

**National University of Singapore  
Lee Kuan Yew School of Public Policy**

**PP5407 QUANTITATIVE RESEARCH METHODS FOR PUBLIC POLICY – II**  
January – May 2019

<b>Class Meetings</b>			
<b>Plenary Sessions:</b>	Tues	9:00 AM – 12:00 PM	SR 3-3 (Group A)
	Wed	9:00 AM – 12:00 PM	SR 3-3 (Group B)
<b>Tutorials:</b>	Mon	12:30 PM – 1:30 PM	SR 3-1

  

<b>Personnel</b>	
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Faculty office hours: Faculty are available either immediately after class or by appointment.

## Course Overview

Policy evaluation is critical in helping to decide whether to expand, modify, or terminate a program or policy. The objective of this module is to provide students with the knowledge and skills required to understand and conduct policy evaluation. The module will build on the foundational analytical skills taught in PP5406.

The focus is on rigorous quantitative impact evaluation tools. These will be taught using case studies and datasets that will allow students to identify the strengths and weaknesses of these methods and learn how to apply them to a policy problem of their choice. Teaching method will be a combination of lectures and practicums.

## Learning outcomes

Students will understand:

1. What is evidence-based policymaking and policy evaluation
2. How policy decisions are made based on rigorous evidence and analysis
3. The strengths and weaknesses of policy evaluation techniques

After completing the module students will be able to:

1. Design policy research for evaluation purposes
2. Apply quantitative impact evaluation tools to policy problems of their choice
3. Interpret empirical policy evidence published in high-quality policy reports and research papers
4. Distinguish good from bad policy research

## Required Textbooks

<sup>1</sup> Angrist, Joshua D. and Pischke, Jorn-Steffen. (2015). *Mastering Metrics: The Path from Cause to Effect*. [A&P]

<sup>2</sup> Stock, James H. and Mark W. Watson. (2012). *Introduction to Econometrics* (3rd edition). Essex: Pearson Education. [S&W]

Notes:

<sup>1</sup> A&P will be available in the NUS Co-op and also can be ordered on Amazon, where it is available both as paperback and Kindle versions.

<sup>2</sup> S&W has companion website with lots of helpful student resources that can be accessed here [http://wps.aw.com/aw\\_stock\\_ie\\_3/178/45691/11696965.cw/index.html](http://wps.aw.com/aw_stock_ie_3/178/45691/11696965.cw/index.html)

Readings other than the required textbooks are downloadable from the IVLE site for PP5407.

## Pedagogic Approaches

### Lectures

Lecturers will deliver interactive-style seminars, building on the required readings. To actively participate in class, students should read the assigned readings BEFORE coming to class. At times, the class will be divided into smaller groups to apply concepts, theories, and frameworks to practical policy problems. These sessions will be student-centric, and the faculty and teaching assistants will act as facilitators and guide students more closely.

### Practicums

Lectures will be accompanied by in-class practicums. The focus of the practicums is to apply the impact evaluation tools to actual datasets using Stata. Computers pre-loaded with Stata are available for loan from Academic Affairs. For those of you who want to purchase your own copy of Stata, visit: <http://www.stata.com/order/new/edu/gradplans/>. It is recommended that students purchase Stata/IC (intercooled) or above as “small Stata” does not have the computational ability required to handle large datasets. Preferred versions are v.14 or v.15. Students must bring their laptops to every session to follow along with the in-class practicums.

### Tutorials

Tutorials will be held for students who need additional help on the concepts. These are OPTIONAL and aimed at reinforcing the concepts and Stata exercises covered in class.

