BANK OF CANADA
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Bank of Canada Monthly Research Update

September 2019

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

Chen, Heng & Fan, Yanqin, "Identification and Wavelet Estimation of Weighted ATE in a Class of Switching Regime Models", Journal of Econometrics, Vol 212(2): 476-502, October 2019

Forthcoming

Alexander, Patrick & Poirier, Louis, "Did U.S. Consumers Respond to the 2014–2015 Oil Price Shock? Evidence from the Consumer Expenditure Survey", The Energy Journal

Cimon, David & Garriott, Corey, "Banking regulation and market making", Journal of Banking & Finance

Ozhan, G. Kemal, "Financial Intermediation, Resource Allocation, and Macroeconomic Interdependence", Journal of Monetary Economics

Hohberger, Stefan & Priftis, Romanos & Vogel, Lukas, "The Macroeconomic Effects of Quantitative Easing in the Euro Area: Evidence from an Estimated DSGE Model", Journal of Economic Dynamics and Control

STAFF WORKING PAPERS

Galassi, Gabriela & Koll, David & Mayr, Lukas, "The Intergenerational Correlation of Employment: Is There a Role for Work Culture?", Bank of Canada Staff Working Paper 2019-33

Alexander, Patrick & Chernoff, Alex, "Exchange Rates, Retailers, and Importing: Theory and Firm-Level Evidence", Bank of Canada Staff Working Paper 2019-34

Bilgin, Doga & Ellwanger, Reinhard, "The Simple Economics of Global Fuel Consumption", Bank of Canada Staff Working Paper 2019-35

Schmidt, Julia & Steingress, Walter, "No Double Standards: Quantifying the Impact of Standard Harmonization on Trade", Bank of Canada Staff Working Paper 2019-36

Ahnert, Toni & Elamin, Mahmoud, "Bank Runs, Portfolio Choice, and Liquidity Provision", Bank of Canada Staff Working Paper 2019-37

Zivanovic, Jelena, "What Does Structural Analysis of the External Finance Premium Say About Financial Frictions?", Bank of Canada Staff Working Paper 2019-38

Beers, David & de Leon-Manlagnit, Patrisha, "The BoC-BoE Sovereign Default Database: What's New in 2019?", Bank of Canada Staff Working Paper 2019-39

Chiu, Jonathan & Koeppl, Thorsten, "The Economics of Cryptocurrencies—Bitcoin and Beyond", Bank of Canada Staff Working Paper 2019-40

STAFF DISCUSSION PAPERS

Lao, Helen & Steyn, Ceciline, "A Comprehensive Evaluation of Measures of Core Inflation in Canada: An Update", Bank of Canada Staff Discussion Paper 2019-9

ABSTRACTS

Identification and Wavelet Estimation of Weighted ATE in a Class of Switching Regime Models

This paper studies identification, estimation, and inference of a weighted average treatment effect (W-ATE) parameter in a class of switching regime models, where the agent's selection of treatment is affected by either a discontinuous or kink incentive assignment mechanism and some unobservable characteristic. For each assignment mechanism, we (i) establish identification and propose a local wavelet estimator of the W-ATE; (ii) establish asymptotic properties of the local wavelet estimator including optimal convergence rate and asymptotic normality; and (iii) investigate the finite sample performance of the local wavelet estimators and compare them with local polynomial estimators via an extensive simulation study. We also propose an identification-robust wavelet estimator of the W-ATE.

Did U.S. Consumers Respond to the 2014–2015 Oil Price Shock? Evidence from the Consumer Expenditure Survey

The impact of oil price shocks on the U.S. economy is a topic of considerable debate. In this paper, we examine the response of U.S. consumers to the 2014–2015 negative oil price shock using representative survey data from the Consumer Expenditure Survey. We propose a difference-in-difference identification strategy based on two factors, vehicle ownership and gasoline reliance, which generate variation in exposure to oil price shocks across consumers. Our findings suggest that exposed consumers significantly increased their spending relative to non-exposed consumers when oil prices fell, and that the average marginal propensity to consume out of gasoline savings was above 1. Across products, we find that consumers increased spending especially on transportation goods and non-essential items.

Banking regulation and market making

We model how securities dealers respond to regulations on leverage, position, and liquidity such as those imposed by the Basel III framework. The dealers respond by endogenously moving to make markets on an agency basis, matching buyers to sellers rather than taking client positions on the balance sheet. Agency-based market making creates a cost-risk tradeoff in which investor welfare declines but dealers become less risky. The costs to investors do not show up in all liquidity metrics: While asset prices exhibit greater price impact, bid-ask spreads do not change and trading volumes can even increase, which can help explain the varying findings from the empirical literature.

Financial Intermediation, Resource Allocation, and Macroeconomic Interdependence

During the first decade of the euro, southern countries experienced a boom-bust cycle in bank lending, non-tradable sector growth, and capital inflows. I develop a quantitative, open economy model of banking that is consistent with the banks' behavior in credit allocation and foreign borrowing observed in Spanish data. I illustrate how movements in the frictions of cross-border deposits generate an endogenous asymmetric allocation of bank credit toward non-traded sectors, while producing a persistent and climbing current account deficit. A common central bank's unconventional policies in response to sudden stops are successful at ameliorating the downturn.

