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BANK OF CANADA

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Ce bulletin mensuel présente les publications les plus récentes des économistes de la Banque. Le rapport inclut des études parues dans des publications externes et les documents de travail du personnel publiés sur le site Web de la Banque du Canada.

PUBLICATIONS

Dans la presse

Jason Allen & Robert Clark & Shaoteng Li & Nicolas Vincent, “Household finances and government programs to alleviate the financial impact of COVID-19”, *Canadian Journal of Economics*, Vol 55(SI): 9-53, mars 2022

Thibaut Duprey & Soheil Baharian & Daniel Rigobon & Artur Kotlicki & Phillip Schnattinger & Thomas R. Hurd, “Business Closures and (Re)Openings in Real-Time Using Google Places: Proof of Concept”, *Journal of Risk and Financial Management*, Vol 15(4), avril 2022

Kim P. Huynh & Anson T.Y. Ho & Lealand Morin & Harry J. Paarsch, “Consumer credit usage in Canada during the coronavirus pandemic”, *Canadian Journal of Economics*, Vol 55(SI): 88-114, mars 2022

Kim P. Huynh & Anson T.Y. Ho & David T. Jacho-Chavez & Alexandra Manta, “Estimating Social Effects in a Multilayered Linear-In-Means Model with Network Data”, *Statistics and Probability Letters*, Vol 183(C), avril 2022

À paraître

Youngmin Park & Audra Bowlus & Émilien Gouin-Bonenfant & Huju Liu & Lance Lochner, “Four Decades of Canadian Earnings Inequality and Dynamics Across Workers and Firms”, *Quantitative Economics*

Edona Reshidi & Maarten Janssen, “Discriminatory Trade Promotions in Consumer Search Markets”, *Marketing Science*

DOCUMENTS DE TRAVAIL DU PERSONNEL

Shota Ichihashi & Byung-Cheol Kim, “Addictive Platforms”, Document de travail du personnel de la Banque du Canada 2022-16

Alejandra Bellatin & Gabriela Galassi, “What COVID-19 May Leave Behind: Technology-Related Job Postings in Canada”, Document de travail du personnel de la Banque du Canada 2022-17

Patrick Alexander & Abeer Reza, “Exports and the Exchange Rate: A General Equilibrium Perspective”, Document de travail du personnel de la Banque du Canada 2022-18

DOCUMENTS D'ANALYSE DU PERSONNEL

Audra Bowlus & Youngmin Park & Chris Robinson, "Contribution of Human Capital Accumulation to Canadian Economic Growth", Document d'analyse du personnel de la Banque du Canada 2022-7

Heng Chen & Walter Engert & Kim Huynh & Daneal O'Habib & Joy Wu & Julia Zhu, "Cash and COVID-19: What happened in 2021", Document d'analyse du personnel de la Banque du Canada 2022-8

Matteo Cacciatore & Dmitry Matveev & Rodrigo Sekkel, "Uncertainty and Monetary Policy Experimentation: Empirical Challenges and Insights from Academic Literature", Document d'analyse du personnel de la Banque du Canada 2022-9

Daniela Balutel & Marie-Hélène Felt & Gradon Nicholls & Marcel Voia, "Bitcoin Awareness, Ownership and Use: 2016–20", Document d'analyse du personnel de la Banque du Canada 2022-10

RÉSUMÉS

Household finances and government programs to alleviate the financial impact of COVID-19

This paper analyzes the effectiveness of debt-relief programs targeting short-run household liquidity constraints implemented in Canada in response to the COVID-19 pandemic. These programs allowed individuals to push off mortgage and credit card payments and cut in half interest rates on credit card debt. Using credit bureau data, we document that, despite potential savings above \$4 billion, enrolment was limited: 24% for mortgages and 7% for credit cards. By exploiting the richness of our data set, we provide evidence that close to 80% of individuals were unaware of the credit card relief program while others faced important fixed non-monetary costs preventing uptake.

