Course Outline
Economics 446
Advanced Public Economics

Professor Michael Smart
msmart@chass.utoronto.ca
twitter: @michaelgsmart
office hour: W2-3, via zoom

TA: Derek Thiele
derek.thiele@mail.utoronto.ca
office hours TBD

Introduction

For this course, you will write a paper on some aspect of the economics of public policy, using quantitative data. The objective of the course is to learn how economists formulate and test ideas, to learn about public policy, and to enhance your skills in working with data. Working in groups of up to 4 students, you will tackle a specific public policy issue (see the list below), and use recent Canadian data to answer some key questions that you will develop based on the suggestions below.

Your group will conduct original research, but you will be guided by the questions, approaches, and empirical methods that were used in an existing, published research paper. *Replication* is the scientific practice of repeating the research of other researchers and comparing your results to theirs. Your project will be a partial replication exercise: you should use the published paper as your guide and attempt to produce results analogous to some of those in the published paper. But you will use different (more recent, Canadian) data, and you can be creative in your research, extending it in new and different directions.

Most of these questions can be answered with simple data sets and ordinary least squares regression techniques. However, it is also important to understand your data before performing regressions. Simple descriptive statistics and data visualizations should be an important part of every group's paper. (In some cases, a good paper could be written with descriptive statistics alone, without using regression methods at all.) If you develop your ideas, do some reading, and do some hands-on work with data, then you can expect to have fun, learn something, and succeed in this course!

Software and Supplementary Readings

Computer tutorials will be conducted using Stata. You should acquire and install it on your computer by week 2 of the course. I recommend Stata/IC. A good basic introduction to Stata with links to many additional resources is at data.princeton.edu/stata. For more advanced usage, see Kit Baum's Introduction to Stata. For more Stata resources, see www.stata.com/links.

The recommended textbook is: Scott Cunningham, 2021. Causal Inference: The Mixtape.

You should read the chapters relevant for your project. Two good alternative textbooks:

> Wooldridge, J.M., 2015. *Introductory econometrics: A modern approach*. Nelson Education.
> Angrist, J.D. and Pischke, J.S., 2014. *Mastering 'metrics: The path from cause to effect*. Princeton University Press.

Assignments

You will prepare short written and oral reports throughout the term as follows:

1. Individual research proposal (2-3 pages, one per student): A brief report that indicates in your own words: (i) your topic, including a clearly stated research question to be answered by your empirical work; (ii) data sources for your empirical analysis; (iii) a short list of published research papers you intend to read and draw on for your work.
   Due: Week 4, Monday. Points: 7

2. Group proposal and work plan (3 pages, one per group): Write a brief research proposal based on the individual proposals above. Identify the key tasks for your project, including literature review, obtaining data, and planned tables and figures for your paper. Each group will identify one student with primary responsibility for each of these tasks:
   a) team coordinator
   b) assembling and cleaning data sets
   c) data visualizations, including graphs and maps as appropriate
   d) data analytics, including regressions and writing results section (2 names – specify separate tasks)
   e) presentations coordinator
   f) final editor of paper

   (Tasks will overlap and be shared as appropriate, but one student must have primary responsibility for each. Your grades will have both a team and individual component.) The work plan must identify a student for each task on this list, and if you trade tasks you should inform me as soon as possible.
   Due: Week 4, Friday. Points: 3

3. Peer evaluation (1 page, one per student): Each student will be assigned to read the research proposal and work plan of one other group and submit brief comments and evaluation. A rubric will be provided.
   Due: Week 5, Thursday. Points: 2

4. Class presentation #1 (one per group): Prepare a 10-minute presentation on your policy questions and the key paper that will guide your work. Elect 1-2 students from the group to speak. A class discussion will follow each presentation.
   Due: Weeks 5-6. Points: 10

5. Literature class presentation (one per student): Following the group presentation, each student will talk for 3 minutes about one paper relevant to their project. Present key methods and key results. Explain how it is relevant to your own project.
   Due: Week 5. Points: 5

6. Literature review (1-2 pages, one per student): Each student writes a summary of the guiding paper for your topic (marked below with *) plus one other paper. If you choose. paper not on the list provided, get approval first. A brief summary of what the papers say, their methodology and key results, implications for your key research question, and how their methods relate to your own empirical strategy. Students should share their drafts with others in the group in advance and learn from each other.

