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Monthly Research Update

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

PUBLISHED PAPERS

In Press

Baumeister, Christiane, Pierre Guérin, and Lutz Kilian, "Do High-Frequency Financial Data Help Forecast Oil Prices? The MIDAS Touch at Work", International Journal of Forecasting, Volume 31(2), P. 238-252.

Sekkel, Rodrigo, "Balance Sheets of Financial Intermediaries: Do They Forecast Economic Activity?", International Journal of Forecasting, Volume 31(2), P. 263–275

Forthcoming

Amirault, David, Daniel de Munnik, and Sarah Miller, "What Drags and Drives Mobility: Explaining Canada's Aggregate Migration Patterns", Canadian Journal of Economics

Dahlhaus, Tatjana, and Martin Bijsterbosch, "Key Features and Determinants of Credit-less Recoveries", Empirical Economics

Gervais, Olivier, Lena Suchanek, and Lawrence Schembri, "Current Account Dynamics, Real Exchange Rate Adjustment and the Exchange Rate Regime in Emerging-Market Economies", Journal of Development Economics

Schroth,Josef, "Optimal Intermediary Rents", American Economic Journal: Macroeconomics

WORKING PAPERS

Ahnert, Toni, and Christoph Bertsch, "A Wake-up Call Theory of Contagion", Sveriges Riksbank Working Paper 294

Alpanda, Sami, and Serdar Kabaca, "International Spillovers of Large-Scale Asset Purchases", Bank of Canada Working Paper 2015-2

Baumeister, Christiane, Lutz Killian, and Thomas K. Lee, "Inside the Crystal Ball: New Approaches to Predicting the Gasoline Price at the Pump", CFS Working Paper No. 500, January 2015 and CEPR Discussion Paper 10362, January 2015

Lin, Zhenguo, Yingchun Liu, and Jia Xie "Immigrants and Mortgage Delinquency in the United States", Bank of Canada Working Paper 2015-1

Pichette, Lise, Pierre St-Amant, Ben Tomlin, and Karine Anoma, "Measuring Potential Output at the Bank of Canada: The Extended Multivariate Filter and the Integrated Framework", Bank of Canada Discussion Paper 2015-1

Weber, Warren E., "The Efficiency of Private E-Money-Like Systems: The U.S. Experience with National Bank Notes", Bank of Canada Working Paper 2015-3

ABSTRACTS

Do High-Frequency Financial Data Help Forecast Oil Prices? The MIDAS touch at Work

The substantial variation in the real price of oil since 2003 has renewed interest in the question of how to forecast monthly and quarterly oil prices. There also has been increased interest in the link between financial markets and oil markets, including the question of whether financial market information helps forecast the real price of oil in physical markets. An obvious advantage of financial and energy market data in forecasting oil prices is their availability in real time on a daily or weekly basis. We investigate whether mixed-frequency models can be used to take advantage of these rich data sets. We show that, among a range of alternative high-frequency predictors, changes in U.S. crude oil inventories produce substantial and statistically significant real-time improvements in forecast accuracy. The preferred mixed-data sampling (MIDAS) model reduces the mean-squared prediction error by as much as 16 percent compared with the no-change forecast and has statistically significant directional accuracy as high as 80 percent. This MIDAS forecast also is more accurate than a mixed-frequency real-time vector autoregressive forecast, but not systematically more accurate than the corresponding forecast based on monthly inventories. We conclude that typically not much is lost by ignoring high-frequency financial data in forecasting the monthly real price of oil.

Balance Sheets of Financial Intermediaries: Do They Forecast Economic Activity?

This paper conducts a real-time, out-of-sample analysis of the forecasting power of various aggregate financial intermediaries' balance sheets for a wide range of economic activity measures in the United States. I find evidence that the balance sheets of leveraged financial institutions do have out-of-sample predictive power for future economic activity, and this predictability arises mainly through the housing sector. Nevertheless, I show that these variables have very little predictive power during periods of economic expansion, with predictability arising mainly during the financial crisis period.

