

Bank of Canada Monthly Research Update

March 2017

This monthly newsletter features the latest research publications by Bank of Canada economists. The report includes papers appearing in external publications and staff working papers published on the Bank of Canada's website.

PUBLISHED PAPERS

In Press

Bruneau, Gabriel & Kevin Moran, “Exchange rate fluctuations and labour market adjustments in Canadian manufacturing industries”, *Canadian Journal of Economics*, February 2017, Volume 50, Issue 1, Pages 72-93

Chen, Heng, Marie-Helene Felt & Kim Huynh, “Retail payment innovations and cash usage: accounting for attrition by using refreshment samples”, *Journal of the Royal Statistical Society: Series A (Statistics in Society)*, February 2017, Volume 180, Issue 2, Pages 503-530

Forthcoming

Niquidet, Kurt & Lili Sun, “Elasticity of import demand for wood pellets by the European Union”, *Forest Policy and Economics*

STAFF WORKING PAPERS

Chen, Heng, Marie-Helene Felt, Valery Dongmo Jiongo, Anneke Kosse, Kerry Nield & Angelika Welte, “The Costs of Point-of-Sale Payments in Canada”, Bank of Canada Staff Discussion Paper 2017-4

Gungor, Sermin & Richard Luger, “Small-Sample Tests for Stock Return Predictability with Possibly Non-Stationary Regressors and GARCH-Type Effects”, Bank of Canada Staff Working Paper 2017-10

Pichette, Lise & Marie-Noelle Robitaille, “Assessing the Business Outlook Survey Indicator Using Real-Time Data”, Bank of Canada Staff Discussion Paper 2017-5

ABSTRACTS

Exchange rate fluctuations and labour market adjustments in Canadian manufacturing industries

We estimate the link between exchange rate fluctuations and the labour input of Canadian manufacturing industries. The analysis is based on a dynamic model of labour demand and the econometric strategy employs a panel two-step approach for cointegrating regressions. Our data are drawn from a panel of 20 manufacturing industries from the KLEMS database and cover a long sample period that includes all cycles of appreciation and depreciation of the

Canadian dollar over the last 50 years. Our results indicate that exchange rate fluctuations have significant long-term effects on the labour input of Canada's manufacturing industries, especially for trade-oriented industries, but that these long-term impacts materialize very gradually following shocks.

Retail payment innovations and cash usage: accounting for attrition by using refreshment samples

Contactless credit cards and stored value cards are touted as a fast and convenient method of payment to replace cash at the point of sale. Cross-sectional approaches find a large effect of these retail payment innovations on cash usage (around 10%). Using a semiparametric panel model that accounts for unobserved heterogeneity and general forms of attrition, we find no significant effect for contactless credit cards and only a 2% reduction in cash usage stemming from single-purpose stored value cards. These results point to the uneven pace of payment innovation diffusion.

Elasticity of import demand for wood pellets by the European Union

Import demand for wood pellets by the European Union (EU) was investigated using a source-differentiated nonlinear Almost Ideal Demand System (AIDS) model with monthly data from 2009 to 2015. Our research provides the first complete set of expenditure, price and cross-price elasticities for this rapidly expanding forest product market. Expenditure elasticities reveal that wood pellets from the United States have the most to gain from an expansion in EU expenditures, followed by Canada, while Russia has the least to gain. We attribute this result to differences in the quality, reliability and sustainability of wood pellet supply between the countries. The degree of substitution among the major suppliers was also assessed through cross-price elasticities.

The Costs of Point-of-Sale Payments in Canada

This study provides insight into the costs of cash, debit card and credit card payments made at the point of sale in Canada in 2014. For each payment method, it examines the total resource costs, which capture the overall use of resources by society as a whole. Using extensive survey data from retailers, financial institutions and cash transportation companies as well as internal and external data sources, the results show that the resource costs of payments in Canada are non-negligible (0.78 per cent of GDP). Credit cards are

most costly in terms of resource costs per transaction, while cash carries the highest resource costs per dollar transacted. Debit cards are the least costly, both in terms of costs per transaction and costs per dollar in sales. The study also demonstrates how the costs vary with transaction sizes. Considering the variable resource costs only, cash is found to be cheapest for transactions up to \$6, while debit cards are the least costly for transactions larger than \$6. The study also looks into the total private costs, which are the costs incurred by each stakeholder, thereby providing insight into how costs are affecting the use and acceptance of payment methods.

Small-Sample Tests for Stock Return Predictability with Possibly Non-Stationary Regressors and GARCH-Type Effects

We develop a simulation-based procedure to test for stock return predictability with multiple regressors. The process governing the regressors is left completely free and the test procedure remains valid in small samples even in the presence of non-normalities and GARCH-type effects in the stock returns. The usefulness of the new procedure is demonstrated both in a simulation study and by examining the ability of a group of financial variables to predict excess stock returns. We find robust evidence of predictability during the period 1948–2014, driven entirely by the term spread. This empirical evidence, however, is much weaker over subsamples.

Assessing the Business Outlook Survey Indicator Using Real-Time Data

Every quarter, the Bank of Canada conducts quarterly consultations with businesses across Canada, referred to as the Business Outlook Survey (BOS). A principal-component analysis conducted by Pichette and Rennison (2011) led to the development of the BOS indicator, which summarizes survey results and is used by the Bank as a gauge of overall business sentiment. In this paper, we examine whether data vintages matter when assessing the predictive content of the BOS indicator and individual BOS questions and whether the BOS is a better indicator of revised or unrevised macroeconomic data. As an indicator of business sentiment in the context of monetary policy, the reliability of the BOS is essential, and it is crucial to understand whether the signals it sends are best interpreted for early-released or revised data. For this purpose, we use different methods of forecasting that take into account the real-time perspective of the data. Results from the different methods show that the BOS content is informative regardless of data revisions. However, in real time, the

BOS indicator and individual BOS questions are found to produce better nowcasts of first-released data or partially revised data than of latest-available data. This is particularly important in the case of growth in real business investment. In fact, because revisions to real business investment are more volatile than revisions to real gross domestic product (GDP), the choice of data vintages when assessing the ability of the BOS to forecast growth appears to be more important for real business investment than for real GDP.