

# Peter MacKenzie

Economics PhD Candidate

Toronto, ON, Canada

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## Education

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**York University**, Toronto, ON, Canada

Sep 2020 – Expected May 2025

Ph.D. in Economics

Specialization: Econometrics

Advisor: Prof. Joann Jasiak

**Saint Mary's University**, Halifax, NS, Canada

Sep 2019 – Aug 2020

Master of Applied Economics

Honors: Dean's List, Master's Scholarship Recipient

**St. Francis Xavier University**, Antigonish, NS, Canada

Sep 2015 – May 2019

Bachelor of Arts in Economics (Minor in Mathematics)

## Research Fields

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Econometrics, Applied Econometrics

## PUBLICATIONS

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### Publications

- Lwin, K., Hoagland, A., Antwi-Boasiako, K., MacKenzie, P., & Fallon, B. (2022). "Examining the Role of Child Welfare Worker Characteristics in Their Substantiation Decision." *Child Abuse and Neglect*.

### Submitted

- Jasiak, J., MacKenzie, P., & Tuvaandorj, P. (2023). "Digital Divide: Empirical Study of CIUS 2020." *Canadian Journal of Economics*. (Second Revise and Resubmit)

### Working Papers

- MacKenzie, P. "Independence of Irrelevant Alternatives in the Multinomial Logit Model: A Simulation Study."
- Jasiak, J., MacKenzie, P., & Tuvaandorj, P. (2024). "Digital Adoption and Cybersecurity: An Analysis of Canadian Businesses."
- Mishra, S., Duvvury, N., Fallon, B., MacKenzie, P., & Essue, B. M. (2023). "The Cost of Gender-Based Violence and Childhood Victimization in Canada."

## CONFERENCE PRESENTATIONS

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**Canadian Econometrics Study Group Conference – Poster Presentation**, Toronto, ON, Canada 2024  
"Digital Adoption and Cybersecurity: An Analysis of Canadian Businesses"

**Canadian Economics Conference – Econometrics Session**, Toronto, ON, Canada 2024  
"Digital Adoption and Cybersecurity: An Analysis of Canadian Businesses"

<b>Bank of Canada Seminar Presentation</b> , Ottawa, ON, Canada <i>“Digital Divide: Empirical Study of CIUS 2020”</i>	May 2023
<b>Canadian Econometrics Study Group Conference – Poster Presentation</b> , Hamilton, ON, Canada <i>“Digital Divide: Empirical Study of CIUS 2020”</i>	2023
<b>Canadian Economics Conference – Bank of Canada Session</b> , Winnipeg, MB, Canada <i>“Digital Divide: Empirical Study of CIUS 2020”</i>	2023
<b>Atlantic Canada Economics Conference</b> , Halifax, NS, Canada <i>“Digital Divide: Empirical Study of CIUS 2020”</i> Recipient of Best Student Presentation Award	2022
<b>Center for Quantitative Risk Analysis (CEQURA) Conference</b> , Online <i>“Digital Divide: Empirical Study of CIUS 2020”</i>	2022

## Professional Experience

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<b>Bank of Canada</b> , Ottawa, ON, Canada <i>Economics PhD Intern</i>	Oct 2024 – Present
<ul style="list-style-type: none"> <li>Analyzed the Canadian Financial Monitoring Survey using advanced econometric techniques.</li> <li>Developed survey weights and performed statistical analysis in R.</li> <li>Presented findings to senior economists.</li> </ul>	
<b>University of Toronto</b> , Toronto, ON, Canada <i>Data Analyst</i>	Jul 2022 – Feb 2024
<ul style="list-style-type: none"> <li>Conducted data analysis for Social Work and Health Economics projects.</li> <li>Co-authored a paper published in a high-impact journal.</li> </ul>	
<b>York University</b> , Toronto, ON, Canada <i>Research Assistant</i>	Jan 2022 – Present
<ul style="list-style-type: none"> <li>Investigated the impact of central bank digital currencies on financial inclusion.</li> <li>Co-authored a paper under revision for <i>Canadian Journal of Economics</i>.</li> </ul>	
<b>York University</b> , Toronto, ON, Canada <i>Teaching Assistant</i>	Jan 2021 – Present
<ul style="list-style-type: none"> <li>Assisted in courses: Financial Econometrics, Public Economics, Econometrics, and Mathematical Economics.</li> </ul>	
<b>Statistics Canada</b> , Ottawa, ON, Canada <i>Deemed Employee</i>	Jan 2022 – Present
<ul style="list-style-type: none"> <li>I hold reliability status security clearance.</li> <li>Access to confidential datasets at Statistics Canada research data centres.</li> </ul>	

## Awards and Honors

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<b>Mitacs Accelerate Grant with Bank of Canada</b>	2024
<b>Best Student Presentation Award</b> , Atlantic Canada Economics Conference	2022
<b>York PhD Fellowship</b>	2020
<b>Master’s Scholarship</b>	2019

