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Bank of Canada
Monthly Research Update

March 2022

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

Forthcoming

Mario Cipriani & Antonio Guarino & Andreas Uthemann, "Financial Transaction Taxes and the Informational Efficiency of Financial Markets: A Structural Estimation", Journal of Financial Economics

Daniela Hauser & Martin Seneca, "Labor mobility in a monetary union", Journal of International Economics

STAFF WORKING PAPERS

Shota Ichihashi, "Dynamic Privacy Choices", Bank of Canada Staff Working Paper 2022-8

David Cimon & Adrian Walton, "Central Bank Liquidity Facilities and Market Making", Bank of Canada Staff Working Paper 2022-9

James Chapman & Ajit Desai, "Macroeconomic Predictions Using Payments Data and Machine Learning", Bank of Canada Staff Working Paper 2022-10

Antoine Camous & Dmitry Matveev, "The Central Bank Strikes Back! Credibility of Monetary Policy under Fiscal Influence", Bank of Canada Staff Working Paper 2022-11

Edouard Djeutem & Mario He & Abeer Reza & Yang Zhang, "Household Heterogeneity and the Performance of Monetary Policy Frameworks", Bank of Canada Staff Working Paper 2022-12

Edona Reshidi, "Vertical Bargaining and Obfuscation", Bank of Canada Staff Working Paper 2022-13

Felipe Alves, "Job Ladder and Business Cycles", Bank of Canada Staff Working Paper 2022-14

Kim Huynh & Gradon Nicholls & Oleksandr Shcherbakov, "Equilibrium in Two-Sided Markets for Payments: Consumer Awareness and the Welfare Cost of the Interchange Fee", Bank of Canada Staff Working Paper 2022-15

Roobina Keshishbanoosy & Faouzi Tarkhani & Alice Xu & Clément Yélou & Patrick Sabourin & Olena Kostyshyna, "Consumer Price Index and Inflation Perceptions in Canada: Can measurement approaches or behavioural factors explain the gap?", Statistics Canada Prices Analytical Series

STAFF DISCUSSION PAPERS

Tatjana Dahlhaus & Daniel Hyun & Antoine Poulin-Moore & Jaime Trujillo & Saarah Sheikh & Benjamin Straus, "COVID-19, Containment and Consumption", Bank of Canada Staff Discussion Paper 2022-5

Bruno Feunou & Jean-Sébastien Fontaine & Ingomar Krohn, "Real Exchange Rate Decompositions", Bank of Canada Staff Discussion Paper 2022-6

ABSTRACTS

Financial Transaction Taxes and the Informational Efficiency of Financial Markets: A Structural Estimation

We develop a new methodology to estimate the impact of a financial transaction tax (FTT) on financial market outcomes. In our sequential trading model, there are price-elastic noise and informed traders. We estimate the model through maximum likelihood for a sample of sixty New York Stock Exchange (NYSE) stocks in 2017. We quantify the effect of introducing an FTT given the parameter estimates. An FTT increases the proportion of informed trading, improves information aggregation, but lowers trading volume and welfare. For some less-liquid stocks, however, an FTT blocks private information aggregation.

Labor mobility in a monetary union

Internal migration flows are endogenously driven by relative labor market performance in a New Keynesian DSGE model of a monetary union calibrated to U.S. data. When labor markets are competitive, a strict focus on stabilizing unionwide inflation remains close to optimal. With search and matching frictions in regional labor markets, labor mobility across state borders introduces additional trade-offs for optimal monetary policy since workers do not internalize the full effects of their individual migration decisions. But when monetary policy is suboptimal, a mobile labor force helps to close inefficiency gaps in regional labor markets following region-specific shocks. Putting some weight on labor market outcomes in a simple instrument rule enhances welfare more when labor is mobile.

Dynamic Privacy Choices

I study a dynamic model of consumer privacy and platform data collection. In each period, consumers choose their level of platform activity. Greater activity generates more information about the consumer, thereby increasing platform profits. When the platform can commit to the future privacy policy, it collects information by committing to gradually decrease the level of privacy protection. In the long run, consumers lose privacy and receive low payoffs but choose high activity levels. In contrast, the platform with weaker commitment power may attain the commitment outcome or fail to collect any data, depending on consumer expectations regarding future privacy protection.

