

Concluding Remarks

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Concluding Remarks of This Course

- In this course, you have learned many techniques that help you conduct causal inference

Concluding Remarks of This Course

- Causal inference methods:

- 1 Randomized Control Trials (RCT)
- 2 Matching method
- 3 Causal Machine Learning and Double Selection Method (DS)
- 4 Differences-in-Differences (DID)
- 5 Synthetic Control Method (SC)
- 6 Regression Discontinuity Design (RDD)
- 7 Instrumental Variables (IV)

- Each method uses different identification assumption to eliminate selection bias

Trends in Empirical Research

Main Reference: Currie et al. (2020)

Janet Currie, Henrik Kleven, and Esmée Zwiers (2020),
“**Technology and Big Data Are Changing Economics: Mining Text to Track Methods**” AER P&P

- Understand “new directions in research” based on word and language trends
- Textual analysis of NBER working papers and Top-5 journals
 - **NBER** working papers: 1980-2018
 - Top-5 papers: 2014-2019
 - 2,830 top-5 papers and 10,324 NBER working papers
 - Analyze **full text**
 - Focus on field of applied micro

Main Reference: Currie et al. (2020)

Janet Currie, Henrik Kleven, and Esmée Zwiers (2020),
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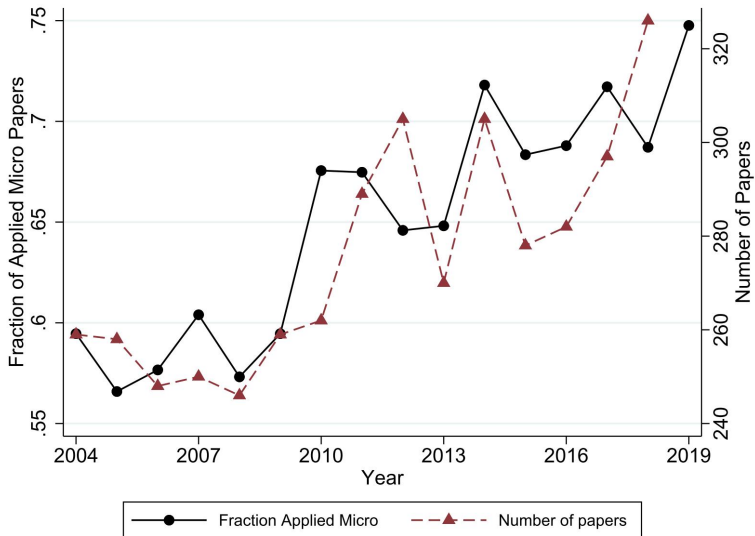
- Caveat:
 - NBER working papers and Top-5 journals are selected sample of the profession
 - The nature of selection has changed over time

Main Reference: Currie et al. (2020)

- They follow Card and DellaVigna (2013) to define the field of applied micro:
 - Labor economics (J, I2)
 - Industrial Organization (L)
 - International (F)
 - Public Economics (H)
 - Health and Urban Economics (I0, I1, R, K)
 - Development (O)
 - Lab experiments (C9)
 - Welfare, Wellbeing, and Poverty (I3)
 - Agriculture and Natural Resource Economics/Environmental and Ecological Economics (Q)

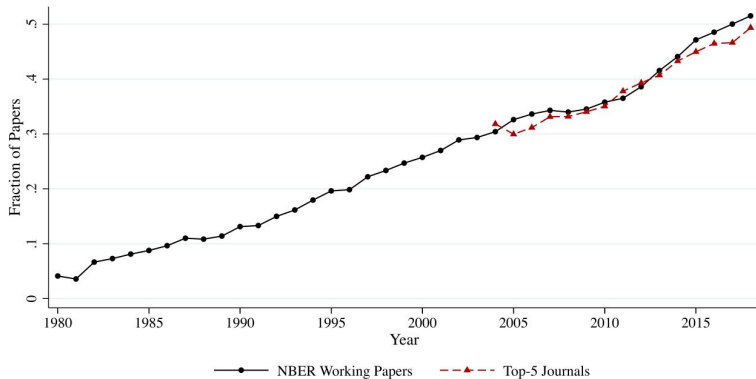
Empirical Research Becomes Popular in Economics

