

Discipline: special methods

1 Language

English

2 Title

Endogeneity in Applied Empirical Research

3 Lecturer

Prof. Dr. Dominik Papies (University of Tübingen)

4 Date and Location

Wednesday, 9. October – Saturday, 12. October 2019

University of Tübingen

Gästehaus

5 Course Description

5.1 Abstract and Learning Objectives

Many empirical research projects that use non-experimental data are struggling with the proper identification of causal effects of independent variables (e.g., price, management decisions) on dependent variables (e.g., demand). The reason is that the identification of a causal effect hinges on the untestable assumption that the error term of a model is uncorrelated with the independent variables. If this assumption is not met, a model is plagued by endogeneity.

The topic of endogeneity has received considerable attention, and it is probably the most frequently encountered troublemaker in a review process at an academic journal.

This course therefore has the goal of making students familiar with the problem of endogeneity and potential remedies. This implies that it will cover the opportunities and problems associated with traditional approaches (e.g., Instrumental Variable estimation) as well as more recent developments (e.g., Gaussian Copulas). The course will also cover how the data structure (e.g., panel data) can be utilized to address the problem. Because the literature on endogeneity is often quite technical, this course aims at providing an easily accessible approach to this topic. Special emphasis will also be given to understanding when endogeneity indeed poses a real problem as compared to settings in which endogeneity is less likely to be a real threat to the validity of the findings.

After completing this course, students will be able to define and describe endogeneity problems in different empirical settings, they will know how to implement techniques that address endogeneity, and they will be aware of the (dis)advantages of different methods.

5.2 Content

1. Endogeneity & Causality
2. The solution (1): Non-technical approaches (panel; avoiding the omitted variable bias)
3. The solution (2): Instrumental Variable Estimation
4. The Solution (3): Advanced, IV-free methods

5.3 Schedule

Wednesday, October 9, 2019: 11:15 a.m. – 6 p.m.

Thursday, October 10, 2019: 9 a.m. – 6 p.m.

Friday, October 11, 2019: 9 a.m. – 6 p.m.

Saturday, October 12, 2019: 9 a.m. – 3 p.m.

Social activities for the evenings will be announced when the list of participants is complete.

5.4 Course format

Lecture, group discussion, student presentation, PC-based implementation

6 Preparation and Literature

6.1 Prerequisites

Participants should have some experience with empirical analyses, statistics, and econometrics.

Participants should have some degree of familiarity with programming either in Stata or R.

6.2 Essential Reading Material

Angrist, J. D., & Krueger, A. B. (2001). Instrumental Variables and the Search for Identification: From Supply and Demand to Natural Experiments. *Journal of Economic Perspectives*, 15(4), 69–85.

Bascle, G. (2008). Controlling for endogeneity with instrumental variables in strategic management research. *Strategic Organization*, 6(3), 285–327.

Bound, J., Jaeger, D. A., & Baker, R. M. (1995). Problems with Instrumental Variables Estimation When the Correlation Between the Instruments and the Endogenous Explanatory Variable is Weak. *Journal of the American Statistical Association*, 90(430), 443–450.

Ebbes, P., Papies, D., & Heerde, H. J. van. (2016). Dealing with Endogeneity: A Nontechnical Guide for Marketing Researchers. In C. Homburg, M. Klarmann, & A. Vomberg (Eds.), *Handbook of Market Research* (pp. 1–37). Springer International Publishing.

Papies, D., Ebbes, P., & Heerde, H. van. (2017). Addressing Endogeneity in Marketing Models. In P. S. . Leeflang, J. E. Wieringa, T. H. A. Bijmolt, & K. Pauwels (Eds.), *Advanced Methods in Modeling Markets*.

6.3 To prepare

Students should familiarize themselves with the key points of endogeneity with the help of the reading list. Participants are expected to give a short presentation on their own research problem. Further, participants will be required to discuss one research paper on endogeneity during the course. The assignment of papers to participants will take place when the list of participants is complete. Students must bring a notebook computer with either R or Stata installed.

7 Administration

7.1 Max. number of participants

20

7.2 Assignments

Participants will present (1) a summary of their research (plan) with a special focus on (potential) endogeneity problems, and (2) a paper from the reading list. The specific paper will be assigned to participants once the list of participants is complete. (3) Students will actively participate in all in-class discussions. (4) Students will actively work on the completion of the in-class programming assignments.

7.3 Exam

To successfully pass this class, students must complete all assignments described above.

7.4 Credits

This course is eligible for 6 ECTS.

8 Working hours

Working Hours	Stunden
<i>Vorbereitung (Literatur & Präsentation)</i>	50
<i>Aktive Mitarbeit</i>	25,5
<i>Nachbereitung Literatur</i>	54,5
<i>Assignments</i>	50
TOTAL	180 h
ECTS: 6	