Business Closures and (Re)Openings in Real-Time Using Google Places: Proof of Concept

We present a new estimation of business opening and closure rates using data from Google Places—the data set behind the Google Maps service. Our algorithm, through a bisection routine, counts the appearance and disappearance of “pins” that represent unique businesses. As a proof of concept, we compute business opening and closure rates for the city of Ottawa during the reopening phase of the COVID-19 pandemic in mid-2021. The lifting of restrictions coincides with a wave of re-entry of temporarily closed businesses, suggesting that government support may have facilitated the survival of hibernating businesses. Our entry estimates are validated by a survey of new businesses. This methodology allows policymakers to monitor business dynamics in quasi-real-time during rapidly unfolding crises.

Consumer credit usage in Canada during the coronavirus pandemic

The recent COVID-19 pandemic has devastated economies worldwide. Using detailed, monthly data from a major consumer credit reporting agency in Canada, we have examined individuals' use of credit cards and home-equity lines of credit (HELOCs). We found a dramatic leftward shift in the distribution of credit card and HELOC outstanding balances, providing evidence for a widespread reduction in credit usage. Our findings suggest that, during the COVID-19

recession, Canadian consumers were able to meet their financial needs without increasing their debt burdens. These results complement other findings concerning a decline in consumer spending and the results of government assistance programs, and imply that the economic consequences of this pandemic are very different from those in other recessions.

Estimating Social Effects in a Multilayered Linear-In-Means Model with Network Data

This paper studies the identification and estimation of social parameters in a general version of the Linear-in-Means model commonly fitted in the Social Sciences with multilayered network data. A Monte Carlo exercise showcases its good small-sample properties while an empirical application to Canadian consumers' credit usage demonstrates its applicability. Our estimates show that one's credit-card balance increases by \$0.31 for an extra \$1 owed by surrounding neighbors.

Four Decades of Canadian Earnings Inequality and Dynamics Across Workers and Firms

This paper studies the evolution of individual earnings inequality and dynamics in Canada from 1983 to 2016 using tax files and administrative records. Linking these individuals to their employers (and rich administrative records on firms) beginning in 2001, it also documents the relationship between the earnings dynamics of workers and the size and growth of their employers. It highlights three main patterns over this period: First, with a few exceptions (sharp increase in top 1% and declining gender gap), Canada experienced relatively modest changes in overall earnings inequality, volatility, and mobility between 1983 and 2016. Second, there is considerable variability in earnings inequality and volatility over the business cycle. Third, the earnings dynamics of individuals are strongly related to the size and employment growth of their employers.

Discriminatory Trade Promotions in Consumer Search Markets

This paper shows that in consumer search markets discriminatory trade promotions create more profits for manufacturers than uniform pricing. The mechanism relies on consumers having heterogeneous search cost and applies even if they have identical demand. By giving some, but not all, retailers a trade promotion, manufacturers create more competition between retailers and boost demand. Relative to uniform pricing retailers who receive the trade promotion sell to a

disproportionately larger share of low search cost consumers who are more price-sensitive making these retailers compete stronger. Retailers that do not receive the trade promotion lower their margins as well as they serve a smaller customer base and are keen to prevent more consumers from leaving.

Addictive Platforms

Dans cette étude, les auteurs se penchent sur la concurrence que se livrent les plateformes pour retenir l'attention des consommateurs, parfois au détriment de la qualité. Les plateformes peuvent choisir le degré de « dépendance » à leurs services. Sur une plateforme qui crée une plus grande dépendance, le consommateur retire une utilité moindre d'interagir avec le contenu offert, mais une plus grande utilité marginale d'y consacrer de l'attention. Les auteurs décrivent les conditions dans lesquelles une concurrence accrue peut nuire aux consommateurs en encourageant les plateformes à offrir des services de faible qualité. Plus précisément, si une plateforme capte très peu l'attention des consommateurs, une concurrence accrue fera baisser la qualité de ses services parce que, pour s'emparer d'une plus grande part de marché, la plateforme sera incitée à augmenter son degré de dépendance. En limitant l'utilisation des plateformes, on peut réduire la dépendance et améliorer le bien-être des consommateurs. L'offre de services payants peut aussi créer une moins grande dépendance.