The Macroeconomic Effects of Quantitative Easing in the Euro Area: Evidence from an Estimated DSGE Model

This paper estimates an open-economy dynamic stochastic general equilibrium (DSGE) model with Bayesian techniques to provide a structural empirical evaluation of the macroeconomic effects of the European Central Bank's (ECB's) quantitative easing (QE) programme. Allowing for cross-border holding of government debt and using data on government debt stocks and yields across maturities, we identify the parameters governing portfolio rebalancing in the private sector. We rely on a methodological extension that measures the non-linear contribution of QE in shock decompositions under an occasionally binding constraint (zero lower bound). Our results suggest an average contribution of ECB QE to annual Euro Area GDP growth and CPI inflation in 2015-18 of 0.3 and 0.5 percentage points, respectively, with a maximum impact in 2016.

The Intergenerational Correlation of Employment: Is There a Role for Work Culture?

We document a substantial positive correlation of employment status between mothers and their children in the United States, linking data from the National Longitudinal Survey of Youth 1979 (NLSY79) and the NLSY79 Children and Young Adults. After controlling for ability, education and wealth, a one-year increase in a mother's employment is associated with six weeks more employment of her child on average. The intergenerational transmission of maternal employment is stronger to daughters than to sons, and it is higher for low-educated and low-income mothers. Potential mechanisms we were able to rule out included networks, occupation-specific human capital and conditions within the local labor market. By contrast, we provide suggestive evidence for a role-model channel through which labor force participation is transmitted.

Exchange Rates, Retailers, and Importing: Theory and Firm-Level Evidence

We develop a model with firm heterogeneity in importing and cross-border shopping among consumers. Exchange-rate appreciations lower the cost of imported goods, but also lead to more cross-border shopping; hence, the net impact on aggregate retail prices and sales is ambiguous. Using Canadian firm-level data from 2002 to 2012, we find empirical support for several predictions of the model. We then estimate the model-implied exchange-rate elasticities of aggregate retail prices and sales. Our benchmark results indicate a deflationary effect of appreciations on retail prices and a small positive effect on sales. From 2002 to 2012, the Canadian exchange rate appreciated by 57%, which, according to our model, led to a 6.5% reduction in the retail price index. We also find that the estimated elasticities of aggregate retail prices and sales grew over this period, driven by import growth from China. This suggests that the transmission of exchange-rate movements to prices has grown since the early 2000s, which has consequences for the role of Canada’s flexible exchange rate regime in supporting inflation stability.

The Simple Economics of Global Fuel Consumption

This paper presents a structural framework of the global oil market that relies on information on global fuel consumption to identify flow demand for oil. We show that under mild identifying assumptions, data on global fuel consumption help to provide comparatively sharp insights on elasticities and other key structural parameters of the global oil market. The estimated elasticity of global fuel demand in the short run with respect to crude oil prices is around -2 percent, which is considerably more inelastic than estimates of local fuel demand elasticities based on disaggregated data. Our framework is particularly suitable for understanding the evolution of quantities in the global oil market and provides new evidence on the magnitude of different types of oil price shocks and their macroeconomic and environmental impacts.

No Double Standards: Quantifying the Impact of Standard Harmonization on Trade

Product standards are omnipresent in industrialized societies. Though standardization can be beneficial for domestic producers, divergent product standards have been categorized as a major obstacle to international trade. This paper quantifies the effect of standard harmonization on trade flows and characterizes the extent to which it changes the cost and demand structure of exporting. Creating a novel and comprehensive database on cross-country standard equivalences, we identify standard harmonization events at the document level. Our results show that the introduction of harmonized standards increases trade through a larger sales volume of existing exporters (intensive margin) and more entry (extensive margin). These findings are consistent with a multi-country heterogeneous firm model featuring endogenous standard adoption. Because of additional demand, standard harmonization raises firms' incentives to produce varieties in accordance with the standard despite high sunk investment costs. Firms' export sales expand and entry into foreign markets is encouraged.

Bank Runs, Portfolio Choice, and Liquidity Provision

We examine the portfolio choice of banks in a micro-funded model of runs. To insure risk-averse investors against liquidity risk, competitive banks offer demand deposits. We use global games to link the probability of a bank run to the portfolio choice. Based upon interim information about risky investment, banks liquidate investments to hold a safe asset. This partial hedge against investment risk reduces the withdrawal incentives of investors for a given deposit rate. As a result of the portfolio choice, (i) banks provide more liquidity ex ante (so banks offer a higher deposit rate), and (ii) the welfare of investors increases.

What Does Structural Analysis of the External Finance Premium Say About Financial Frictions?