## Skills

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**Programming:** R, Python, Stata, MATLAB, SAS, SQL

**Econometric Techniques:** Survey Data, Panel Data, Time Series, IV Estimation

**Other:** Excel, L<sup>A</sup>T<sub>E</sub>X, Microsoft Office Suite

## Job Market Paper

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### “Digital Divide: Empirical Study of CIUS 2020”

*Abstract:* As Canada and other major economies consider implementing “digital money” or Central Bank Digital Currencies, understanding how demographic and geographic factors influence public engagement with digital technologies becomes increasingly important. This paper uses data from the 2020 Canadian Internet Use Survey and employs survey-adapted Lasso inference methods to identify individual socio-economic and demographic characteristics determining the digital divide in Canada. We also introduce a score to measure and compare the digital literacy of various segments of Canadian population. Our findings reveal that disparities in the use of e.g. online banking, emailing, and digital payments exist across different demographic and socio-economic groups. In addition, we document the effects of COVID-19 pandemic on internet use in Canada and describe changes in the characteristics of Canadian internet users over the last decade.

## Published

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### “Examining the role of child welfare worker characteristics and the substantiation decision”

*Abstract:*

**Background:** The role of child welfare workers is twofold, to promote the safety of children and youth and to address their wellbeing. This provincially legislated mandate requires child welfare workers to make decisions across the child welfare service continuum. After a report of child maltreatment is investigated, workers are required to assess the veracity of the allegation through the substantiation decision and to determine whether the child has been victimized, which may impact on families’ future involvement with services. Little is known whether or how individual worker characteristics impact the substantiation decision. **Objective and methods:** This study estimated the degree of variation across caseworker characteristics in the substantiation decision through secondary data analysis of the Ontario Incidence Study of Reported Child Abuse and Neglect (OIS, 2018). We explored how the substantiation decision varied across clinical and caseworker characteristics, using both simple and multilevel logistic regression models. **Results:** Findings suggest that primarily clinical characteristics predicted the substantiation decision, however, worker years of child welfare experience also predicted substantiation, such that more experienced workers were significantly more likely to substantiate than less experienced workers (est = 0.02, SE = 0.01,  $p < .10$ ). The Intraclass Correlation Coefficient (35 %) suggests differences among child welfare workers’ substantiation decision, they are however, characteristics not measured in this study. **Conclusions:** Further research to assess the differential nature of child welfare worker characteristics and their role in decision-making is required.

## Working Papers

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### “Digital Adoption and Cyber Security: An Analysis of Canadian Businesses”

*Abstract:*

This study investigates the adoption of digital technologies and cybersecurity measures by Canadian firms, focusing on the balance between technological advancement and cybersecurity risks. We explore the extent of digital technology adoption, its variation across industries, its impact on productivity, the trade-off with cybersecurity, and the firm characteristics linked to technological efficiency and cybersecurity

measures. Using data from Statistics Canada’s 2021 Canadian Survey of Digital Technology and Internet Use, as well as the 2021 Canadian Survey of Cyber Security and Cybercrime, we develop a Business Digital Usage Score to evaluate digital technology adoption rates. Additionally, a novel survey-weight-adjusted Lasso estimator for high-dimensional logit models identifies the firm-level factors linked to cybersecurity breaches. The findings uncover a significant digital divide among Canadian firms, driven by differences in size, industry, and select firm characteristics. They also highlight the risks of adopting digital technologies too rapidly, as technological efficiency and cybersecurity practices vary greatly across firms and industries.

## **“Independence of Irrelevant Alternatives in the Multinomial Logit Model : A Simulations Study”**

### **Abstract :**

This study develops a debiased lasso multinomial logit (MNL) estimator within the Hausman-McFadden (HM) test framework to improve the test’s performance in high-dimensional settings. The HM test, a key tool for assessing the Independence of Irrelevant Alternatives (IIA) assumption in MNL models, faces challenges in models with large numbers of predictors and diverse variable types. Simulations designed to replicate real-world research conditions are used to evaluate the HM test under varying sample sizes, predictor types, and model complexities. Results show that the debiased lasso estimator enhances the accuracy of the HM test by addressing issues related to size distortion and overfitting in high-dimensional models, while maintaining robustness across continuous and categorical predictors. Larger sample sizes are shown to improve test reliability, though persistent challenges remain when working with complex models.

## **References**

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### **Joann Jasiak, PhD**

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Department of Economics, York University  
Toronto, ON, Canada  
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Phone: (416) 736-2100

### **Purevdorj (Pujee) Tuvaandorj, PhD**

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Department of Economics, York University  
Toronto, ON, Canada  
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### **Barbara Fallon, PhD**

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Work, University of Toronto  
Toronto, ON, Canada  
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