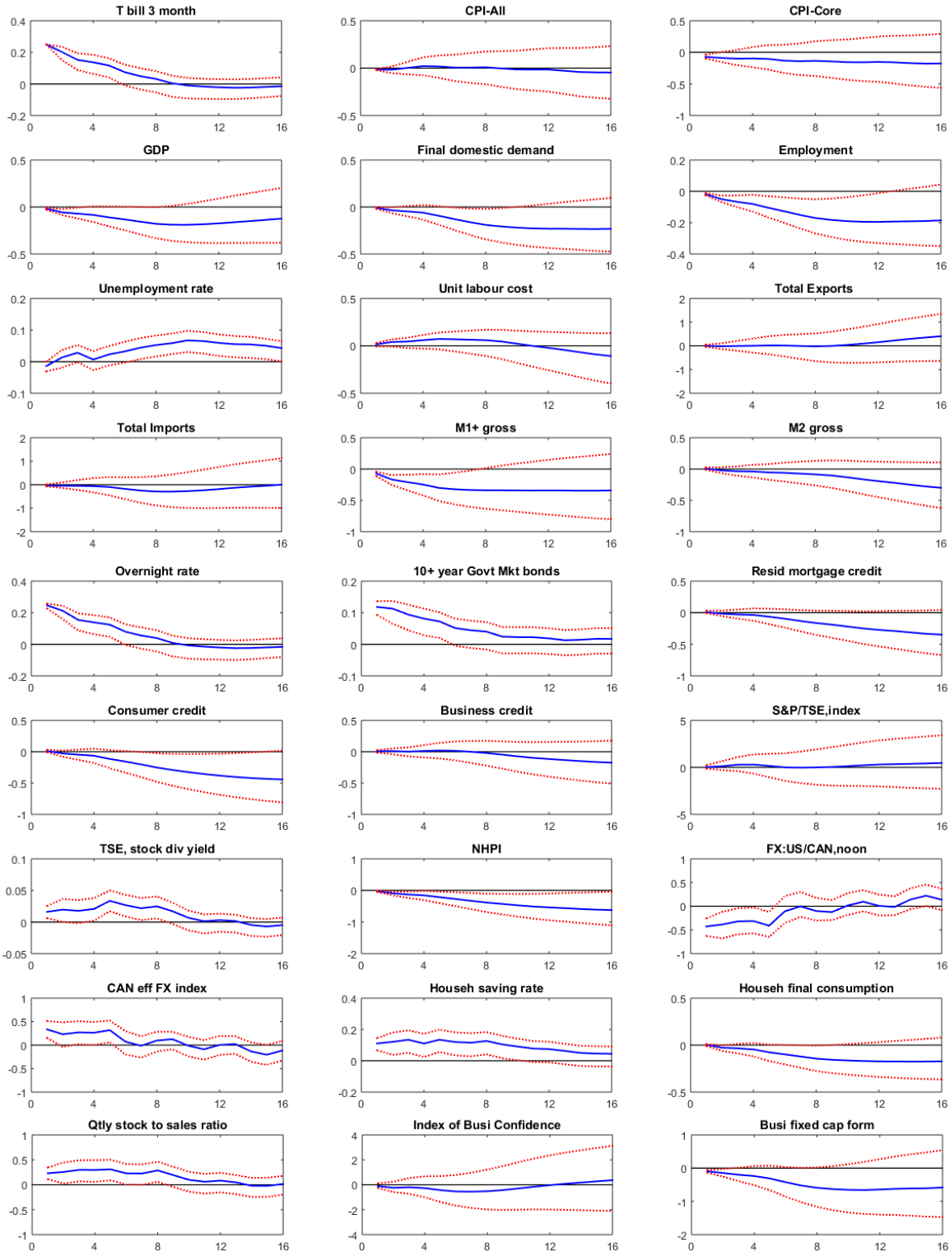
Note: Responses to a 25 basis point contractionary monetary policy shock in the model from 1986Q1 to 2007Q4 and extended NHPI variables with benchmark model specification

Figure 8: Impulse responses, sample period 1981Q2 to 2007Q4



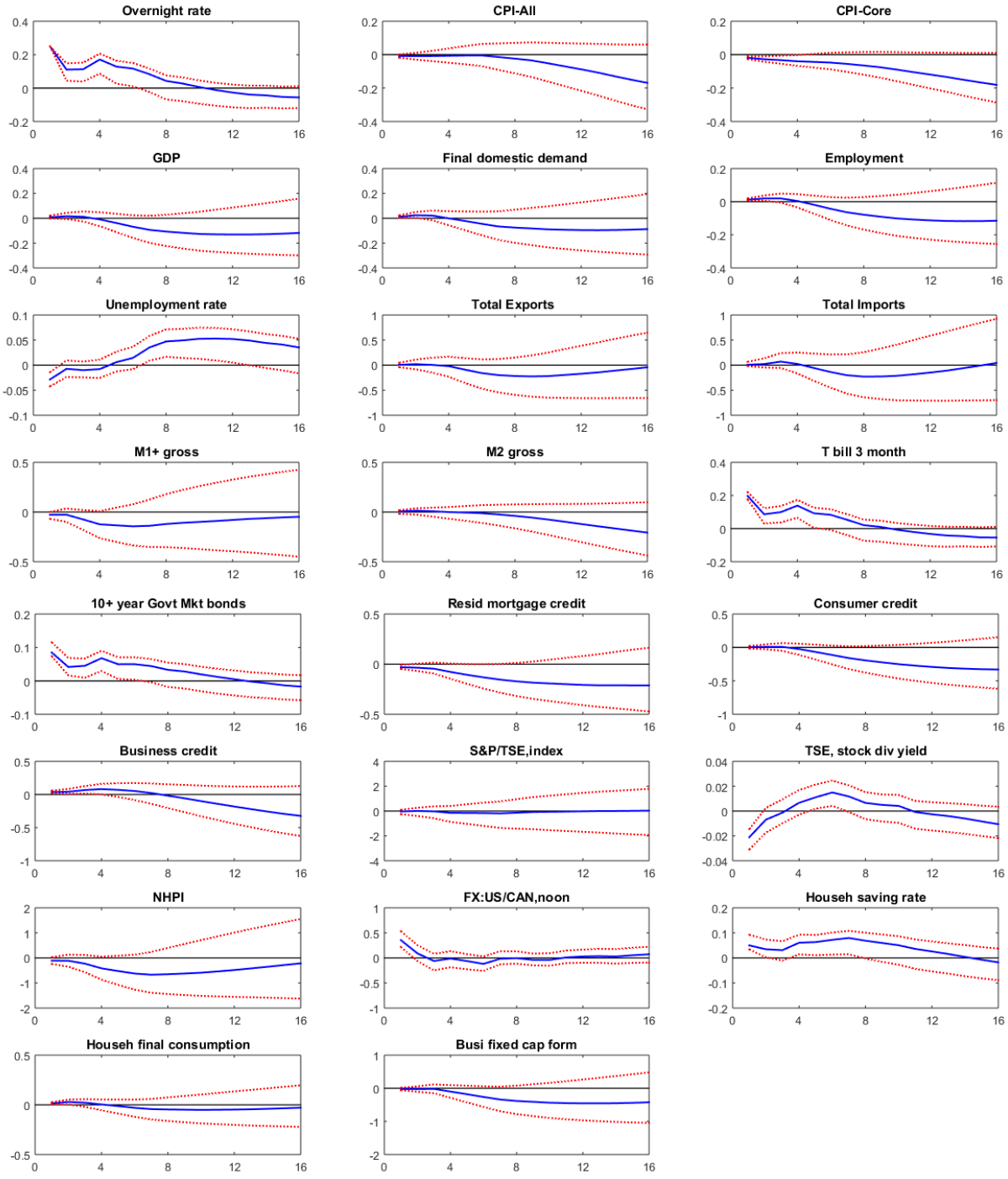
Note: Responses to a 25 basis point contractionary monetary policy shock in the model from 1981Q2 to 2007Q4 with benchmark model specification