What Drags and Drives Mobility: Explaining Canada's Aggregate Migration Patterns

Using census data at the economic region level from 1991 to 2006 and a gravity model framework, this paper examines the factors that influence migration within Canada. Results from both Poisson pseudo-maximum likelihood and negative binominal regression models suggest that provincial borders are statistically significant barriers to migration but the magnitude of their effect varies by model specification. The regression results also indicate that differences in employment rates, household incomes and language are important in explaining migration between Canadian economic regions. We also find evidence that the negative effect of distance on migration may be declining over time.

Optimal Intermediary Rents

This paper studies a dynamic production economy with financial intermediation. It is assumed that claims held on intermediaries cannot be fully enforced such that intermediation is subject to intermediary equity requirements. It is shown that competitive equilibria are not constrained efficient whenever the aggregate amount of intermediary equity in the economy is low enough to limit production. Specifically, a constrained social planner can achieve a Pareto improvement by creating long-term rents for intermediaries which immediately reduces intermediary equity requirements. The constrained-efficient allocation can be implemented by a positive tax on future intermediary activity.

A Wake-up Call Theory of Contagion

We propose a novel theory of financial contagion. We study global coordination games of regime change in two regions with an initially uncertain correlation of regional fundamentals. A crisis in region 1 is a wake-up call to investors in region 2 that induces a re-assessment of local fundamentals. Contagion after a wake-up call can occur even if investors learn that fundamentals are uncorrelated and common lender effects or balance sheet linkages are absent. Applicable to currency attacks, bank runs, and debt crises, our theory of contagion is supported by existing evidence and generates a new testable implication for empirical work.

Key Features and Determinants of Credit-less Recoveries

This paper aims to shed light on the characteristics and particularly the determinants of credit-less recoveries. After documenting some stylised facts of credit-less recoveries in emerging market economies, this paper uses panel probit models to analyse key determinants of credit-less recoveries. Our main findings are the following. First, our frequency analysis shows that credit-less recoveries are not unusual. Moreover, the frequency of credit-less recoveries doubles after a banking or currency crisis. Second, results from estimated panel probit models suggest that credit-less recoveries are typically preceded by large declines in economic activity and by financial stress, in particular if private sector indebtedness is high and the country is reliant of foreign capital inflows. Finally, our model performs well in predicting the credit-less recoveries experienced by emerging market economies in recent years.

Current Account Dynamics, Real Exchange Rate Adjustment and the Exchange Rate Regime in Emerging-Market Economies Journal of Development Economics

In emerging-market economies, real exchange rate adjustment is critical for maintaining a sustainable current account position and thereby for helping to reduce macroeconomic and financial instability. The authors examine empirically two related hypotheses: (i) that real exchange rate flexibility and adjustment promotes external stability, and (ii) that a flexible nominal exchange rate facilitates real exchange rate adjustment. Based on an event-study analysis for a large set of emerging-market economies over the period 1975–2008, the authors find that real exchange rate adjustment has contributed significantly to reducing current account imbalances. The adjustment of current account deficits in countries with a fixed exchange rate regime does not typically occur through the classical adjustment mechanism, but as a consequence of exchange rate crises, where the nominal exchange rate collapses and there are substantial costs in terms of forgone output. Vector-error-correction results support the findings of the event study; namely, in the long run the real exchange rate movements facilitate current account adjustment.

International Spillovers of Large-Scale Asset Purchases

This paper evaluates the international spillover effects of large-scale asset purchases (LSAPs) using a two-country dynamic stochastic general-equilibrium model with nominal and real rigidities, and portfolio balance effects. Portfolio balance effects arise from imperfect substitution between short- and long-term bond portfolios in each country, as well as between domestic and foreign bonds within these portfolios. We show that LSAPs lower both domestic and foreign long-term yields, and stimulate economic activity in both countries. International spillover effects become larger as the steady-state share of long-term U.S. bond holdings increases in the rest-of-the-world portfolio, as the elasticity of substitution between short- and long-term bonds decreases, or as the elasticity of substitution between domestic and foreign bonds increases. We also find that U.S. asset purchases that generate the same output effect as U.S. conventional monetary policy have larger international spillover effects. This is because portfolio balance effects appear to be stronger under unconventional policy, and foreigners' U.S. bond holdings are heavily weighted toward long-term bonds.