Due: Week 5, Thursday. Points: 15

7. Preliminary empirical results (2-3 pages, one per group): A document showing your main empirical strategy (for example, a regression equation) and one table of empirical results (e.g. variable means, crosstabs, or preliminary regression estimates). Attach stata do and log files.
   Due: Week 9. Points: 3

8. Class presentation #2: Come to class for a short, informal presentation of your ideas and preliminary results (20 minutes maximum). A class discussion will follow each presentation. At least 2 and no more than 3 students should speak, and each team member should speak during Presentation #1 or #2.
   Due: Weeks 11 and 12. Points: 10

9. Final paper (approx. 20 pages): A complete paper including introduction with clearly stated research objectives, literature review based on your earlier submissions, description of data and empirical strategy, and empirical results. Attach stata do and log files. **Fifty percent of your mark will depend on the part of the project you are primarily responsible for, and 50 percent will be assigned to all based on the overall assessment. Each group must attach a "Project Team Description" section that specifies who did what.**
   Due: Week 13, Monday. Points: 35

The remainder of points will be assigned for participation in class discussions. Assignments submitted late will be assigned a penalty of 10% per week.

Use of Quercus for collaborations

Whenever possible, use Quercus to share notes and communicate with group members. Your team coordinator is responsible for uploading the following documents to your Quercus group page:

- Google sheet listing team members and their primary responsibilities
- Google sheet listing tasks and their completion dates
- Collaborate page for chat

Note that **your class participation score will be based on your activity within your Quercus group page**.

Finances of the Nation

The Finances of the Nation project assembles research data sets on public policies in Canada. Some of these data may be useful for your work – e.g. on tax rates, income distribution, and government revenue and expenditure in Canada. Finances of the Nation also produces short research reports on public policy. Students producing the best paper in Economics 446 this year will be invited to write a summary of their work for publication on FinancesoftheNation.ca. **FON hires summer interns; if you are interested in applying, contact me.**

Schedule

There are no regular lectures after week 3. Instead, we will use scheduled class time for guided group work and student presentations, as follows (precise schedule for group presentations to be determined):

Week 1: Introduction + Computer Lab: : Introduction to Stata
Week 2: Empirical public policy analysis (READ LECTURES NOTES IN ADVANCE)
+ Computer Lab: Introduction to data analysis
Week 3: Empirical public policy analysis + Guided Group Work
Week 4:: Guide Group Work: Bring your computer
Week 5: Class Presentation #1: Research Proposal and Literature review
Week 6: Class Presentation #1: Research Proposal and Literature review (continued)
Week 7: Guided Group Work: Bring your computer
Week 8: Guided Group Work: Bring your computer
Week 9: Progress Report: Be prepared to discuss your preliminary results with the class
Week 10: Progress Report: Be prepared to discuss your preliminary results with the class
Week 11: Class Presentation #2: Preliminary results
Week 12: Class Presentation #2: Preliminary results (continued)

Plagiarism detection

Normally, students will be required to submit their course assignments to the University's plagiarism detection tool website for a review of textual similarity and detection of possible plagiarism. In doing so, students will allow their material to be included as source documents in the University's plagiarism detection tool reference database, where they will be used solely for the purpose of detecting plagiarism. The terms that apply to the University's use of the University's plagiarism detection tool service are described on the company web site.

Topics

Choose a project to work on. Sign up via quercus beginning Wednesday of week 1 at 9 am. The topics are described below. For most of the projects, two separate teams will be assigned. You may share ideas with another group assigned to your topic, but be aware that you will be assessed in part compared to each other's performance. There is a maximum 4 students permitted in each group.

1. E-cigarette taxes and smoking

   Issues: E-cigarette (or vaping) products may be unhealthful, but they are also recognized as a nicotine replacement product that may reduce traditional cigarette smoking and its attendant greater health harms. Recently, several provinces have introduced new taxes and regulations to limit e-cigarette use. Are these policies desirable, or not?

   Research objectives: Use microdata from the Canadian Tobacco and Nicotine Survey to understand who vapes (e.g. by age) and why they vape. Examine the 2020 introduction of a 20% tax on vaping products in British Columbia (and later introduction in other provinces). Did this lead to a reduction in reported vaping? A rise in traditional cigarette smoking? Use difference-in-difference and/or synthetic control regression methods. On balance, what are the effects of taxes on public health and consumer welfare?