Figure 9: Impulse responses, 3-month T-bill as policy instrument



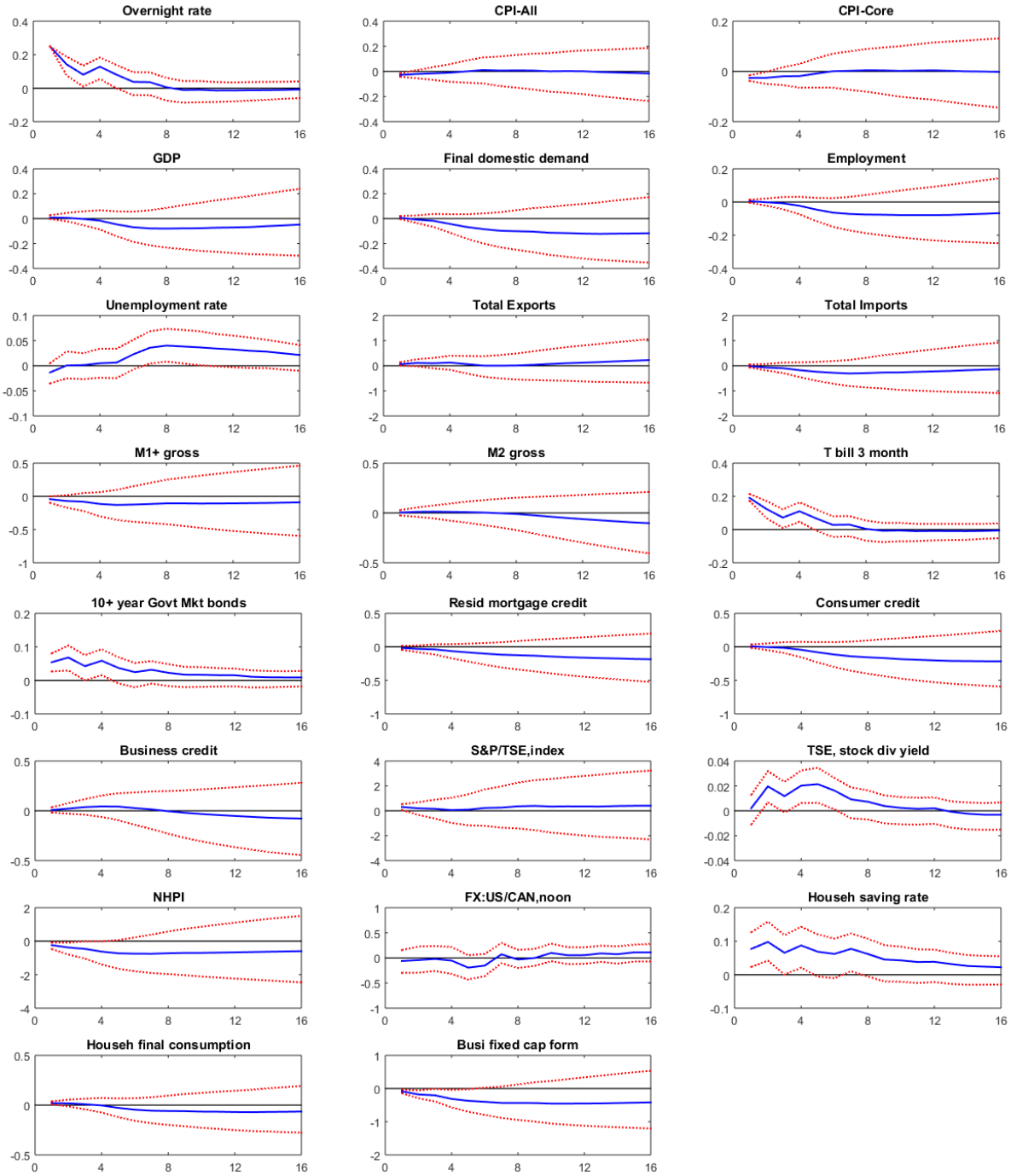
Note: Responses to a 25 basis point contractionary monetary policy shock in the model with 3-month T-bill as proxy for monetary policy instrument with benchmark model specification

Figure 10: Impulse responses, sample period 1976Q1 to 2007Q4 using comparable dataset



Note: Responses to a 25 basis point contractionary monetary policy shock in the model from 1976Q1 to 2007Q4 using comparable dataset with benchmark model specification

Figure 11: Impulse responses, sample period 1981Q2 to 2007Q4 using comparable dataset



Note: Responses to a 25 basis point contractionary monetary policy shock in the model from 1981Q2 to 2007Q4 using comparable dataset with benchmark model specification

Table 1： Contribution of the policy shock to variance of the main economic variables

Variables	**Variance Decomposition**
CPI all items	0.019
CPI core	0.058
GDP	0.082
Final domestic demand	0.074
Employment	0.143
Unemployment rate	0.089
Unit labour cost	0.087
Total exports	0.013
Total imports	0.029
M1+ gross	0.129
M2 gross	0.016
3-month T-bill	0.508
Over 10 years Government marketable bond	0.322
Residential mortgage credit	0.055
Consumer credit	0.109
Business credit	0.029
S&P/TSE, index	0.019
TSE, stock dividend yield	0.137
New housing price index	0.110
U.S. dollar exchange rate, noon	0.076
Canadian effective exchange rate index	0.058
Household saving rate	0.229
Household final consumption	0.076
Quarterly stock to sales ratio	0.186
Gross fixed capital formation	0.060
Business fixed capital formation	0.063
CPI-rented accommodation	0.318
CPI-owned accommodation	0.238
Chartered bank personal deposits	0.232
Residential structure	0.176

Note: The variance decomposition reports the fraction of the variance of the forecast error of the variable explained by the identified monetary policy shock in the benchmark model at the 5-year horizon.

Appendix B Data list

The main data include quarterly frequency time series for the benchmark model analysis. All data are available from 1981Q2 – 2016Q2. The "Main Data" list contains series number, series description, transformation code, data source, and R-squared from the benchmark model specification. The "Extended Data" list contains quarterly frequency time series for the industrial and provincial analysis. For each, series number, series description, transformation code, and data source are reported. GDP by industry data are available from 1981Q2 – 2012Q3 and provincial housing data are available from 1986Q1 – 2016Q2. The transformation codes are: 1-no transformation; 2-first difference; 4-logarithm; 5-first difference of logarithm. Most data are obtained from Statcan-Statistic Canada. Other data sources are Conference board-The Conference Board of Canada, OECD-OECD Economic Outlook No. 100 and Main Economic Indicators, and FRED-Federal Reserve Economic Data.