Central Bank Liquidity Facilities and Market Making

In the onset of the COVID-19 crisis, central banks purchased large volumes of assets in an effort to keep markets operational. We model one such central bank, which purchases assets from dealers to alleviate balance sheet constraints. Asset purchases can prevent market breakdown, improve price efficiency and reduce dealer risk positions. A central bank that purchases assets at their expected value is able to achieve market outcomes as if dealers were unconstrained. Absent other concerns, central banks can maximize welfare by purchasing assets at a premium, though they may create market distortions. Alternatively, central banks who bear costs associated with large interventions may only be willing to purchase assets at a discount. In the absence of leverage constraints, lending programs are as effective as asset purchases; when leverage constraints are present, lending programs lose effectiveness.

Macroeconomic Predictions Using Payments Data and Machine Learning

Predicting the economy's short-term dynamics—a vital input to economic agents' decisionmaking process—often uses lagged indicators in linear models. This is typically sufficient during normal times but could prove inadequate during crisis periods such as COVID-19. This paper demonstrates: (a) that payments systems data which capture a variety of economic transactions can assist in estimating the state of the economy in real time and (b) that machine learning can provide a set of econometric tools to effectively handle a wide variety in payments data and capture sudden and large effects from a crisis. Further, we mitigate the interpretability and overfitting challenges of machine learning models by using the Shapley value-based approach to quantify the marginal contribution of payments data and by devising a novel cross-validation strategy tailored to macroeconomic prediction models.

The Central Bank Strikes Back! Credibility of Monetary Policy under Fiscal Influence

How should independent central banks react if pressured by fiscal policymakers? We study an environment with strategic monetary-fiscal interactions where the central bank has a limited degree of commitment to follow policies over time and the fiscal authority has none. We contrast the implications of two monetary frameworks: one where the central bank follows a standard rule aiming exclusively at price stability against the other, where monetary policy additionally

leans against fiscal influence. The latter rule improves economic outcomes by providing appropriate incentives to the fiscal authority. More importantly, the additional fiscal conditionality can enhance the credibility of the central bank to achieve price stability. We emphasize how the level and structure of government debt emerge as key factors affecting the credibility of monetary policy with fiscal conditionality.

Household Heterogeneity and the Performance of Monetary Policy Frameworks

We compare the performance of alternative monetary policy frameworks (inflation targeting, average inflation targeting, price level targeting and nominal GDP level targeting) in a tractable HANK model where incomplete financial markets and idiosyncratic earnings risk introduce precautionary savings and consumption inequality. Financial market incompleteness generates an additional source of societal welfare loss due to cyclical fluctuations in inequality on top of those from inflation and output volatility. We find that history-dependent policies are preferred in this framework. However, if central banks put a high weight on curbing inequality, AIT and IT can be preferred over PLT.

Vertical Bargaining and Obfuscation

Manufacturers often engage in practices that impede consumer search. Examples include proliferating product varieties, imposing vertical informational restraints, and banning online sales to make it more difficult for consumers to compare prices. This paper models vertical bargaining over wholesale prices and obfuscation levels and finds that obfuscation arises in equilibrium whenever retailers have some bargaining power. Once the bargaining power rests with the manufacturer, the equilibrium involves no obfuscation. The final consumers, however, are worse off compared with settings when retailers have all the bargaining power. We show that in vertical markets, policies that impose caps on obfuscation may induce higher wholesale and retail prices. Instead, we propose caps on wholesale prices as an effective consumer protection policy.

Job Ladder and Business Cycles

I build a Heterogeneous Agents New Keynesian model with rich labor market dynamics. Workers search both off- and on-the-job, giving rise to a job ladder, where employed workers slowly move toward more productive and better paying jobs through job-to-job transitions, while

negative shocks occasionally throw them back into unemployment. The state of the economy includes the distribution of workers over wealth, labor earnings and match productivities. In the wake of an adverse financial shock calibrated to mimic the US Great Recession unemployment dynamics, firms reduce hiring, causing the job ladder to all but "stop working." This leaves wages stagnant for several years, triggering a sharp contraction and slow recovery in consumption and output. On the supply side, the slow pace in worker turnover leaves workers stuck at the bottom of the ladder, effectively cutting labor productivity growth in the aggregate. The interaction between weak demand and low productivity leads to inflation dynamics that resemble the missing disinflation of that period.