   Team roles: Microdata assembly, regression analysis, data visualization, writing/editing

   Key papers:

   - *Abouk, R., et al., 2022. Intended and unintended effects of e-cigarette taxes on youth tobacco use. *Journal of Health Economics*, p.102720.
   - Irvine, I. and Hampsher, S., 2022. Early Indications of Consumer Responses to Canada's Nicotine Limits on E-Cigarettes. *BOTEC Analysis for the Foundation for a Smoke-Free World* April.
   - Saffer, H., Dench, D., Grossman, M. and Dave, D., 2020. E-cigarettes and adult smoking: evidence from Minnesota. *Journal of risk and uncertainty*, *60*(3), pp.207-228.
   - Friedman, A.S. and Pesko, M.F., 2022. Young adult responses to taxes on cigarettes and electronic nicotine delivery systems. *Addiction*, *117*(12), pp.3121-3128.
   - Hammond, D., Reid, J.L., Burkhalter, R. and Rynard, V.L., 2020. E-cigarette marketing regulations and youth vaping: cross-sectional surveys, 2017–2019. *Pediatrics*, *146*(1).
   - Brill, A., Satel, S. and Viard, A.D., 2014. Should E-Cigarettes Be Taxed?. *Tax Notes*, *143*(2).
   - Abadie, A., 2021, "Using Synthetic Controls: Feasibility, Data Requirements, and Methodological Aspects," *Journal of Economic Literature* 59, 391-425. https://economics.mit.edu/files/17847

   Aggregate data sources:

   - Cigarette prices: Consumer Price Index, annual average, not seasonally adjusted
   - Cigarette sales 2001-2017 and Cigarette sales, 1980-2014
   - Tobacco tax rates: University of Waterloo (2009). Tobacco Use in Canada: Policy Supplement. See also Worrell (2021) and Tobacco tax revenue by province, Finances of the Nation
   - Vaping and e-cigarette regulation across Canada, CBC.ca, Oct. 18, 2019.
   - BC tax regulations

   Micro data sources:

   - Canadian Tobacco, Alcohol and Drugs Survey and Canadian Tobacco and Nicotine Survey
   - Canadian Student Tobacco, Alcohol and Drugs Survey

2. Gasoline taxes, gasoline prices, and mobility

Issues: Recently, several provinces in Canada sharply reduced motor fuel taxes in response to the high world energy prices. What was the incidence of the tax changes: Was it passed on to retail prices? What were the effects of the change on fuel consumption and driving behaviour?

Research objectives: Describe patterns of gasoline taxation across provinces and over time. How important are carbon and excise taxes to consumer prices, now and in the past? Estimate impact of gasoline tax changes on retail prices using monthly or weekly data. Use difference-in-difference of regression discontinuity methods. Estimate impact of price and tax changes on monthly fuel consumption and daily or mobility data.

Key papers:

- *Harju, J., Kosonen, T., Laukkanen, M. and Palanne, K., 2022. The heterogeneous incidence of fuel carbon taxes: Evidence from station-level data. *Journal of Environmental Economics and Management*, *112*, p.102607.
- Erutku, C. and Hildebrand, V., 2018. Carbon tax at the pump in British Columbia and Quebec. *Canadian Public Policy*, *44*(2), pp.126-133.
- Rivers, N. and Schaufele, B., 2015. Salience of carbon taxes in the gasoline market. *Journal of Environmental Economics and Management*, *74*, pp.23-36.
- Coglianese, J., Davis, L.W., Kilian, L. and Stock, J.H., 2017. Anticipation, tax avoidance, and the price elasticity of gasoline demand. *Journal of Applied Econometrics*, *32*(1), pp.1-15.
- Antweiler, W. and Gulati, S., 2016. Frugal cars or frugal drivers? How carbon and fuel taxes influence the choice and use of cars. Working Paper.
- Andersson, J.J., 2019. Carbon taxes and CO 2 emissions: Sweden as a case study. *American Economic Journal: Economic Policy*, *11*(4), pp.1-30.
- Davis, L.W. and Kilian, L., 2011. Estimating the effect of a gasoline tax on carbon emissions. *Journal of Applied Econometrics*, *26*(7), pp.1187-1214.