Main Data

GDP and GDP deflators

1	Canada: Compensation of employees (SAAR, Mil. $)	5	Statcan: 380-0063	0.67
2	Canada: Gross operating surplus (SAAR, Mil. $)	5	Statcan: 380-0063	0.66
3	Canada: Net operating surplus: corporations (SAAR, Mil. $)	5	Statcan: 380-0063	0.64
4	Canada: Gross mixed income (SAAR, Mil. $)	5	Statcan: 380-0063	0.30
5	Canada: Net mixed income (SAAR, Mil. $)	5	Statcan: 380-0063	0.27
6	Canada: Taxes less subsidies on production (SAAR, Mil. $)	5	Statcan: 380-0063	0.16
7	Canada: Taxes less subsidies on products and imports (SAAR, Mil. $)	5	Statcan: 380-0063	0.13
8	Canada: Final consumption expenditure (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0064	0.61
9	Canada: Household final consumption expenditure (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0064	0.67
10	Canada: Goods (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0064	0.46
11	Canada: Durable goods (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0064	0.37
12	Canada: Semi-durable goods (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0064	0.33
13	Canada: Non-durable goods (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0064	0.17
14	Canada: Services (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0064	0.51
15	Canada: General governments final consumption expenditure (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0064	0.14
16	Canada: Gross fixed capital formation (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0064	0.67
17	Canada: Business gross fixed capital formation (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0064	0.68
18	Canada: Residential structures (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0064	0.52
19	Canada: Non-residential structures, machinery and equipment (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0064	0.63
20	Canada: Non-residential structures (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0064	0.38

21	Canada: Machinery and equipment (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0064	0.58
22	Canada: Intellectual property products (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0064	0.34
23	Canada: General governments gross fixed capital formation (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0064	0.20
24	Canada: Investment in inventories (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0064	0.20
25	Canada: Of which: business investment in inventories (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0064	0.20
26	Canada: Exports of goods and services (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0064	0.56
27	Canada: Exports of goods (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0064	0.54
28	Canada: Exports of services (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0064	0.18
29	Canada: Less: imports of goods and services (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0064	0.73
30	Canada: Imports of goods (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0064	0.72
31	Canada: Imports of services (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0064	0.32
32	Canada: Gross domestic product at market prices (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0064	0.77
33	Canada: Final domestic demand (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0064	0.79
34	Canada: Implicit price indexes: Final consumption expenditure	5	Statcan: 380-0066	0.77
35	Canada: Implicit price indexes: Household final consumption expenditure	5	Statcan: 380-0066	0.76
36	Canada: Implicit price indexes: Goods	5	Statcan: 380-0066	0.73
37	Canada: Implicit price indexes: Durable goods	5	Statcan: 380-0066	0.36
38	Canada: Implicit price indexes: Semi-durable goods	5	Statcan: 380-0066	0.51
39	Canada: Implicit price indexes: Non-durable goods	5	Statcan: 380-0066	0.62
40	Canada: Implicit price indexes: Services	5	Statcan: 380-0066	0.66
41	Canada: Implicit price indexes: General governments final consumption expenditure	5	Statcan: 380-0066	0.48
42	Canada: Implicit price indexes: Gross fixed capital formation	5	Statcan: 380-0066	0.65
43	Canada: Implicit price indexes: Business gross fixed capital formation	5	Statcan: 380-0066	0.60
44	Canada: Implicit price indexes: Residential structures	5	Statcan: 380-0066	0.30
45	Canada: Implicit price indexes: Non-residential structures, machinery and equipment	5	Statcan: 380-0066	0.69
46	Canada: Implicit price indexes: Non-residential structures	5	Statcan: 380-0066	0.46
47	Canada: Implicit price indexes: Machinery and equipment	5	Statcan: 380-0066	0.73
48	Canada: Implicit price indexes: Intellectual property products	5	Statcan: 380-0066	0.14
49	Canada: Implicit price indexes: General governments gross fixed capital formation	5	Statcan: 380-0066	0.46
50	Canada: Implicit price indexes: Exports of goods and services	5	Statcan: 380-0066	0.62
51	Canada: Implicit price indexes: Exports of goods	5	Statcan: 380-0066	0.62
52	Canada: Implicit price indexes: Exports of services	5	Statcan: 380-0066	0.35
53	Canada: Implicit price indexes: Imports of goods and services	5	Statcan: 380-0066	0.73
54	Canada: Implicit price indexes: Imports of goods	5	Statcan: 380-0066	0.72
55	Canada: Implicit price indexes: Imports of services	5	Statcan: 380-0066	0.68
56	Canada: Implicit price indexes: Gross domestic product at market prices	5	Statcan: 380-0066	0.68
57	Canada: Implicit price indexes: Final domestic demand	5	Statcan: 380-0066	0.80
Personal expenditure				
58	Canada: Food and non-alcoholic beverages [C11] (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0067	0.12
59	Canada: Alcoholic beverages and tobacco [C12] (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0067	0.12
60	Canada: Clothing and footwear [C13] (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0067	0.25
61	Canada: Housing, water, electricity, gas and other fuels [C14] (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0067	0.11
62	Canada: Furnishings, household equipment and other goods and services related to the dwelling and property [C15] (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0067	0.52
63	Canada: Health [C16] (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0067	0.13
64	Canada: Transport [C17] (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0067	0.35

65	Canada : Communications [C18] (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0067	0.31
66	Canada: Recreation and culture [C19] (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0067	0.48
67	Canada: Education [C21] (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0067	0.08
68	Canada: Food, beverage and accommodation services [C22] (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0067	0.44
69	Canada: Insurance and financial services [C23] (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0067	0.26
70	Canada: Miscellaneous goods and services [C24] (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0067	0.14
71	Canada: Net expenditure abroad [C25] (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0067	0.38
International trade				
72	Canada: Farm, fishing and intermediate food products [X11] (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0070	0.06
73	Canada: Energy products [X12] (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0070	0.09
74	Canada: Metal ores and non-metallic minerals [X13] (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0070	0.19
75	Canada: Metal and non-metallic mineral products [X14] (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0070	0.13
76	Canada: Basic and industrial chemical, plastic and rubber products [X15] (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0070	0.16
77	Canada: Forestry products and building and packaging materials [X16] (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0070	0.26
78	Canada: Industrial machinery, equipment and parts [X17] (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0070	0.38
79	Canada: Electronic and electrical equipment and parts [X18] (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0070	0.31
80	Canada: Motor vehicles and parts [X19] (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0070	0.33
81	Canada: Aircraft and other transportation equipment and parts [X21] (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0070	0.10
82	Canada: Consumer goods [X22] (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0070	0.34
83	Canada: Special transactions [X23] (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0070	0.11
84	Canada: Farm, fishing and intermediate food products [M11] (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0070	0.10
85	Canada: Energy products [M12] (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0070	0.09
86	Canada: Metal ores and non-metallic minerals [M13] (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0070	0.10
87	Canada: Metal and non-metallic mineral products [M14] (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0070	0.43
88	Canada: Basic and industrial chemical, plastic and rubber products [M15] (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0070	0.29
89	Canada: Forestry products and building and packaging materials [M16] (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0070	0.32
90	Canada: Industrial machinery, equipment and parts [M17] (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0070	0.54
91	Canada: Electronic and electrical equipment and parts [M18] (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0070	0.51
92	Canada: Motor vehicles and parts [M19] (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0070	0.37
93	Canada: Aircraft and other transportation equipment and parts [M21] (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0070	0.06
94	Canada: Consumer goods [M22] (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0070	0.46
95	Canada: Special transactions [M23] (SAAR, Mil.Chn.2007$)	5	Statcan: 380-0070	0.08
Employment				
96	Canada: Employment: Both sexes, 15 years and over (SA, Thous)	5	Statcan: 282-0087	0.75
97	Canada: Unemployment rate: Both sexes, 15 years and over (SA, %)	1	Statcan: 282-0087	0.89
98	Newfoundland and Labrador: Employment: Both sexes, 15 years and over (SA, Thous)	5	Statcan: 282-0087	0.06
99	Newfoundland and Labrador: Unemployment rate:Both sexes, 15 years and over (SA, %)	1	Statcan: 282-0087	0.70
100	Prince Edward Island: Employment: Both sexes, 15 years and over (SA, Thous)	5	Statcan: 282-0087	0.08
101	Prince Edward Island: Unemployment rate: Both sexes, 15 years and over (SA, %)	1	Statcan: 282-0087	0.53
102	Nova Scotia: Employment: Both sexes, 15 years and over (SA, Thous)	5	Statcan: 282-0087	0.20
103	Nova Scotia: Unemployment rate Both sexes, 15 years and over (SA, %)	1	Statcan: 282-0087	0.80
104	New Brunswick: Employment: Both sexes, 15 years and over (SA, Thous)	5	Statcan: 282-0087	0.12
105	New Brunswick: Unemployment rate: Both sexes, 15 years and over (SA, %)	1	Statcan: 282-0087	0.84