The Rise of Applied Micro



Empirical Research Becomes Popular in Economics

Key Word: Identification



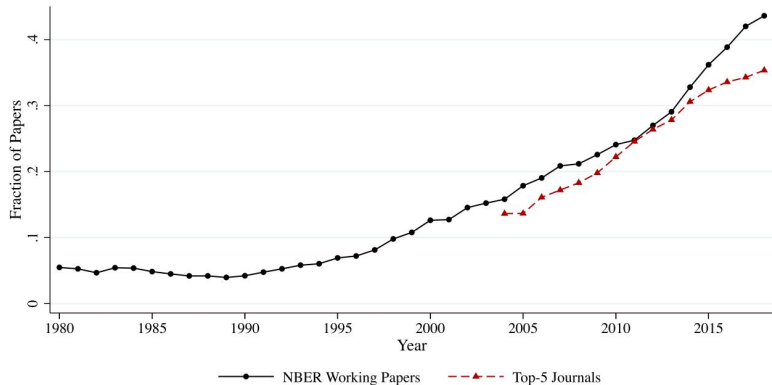
Phases Used in Dictionary

Phrases

'causal identification', 'causally identified', 'condition for identification', 'condition for identifying', 'conditions for identification', 'conditions for identifying', 'empirical identification', 'identification analysis', 'identification approach', 'identification argument', 'identification assumption', 'identification condition', 'identification framework', 'identification issue', 'identification problem', 'identification properties', 'identification result', 'identification scheme', 'identification strategy', 'identification test', 'identifying assumption', 'identifying condition', 'identifying variation', 'issue identifying', 'issue with identification', 'issues identifying', 'issues with identification', 'non parametric identification', 'non parametrically identified', 'nonparametric identification', 'non-parametric identification', 'nonparametrically identified', 'non-parametrically identified', 'over identified', 'over identifying', 'over-identified', 'over-identifying', 'partial identification', 'partially identified', 'point identification', 'point identified', 'point identifying', 'point-identification', 'point-identified', 'point-identifying', 'problem identifying', 'problem with identification', 'problems identifying', 'problems with identification', 'set identification', 'set identified', 'set identifying', 'set-identification', 'set-identified', 'set-identifying', 'threat for identification', 'threat to identification', 'threats for identification', 'threats to identification', 'under identified', 'under identifying', 'under-identified', 'under-identifying', 'weak identification'

The Credibility Revolution in Empirical Research

Key Word: All Experimental and Quasi-Experimental Methods



Phases Used in Dictionary

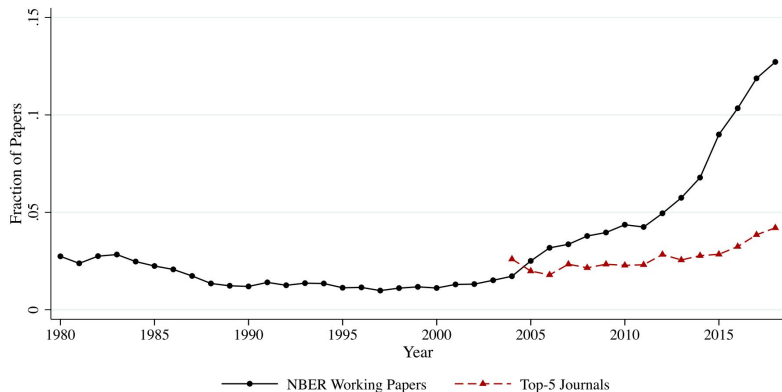
Category	Words
Natural & Quasi-Experiments	'natural experiment*', 'natural-experiment*', 'quasi experiment*', 'quasi-experiment*', 'quasiexperiment*'
Lab Experiments	'laboratory experiment*', 'lab experiment*'
RCTs	'random* (control* field*) (trial* experiment*)'

*The symbol * matches any character string following the search string.*

The pattern (word1|word2) matches either word1 or word2.