What COVID-19 May Leave Behind: Technology-Related Job Postings in Canada

We use data from online job postings listed on a job board to study how the demand for jobs linked to new technologies during the COVID-19 crisis responded to pandemic mitigation policies. We classify job postings into a standard occupation classification, using text analytics, and we group occupations according to their involvement in the production and use of digital technologies. We leverage the variation in the stringency of containment policies over time and across provinces. We find that when policies become more stringent, job postings in occupations that are related to digital infrastructure that allow for remote work fare relatively better than postings in more traditional occupations. Job postings for positions in occupations with low risk of automation recover faster during reopenings than postings for more traditional occupations. Occupations typically populated by disadvantaged groups (e.g., women and low-wage workers) post relatively few job postings if they

are not linked to new technologies. We also find that cities with scarce pre-pandemic job postings related to digital technologies post fewer job ads overall when policies become more stringent.

Exports and the Exchange Rate: A General Equilibrium Perspective

Understanding and predicting the evolution of exports after a change in the nominal exchange rate is of central importance in international economics. Most of the literature focuses on estimating this relationship by reduced form, with the aim of uncovering a single structural parameter, but theory suggests it could differ depending on the shock that drives the movement in the exchange rate. Building on this insight, we develop a small-open-economy SVAR model to derive structural shocks that affect the exchange rate. We then estimate this model using Canadian data and construct the response of exports relative to the response of the exchange rate, conditional on each shock. Our findings suggest that this relationship differs greatly from one shock to another, where domestic shocks generate a much weaker relationship than global shocks. We show that these differences can be reconciled with theoretical results from a small-open-economy New Keynesian model where Canadian exports are largely invoiced in US dollars. Finally, we highlight how our results help to inform recent discussions on the evolution of the exchange rate elasticity over time, the benefits of a flexible exchange rate, and the impact of terms of trade movements on exports.

Contribution of Human Capital Accumulation to Canadian Economic Growth

Dans cette étude, nous quantifions la contribution de l'accumulation du capital humain à la croissance du produit intérieur brut (PIB) réel au Canada. La croissance du PIB est décomposée en quatre éléments : le capital physique, le nombre d'heures travaillées, le capital humain fourni par heure, et la productivité totale des facteurs. En recourant à une stratégie d'identification des « plateaux », nous estimons séparément le prix du capital humain et sa quantité à partir des données sur les salaires tirées de l'Enquête sur la population active. Pour la période allant de 1997 à 2018, nous constatons que la croissance du capital humain fourni par heure explique environ un cinquième de la croissance du PIB et deux tiers du résidu de Solow. Même si on s'attend à ce que la croissance des heures travaillées ralentisse dans un avenir rapproché, le capital humain fourni par

heure devrait continuer d'être un moteur important de la croissance du PIB.

Cash and COVID-19: What happened in 2021

We provide an update on the impact the COVID-19 pandemic on the demand for cash and the use of methods of payment based on data from the Bank Note Distribution System and from consumer surveys conducted in April and August 2021. Our key findings are as follows:

- Cash in circulation remained high throughout 2021, driven mainly by demand for largedenomination notes.
- Canadians' holdings of cash on hand in April (median \$70) and August (median \$80) were comparable to results seen in 2020. Other cash holdings reported by Canadians remained elevated, with a median value of \$260 in August.
- In August 2021, 62% of Canadians used cash for payments, and indicators of merchant acceptance of cash improved in both the April and August surveys.
- A large majority of Canadians (around 80%) in 2021 continued reporting that they have no plans to go cashless in the next five years.