### Additional Resources

The following online resources provide additional help with statistical analysis:

<https://www.khanacademy.org/math/probability>

<https://www.coursera.org/course/introstats>

<http://www2.lse.ac.uk/methodology/tutorials/Stata/home.aspx>

<http://www.ats.ucla.edu/stat/stata/topics/>

### LKY SPP Plagiarism Warning for Class Assignments

“The LKY School’s Academic Code of Conduct lists academic integrity as one of six important values. According to this Code, we have agreed to ‘make every effort to understand what counts as plagiarism and why this is wrong’. You will need to acknowledge conscientiously the sources of information, ideas, and arguments used in your paper. For this purpose, you will use the ‘footnote style’ according to the Chicago Manual of Style, the guidelines for which can be found online at [http://www.dianahacker.com/resdoc/p04\\_c10\\_s2.html](http://www.dianahacker.com/resdoc/p04_c10_s2.html) in the companion website for Diana Hacker’s A Writer’s Reference. Please also refer to the handout that was given to you at the Workshop on Plagiarism conducted during the Orientation period.”

## Course Assessment

Due dates for the assignments are *not negotiable*. All assignments *due by 11:59pm* on specified due date. Late submissions will receive a deduction of 5% for each additional day after the deadline.

Component	Assessment details	Individual/ Group	% Grade
<b>Problem Set</b> Due: Feb 24	Problem Set 1	Individual	10%
<b>Problem Set</b> Due: Apr 14	Problem Set 2	Individual	10%
<b>Final Project</b> Presentations: Apr 16/17 Paper due: Apr 21	Students will choose from a list of evaluation projects based on Weeks 3-8 provided by the instructors for replication	Group	30%
<b>Final Exam</b> Apr 30, 9am-12pm	<u>Closed-book, closed-notes, in-class</u> final exam	Individual	30%
<b>Online quizzes*</b> Quiz 1: Jan 28 Quiz 2: Feb 18 Quiz 3: Mar 18 Quiz 4: Apr 8	4 Online quizzes on IVLE (under “Assessment” tab)	Individual	16%
<b>Participation</b>	Students will be graded individually on their participation in class discussion	Individual	4%
<b>Total</b>			<b>100%</b>

\*Students are expected to uphold academic integrity when taking the online quizzes.

### Topics by Session

Session	Group A	Group B	Topic
1	Jan 15	Jan 16	Introduction and Panel Data
2	Jan 22	Jan 23	Panel Data
3	Jan 29	Jan 30	Difference-in-Differences
4	Feb 1	Feb 1	Difference-in-Differences ( <i>combined make-up class in SR 3-5 from 2:30PM – 5:30PM</i> )
5	Feb 12	Feb 13	Instrumental Variables
6	Feb 19	Feb 20	Instrumental Variables
			<b>RECESS WEEK</b>
7	Mar 5	Mar 6	Randomized Controlled Trials
8	Mar 12	Mar 13	Randomized Controlled Trials
9	Mar 19	Mar 20	Regression Discontinuity
10	Mar 26	Mar 27	Regression Discontinuity
11	Apr 2	Apr 3	Propensity Score Matching
12	Apr 9	Apr 10	Propensity Score Matching
13	Apr 16	Apr 17	Final project presentations

## Tutorial Sessions

Session	Date	Time	Venue	Topic
1	Jan 21	12:30 – 1:30 PM	SR 3-1	Panel Data
2	Jan 28	12:30 – 1:30 PM	SR 3-1	Panel Data
3	Feb 7	12:30 – 1:30 PM	SR 3-1	Difference-in-Differences ( <i>Thursday after CNY break</i> )
4	Feb 11	12:30 – 1:30 PM	SR 3-1	Difference-in-Differences
5	Feb 18	12:30 - 1:30 PM	SR 3-1	Instrumental Variables
6	Mar 4	12:30 - 1:30 PM	SR 3-1	Instrumental Variables ( <i>after recess week</i> )
7	Mar 11	12:30 – 1:30 PM	SR 3-1	Randomized Controlled Trials
8	Mar 18	12:30 – 1:30 PM	SR 3-1	Randomized Controlled Trials
9	Mar 25	12:30 – 1:30 PM	SR 3-1	Regression Discontinuity
10	Apr 1	12:30 – 1:30 PM	SR 3-1	Regression Discontinuity
11	Apr 8	12:30 – 1:30 PM	SR 3-1	Propensity Score Matching
12	Apr 15	12:30 – 1:30 PM	SR 3-1	Propensity Score Matching

## SEMESTER II - Sessions Outline and Reading Assignments

### Session 1

#### *Introduction and Panel Data*

##### *Readings:*

S&W Chapter 10

### Session 2

#### *Panel Data*

##### *Readings:*

S&W Chapter 10

Gopalan, S. and Rajan, R. (2016). Has Foreign Aid Been Effective in the Water Supply and Sanitation Sector? Evidence from Panel Data. *World Development*, 85, 84-104.