106	Quebec: Employment: Both sexes, 15 years and over (SA, Thous)	5	Statcan: 282-0087	0.46
107	Quebec: Unemployment rate: Both sexes, 15 years and over (SA, %)	1	Statcan: 282-0087	0.86
108	Ontario: Employment: Both sexes, 15 years and over (SA, Thous)	5	Statcan: 282-0087	0.56
109	Ontario: Unemployment rate: Both sexes, 15 years and over (SA, %)	1	Statcan: 282-0087	0.76
110	Manitoba: Employment: Both sexes, 15 years and over (SA, Thous)	5	Statcan: 282-0087	0.18
111	Manitoba: Unemployment rate: Both sexes, 15 years and over (SA, %)	1	Statcan: 282-0087	0.81
112	Saskatchewan: Employment: Both sexes, 15 years and over (SA, Thous)	5	Statcan: 282-0087	0.08
113	Saskatchewan: Unemployment rate: Both sexes, 15 years and over (SA, %)	1	Statcan: 282-0087	0.77
114	Alberta: Employment: Both sexes, 15 years and over (SA, Thous)	5	Statcan: 282-0087	0.32
115	Alberta: Unemployment rate: Both sexes, 15 years and over (SA, %)	1	Statcan: 282-0087	0.83
116	British Columbia: Employment: Both sexes, 15 years and over (SA, Thous)	5	Statcan: 282-0087	0.29
117	British Columbia: Unemployment rate: Both sexes, 15 years and over (SA, %)	1	Statcan: 282-0087	0.88
118	Canada: Goods-producing sector (7) (Estimate, SA, Thous)	5	Statcan: 282-0088	0.67
119	Canada: Agriculture (10) [111-112 1100 1151-1152] (Estimate, SA, Thous)	5	Statcan: 282-0088	0.04
120	Canada: Forestry, fishing, mining, quarrying, oil and gas [21 113-114 1153 2100] (Estimate, SA, Thous)	5	Statcan: 282-0088	0.26
121	Canada: Utilities [22] (Estimate, SA, Thous)	5	Statcan: 282-0088	0.10
122	Canada: Construction [23] (Estimate, SA, Thous)	5	Statcan: 282-0088	0.40
123	Canada: Manufacturing [31-33] (Estimate, SA, Thous)	5	Statcan: 282-0088	0.56
124	Canada: Services-producing sector (8) (Estimate, SA, Thous)	5	Statcan: 282-0088	0.52
125	Canada: Wholesale and retail trade [41 44-45] (Estimate, SA, Thous)	5	Statcan: 282-0088	0.21
126	Canada: Transportation and warehousing [48-49] (Estimate, SA, Thous)	5	Statcan: 282-0088	0.15
127	Canada: Finance, insurance, real estate, rental and leasing [52-53] (Estimate, SA, Thous)	5	Statcan: 282-0088	0.08
128	Canada: Professional, scientific and technical services [54] (Estimate, SA, Thous)	5	Statcan: 282-0088	0.16
129	Canada: Business, building and other support services (4) [55-56] (Estimate, SA, Thous)	5	Statcan: 282-0088	0.08
130	Canada: Educational services [61] (Estimate, SA, Thous)	5	Statcan: 282-0088	0.12
131	Canada: Health care and social assistance [62] (Estimate, SA, Thous)	5	Statcan: 282-0088	0.06
132	Canada: Information, culture and recreation [51 71] (Estimate, SA, Thous)	5	Statcan: 282-0088	0.07
133	Canada: Accommodation and food services [72] (Estimate, SA, Thous)	5	Statcan: 282-0088	0.04
134	Canada: Other services (except public administration) [81] (Estimate, SA, Thous)	5	Statcan: 282-0088	0.08
135	Canada: Public administration [91] (Estimate, SA, Thous)	5	Statcan: 282-0088	0.08
Housing				
136	Canada: Total dwellings (Units)	1	Statcan: 026-0001	0.82
137	Canada: Total dwellings (Thous. $)	1	Statcan: 026-0001	0.93
138	Newfoundland and Labrador: Total dwellings (Units)	1	Statcan: 026-0001	0.68
139	Newfoundland and Labrador: Total dwellings (Thous. $)	1	Statcan: 026-0001	0.87
140	Prince Edward Island: Total dwellings (Units)	1	Statcan: 026-0001	0.56
141	Prince Edward Island: Total dwellings (Thous. $)	1	Statcan: 026-0001	0.79
142	Nova Scotia: Total dwellings (Units)	1	Statcan: 026-0001	0.58
143	Nova Scotia: Total dwellings (Thous. $)	1	Statcan: 026-0001	0.81
144	New Brunswick: Total dwellings (Units)	1	Statcan: 026-0001	0.56
145	New Brunswick: Total dwellings (Thous. $)	1	Statcan: 026-0001	0.73
146	Quebec: Total dwellings (Units)	1	Statcan: 026-0001	0.67
147	Quebec: Total dwellings (Thous. $)	1	Statcan: 026-0001	0.91
148	Ontario: Total dwellings (Units)	1	Statcan: 026-0001	0.71
149	Ontario: Total dwellings (Thous. $)	1	Statcan: 026-0001	0.86

150	Manitoba: Total dwellings (Units)	1	Statcan: 026-0001	0.74
151	Manitoba: Total dwellings (Thous. $)	1	Statcan: 026-0001	0.84
152	Saskatchewan: Total dwellings (Units)	1	Statcan: 026-0001	0.60
153	Saskatchewan: Total dwellings (Thous. $)	1	Statcan: 026-0001	0.79
154	Alberta: Total dwellings (Units)	1	Statcan: 026-0001	0.58
155	Alberta: Total dwellings (Thous. $)	1	Statcan: 026-0001	0.82
156	British Columbia: Total dwellings (Units)	1	Statcan: 026-0001	0.30
157	British Columbia: Total dwellings (Thous. $)	1	Statcan: 026-0001	0.74
158	Canada: Total residential and non-residential (SA, Thous. $)	5	Statcan: 026-0008	0.32
159	Canada: Residential (SA, Thous. $)	5	Statcan: 026-0008	0.35
160	Canada: Non-residential (SA, Thous. $)	5	Statcan: 026-0008	0.16
161	Canada: Industrial (SA, Thous. $)	5	Statcan: 026-0008	0.13
162	Canada: Commercial (SA, Thous. $)	5	Statcan: 026-0008	0.18
163	Canada: Total residential and non-residential (SA, Thous. $)	5	Statcan: 026-0008	0.06
164	Canada: Housing starts: Total units(SA)	1	Statcan: 027-0001	0.81
165	Newfoundland and Labrador: Housing starts: Total units(SA)	1	Statcan: 027-0001	0.67
166	Prince Edward Island: Housing starts: Total units(SA)	1	Statcan: 027-0001	0.57
167	Nova Scotia: Housing starts: Total units(SA)	1	Statcan: 027-0001	0.49
168	New Brunswick: Housing starts: Total units(SA)	1	Statcan: 027-0001	0.59
169	Quebec: Housing starts: Total units(SA)	1	Statcan: 027-0001	0.72
170	Ontario: Housing starts: Total units(SA)	1	Statcan: 027-0001	0.70
171	Manitoba: Housing starts: Total units(SA)	1	Statcan: 027-0001	0.64
172	Saskatchewan: Housing starts: Total units(SA)	1	Statcan: 027-0001	0.58
173	Alberta: Housing starts: Total units(SA)	1	Statcan: 027-0001	0.61
174	British Columbia: Housing starts: Total units(SA)	1	Statcan: 027-0001	0.31
175	NHPI: Canada: Total (house and land) (Index, 2007=100)	5	Statcan: 327-0046	0.59
Stock price				
176	Toronto Stock Exchange, value of shares traded (Mil. $)	5	Statcan: 176-0046	0.20
177	Toronto Stock Exchange, volume of shares traded (shares x 1,000,000) (Mil. Shares)	5	Statcan: 176-0046	0.14
178	United States common stocks, Dow-Jones industrials, high (index)	5	Statcan: 176-0046	0.38
179	United States common stocks, Dow-Jones industrials, low (index)	5	Statcan: 176-0046	0.31
180	United States common stocks, Dow-Jones industrials, close (index)	5	Statcan: 176-0046	0.30
181	Standard and Poor's/Toronto Stock Exchange Composite Index, close	5	Statcan: 176-0047	0.41
182	Toronto Stock Exchange, stock dividend yields (composite), closing quotations (percent)	1	Statcan: 176-0047	0.82
183	Toronto Stock Exchange, price earnings ratio, closing quotations (ratio)	1	Statcan: 176-0047	0.25
Exchange rate				
184	Canada: United States dollar, noon spot rate, average	4	Statcan: 176-0064	0.71
185	Canada: United States dollar, 90-day forward noon rate	4	Statcan: 176-0064	0.70
186	Canada: Danish krone, noon spot rate, average	4	Statcan: 176-0064	0.57
187	Canada: Japanese yen, noon spot rate, average	4	Statcan: 176-0064	0.72
188	Canada: Norwegian krone, noon spot rate, average	4	Statcan: 176-0064	0.23
189	Canada: Swedish krona, noon spot rate, average	4	Statcan: 176-0064	0.43
190	Canada: Swiss franc, noon spot rate, average	4	Statcan: 176-0064	0.74
191	Canada: United Kingdom pound sterling, noon spot rate, average	4	Statcan: 176-0064	0.55
192	Canada: United Kingdom pound sterling, 90-day forward noon rate	4	Statcan: 176-0064	0.56
193	Canada: United States dollar, closing spot rate	4	Statcan: 176-0064	0.70