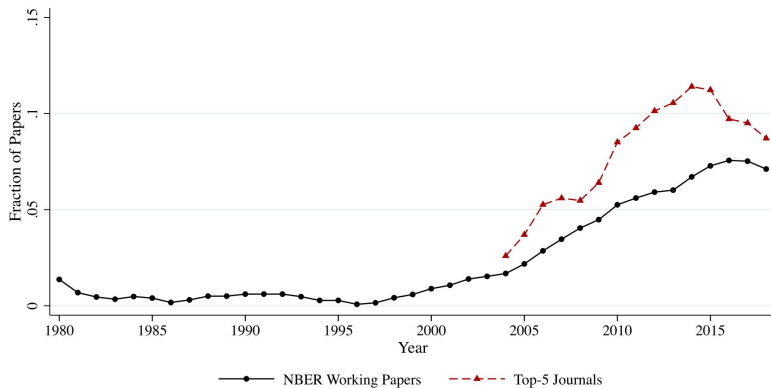
The Rise of Causal Inference Methods

Key Word: RCTs



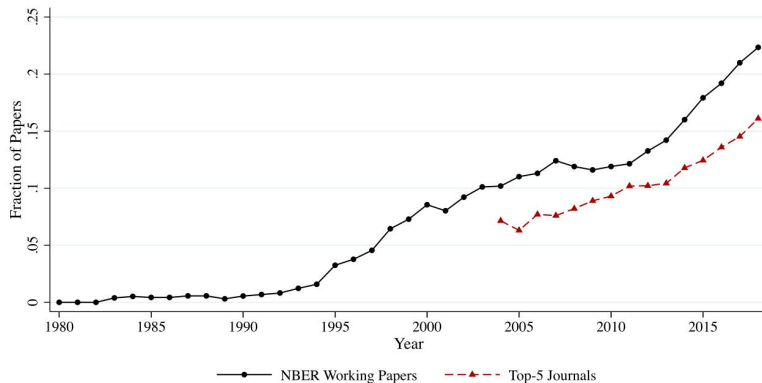
The Rise of Causal Inference Methods

Key Word: Lab Experiments



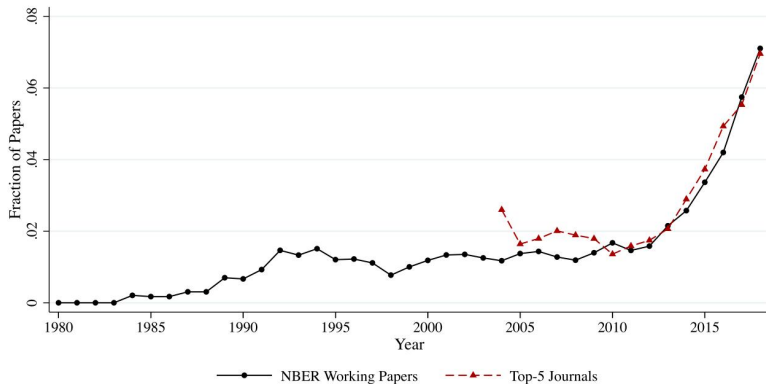
The Rise of Causal Inference Methods

Key Word: Difference-in-Differences



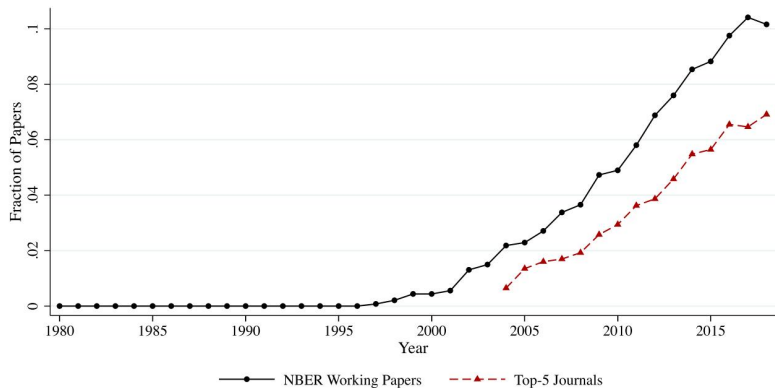
The Rise of Causal Inference Methods

Key Word: Event Study



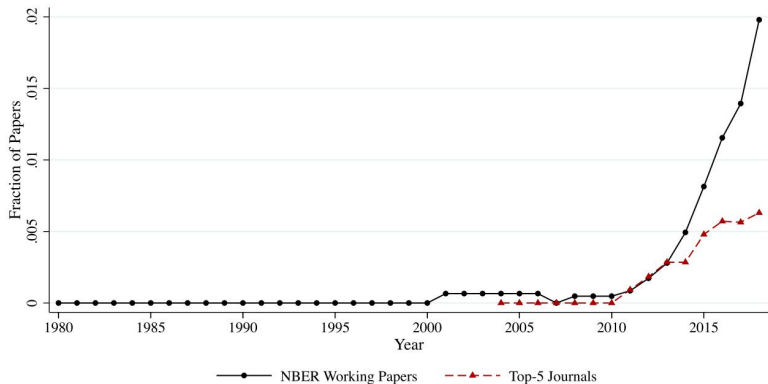
The Rise of Causal Inference Methods

Key Word: Regression Discontinuity



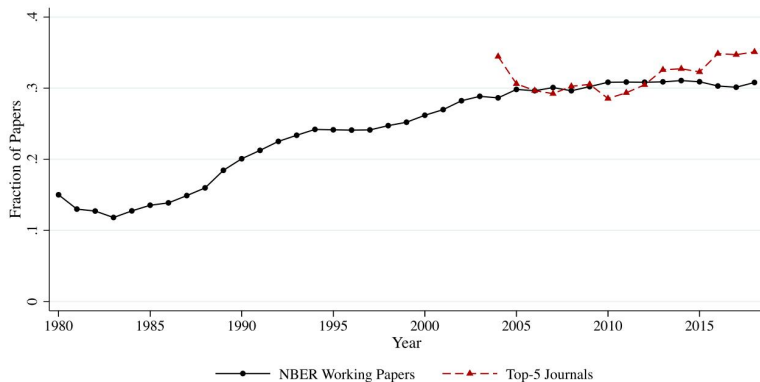
The Rise of Causal Inference Methods

Key Word: Synthetic Control



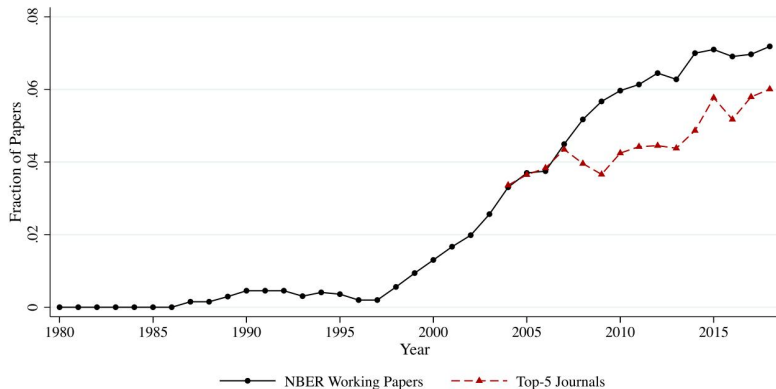
