Evaluating enterprise support: state of the art and future challenges

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Introduction

• During the last decade, microeconometric econometric „counterfactual impact evaluations“ have become an important tool in the area of enterprise support policies.

• It became standard to use econometric methods, such as
  o Matching estimators
  o (Conditional) Difference-in-Difference regressions
  o Instrumental variable regressions
  o More recently: Regression Discontinuity Designs

• Not standard (yet):
  o randomized control trials
  o „natural experiments“
Introduction

Why are these methods important?

• Firms select themselves into the programs
• Governments pick „winners“
• Result:
  o treated firms“ cannot be compared with non-treated firms without further adjustment for deriving effects of policies
  o „Treatment“ is an endogenous variable in (OLS) regression models, and results would be biased if endogeneity is not addressed properly
Introduction

• Therefore all econometric evaluation methods seek to establish a „correct“ control group approach to derive e.g. the treatment effect on the treated, i.e.
  o „How many jobs would a treated firm have created if it had not been treated?“
  o „How much would have a firm invested in innovation activities if it had not been subsidized?“
  o „Which sales with new products would a firm have achieved if it had not gotten a start-up grant?“
What is the current evidence?

• Recent general review* of the available empirical evidence by the “What Works Centre for Local Economic Growth”
  o Led by the London School of Economics and Political Science
  o www.whatworksgrowth.org

• 1,700 works (academic journals and policy reports) reviewed

• Classified according to the strength of the empirical evidence
  o Using a variant of the Scientific Maryland Scale

• Results: only view achieve highest methodological standards
  o However, limited data availability critically determines the researchers’ options of applications.

* not limited to enterprise support within Cohesion Policy; review covers all fields of economic evaluations.
Modified Scientific Maryland Scale

5. Randomized control trials, ‘natural experiments’, no selective sample attrition
4. Instrumental variable techniques or RDD, proper balancing (OLS, matching), attrition discussed but not addressed
3. Difference-in-Differences, balancing (OLS, matching), but uncontrolled differences likely remain
2. ‘Before and after’ comparisons, or a comparison group but without balancing of covariates
1. Correlation analysis, no control group, no attempt at establishing a counterfactual
Methods are important, but...

- it is equally important *HOW* we use the methods!
- What does this mean? Example:
- Evaluation of Eureka’s Eurostars programme* (total budget 500 million EUR - co-financed by EC = 100 million EUR)
- Dirk estimated:
  - treatment effect of Eurostars with respect to job creation amounts to a **3.1% higher average annual employment growth-rate** when compared to the counterfactual situation of no Eurostars grant
  - Extrapolation from regression sample to total programme impact yields about 7,800 jobs created

What is useful information?

• Is this information useful for the policy maker?
• Partially yes ➔ programme has an estimated positive impact

• HOWEVER, programme might continue to exist anyways.
• More useful information would be:
  o How can we make the programme better, i.e. more effective and/or more efficient?

• Search for heterogeneous treatment effects
  o See e.g. Czarnitzki/Lopes-Bento (2013)
Heterogeneous treatment effects within a policy scheme
Heterogeneous treatment effects

- Monetary value of grant
- Subsidy rate
- Firm size
- Heterogeneity of consortia
  - start-ups, large firms, universities
- Proposal quality (Peer-review score)
- Multiple grants

Hünermund/Czarnitzki (2016) find that treatment effect varies with the peer-review score. Better proposals also yield higher treatment effects (but effect is not linear).

Note: LATE in RDD vs. ATT obtained with other estimators.
Heterogeneous treatment effects in Eurostars according to peer-review score (proposal quality)
Heterogeneous treatments and their effects across policy instruments
Heterogeneous treatments

- Instead of exploring heterogeneous treatment effects *within* a policy scheme,
- it is also possible to search for heterogenous effects *across* schemes
  - Problem: very „data hungry“
  - E.g. Czarnitzki et al. (2016): enterprise support in German Cohesion Policy schemes
- Also: „dynamic“ treatment effects
  - Treatment effect could evolve over time rather than occurring in a single period
Treatment effect over time for ln(employment) by grant type

95% confidence interval
Indirect effects

- Policy scheme may have indirect effects
- Example Eurostars: even rejected applications may have effects
  - Beware: „contaminated control group“
Conclusions

• The use of appropriate econometrics methods increased significantly in the last decades.

• Next steps:
  • There is still room for improvement with respect to „identification“
    o Exploit discontinuities, instruments, experiments
  • apply methods in a more useful way for policy making (i.e. beyond homogenous „treatment effects on the treated“ of a single programme)
    o Design of policy schemes
    o Selection of policy schemes