194	Canada: United States dollar, highest spot rate	4	Statcan: 176-0064	0.70
195	Canada: United States dollar, lowest spot rate	4	Statcan: 176-0064	0.71
196	Canada: United States dollar, 90-day forward closing rate	4	Statcan: 176-0064	0.70
197	Canada: Canadian dollar effective exchange rate index (CERI) (Index, 1992=100)	4	Statcan: 176-0064	0.69
Interest rate				
198	Canada: Bank rate, last Tuesday or last Thursday (%)	1	Statcan: 176-0043	0.98
199	Canada: Bank rate (%)	1	Statcan: 176-0043	0.99
200	Canada: Chartered bank administered interest rates - prime business (2) (%)	1	Statcan: 176-0043	0.99
201	Canada: Chartered bank - consumer loan rate (2) (%)	1	Statcan: 176-0043	0.94
202	Canada: Forward premium or discount (-), United States dollar in Canada: 3 month (%)	1	Statcan: 176-0043	0.44
203	Canada: Prime corporate paper rate: 1 month (3) (%)	1	Statcan: 176-0043	0.99
204	Canada: Prime corporate paper rate: 2 month (3) (%)	1	Statcan: 176-0043	0.99
205	Canada: Prime corporate paper rate: 3 month (3) (%)	1	Statcan: 176-0043	0.98
206	Canada: Bankers' acceptances: 1 month (4) (%)	1	Statcan: 176-0043	0.99
207	Canada: Overnight money market financing, 7-day average (%)	1	Statcan: 176-0043	1.00
208	Canada: Government of Canada marketable bonds, average yield: 1-3 year (6) (%)	1	Statcan: 176-0043	0.97
209	Canada: Government of Canada marketable bonds, average yield: 3-5 year (6) (%)	1	Statcan: 176-0043	0.96
210	Canada: Government of Canada marketable bonds, average yield: 5-10 year (6) (%)	1	Statcan: 176-0043	0.95
211	Canada: Government of Canada marketable bonds, average yield: over 10 years (6) (%)	1	Statcan: 176-0043	0.94
212	Canada: Chartered bank - 5 year personal fixed term (2) (%)	1	Statcan: 176-0043	0.96
213	Canada: Chartered bank - non-chequable savings deposits (2) (%)	1	Statcan: 176-0043	0.93
214	Canada: Treasury bill auction - average yields: 3 month (%)	1	Statcan: 176-0043	0.98
215	Canada: Treasury bill auction - average yields: 3 month, average at values (%)	1	Statcan: 176-0043	0.99
216	Canada: Treasury bill auction - average yields: 6 month (%)	1	Statcan: 176-0043	0.98
217	Canada: Treasury bills: 2 month (%)	1	Statcan: 176-0043	0.99
218	Canada: Treasury bills: 3 month (%)	1	Statcan: 176-0043	0.98
219	Canada: Treasury bills: 6 month (%)	1	Statcan: 176-0043	0.98
220	Canada: Government of Canada marketable bonds, average yield, average of Wednesdays: 1-3 year (%)	1	Statcan: 176-0043	0.97
221	Canada: Government of Canada marketable bonds, average yield, average of Wednesdays: 3-5 year (%)	1	Statcan: 176-0043	0.96
222	Canada: Government of Canada marketable bonds, average yield, average of Wednesdays: 5-10 year (%)	1	Statcan: 176-0043	0.95
223	Canada: Government of Canada marketable bonds, average yield, average of Wednesdays: over 10 years (%)	1	Statcan: 176-0043	0.94
224	Canada: Average residential mortgage lending rate: 5 years (%)	1	Statcan: 176-0043	0.96
225	Canada: Chartered bank - chequable personal savings deposit rate (11) (%)	1	Statcan: 176-0043	0.88
226	Canada: First coupon of Canada Savings Bonds (%)	1	Statcan: 176-0043	0.95
Current and capital account				
227	Canada: Balances: Total current account (SA, Mil. $)	2	Statcan: 376-0105	0.38
228	Canada: Balances: Goods (SA, Mil. $)	2	Statcan: 376-0105	0.48
229	Canada: Balances: Services (2) (SA, Mil. $)	2	Statcan: 376-0105	0.08
230	Canada: Balances: Investment income (SA, Mil. $)	2	Statcan: 376-0105	0.15
231	Canada: Balances: Direct investment income (SA, Mil. $)	2	Statcan: 376-0105	0.10
232	Canada: Balances: Portfolio investment income (3,4) (SA, Mil. $)	2	Statcan: 376-0105	0.36
233	Canada: National net saving (SAAR, Mil. $)	2	Statcan: 380-0071	0.71