The Rise of Causal Inference Methods

Key Word: Instrumental Variables



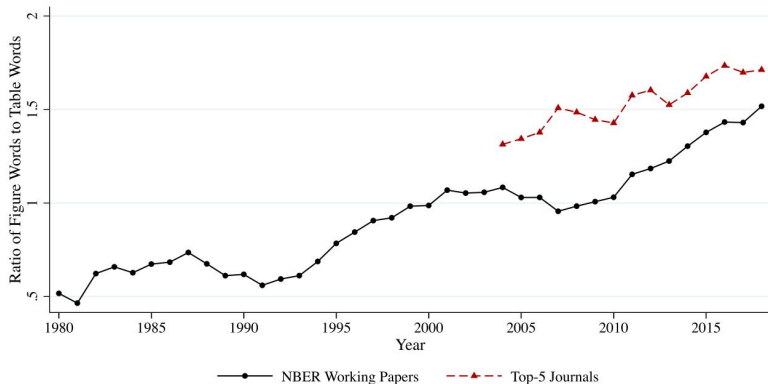
The Rise of Causal Inference Methods

Key Word: Matching



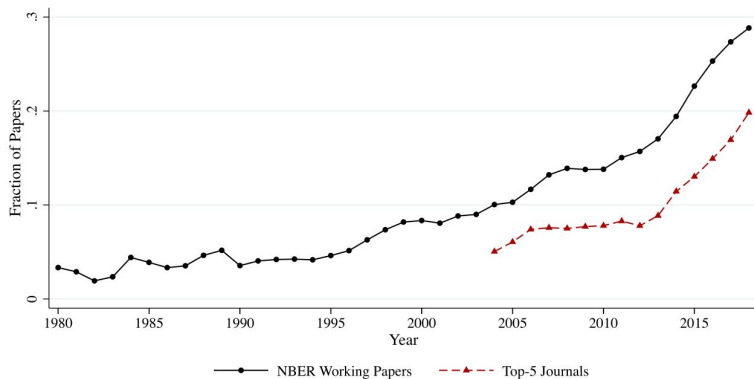
The Rise of Causal Inference Methods

Key Word: Graphical Revolution



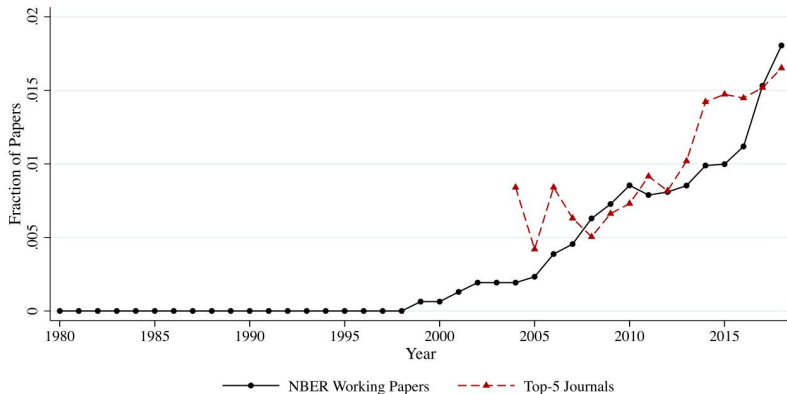
The Rise of Using Data

Key Word: Administrative Data



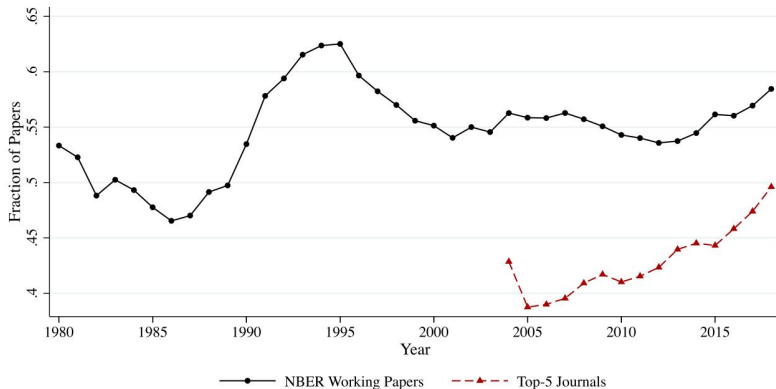
The Rise of Using Data

Key Word: Internet Data



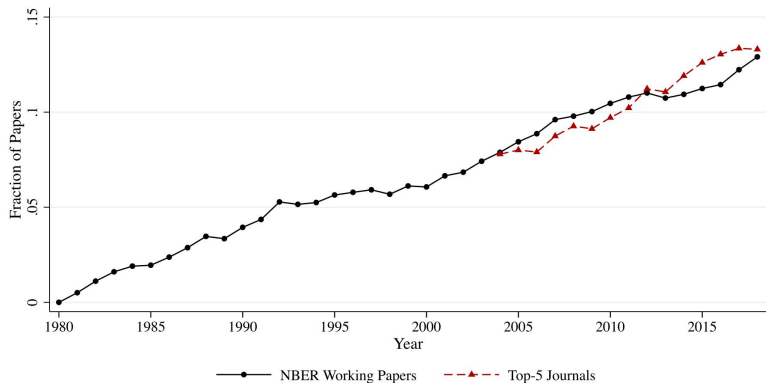
The Rise of Using Data

Key Word: Survey Data



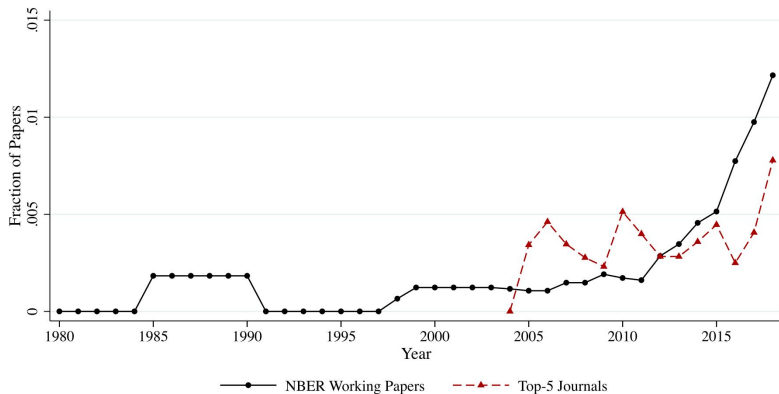
Care About Precisely Estimated

Key Word: Precisely Estimated



