



Aachen International
Summer School
in Research Methods

RWTHAACHEN
UNIVERSITY

3RD AACHEN INTERNATIONAL SUMMER SCHOOL IN RESEARCH METHODS AND DATA SCIENCE (ACISS)

INTRODUCTION TO APPLIED EMPIRICAL RESEARCH AND REPLICATION STUDIES:

UNDERSTANDING COMPLEX RELATIONSHIPS, INTERACTIONS, AND
ENDOGENEITY IN APPLIED EMPIRICAL RESEARCH

UNIV.-PROF. DR. CHRISTIAN HOPP

School of Business and Economics

TIME Research Area | Technology Entrepreneurship (TEN)

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SUMMER 2017

1 COURSE OVERVIEW

Course Name:	Introduction to Applied Empirical Research and Replication Studies
Degree Programmes:	<ol style="list-style-type: none"> 1. Post-Docs and PhD students 2. Master BWL (all specializations): MSBWL10, MSBWL13 <p>Master Wirtschaftswissenschaften (all specializations): MSWiWi10, MSWiWi14</p> <p>Master Wirt.-Ing. (MSWiBau, MSWiEET, MSWiWPT, MSWiMB, all specializations): MSWi10, MSWi15</p>
Lecturer:	Univ.-Prof. Dr. Christian Hopp
Contact:	christian.hopp@rwth-aachen.de
Location and Time:	Kackertstraße 7, Room B037 11 September to 15 September, 9am-12pm and 2pm-5pm
Content Description:	This course will focus on recent advances in empirical research. At the end of the course students should be able to design, implement, and critically evaluate empirical research. The course comprises datasets, research papers, and estimation implementation in Stata. Also, students will engage in independent empirical analyses of data and in replicating published empirical work based on PSED-type datasets.
Qualification Objectives:	<p>After participating in this course, students should be in a position to:</p> <ol style="list-style-type: none"> 1. Understand basis econometric theories 2. Build and test hypotheses in entrepreneurship 3. Replicate empirical studies using PSED type datasets 4. Understand the boundaries and limits of econometric analyses 5. Learn about ethical and social behavior in scientific research 6. Students should be able to design, implement, and critically evaluate empirical research
Literature:	See readings below
Course Examination:	<ol style="list-style-type: none"> 1. Written assignment (50%) 2. Presentation (50%)
Participation Requirements:	<ol style="list-style-type: none"> 1. Solid command of English 2. Basic understanding of Economics, Econometrics, Entrepreneurship 3. Willingness to engage in preparatory readings of case studies and/or research papers
Group Size:	30 participants (max)
Workload:	30 hours of lecturing and group work 120 hours additional individual and group preparation
Type of Teaching Event:	Lecture with integrated individual and group work on datasets
Language:	English
Credits:	5

2 SCOPE OF THE COURSE

This course will focus on recent advances in empirical research. At the end of the course students should be able to design, implement, and critically evaluate empirical research. The course comprises datasets, research papers, and estimation implementation in Stata. Also, students will engage in independent empirical analyses of data and in replicating published empirical work based on the PSED type (US, Sweden, Australia) datasets.

The course will be work intensive and involves a substantial part of independent empirical work. Previous successful completion of empirical courses is highly recommended. Please note, that a detailed course outline and reading list will be made available ahead of the first session.

After participating in this course, students should be in a position to:

1. Understand basis econometric theories
2. Build and test hypotheses in entrepreneurship
3. Replicate empirical studies using PSED type datasets
4. Understand the boundaries and limits of econometric analyses
5. Learn about ethical and social behavior in scientific research
6. Students should be able to design, implement, and critically evaluate empirical research

3 PARTICIPANTS AND REQUIREMENTS

Participants

1. Post-Docs and PhD students
2. Master BWL (all specializations): MSBWL10, MSBWL13
Master Wirtschaftswissenschaften (all specializations): MSWiWi10, MSWiWi14
Master Wirt.-Ing. (MSWiBau, MSWiEET, MSWiWPT, MSWiMB, all specializations): MSWi10, MSWi15

Due to the interactive teaching format, the number of participants is limited to 20. Advanced master students are invited to participate, but preference will be given to PhD students

Requirements

- Solid command of English.
- Basic understanding of Economics, Econometrics, Entrepreneurship
- Willingness to engage in preparatory readings of case studies and/or research papers.

Grading

The final grade will be calculated as the weighted average of the grades for the written assignment (replication report on paper) (50 %), and the presentation (50%).