Uncertainty and Monetary Policy Experimentation: Empirical Challenges and Insights from Academic Literature

Les banques centrales font face à une incertitude considérable dans la conduite de la politique monétaire. Cela s'explique notamment par les limites des données économiques, par l'impossibilité d'observer certaines variables macroéconomiques clés comme la production potentielle, par les changements structurels de l'économie et par les désaccords sur le choix du modèle adéquat pour la transmission de la politique monétaire. Parallèlement, la politique monétaire est influencée par divers types d'incertitude, tels le manque ou l'observation imparfaite de variables économiques, les changements économiques structurels et les possibles erreurs de spécification dans l'utilisation des modèles. Nous nous appuyons sur la littérature spécialisée pour examiner quelques-unes des principales sources d'incertitude et leur incidence sur la conduite de la politique monétaire. D'abord, nous analysons les informations disponibles sur les délais de diffusion des données économiques et les révisions qui y sont apportées. Nous nous penchons aussi sur l'incertitude entourant la mesure de variables non observables comme l'écart de

production et le taux de chômage naturel. Le degré d'arbitrage entre ces mesures des capacités excédentaires et l'inflation – la pierre angulaire de la politique monétaire – est lui-même réévalué constamment. Ensuite, les études montrent que la conduite optimale de la politique monétaire peut devenir plus ou moins réactive aux chocs économiques selon la source d'incertitude. En outre, chercher à dissiper l'incertitude en procédant à des expérimentations de la politique monétaire donne généralement peu de résultats, mais la démarche peut s'avérer plus utile dans le contexte d'une importante transformation structurelle ou après des chocs sans précédent.

Bitcoin Awareness, Ownership and Use: 2016–20

Since 2016, the Bank of Canada has conducted annual surveys to monitor awareness, adoption and usage of Bitcoin and other cryptocurrencies (Henry et al. 2018, 2019a, 2019b). This report incorporates results from the 2019 Bitcoin Omnibus Survey and the November 2020 Cash Alternative Survey. We find that between 2018 and 2020, the level of Bitcoin awareness and ownership among Canadians remained stable: nearly 90% of the population were aware of Bitcoin, while only 5% owned it. We find that about half of Bitcoin owners stated they usually obtained their bitcoins through mobile or web exchanges, while one-fifth used mining. Bitcoin owners were susceptible to certain risks, as evidenced by the fact that about half of current and past owners stated they had been affected by events such as price crashes, losing access to funds, scams or data breaches. The most commonly cited reasons for owning Bitcoin were related to its use for investment or based on interest in the technology. Bitcoin owners displayed greater knowledge about the Bitcoin network than nonowners, yet they scored lower on questions testing financial literacy.

ÉVÉNEMENTS À VENIR

***Toutes conférences et activités qui devaient être tenues sur place sont suspendues jusqu'à nouvel ordre. Tous les événements ci-dessous auront lieu en ligne.**

Jeremy Bertomeu (Washington University in St. Louis)
Organisateur: FMD FSD/EFR Conférencier
Date: 14 avril 2022

Nora Traum (HEC Montréal)
Organisateur: EFR CEA/INT Conférencier
Date: 22 avril 2022

Kjetil Storesletten (University of Minnesota)
Organisateur: EFR CEA/INT Conférencier
Date: 26 avril 2022

José-Luis Peydró (Imperial College London)
Organisateur: FMD FSD/EFR Conférencier
Date: 28 avril 2022

Lorenzo Magnolfi (University of Wisconsin-Madison)
Organisateur: BAP Conférencier
Date: 2 mai 2022

Federico Huneeus (Central Bank of Chile)
Organisateur: FMD FSD/EFR Conférencier
Date: 5 mai 2022

Thomas Le Barbanchon (Bocconi University)
Organisateur: INT CEA/EFR Conférencier
Date: 6 mai 2022

Robert Clark (Queen's University)
Organisateur: BAP Conférencier
Date: 9 mai 2022

Rachel Ngai (London School of Economics)
Organisateur: FMD FSD/EFR Conférencier
Date: 12 mai 2022