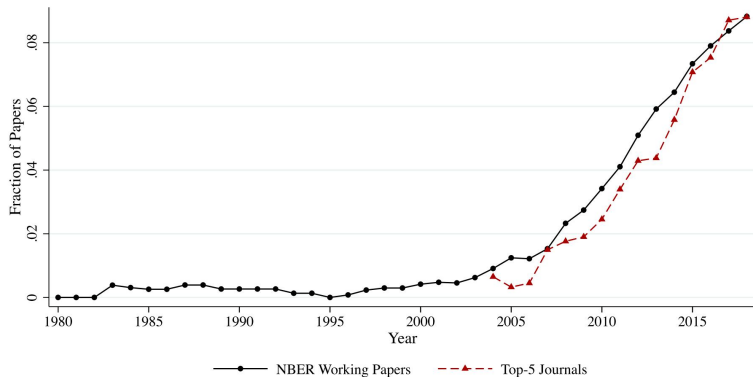
Care About Precisely Estimated

Key Word: Precisely Estimated Zero



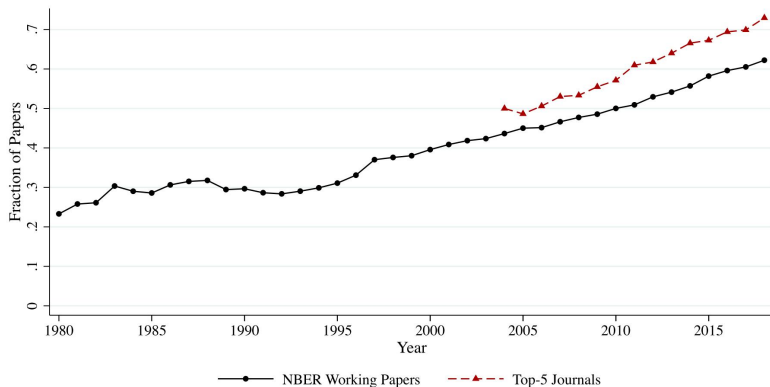
Care About External Validity

Key Word: External Validity



Care About Mechanisms

Key Word: Mechanisms



Concluding Remarks of This Course

- You also know how to clean data, create your own dataset and visualize your data using STATA and R
- Using these techniques helps you create outcomes of interest and treatment variables
- Combine with causal inference methods, you should be able to explore many important issues

Concluding Remarks of This Course

- Your term paper will be a good start of applying what you have learned in this course
- I hope some of classmates can use these methods to write your thesis or have real-life applications
- More importantly, I hope you can understand the fact that **getting causal effect is NOT an easy task in social science**

Concluding Remarks of This Course

- Many existing studies can only get **correlation** not **causality**
- The estimated "causal effects" might confound with **selection bias** and the effects of other factors
- Once you can estimate causal effect convincingly
- Your finding will improve our understanding of human behaviors and society

Teaching Evaluation

- Please fill out a teaching evaluation of this course
- Your feedbacks will help me improve this course