I use a structural vector autoregression (SVAR) with sign restrictions to provide conditional evidence on the behavior of the US external finance premium (EFP). The results indicate that the excess bond premium, a proxy for the EFP, reacts countercyclically to supply and monetary policy shocks and procyclically to demand shocks. I confront my empirical evidence with the predictions from financial dynamic stochastic general equilibrium (DSGE) models with respect to the finance premium in order to identify an empirically relevant financial friction. The Bernanke, Gertler and Gilchrist (1999) model generates transmission mechanisms that are favored by the data.

The BoC-BoE Sovereign Default Database: What's New in 2019?

Until recently, few efforts have been made to systematically measure and aggregate the nominal value of the different types of sovereign government debt in default. To help fill this gap, the Bank of Canada (BoC) developed a comprehensive database of sovereign defaults that is posted on its website and updated in partnership with the Bank of England (BoE). Our database draws on previously published datasets compiled by various public and private sector sources. It combines elements of these, together with new information, to develop comprehensive estimates of stocks of government obligations in default. These include bonds and other marketable securities, bank loans and official loans, valued in US dollars, for the years 1960 to 2018 on both a country-by-country and a global basis. This update of the BoC-BoE database, and future updates, will be useful to researchers analyzing the economic and financial effects of individual sovereign defaults and, importantly, the impact on global financial stability of episodes involving multiple sovereign defaults.

The Economics of Cryptocurrencies—Bitcoin and Beyond

A cryptocurrency system such as Bitcoin relies on a decentralized network of anonymous validators to maintain and update copies of the ledger in a process called mining. In such a permissionless system, someone can cheat by spending a coin twice, which leads to the so-called double-spending problem. A well-functioning cryptocurrency system must ensure that users do not have an incentive to double spend.

We develop a general-equilibrium model of a cryptocurrency. We use the model to obtain a condition that rules out double spending and study the optimal design of cryptocurrencies. We also quantify the welfare costs of using a cryptocurrency as a payment instrument.

We find that it is better to use the revenue from currency creation rather than transaction fees to finance the costly mining process. We estimate that Bitcoin generates a large welfare loss that is about 500 times bigger than the welfare loss in a monetary economy with 2 percent inflation. This welfare loss can be lowered in an optimal design to the equivalent of that in a monetary economy with moderate inflation of about 45 percent.

A Comprehensive Evaluation of Measures of Core Inflation in Canada: An Update

We provide an updated evaluation of the value of various measures of core inflation that could be used in the conduct of monetary policy. We find that the Bank of Canada's current preferred measures of core inflation—CPI-trim, CPI-median and CPI-common—continue to outperform alternative core measures across a range of criteria. These measures remain less biased, less volatile and much more persistent relative to alternative core measures and CPI inflation. They are also still moving with the economic cycle. Our analysis shows that historical revisions have been relatively small among these three core inflation measures since their inception and that CPI-common seems less prone to revisions and sector-specific shocks than CPI-trim and CPI-median.

UPCOMING EVENTS

Julia Thomas (Ohio State University, Department of Economics)
Organizer: Yuko Imura (INT)
Date: 1 October 2019

Domenico Giannone (Federal Reserve Bank of New York)
Organizer: Rodrigo Sekkel (FMD)
Date: 2 October 2019

Michael Koetter (Halle Institute for Economic Research)
Organizer: Radoslav Raykov (FSD)
Date: 3 October 2019

Patrick Augustin (McGill University, Desautels Faculty of Management)
Organizer: Corey Garriott (FMD)
Date: 10 October 2019

Ufuk Akcigit (University of Chicago, Department of Economics)
Organizer: Ben Tomlin (CEA)
Date: 11 October 2019

James Cloyne (University of California Davis, Department of Economics)
Organizer: Nuno Marques da Paixao (FSD)
Date: 15 October 2019

Curtis Taylor (Duke University, Department of Economics)
Organizers: Narayan Bulusu (FBD) & Marie-Hélène Felt (CUR)
Date: 21 October 2019

Robert Marquez (University of California Davis, Graduate School of Management)
Organizer: Thibaut Duprey (FSD)
Date: 24 October 2019

Virgiliu Midrigan (New York University, Department of Economics)
Organizer: Katya Kartashova (CEA)
Date: 25 October 2019

Haelim Anderson (Federal Deposit Insurance Corporation)
Organizer: Jason Allen (FMD)
Date: 31 October 2019

Paul Klein (Stockholm University, Department of Economics)
Organizer: Geoffrey Dunbar (INT)
Date: 5 November 2019

Morten Ravn (University College London, Department of Economics)
Organizer: Martin Kuncl (CEA)
Date: 15 November 2019

Catherine Tucker (Massachusetts Institute of Technology, Sloan School of Management)
Organizer: Shota Ichihashi (CEA)
Date: 19 November 2019

Sacha Gelfer (Bentley University, Department of Economics)
Organizer: Lin Shao (INT)
Date: 13 December 2019

Todd Clark (Federal Reserve Bank of Cleveland)
Organizer: Luis Uzeda (CEA)
Date: 3 April 2020