Data sources:

- Monthly average retail prices for gasoline
- Weekly prices tax taxes by city and week: Contact me for the data
- Google mobility data by city and day: Contact me for the data

3. The regulation of cannabis

Issues: In some provinces (e.g. Quebec, BC), cannabis sales are permitted only in government stores whereas in others (e.g. Ontario, Alberta), private sales are permitted. Researchers have hypothesized that restricting drug sales might reduce use and attendant harms, such as health and crime impacts. Does government control of cannabis matter in Canada?

Research objectives: Compare growth of cannabis outlets in government-only and mixed-sales provinces. Use drug-use survey microdata to estimate the impact on cannabis use. Use crime and hospitalization statistics to estimate impact on adverse outcomes. Use data from Ontario municipalities with/without cannabis retailers to estimate crime impacts at the local level.

Team roles: Legislation review, literature review, Microdata assembly, other data assembly, regression analysis, mapping, writing/editing

Key papers:

- *Armstrong, M.J., 2021. Relationships between increases in Canadian cannabis stores, sales, and prevalence. *Drug and Alcohol Dependence*, *228*, p.109071.
- Myran, D.T., et al., 2022. Unintentional pediatric cannabis exposures after legalization of recreational cannabis in Canada. *JAMA network open*, *5*(1), pp.e2142521-e2142521.
- Cannabis use and risks of respiratory and all-cause morbidity and mortality: a population-based, data-linkage, cohort study, *BMJ Open Respiratory Research* (2022).
- Hunt, P., Pacula, R.L. and Weinberger, G., 2018. High on crime? Exploring the effects of marijuana dispensary laws on crime in California counties. Working Paper, IZA.
- Anderson, D.M. and Rees, D.I., 2021. The public health effects of legalizing marijuana (No. w28647). National Bureau of Economic Research.
- Myran, D.T., et al., 2019. The association between alcohol access and alcohol-attributable emergency department visits in Ontario, Canada. *Addiction*, *114*(7), pp.1183-1191.

Data sources:

- Health Canada, Cannabis in the provinces and territories and Authorized cannabis retailers in the provinces and territories
- Canadian Tobacco and Nicotine Survey, 2019-21, and Canadian Alcohol and Drugs Survey, 2019
- Discharge Abstract Database (especially codes F12 and T407)
- Statistics Canada, Crime severity index and Incident-based crime statistics
- Hospital admissions for cannabis use
- AGCO, Cannabis and List of Ontario municipalities prohibiting or allowing cannabis retail stores
- Detailed household final consumption expenditure, provincial and territorial, annual (for cannabis expenditures)
- National cannabis survey

4. Immigration and housing

   Issues: There is increasing concern that immigration (including temporary workers and students) has led to an increase in housing costs in major Canadian cities. Recently, the federal government has announced caps on new international student permits, with the intent of reducing rental housing demand. What evidence is there that immigration has affected tightness in the housing market, and what will be the effects of the cap?

   Research objectives: Use the methods in Ley and Tutchener (2001) and modern data to estimate the association between immigration, rental vacancies, rents and house prices in CMAs. Is this association likely to be causal? Study the effect of the 2024 study permit caps on schools and cities in Canada. What has been the effect on rental markets so far?

   Papers:

   - Ley, D. and Tutchener, J., 2001. Immigration, globalisation and house prices in Canada's gateway cities. *Housing Studies*, *16*(2), pp.199-223.
   - Akbari, A.H. and Aydede, Y., 2012. Effects of immigration on house prices in Canada. *Applied Economics*, *44*(13), pp.1645-1658.
   - Helfer, F., Grossmann, V. and Osikominu, A., 2023. How does immigration affect housing costs in Switzerland?. *Swiss Journal of Economics and Statistics*, *159*(1), p.5.
   - Saiz, A., 2003. Room in the kitchen for the melting pot: Immigration and rental prices. *Review of Economics and Statistics*, *85*(3), pp.502-521.

   Data Sources:

   - Statistics Canada:
     - New House Price Index, monthly
     - Components of population change by census metropolitan area, annual
     - Average rents for areas with population 10,000 and over, annual
     - Other CMHC data on housing starts, rental vacancies, etc.
   - Study permits:
     - Temporary Residents: Study Permit Holders by Institution
     - Temporary Residents: Study Permit Holders by City, 2015-2018
   - Note: Use official StatCan rent data, in addition to any other data downloaded from Urbanation or other commercial providers