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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

Arango, Carlos, Kim P. Huynh, and Leonard Sabetti, "Consumer payment choice: Merchant card acceptance versus pricing incentives", Journal of Banking & Finance, Volume 55, June 2015, Pages 130–141

Berg, Kimberly B., and Nelson C. Mark, "Third-country effects on the exchange rate", Journal of International Economics, Volume 96, Issue 2, July 2015, Pages 227–243

Faroni, Claudia, Pierre Guérin, and Massimiliano Marcellino, "Markov-switching mixed frequency VAR models", International Journal of Forecasting Volume 31, Issue 3, July–September 2015, Pages 692–711

Gans, Joshua, and Hanna Halaburda, "Some Economics of Private Digital Currency", "Economic Analysis of the Digital Economy", June 2015, Pages 257-276

Huynh, Kim P., and Juergen Jung, "Subjective health expectations", Journal of Policy Modeling, Volume 37, Issue 4, July–August 2015, Pages 693–711

Forthcoming

Huynh, Kim P., David T. Jacho-Chávez, and James K. Self, "Distributional Efficacy of Collaborative Learning", The American Economist

WORKING PAPERS

Bagnall, John, David Bounie, Kim P. Huynh, Anneke Kosse, Tobias Schmidt, Scott Schuh, and Helmut Stix, "Consumer Cash Usage: A Cross-Country Comparison with Payment Diary Survey Data", Bank of Canada Working Paper 2014-20

Cunado, Juncal, Soojin Jo, and Fernando Perez de Gracia, "Revisiting Macroeconomic impacts of oil price shocks in Asian economies", Bank of Canada Working Paper 2015-23

Devereux, Michael, Wei Dong, and Ben Tomlin, "Exchange Rate Pass-Through, Currency of Invoicing and Market Share", Bank of Canada Working Paper 2015-31

Embree, Lana, and Varya Taylor, "Examining Full Collateral Coverage in Canada's Large Value Transfer System", Bank of Canada Working Paper 2015-29

Schroth, Josef, "Managerial Compensation Duration and Stock Price Manipulation", Bank of Canada Working Paper 2015-25

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ABSTRACTS

Consumer payment choice: Merchant card acceptance versus pricing incentives

Using transaction-level data from a three-day shopping diary, we estimate a model of consumer payment instrument choice that disentangles the effect of merchant card acceptance from credit card pricing incentives (rewards) at the point-of-sale. The lack of merchant card acceptance plays a large role in the use of cash, especially for low-value transactions (less than 25 dollars). Participation in a credit card rewards program induces a shift toward credit card usage at the expense of both debit cards and cash. In contrast, changes in the amount of rewards (ad valorem) has a small or inelastic effect on the probability of paying with credit cards. Our findings highlight the importance of the two-sided nature of retail payment systems and provide key insights into consumer and merchant behaviour.

Third-country effects on the exchange rate

Predictive regressions for bilateral exchange rates are typically run on variables from the associated bilateral pairs of countries. These regressions characteristically have low explanatory power, which leaves room for an omitted variables interpretation. We test whether these omitted variables are from third-countries. When third-country macro factors are added to bilateral exchange rate regressions, they enter significantly and increase the adjusted R^2. A three-country exchange rate model illustrates potential channels for third-country spillovers to affect the bilateral rate.

Markov-switching mixed frequency VAR models

This paper introduces regime switching parameters to the Mixed-Frequency VAR model. We begin by discussing estimation and inference for Markov-switching Mixed-Frequency VAR (MSMF-VAR) models. Next, we assess the finite sample performance of the technique in Monte-Carlo experiments. Finally, the MSMF-VAR model is used to predict GDP growth and business cycle turning points in the euro area. Its performance is then compared with those of a number of competing models, including linear and regime switching mixed data sampling (MIDAS) models. The results suggest that MSMF-VAR models are particularly useful for estimating the status of economic activity.

Some Economics of Private Digital Currency

This paper reviews some recent developments in digital currency, focusing on platform-sponsored currencies such as Facebook Credits. We develop a model of platform management in which platform currency offers "enhancements" to users who spend time on the platform. Users allocate time between earning money outside of the platform and using the platform. The platform can equip its currency in different attributes and limitations, with the goal of maximizing profit. We show that limiting functionality of currency (e.g., prohibiting transferability) may increase usage on the platform. But depending on the source of the revenue, different attributes of the currency are optimal. We also find that it will not likely be profitable for such currencies to expand to become fully functional competitors to state-issued currencies. However, it is still possible, in some cases for limited platform-sponsored currencies to be attractive outside of the platform.