234	Canada: Households (SAAR, Mil. $)	5	Statcan: 380-0071	0.05
235	Canada: Corporations (SAAR, Mil. $)	2	Statcan: 380-0071	0.45
236	Canada: General governments (SAAR, Mil. $)	2	Statcan: 380-0071	0.31
237	Canada: Plus: consumption of fixed capital (SAAR, Mil. $)	5	Statcan: 380-0071	0.37
238	Canada: Households (SAAR, Mil. $)	5	Statcan: 380-0071	0.15
239	Canada: Corporations (SAAR, Mil. $)	5	Statcan: 380-0071	0.34
240	Canada: General governments (SAAR, Mil. $)	5	Statcan: 380-0071	0.35
241	Canada: Plus: national net capital transfers received (SAAR, Mil. $)	2	Statcan: 380-0071	0.06
242	Canada: Households (SAAR, Mil. $)	2	Statcan: 380-0071	0.06
243	Canada: Corporations (SAAR, Mil. $)	5	Statcan: 380-0071	0.08
244	Canada: General governments (SAAR, Mil. $)	2	Statcan: 380-0071	0.13
245	Canada: Less: non-financial capital acquisitions (SAAR, Mil. $)	5	Statcan: 380-0071	0.55
246	Canada: Households (SAAR, Mil. $)	5	Statcan: 380-0071	0.26
247	Canada: Corporations (SAAR, Mil. $)	5	Statcan: 380-0071	0.41
248	Canada: General governments (SAAR, Mil. $)	5	Statcan: 380-0071	0.05
249	Canada: Equals: national net lending or net borrowing (SAAR, Mil. $)	2	Statcan: 380-0071	0.45
250	Canada: Households (SAAR, Mil. $)	2	Statcan: 380-0071	0.13
251	Canada: Corporations (SAAR, Mil. $)	2	Statcan: 380-0071	0.21
252	Canada: General governments (SAAR, Mil. $)	2	Statcan: 380-0071	0.31
253	Canada: Plus: current transfers received (SAAR, Mil. $)	5	Statcan: 380-0072	0.12
254	Canada: From non-profit institutions serving household (SAAR, Mil. $)	5	Statcan: 380-0072	0.09
255	Canada: From corporations (SAAR, Mil. $)	5	Statcan: 380-0072	0.04
256	Canada: From general governments (SAAR, Mil. $)	5	Statcan: 380-0072	0.24
257	Canada: Less: current transfers paid (SAAR, Mil. $)	5	Statcan: 380-0072	0.07
258	Canada: To non-profit institutions serving households (SAAR, Mil. $)	5	Statcan: 380-0072	0.37
259	Canada: To corporations (SAAR, Mil. $)	5	Statcan: 380-0072	0.05
260	Canada: To general governments (SAAR, Mil. $)	5	Statcan: 380-0072	0.05
261	Canada: Household saving rate (%)	1	Statcan: 380-0072	0.93
Price indexes				
262	CPI: Canada: All-items (Index, 2002=100)	5	Statcan: 326-0020	0.94
263	CPI: Canada: Food (17) (Index, 2002=100)	5	Statcan: 326-0020	0.24
264	CPI: Canada: Food purchased from restaurants (17) (Index, 2002=100)	5	Statcan: 326-0020	0.57
265	CPI: Canada: Rented accommodation (Index, 2002=100)	5	Statcan: 326-0020	0.67
266	CPI: Canada: Owned accommodation (Index, 2002=100)	5	Statcan: 326-0020	0.60
267	CPI: Canada: Natural gas (Index, 2002=100)	5	Statcan: 326-0020	0.17
268	CPI: Canada: Fuel oil and other fuels (Index, 2002=100)	5	Statcan: 326-0020	0.55
269	CPI: Canada: Household furnishings and equipment (Index, 2002=100)	5	Statcan: 326-0020	0.41
270	CPI: Canada: Clothing and footwear (Index, 2002=100)	5	Statcan: 326-0020	0.28
271	CPI: Canada: Private transportation (Index, 2002=100)	5	Statcan: 326-0020	0.66
272	CPI: Canada: Public transportation (Index, 2002=100)	5	Statcan: 326-0020	0.21
273	CPI: Canada: Health and personal care (Index, 2002=100)	5	Statcan: 326-0020	0.61
274	CPI: Canada: Recreation, education and reading (Index, 2002=100)	5	Statcan: 326-0020	0.39
275	CPI: Canada: Alcoholic beverages and tobacco products (Index, 2002=100)	5	Statcan: 326-0020	0.34
276	CPI: Canada: Consumer Price Index (CPI), all-items excluding eight of the most volatile components as defined by the Bank of Canada (24) (Index, 2002=100)	5	Statcan: 326-0020	0.82
277	CPI: Canada: All-items excluding food and energy (25) (Index, 2002=100)	5	Statcan: 326-0020	0.87

278	CPI: Canada: Energy (25) (Index, 2002=100)	5	Statcan: 326-0020	0.73
279	CPI: Canada: Housing (1986 definition) (26) (Index, 2002=100)	5	Statcan: 326-0020	0.72
280	CPI: Canada: Goods (27) (Index, 2002=100)	5	Statcan: 326-0020	0.87
281	CPI: Canada: Durable goods (27) (Index, 2002=100)	5	Statcan: 326-0020	0.16
282	CPI: Canada: Non-durable goods (27) (Index, 2002=100)	5	Statcan: 326-0020	0.77
283	CPI: Canada: Services (28) (Index, 2002=100)	5	Statcan: 326-0020	0.86
284	CPI: Newfoundland and Labrador: All-items (Index, 2002=100)	5	Statcan: 326-0020	0.81
285	CPI: Newfoundland and Labrador: All-items excluding food and energy (25) (Index, 2002=100)	5	Statcan: 326-0020	0.69
286	CPI: Newfoundland and Labrador: Goods (27) (Index, 2002=100)	5	Statcan: 326-0020	0.76
287	CPI: Newfoundland and Labrador: Services (28) (Index, 2002=100)	5	Statcan: 326-0020	0.62
288	CPI: Prince Edward Island: All-items (Index, 2002=100)	5	Statcan: 326-0020	0.80
289	CPI: Prince Edward Island: All-items excluding food and energy (25) (Index, 2002=100)	5	Statcan: 326-0020	0.74
290	CPI: Prince Edward Island: Goods (27) (Index, 2002=100)	5	Statcan: 326-0020	0.76
291	CPI: Prince Edward Island: Services (28) (Index, 2002=100)	5	Statcan: 326-0020	0.67
292	CPI: Nova Scotia: All-items (Index, 2002=100)	5	Statcan: 326-0020	0.84
293	CPI: Nova Scotia: All-items excluding food and energy (25) (Index, 2002=100)	5	Statcan: 326-0020	0.71
294	CPI: Nova Scotia: Goods (27) (Index, 2002=100)	5	Statcan: 326-0020	0.79
295	CPI: Nova Scotia: Services (28) (Index, 2002=100)	5	Statcan: 326-0020	0.69
296	CPI: New Brunswick: All-items (Index, 2002=100)	5	Statcan: 326-0020	0.80
297	CPI: New Brunswick: All-items excluding food and energy (25) (Index, 2002=100)	5	Statcan: 326-0020	0.68
298	CPI: New Brunswick: Goods (27) (Index, 2002=100)	5	Statcan: 326-0020	0.76
299	CPI: New Brunswick: Services (28) (Index, 2002=100)	5	Statcan: 326-0020	0.66
300	CPI: Quebec: All-items (Index, 2002=100)	5	Statcan: 326-0020	0.81
301	CPI: Quebec: All-items excluding food and energy (25) (Index, 2002=100)	5	Statcan: 326-0020	0.78
302	CPI: Quebec: Goods (27) (Index, 2002=100)	5	Statcan: 326-0020	0.73
303	CPI: Quebec: Services (28) (Index, 2002=100)	5	Statcan: 326-0020	0.80
304	CPI: Ontario: All-items (Index, 2002=100)	5	Statcan: 326-0020	0.84
305	CPI: Ontario: All-items excluding food and energy (25) (Index, 2002=100)	5	Statcan: 326-0020	0.77
306	CPI: Ontario: Goods (27) (Index, 2002=100)	5	Statcan: 326-0020	0.74
307	CPI: Ontario: Services (28) (Index, 2002=100)	5	Statcan: 326-0020	0.79
308	CPI: Manitoba: All-items (Index, 2002=100)	5	Statcan: 326-0020	0.74
309	CPI: Manitoba: All-items excluding food and energy (25) (Index, 2002=100)	5	Statcan: 326-0020	0.75
310	CPI: Manitoba: Goods (27) (Index, 2002=100)	5	Statcan: 326-0020	0.65
311	CPI: Manitoba: Services (28) (Index, 2002=100)	5	Statcan: 326-0020	0.69
312	CPI: Saskatchewan: All-items (Index, 2002=100)	5	Statcan: 326-0020	0.70
313	CPI: Saskatchewan: All-items excluding food and energy (25) (Index, 2002=100)	5	Statcan: 326-0020	0.56
314	CPI: Saskatchewan: Goods (27) (Index, 2002=100)	5	Statcan: 326-0020	0.61
315	CPI: Saskatchewan: Services (28) (Index, 2002=100)	5	Statcan: 326-0020	0.55
316	CPI: Alberta: All-items (Index, 2002=100)	5	Statcan: 326-0020	0.59
317	CPI: Alberta: All-items excluding food and energy (25) (Index, 2002=100)	5	Statcan: 326-0020	0.70
318	CPI: Alberta: Goods (27) (Index, 2002=100)	5	Statcan: 326-0020	0.50
319	CPI: Alberta: Services (28) (Index, 2002=100)	5	Statcan: 326-0020	0.63
320	CPI: British Columbia: All-items (Index, 2002=100)	5	Statcan: 326-0020	0.75
321	CPI: British Columbia: All-items excluding food and energy (25) (Index, 2002=100)	5	Statcan: 326-0020	0.72
322	CPI: British Columbia: Goods (27) (Index, 2002=100)	5	Statcan: 326-0020	0.72
323	CPI: British Columbia: Services (28) (Index, 2002=100)	5	Statcan: 326-0020	0.61