### Session 3

#### *Difference-in-Differences*

##### *Readings:*

A&P Chapter 5

S&W Chapters 8 (8.3) and 13 (13.4)

Li, Hongbin; Yi, Junjian; and Zhang, Junsen. (2011) Estimating the Effect of the One-Child Policy on the Sex Ratio Imbalance in China: Identification Based on the Difference-in-Differences. *Demography*, 48(4), 1535-1557.

### Session 4

#### *Difference-in-Differences*

##### *Readings:*

A&P Chapter 5

S&W Chapters 8 (8.3) and 13 (13.4)

### Session 5

#### *Instrumental Variables*

##### *Readings:*

A&P Chapters 2 & 3

S&W Chapters 12 and 13 (13.4)

Urpelainen, J. and Yang, J. (2017). Policy Reform and the Problem of Private Investment: Evidence from the Power Sector. *Journal of Policy Analysis and Management*, 36(1), 38-64.

### Session 6

#### *Instrumental Variables*

##### *Readings:*

A&P Chapters 2 & 3

S&W Chapters 12 and 13 (13.4)

*Recess week*

## **Session 7**

### ***Randomized Controlled Trials***

#### *Readings:*

A&P Chapter 1

S&W Chapter 13 (13.1, 13.2, 13.3)

Thomas Duncan et. al. "Causal Effect of Health on Labor Market Outcomes: Experimental Evidence", Working Paper, March 2006.

## **Session 8**

### ***Randomized Controlled Trials***

#### *Readings:*

A&P Chapter 1

S&W Chapter 13 (13.1, 13.2, 13.3)

Devoto F., Duflo E., Dupas P., Pariente W. and Pons V. (2012) Happiness on Tap: Piped Water Adoption in Urban Morocco. *American Economic Journal: Economic Policy*, 4(4), 68-99.

Miguel E. and Kremer M. (2004) Worms: Identifying Impacts on Education and Health in the Presence of Treatment Externalities. *Econometrica*, 72(1), 159-217.

## **Session 9**

### ***Regression Discontinuity***

#### *Readings:*

A&P Chapter 3

Chen, Y. Y; Ebenstein, A; Greenstone, M; and Li, H. B. (2013) Evidence on the Impact of Sustained Exposure to Air Pollution on Life Expectancy from China's Huai River Policy. *PNAS*, 110(32), 12936-12941.

Carpenter, C. and Dobkin, C. (2009) The Effect of Alcohol Consumption on Mortality: Regression Discontinuity Evidence from the Minimum Drinking Age. *American Economic Journal: Applied Economics*, 1(1), 164-182.

## **Session 10**

### ***Regression Discontinuity***

#### *Readings:*

A&P Chapter 3

Abdulkadiroglu A., Angrist, J. and Pathak P. (2014) The Elite Illusion: Achievement Effects at Boston and New York Exam Schools, *Econometrica*, 82(1), 137-196.

## **Session 11**

### ***Propensity Score Matching***

#### *Readings:*

Austin, P.C. (2011) An Introduction to Propensity Score Methods for Reducing the Effect of Confounding in Observational Studies. *Multivariate Behavioral Research*, 46(3), 399-424.

Vikram, K. and Chindarkar, N. "Bridging the Gender Gap in Cognitive Achievement in India: The Role of Food Supplementation in Early Childhood".



**Session 12**

*Propensity Score Matching and Wrap-up*

**Session 13**

*Final project presentations*

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