

Counterfactual approach 1

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Outline

1 Introduction to the course



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Some organizational notes

Ordinary structure of the course:

- ① 5 hours
- ② 3 hours theory-background
- ③ 2 hours applications



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Some questions for you...

- ① Try to define some words:
 - ① Policy
 - ② Evaluation
 - ③ Experiment (in economics)
 - ④ Quasi-experiment
 - ⑤ Econometric method and its background

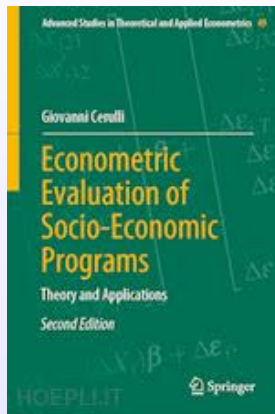


Teaching materials

- 1 A book: "Econometric evaluation of socio-economic programs", G. Cerulli, Springer
- 2 Some papers
- 3 Do file (Stata programs)



The book...



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Why I am teaching this module

- 1 statistics background
- 2 experience in evaluation studies:
- 3 The public policy evaluation of Law 6/99 in Trentino
- 4 Firms policy in Italy (formal contractual agreements)
- 5 R&D policy in Europe
- 6 European Union cohesion policy evaluation
- 7 PNRR evaluation of measures in the tourism sector

scholar site



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The syllabus

Tentative

- 1 The policy cycle
- 2 Randomized experiments
- 3 The counterfactual approach: setting up the framework
- 4 Assumptions and properties of matching
- 5 The overlapping assumption
- 6 The logic of matching
- 7 Regression Adjustment
- 8 Testing imbalance
- 9 Applications (2 papers...)



Why do we intervene in the system?

In at the deep end

Lets jump in the very middle of the problem:

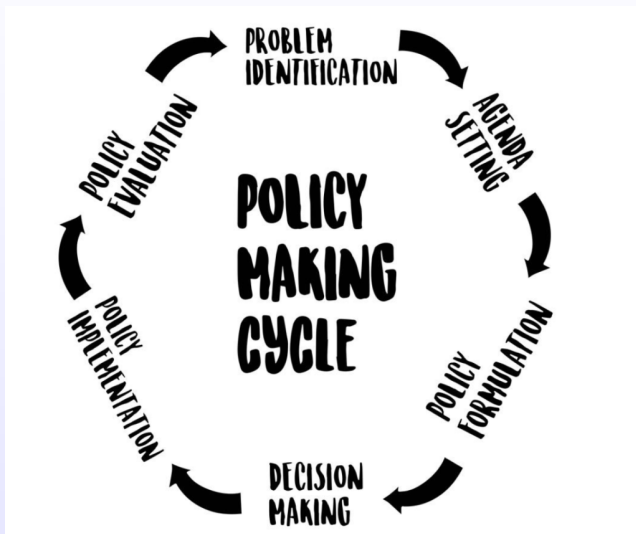
- ① The theoretical foundations of public intervention
- ② Different approaches:
 - ① Market failures ([link to OECD])
 - ② Dynamic reasons (drive the system towards desired outcomes)
- ③ Some examples: R&D policy, externalities, nuclear power (extreme case...)



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Policy cycle

Nachmias and Felbinger (1982)



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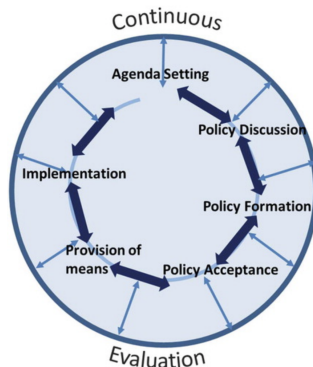
Policy cycle

Figure 1. The policy cycle.



Policy cycle

Figure 2. The big data-revised policy cycle.



Johann Hocht, Peter Parycek and Ralph Schollhammer (2016) Big data in the policy cycle: Policy decision making in the digital era, *Journal of Organizational Computing and Electronic Commerce*, 26:125-169, DOI: 10.1080/10919392.2015.1125187



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What do we mean by evaluation?

- 1 Types of "evaluations"
- 2 The case of *ex post evaluation*

It is common practice for policymakers to perform ex post evaluation of the impact of economic and social programs via evidence-based statistical analysis



European Union approach

Key expressions:

- ① Counterfactual
- ② Impact
- ③ Scenario
- ④ Randomisation (non-random design)
- ⑤ Matching
- ⑥ Assignment



Impact evaluation principles

AIM: Find the effect of an intervention

A tricky aim ...different dimensions involved

Impacts can be:

- ① positive vs negative
- ② intended vs unintended
- ③ direct vs indirect
- ④ primary and secondary



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