324	Industrial product price index: Canada: Total, Industrial product price index (IPPI) (Index, 2010=100)	5	Statcan: 329-0074	0.70
325	Industrial product price index: Canada: Total Industrial product price index (IPPI), excluding energy and petroleum products (Index, 2010=100)	5	Statcan: 329-0074	0.60
326	Industrial product price index: Canada: Meat, fish, and dairy products [P11] (Index, 2010=100)	5	Statcan: 329-0074	0.27
327	Industrial product price index: Canada: Fruit, vegetables, feed and other food products [P12] (Index, 2010=100)	5	Statcan: 329-0074	0.14
328	Industrial product price index: Canada: Beverages (except juices) [P13] (Index, 2010=100)	5	Statcan: 329-0074	0.39
329	Industrial product price index: Canada: Tobacco products [P14] (Index, 2010=100)	5	Statcan: 329-0074	0.07
330	Industrial product price index: Canada: Textile and leather products [P21] (Index, 2010=100)	5	Statcan: 329-0074	0.44
331	Industrial product price index: Canada: Clothing, footwear and accessories [P22] (Index, 2010=100)	5	Statcan: 329-0074	0.43
332	Industrial product price index: Canada: Chemicals and chemical products [P31] (Index, 2010=100)	5	Statcan: 329-0074	0.38
333	Industrial product price index: Canada: Plastic and rubber products [P32] (Index, 2010=100)	5	Statcan: 329-0074	0.33
334	Industrial product price index: Canada: Lumber and other wood products [P41] (Index, 2010=100)	5	Statcan: 329-0074	0.06
335	Industrial product price index: Canada: Pulp and paper products [P42] (2010 Index, =100)	5	Statcan: 329-0074	0.36
336	Industrial product price index: Canada: Energy and petroleum products [P51] (Index, 2010=100)	5	Statcan: 329-0074	0.70
337	Industrial product price index: Canada: Fabricated metal products and construction materials [P63] (Index, 2010=100)	5	Statcan: 329-0074	0.45
338	Industrial product price index: Canada: Motorized and recreational vehicles [P71] (Index, 2010=100)	5	Statcan: 329-0074	0.66
339	Industrial product price index: Canada: Machinery and equipment [P72] (Index, 2010=100)	5	Statcan: 329-0074	0.69
340	Industrial product price index: Canada: Electrical, electronic, audiovisual and telecommunication products [P73] (Index, 2010=100)	5	Statcan: 329-0074	0.61
341	Industrial product price index: Canada: Furniture and fixtures [P74] (Index, 2010=100)	5	Statcan: 329-0074	0.37
342	Industrial product price index: Canada: Cement, glass, and other non-metallic mineral products [P81] (Index, 2010=100)	5	Statcan: 329-0074	0.32
343	Canada: Total, all commodities (US $ terms, index, 1972=100)	5	Statcan: 176-0075	0.64
344	Canada: Total excluding energy (US $ terms, index, 1972=100)	5	Statcan: 176-0075	0.41
345	Canada: Energy (US $ terms, index, 1972=100)	5	Statcan: 176-0075	0.46
346	Canada: Metals and Minerals (US $ terms, index, 1972=100)	5	Statcan: 176-0075	0.30
347	Canada: Agriculture (US $ terms, index, 1972=100)	5	Statcan: 176-0075	0.30
348	Canada: Fish (US $ terms, index, 1972=100)	5	Statcan: 176-0075	0.18
349	Canada: Forestry (US $ terms, index, 1972=100)	5	Statcan: 176-0075	0.17
Chartered bank and monetary aggregates				
350	Canada: Currency outside banks (SA, Mil. $)	5	Statcan: 176-0025	0.28
351	Canada: Canadian dollar assets, total loans (5,16) (SA, Mil. $)	5	Statcan: 176-0025	0.47
352	Canada: General loans (including grain dealers and installment finance companies) (SA, Mil. $)	5	Statcan: 176-0025	0.42
353	Canada: Total, major assets (SA, Mil. $)	5	Statcan: 176-0025	0.31
354	Canada: Canadian dollar assets, liquid assets (SA, Mil. $)	5	Statcan: 176-0025	0.18
355	Canada: Canadian dollar assets, less liquid assets (SA, Mil. $)	5	Statcan: 176-0025	0.40
356	Canada : Total personal loans (SA, Mil. $)	5	Statcan: 176-0025	0.29
357	Canada: Business loans (SA, Mil. $)	5	Statcan: 176-0025	0.41

358	Canada: Currency outside banks and chartered bank deposits, held by general public (including private sector float) (SA, Mil. $)	5	Statcan: 176-0025	0.36
359	Canada: M1B (gross) (SA, Mil. $)	5	Statcan: 176-0025	0.23
360	Canada: M2 (gross) (SA, Mil. $)	5	Statcan: 176-0025	0.56
361	Canada: Currency outside banks and chartered bank deposits (including private sector float) (SA, Mil. $)	5	Statcan: 176-0025	0.38
362	Canada: Residential mortgages (16) (SA, Mil. $)	5	Statcan: 176-0025	0.17
363	Canada: M2+ (gross) (12) (SA, Mil. $)	5	Statcan: 176-0025	0.64
364	Canada: Chartered bank deposits, personal, term (16) (SA, Mil. $)	5	Statcan: 176-0025	0.39
365	Canada: Total, deposits at trust and mortgage loan companies (10) (SA, Mil. $)	5	Statcan: 176-0025	0.08
366	Canada: Total, deposits at credit unions and caisses populaires (SA, Mil. $)	5	Statcan: 176-0025	0.43
367	Canada: Bankers' acceptances (16) (SA, Mil. $)	5	Statcan: 176-0025	0.20
367	Canada: Monetary base (notes and coin in circulation, chartered bank and other Payments Canada members' deposits with the Bank of Canada) (17) (SA, Mil. $)	5	Statcan: 176-0025	0.10
369	Canada: Monetary base (notes and coin in circulation, chartered bank and other Payments Canada members' deposits with the Bank of Canada) (excluding required reserves) (17) (SA, Mil. $)	5	Statcan: 176-0025	0.08
370	Canada: M2++ (gross) (M2+ (gross), Canada Savings Bonds, non-money market mutual funds) (SA, Mil. $)	5	Statcan: 176-0025	0.50
371	Canada: M1+ (gross) (13) (SA, Mil. $)	5	Statcan: 176-0025	0.34
372	Canada: M1++ (gross) (14) (SA, Mil. $)	5	Statcan: 176-0025	0.46
Credit measures and Reserves				
373	Canada: Total business and household credit (SA, Mil. $)	5	Statcan: 176-0032	0.66
374	Canada: Household credit (SA, Mil. $)	5	Statcan: 176-0032	0.62
375	Canada: Residential mortgage credit (SA, Mil. $)	5	Statcan: 176-0032	0.50
376	Canada: Consumer credit (SA, Mil. $)	5	Statcan: 176-0032	0.64
377	Canada: Business credit (SA, Mil. $)	5	Statcan: 176-0032	0.50
378	Canada: Total, Canada's official international reserves (Mil. $)	5	Statcan: 176-0051	0.05
379	Canada: Convertible foreign currencies, United States dollars (Mil. $)	5	Statcan: 176-0051	0.03
380	Canada: Convertible foreign currencies, other than United States (Mil. $)	5	Statcan: 176-0051	0.09
381	Canada: Gold (Mil. $)	2	Statcan: 176-0051	0.03
382	Canada: Reserve position in the International Monetary Fund (IMF) (Mil. $)	5	Statcan: 176-0051	0.14
Business indicators				
383	Canada: Quarterly stock to sales ratio, total economy (ratio)(SAAR)	1	Statcan: 380-0069	0.91
384	Canada: Business sector: Real gross domestic product (GDP) (Index,2007=100)	5	Statcan: 383-0008	0.78
385	Canada: Business sector: Average hours worked (Index,2007=100)	5	Statcan: 383-0008	0.13
386	Canada: Business sector: Labour productivity (Index,2007=100)	5	Statcan: 383-0008	0.16
387	Canada: Business sector: Total compensation per hour worked (Index,2007=100)	5	Statcan: 383-0008	0.32
388	Canada: Business sector: Unit labor cost(Index,2007=100)	5	Statcan: 383-0008	0.49
Confidence				
389	Index of Business Confidence (2002=1.0)	5	Conference board	0.32
Oil prices				
390	World: Crude oil price, fob, spot Brent(US$)	5	OECD	0.52
US variables				
391	Exports of Goods and Services (SAAR, Bil. US$)	5	FRED	0.66
392	Imports of Goods and Services (SAAR, Bil. US$)	5	FRED	0.73