Subjective health expectations

Subjective health expectations are derived using data from the U.S. Health and Retirement Study (HRS). We first use a Bayesian updating mechanism to correct for focal point responses and reporting errors of the original health expectations variable. We then test the quality of the health expectations measure and describe its correlation with various health indicators and other individual characteristics. Our results indicate that subjective health expectations do contain additional information that is not incorporated in subjective mortality expectations and that the rational expectations assumption cannot be rejected for subjective health expectations. Finally, the data suggest that individuals younger than 70 years of age seem to be more pessimistic about their health than individuals in their 70s.

Distributional Efficacy of Collaborative Learning

This study addresses self-selection and heterogeneity issues inherent in measuring the efficacy of voluntary training programmes. We exploit data collected from Indiana University's introductory microeconomics course. In conjunction with their class, undergraduates were given the choice to participate in a voluntary training programme called Collaborative Learning (CL), which is designed to encourage a self-discovery learning style. To address self-selection and heterogeneity in the effectiveness of CL, programme evaluation methods were used to measure student performance. We find, amongst other things, that CL produces heterogeneous results e.g., the bottom 40 percentile of CL participants improved their performance the most, and that students at the higher end of the grade distribution achieve greater improvement in topic understanding. The latter is greater than can be associated with superior innate ability alone. Finally, parametric and non-parametric sensitivity analysis confirmed that the sign of the calculated treatment effects is robust to potential violations of the underlying assumptions.

Consumer Cash Usage: A Cross-Country Comparison with Payment Diary Survey Data

We measure consumers' use of cash by harmonizing payment diary surveys from seven countries. The seven diary surveys were conducted in 2009 (Canada), 2010 (Australia), 2011 (Austria, France, Germany and the Netherlands), and 2012 (the United States). Our paper finds cross country differences – for example, the level of cash usage differs across countries. Cash has not disappeared as a payment instrument, especially for low value transactions. We also find that the use of cash is strongly correlated with transaction size, demographics, and point-of-sale characteristics such as merchant card acceptance and venue.

Revisiting the Macroeconomic Impact of Oil Shocks in Asian Economies

This paper analyzes the macroeconomic impact of oil shocks in four of the largest oil-consuming Asian economies, using a structural vector autoregressive model. We identify three different types of oil shocks via sign restrictions: an oil supply shock, an oil demand shock driven by global economic activity and an oil-specific demand shock. The main results suggest that economic activity and prices respond very differently to oil price shocks depending on their type. In addition, a country's oil-importing and -exporting status in the world oil market affects the transmission of shocks. Finally, subsample analysis shows a possible structural break in Japan and South Korea for all three types of oil shocks.

Exchange Rate Pass-Through, Currency of Invoicing and Market Share

This paper investigates the impact of market structure on the joint determination of exchange rate pass through and currency of invoicing in international trade. A novel feature of the study is the focus on market share of firms on both sides of the market — that is, exporting firms and importing firms. A model of monopolistic competition with heterogeneous firms has the following set of predictions: a) exchange rate pass-through should be non-monotonic and U-shaped in the market share of exporting firms, but monotonically declining in the market share of importers; b) exchange rate pass-through should be lower, the higher is local currency invoicing of imports; and c) producer currency invoicing should be related non-monotonically and U-shaped to exporter market share, and monotonically declining in importing firms' market share. We test these predictions using a new and large micro data set covering the universe of Canadian imports over a six-year period. The data strongly support all three predictions.

Examining Full Collateral Coverage in Canada's Large Value Transfer System

The Large Value Transfer System (LVTS) is Canada's main electronic interbank funds transfer system that financial institutions use daily to transmit thousands of payments worth several billions of dollars. The LVTS is different than real-time gross settlement (RTGS) systems because, while each payment is final and irrevocable, settlement occurs on a multilateral net basis at the end of the day. Furthermore, LVTS payments are secured by a collateral pool that mutualizes losses across participants in the event of a default.