Inside the Crystal Ball: New Approaches to Predicting the Gasoline Price at the Pump

Although there is much interest in the future retail price of gasoline among consumers, industry analysts, and policymakers, it is widely believed that changes in the price of gasoline are essentially unforecastable given publicly available information. We explore a range of new forecasting approaches for the retail price of gasoline and compare their accuracy with the no-change forecast. Our key finding is that substantial reductions in the mean-squared prediction error (MSPE) of gasoline price forecasts are feasible in real time at horizons up to two years, as are substantial increases in directional accuracy. The most accurate individual model is a VAR(1) model for real retail gasoline and Brent crude oil prices. Even greater reductions in MSPEs are possible by constructing a pooled forecast that assigns equal weight to five of the most successful forecasting models. Pooled forecasts have lower MSPE than the EIA gasoline price forecasts and the gasoline price expectations in the Michigan Survey of Consumers. We also show that as much as 39% of the decline in gas prices between June and December 2014 was predictable.

Immigrants and Mortgage Delinquency in the United States

We investigate the relationship between immigrant status and mortgage delinquency in the United States. We find that after controlling for observables, newly arrived immigrants are likely to have a higher delinquency rate on mortgages than natives, while immigrants who have resided in the United States for more than 20 years are no different than natives in this regard. In addition, there is no evidence that the second generation of immigrants has a higher delinquency rate than the third-or-higher generation. Our results are robust to potential sample selection bias and functional misspecifications.

Measuring Potential Output at the Bank of Canada: The Extended Multivariate Filter and the Integrated Framework

Estimating potential output and the output gap - the difference between actual output and its potential - is important for the proper conduct of monetary policy. However, the measurement and interpretation of potential output, and hence the output gap, is fraught with uncertainty, since it is unobservable. It is therefore important that we continually expand and improve upon existing models, and innovate by testing new approaches and incorporating them into the analysis of potential output and the output gap. Within this context, this paper first provides an assessment of the extended multivariate filter (EMVF), which the Bank has used since the late 1990s to come up with a baseline measure of the output gap. It is determined that the EMVF has several limitations that need to be addressed. Consequently, a modified version of the EMVF incorporating revised conditioning information is presented. In addition, a newly developed methodology, the integrated framework (IF), provides a separate analysis of trend labour input and trend labour productivity, and in doing so accounts for more long-term structural changes in the economy. While neither of these approaches is perfect, and both have limitations, they represent improvements over the conventional method. The paper also outlines how the modified EMVF, the IF, and information from the Bank's *Business Outlook Survey* and other sources are used to come up with an estimate of the current output gap and the future growth rate of potential output.

The Efficiency of Private E-Money-Like Systems: The U.S. Experience with National Bank Notes

Beginning in 1864, in the United States notes of national banks were the predominant medium of exchange. Each national bank issued its own notes. E-money shares many of the characteristics of these bank notes. This paper describes some lessons relevant to e-money from the U.S. experience with national bank notes. It examines historical evidence on how well the bank notes - a privately-issued currency system with multiple issuers - functioned with respect to ease of transacting, counterfeiting, safety, overissuance and par exchange (a uniform currency). It finds that bank notes made transacting easier and were not subject to overissuance. National bank notes were perfectly safe because they were insured by the federal government. Further, national bank notes were a uniform currency. Notes of different banks traded at par with each other and with greenbacks. This paper describes the mechanism that was put in place to achieve uniformity. The U.S. experience with national bank notes suggests that a privately-issued e-money system can operate efficiently but will require government intervention, regulation, and supervision to minimize counterfeiting, promote safety and provide the mechanism necessary for different media of exchange to exchange at par with each other.