393	Industrial Production: Manufacturing (NAICS) (SA, Index 2012=100)	5	FRED	0.73
394	Gross Domestic Product (SAAR, Bil. US$)	5	FRED	0.59
395	Consumer Price Index for All Urban Consumers: All Items (SA, Index 1982-1984=100)	5	FRED	0.70
396	Consumer Price Index for All Urban Consumers: All Items Less Food and Energy (SA, Index 1982-1984=100)	5	FRED	0.67
397	New Private Housing Units Authorized by Building Permits (SAAR, Thous, Units)	5	FRED	0.27
398	Housing Starts: Total: New Privately Owned Housing Units Started (SAAR, Thous, Units)	5	FRED	0.25
399	3-Month Treasury Bill: Secondary Market Rate %	1	FRED	0.89
400	Civilian Unemployment Rate (SA, %)	1	FRED	0.69
401	Effective Federal Funds Rate (%)	1	FRED	0.90
402	10-Year Treasury Constant Maturity Rate (%)	1	FRED	0.92
OECD variables				
403	OECD-Total: Gross domestic product, value, market prices (US $)	5	OECD	0.87
404	OECD-Total: Imports of goods and services, volume, National Accounts basis (US 2010$)	5	OECD	0.66
405	OECD-Total: Exports of goods and services, volume, National Accounts basis (US 2010$)	5	OECD	0.62
406	OECD-Total: Unemployment rate (%, 2010)	1	OECD	0.63
407	OECD-Total: Consumer Price Index: All items: Total	5	OECD	0.79
408	OECD-Total: Consumer Price Index: All items non-food non-energy: Total	5	OECD	0.81
409	OECD-Total: Gross Domestic Product: GDP Deflator (SA, index, 2010=100)	5	OECD	0.58

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Extended Data

GDP by Industry

410	Canada: GDP: All industries [T001] (SAAR, Mil. 2002$)	5	Statcan: 379-0027
411	Canada: GDP: Goods-producing industries (2) [T008] (SAAR, Mil. 2002$)	5	Statcan: 379-0027
412	Canada: GDP: Service-producing industries (2) [T009] (SAAR, Mil. 2002$)	5	Statcan: 379-0027
413	Canada: GDP: Agriculture, forestry, fishing and hunting [11] (SAAR, Mil. 2002$)	5	Statcan: 379-0027
414	Canada: GDP: Mining and oil and gas extraction [21] (SAAR, Mil. 2002$)	5	Statcan: 379-0027
415	Canada: GDP: Utilities [22] (SAAR, Mil. 2002$)	5	Statcan: 379-0027
416	Canada: GDP: Construction [23] (SAAR, Mil. 2002$)	5	Statcan: 379-0027
417	Canada: GDP: Manufacturing [31-33] (SAAR, Mil. 2002$)	5	Statcan: 379-0027
418	Canada: GDP: Wood product manufacturing [321] (SAAR, Mil. 2002$)	5	Statcan: 379-0027
419	Canada: GDP: Paper manufacturing [322] (SAAR, Mil. 2002$)	5	Statcan: 379-0027
420	Canada: GDP: Non-metallic mineral product manufacturing [327] (SAAR,Mil. 2002$)	5	Statcan: 379-0027
421	Canada: GDP: Machinery manufacturing [333] (SAAR, Mil. 2002$)	5	Statcan: 379-0027
422	Canada: GDP: Electrical equipment, appliance and component manufacturing [335] (SAAR, Mil. 2002$)	5	Statcan: 379-0027
423	Canada: GDP: Transportation equipment manufacturing [336] (SAAR, Mil. 2002$)	5	Statcan: 379-0027
424	Canada: GDP: Wholesale trade [41] (SAAR, Mil. 2002$)	5	Statcan: 379-0027
425	Canada: GDP: Retail trade [44-45] (SAAR, Mil. 2002$)	5	Statcan: 379-0027
426	Canada: GDP: Transportation and warehousing [48-49] (SAAR, Mil. 2002$)	5	Statcan: 379-0027
427	Canada: GDP: Information and cultural industries [51]	5	Statcan: 379-0027
428	Canada: GDP: Finance, insurance, real estate, rental and leasing and management of companies and enterprises (2) [5A] (SAAR, Mil. 2002$)	5	Statcan: 379-0027
429	Canada: GDP: Professional, scientific and technical services [54]	5	Statcan: 379-0027
430	Canada: GDP: Educational services [61] (SAAR, Mil. 2002$)	5	Statcan: 379-0027
431	Canada: GDP: Administrative and support, waste management and remediation services [56]	5	Statcan: 379-0027
432	Canada: GDP: Health care and social assistance [62] (SAAR, Mil. 2002$)	5	Statcan: 379-0027
433	Canada: GDP: Arts, entertainment and recreation [71]	5	Statcan: 379-0027
434	Canada: GDP: Accommodation and food services [72]	5	Statcan: 379-0027
435	Canada: GDP: Other services (except public administration) [81]	5	Statcan: 379-0027
436	Canada: GDP: Public administration [91] (SAAR, Mil. 2002$)	5	Statcan: 379-0027

Provincial Housing

437	NHPI: Atlantic Region: Total (house and land) (Index, 2007=100)	5	Statcan: 327-0046
438	NHPI: Newfoundland and Labrador: Total (house and land) (Index, 2007=100)	5	Statcan: 327-0046
439	NHPI: Nova Scotia: Total (house and land) (Index, 2007=100)	5	Statcan: 327-0046
440	NHPI: New Brunswick: Total (house and land) (Index, 2007=100)	5	Statcan: 327-0046
441	NHPI: Quebec: Total (house and land) (Index, 2007=100)	5	Statcan: 327-0046
442	NHPI: Ontario: Total (house and land) (Index, 2007=100)	5	Statcan: 327-0046
443	NHPI: Prairie Region: Total (house and land) (Index, 2007=100)	5	Statcan: 327-0046
444	NHPI: Manitoba: Total (house and land) (Index, 2007=100)	5	Statcan: 327-0046
445	NHPI: Saskatchewan: Total (house and land) (Index, 2007=100)	5	Statcan: 327-0046
446	NHPI: Alberta: Total (house and land) (Index, 2007=100)	5	Statcan: 327-0046
447	NHPI: British Columbia: Total (house and land) (Index, 2007=100)	5	Statcan: 327-0046