Complete attendance of each session of the course, including the preparatory meeting, is obligatory. Absolutely no exceptions apply. Leaves will only be granted in cases of illnesses or if the person demanding a leave is required to participate in an official activity of the University, Faculty, or Institute. In the first case, the doctor's medical certificate must be presented to the Chair immediately (i. e. latest by the first working day following the absence day). Failure to comply with this rule leads to a no-pass grade. Passing grades can generally not be earned by students who miss more than 20% of the total class-time

4 TENTATIVE COURSE SCHEDULE

The lecturing days will comprise a morning session (9:00-12:00) that covers the indicated topics. The afternoon session (14:00-17:00) will comprise individual and group work on the datasets. We will resume every day with a short summary of replications possible with the datasets at hand (and/or potential pitfalls and limitations).

Day 1

- **Lecture Session:** Introduction to Empirical Research and Stata
- **Data Session:** Sample size replication, dependent and independent variable calculations based replication paper chosen

Tentative Replication Papers

- Khan, S. A., Tang, J., & Joshi, K. (2014). Disengagement of Nascent Entrepreneurs from the Start-Up Process. *Journal of Small Business Management*, 52(1), 39-58.
- Brinckmann, J., & Kim, S. M. (2015). Why We Plan: The Impact of Nascent Entrepreneurs' Cognitive Characteristics and Human Capital on Business Planning. *Strategic Entrepreneurship Journal*, 9(2), 153-166.
- Freeland, R. E., & Keister, L. A. (2016). How Does Race and Ethnicity Affect Persistence in Immature Ventures?, *Journal of Small Business Management*, 54(1), 210-228
- Renko, M. (2013). Early challenges of nascent social entrepreneurs. *Entrepreneurship Theory and Practice*, 37(5), 1045-1069.
- Uygur, U., & Kim, S. M. (2016). Evolution of Entrepreneurial Judgment With Venture-Specific Experience. *Strategic Entrepreneurship Journal*, 10(2), 169-193.

Day 2

- **Lecture Session:** Moderation Analysis in Multivariate OLS Regression

Preparatory Readings:

Dawson, J. F. (2014). Moderation in management research: What, why, when, and how. *Journal of Business and Psychology*, 29(1), 1-19.

Brambor, T., Clark, W. R., & Golder, M. (2006). Understanding interaction models: Improving empirical analyses. *Political analysis*, 14(1), 63-82.

Day 3

- **Lecture Session:** Understanding Interactions in Limited Dependent Variables

Preparatory Reading:

Hoetker, G. (2007). The use of logit and probit models in strategic management research: Critical issues. *Strategic Management Journal*, 28(4), 331-343.

Wiersema, M. F., & Bowen, H. P. (2009). The use of limited dependent variable techniques in strategy research: issues and methods. *Strategic Management Journal*, 30(6), 679-692.

Day 4

- **Lecture Session:** Detecting and Dealing with Endogeneity

Preparatory Reading:

Hamilton, B. H., & Nickerson, J. A. (2003). Correcting for endogeneity in strategic management research. *Strategic organization*, 1(1), 51-78.

Spector, P. E., & Brannick, M. T. (2011). Methodological urban legends: The misuse of statistical control variables. *Organizational Research Methods*, 14(2), 287-305.

Day 5

- **Lecture Session:** Propensity Score Matching and Robustness of Matching Estimators

Preparatory Reading:

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

Li, M. (2013). Using the Propensity Score Method to Estimate Causal Effects A Review and Practical Guide. *Organizational Research Methods*, 16(2), 188-226.

5 REPLICATION STUDIES

In your research paper, replication is taken in a narrow sense to begin with. Yet, feel free to offer extensions such as additional robustness checks, modified analyses or analyses with new variables available in the PSED repository. To get started, it is highly recommended to have a look at the variables used in your research study chosen. Have a look at whether you are able to replicate the variables from the data. Check whether the data set used is complete. Is the data sufficiently well described and can you determine which questions were used to build variables? It is important to verify that you have the sufficient number of observations used in the study, re-build the variables chosen before you actually engage in the empirical analyses. If not, describe why you failed to replicate the full number of observations, detail short cuts the original authors might have used, describe where you would have to make assumptions to replicate the findings. Not being able to replicate the paper under investigation may actually be common. Yet, this may not be due to the replicator. Detailing weaknesses of published studies is essential in this course. Hence, if you are able to detail why and how you failed to fully replicate this should be rewarded with respect to your final grade. Please follow the recommended structure for your research paper.

- 1) Summary of the Original Article
- 2) Data description
 - a. Can you replicate the number of observations used?
 - b. Can you replicate the variables used/constructed?
 - c. Is the method chosen appropriate?
 - d. Please derive descriptive statistics. Are there Outliers, Extreme Values one should take care of?
 - e. Do you find inconsistencies with respect to Outliers, Heteroskedasticity, or other distortions that may cause biases?
 - f. Upon replication, do you find the same results?
 - g. If not, do the implications change when re-estimating the regressions?
- 3) Interpretation and Conclusion
 - a. Please confirm or call into question the results found in the original study

Contact Details

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