In this paper, we use the Bank of Finland Simulator to examine the implications of fully collateralizing LVTS payments, similar to an

RTGS. An important caveat to consider, however, is that the simulations do not take into account the anticipated change in payment behaviour in response to a change in collateral requirements. In this regard, we include a queuing mechanism to at least reflect more efficient use of liquidity. The results indicate that collateral requirements vary by participant and some participants actually require less collateral in the simulation than what is required under the current LVTS design.

Managerial Compensation Duration and Stock Price Manipulation

I build a model of optimal managerial compensation where managers each have a privately observed propensity to manipulate short-term stock prices. It is shown that this informational asymmetry reverses some of the conventional wisdom about the relationship between reliance on short-term pay and propensity to manipulate. The optimal compensation scheme features a negative relationship between pay duration and manager manipulation activity, reconciling theory with recent empirical findings (Gopalan et al., 2014). Further, the model predicts that managers who spend more resources manipulating short-term stock prices also put more effort into generating longterm firm value.

Risk Sharing the Presence of a Public Good

This paper studies an economy where agents can spend resources on consuming a private good and on funding a public good. There is asymmetric information regarding agents' relative preference for private versus public good consumption. I show how private good consumption should be coordinated across agents within each period to ensure efficient contributions to fund the public good. If agents contributed similar amounts in the past, then coordination takes the form of positively correlated contributions in the current period. If an agent contributed more in the past, then coordination prescribes state-contingent socially wasteful private good consumption in the current period for that agent.

Revisiting National Border Effects in Foreign Trade in Goods of Canadian Provinces

A significant body of empirical studies demonstrates sizable national border effects in foreign trade of Canadian provinces throughout the

1980s and 1990s. This paper revisits and expands the scope of the border effects analysis by estimating the border effect in trade with U.S. states as well as countries in the European Union (EU) and the G 20 using more recent data from 2001–10. Furthermore, we perform the Blinder-Oaxaca nonlinear decomposition (Bauer and Sinning, 2008) to decompose the border effects into various components, including the transaction costs, the tariff and non-tariff measures, and the unexplained component.

Results from the Poisson pseudo-maximum likelihood model show that, compared to existing estimates from the 1980s and 1990s, the size of the border effect in trade between Canadian provinces and U.S. states has declined. The border effects for Canada–EU and Canada–G 20 bilateral trade flows sit at somewhat elevated levels. About a third of the border effects in overall trade with EU and G-20 countries can be attributed to the variables related to transaction costs in foreign trade.

While the significance of tariffs has declined, the prevalence of non-tariff measures seems to be on a rise. That said, we find that the welfare-changing measures combined—tariff and non-tariff measures—play a limited role in explaining the border effects in comparison with the role of transaction costs and the unexplained component.

The Endogenous Relative Price of Investment

This paper takes a full-information model-based approach to evaluate the link between investment-specific technology and the inverse of the relative price of investment. The two-sector model presented includes monopolistic competition where firms can vary the markup charged on their product depending on the number of firms competing. With these changes to the standard two-sector model, both total factor productivity as well as a series of non-technological shocks can impact the high-frequency volatility of the relative price of investment. Utilizing a Bayesian estimation approach to match the model to the data, we find that investment-specific technology can explain at most half of the growth rate of the relative price of investment. Last of all, we compare the benchmark model results with endogenous movement in the relative price of investment to a model where all movement in the relative price of investment is derived exogenously. This is done by allowing technologies across sectors to move together over time. Comparison of these two methods finds that the exogenous approach is incapable of capturing changes in the relative price of investment as found in the data. This paper adds to the growing list of research, like that of Fisher (2009) and Basu et al. (2013), that suggests that the quality-adjusted relative price of investment may be a poor indicator of investment-specific technology.

On the Welfare Cost of Rare Housing Disasters

This paper examines the welfare cost of rare housing disasters characterized by large drops in house prices. I construct an overlapping generations general equilibrium model with recursive preferences and housing disaster shocks. The likelihood and magnitude of housing disasters are inferred from historic housing market experiences in the OECD. The model shows that despite the rarity of housing disasters, Canadian households would willingly give up 5 percent of their non-housing consumption each year to eliminate the housing disaster risk. The evaluation of this risk, however, varies considerably across age groups, with a welfare cost as high as 10 percent of annual non-housing consumption for the old, but near zero for the young. This asymmetry stems from the fact that, compared to the old, younger households suffer less from house price declines in disaster periods, due to smaller holdings of housing assets, and benefit from lower house prices in normal periods, due to the negative price effect of disaster risk.