Equilibrium in Two-Sided Markets for Payments: Consumer Awareness and the Welfare Cost of the Interchange Fee

The market for payments is an important two-sided one, where consumers benefit from increased merchant acceptance of payment cards and vice versa. The dependence between the decisions that are made on each side of the market results in various network externalities that are often discussed but rarely quantified. We construct and estimate a structural two-stage model of equilibrium in a market for payments in order to quantify the network externalities and identify the main determinants of consumer and merchant decisions. The estimation results suggest significant heterogeneity in consumer adoption costs and benefits. We discuss the critical characteristics that determine which payment instrument is used at the point of sale. Our counterfactual simulation measures the degree of excessive intermediation by credit card providers.

Consumer Price Index and Inflation Perceptions in Canada: Can measurement approaches or behavioural factors explain the gap?

Many decisions by economic agents, such as firms and consumers, depend on their views about inflation. These views have significant implications for economic activity and monetary policy. Consumers' views of inflation, as measured by the Bank's Canadian Survey of Consumer Expectations (CSCE), are systematically higher than the actual inflation measured by the Consumer Price Index (CPI), and more so for certain demographic groups. While measurement factors including quality adjustment, and the treatment of housing in the CPI can explain part of this gap, behavioral factors appear to play a larger role. Personal shopping experiences, views about food and rent price

increases, and higher sensitivity to large price increases are important drivers of differences between measured inflation and inflation perceptions. Furthermore, information gaps and level of economic literacy can also help explain the way inflation is perceived. Policy makers can play a role to make information more readily available and to improve awareness and understanding of inflation literacy towards narrowing the perception gap.

COVID-19, Containment and Consumption

We assess the impact of the COVID-19 pandemic on consumption indicators by estimating the effects of government-mandated containment measures and of the willingness of individuals to voluntarily physically distance to prevent contagion. To do this, we use weekly panel regressions across Canadian provinces to study how differences in both containment measures and voluntary physical distancing affect consumption, proxied by transaction data. We also conduct a similar panel analysis across 28 advanced economies using retail mobility data as a proxy for in-person consumption of goods and services. Two main findings are broadly robust across a variety of tests and specifications. First, indicators of both government containment measures and voluntary physical distancing are negatively correlated with consumption indicators, with the latter relationship showing variation over time. Second, contact-intensive and other highly restricted sectors in Canada were generally more affected by increases in the stringency of government containment measures and voluntary physical distancing. In contrast, the impact from voluntary physical distancing on spending categories deemed essential by some Canadian provincial governments was muted relative to the impact on other categories.

Real Exchange Rate Decompositions

We provide a novel daily decomposition of the real exchange rate that exploits a direct link between bond and foreign exchange (FX) markets. Real exchange rate dynamics can be attributed to changes in the expected future level of the exchange rate; cross-country differentials of expected inflation, yields and bond term premia; and an FX risk premium. Through a variance decomposition exercise, we find that the FX risk premium is the dominant component. Monetary policies and macroeconomic news announcements largely move the real exchange through changes in the FX risk premium.

UPCOMING EVENTS

* All onsite conferences and events are suspended until further notice. All events listed below will take place virtually.

Jeremy Bertomeu (Washington University in St. Louis)
Organizer: FMD FSD/EFR Seminar Series
Date: 14 April 2022

Nora Traum (HEC Montréal)
Organizer: EFR CEA/INT Seminar Series
Date: 22 April 2022

Kjetil Storesletten (University of Minnesota)
Organizer: EFR CEA/INT Seminar Series
Date: 26 April 2022

José-Luis Peydró (Imperial College London)
Organizer: FMD FSD/EFR Seminar Series
Date: 28 April 2022

Lorenzo Magnolfi (University of Wisconsin-Madison)
Organizer: BAP Virtual Speaker
Date: 2 May 2022

Federico Huneeus (Central Bank of Chile)
Organizer: FMD FSD/EFR Seminar Series
Date: 5 May 2022

Thomas Le Barbanchon (Bocconi University)
Organizer: INT CEA/EFR Seminar Series
Date: 6 May 2022

Robert Clark (Queen's University)
Organizer: BAP Virtual Speaker
Date: 9 May 2022

Rachel Ngai (London School of Economics)
Organizer: FMD FSD/EFR Seminar Series
Date: 12 May 2022