

<b>Georg-August-Universität Göttingen</b> <b>Module M.WIWI-VWL.0041: Panel Data Econometrics</b>	6 C 4 WLH
<p><b>Learning outcome, core skills:</b></p> <p>This course aims to study panel data econometric techniques in an intuitive and practical way and to provide students the skills and understanding to read and evaluate empirical literature and to carry out empirical research. The course is concerned with the application of econometric panel-data methods, including basic linear unobserved effects panel data models with exogenous and endogenous regressors; random effects and fixed effects methods for static and dynamic models and panel data methods for binary dependent variables.</p> <p>Students learn basic econometric terminology and estimation and test principles for efficient inference with panel data and the potential of panel data to deal with estimation biases related to unobserved heterogeneity in individual characteristics.</p> <p>Students read and understand project reports and journal articles that use the methods introduced in the course and to make use of the course content in their academic work, namely, in analyses that are part of their master's or PhD thesis.</p>	<p><b>Workload:</b></p> <p>Attendance time: 56 h</p> <p>Self-study time: 124 h</p>
<p><b>Courses:</b></p> <p><b>1. Panel Data Econometrics (Lecture)</b></p> <p><i>Contents:</i></p> <p><i>Linear Panel Data Models</i></p> <p>1. Static Linear Panel Data Models</p> <ul style="list-style-type: none"> <li>1.1 Introduction to Panel Data</li> <li>1.2 Assumptions</li> <li>1.3 Estimation and Testing           <ul style="list-style-type: none"> <li>1.3.1 Pooled OLS</li> <li>1.3.2 Random Effects Estimation</li> <li>1.3.3 Fixed Effects Estimation. Testing for Serial Correlation</li> <li>1.3.4 First-Differencing Estimation</li> </ul> </li> <li>1.4. Comparison of Estimators and Testing the Assumptions</li> <li>1.5 Correlated Random Effects (CRE) or Mundlak's Approach</li> </ul> <p>2. Endogeneity and Dynamics in Linear Panel Data Models</p> <ul style="list-style-type: none"> <li>2.1. Equivalence Between GMM 3SLS and Standard Estimators</li> <li>2.2 Chamberlain's Approach to UE Models</li> <li>2.3. RE and FE Instrumental Variables Methods</li> <li>2.4. Hausman and Taylor Models</li> <li>2.5. First Differencing and IV</li> <li>2.6. Dynamic Panel Data Models. Estimation under Sequential Exogeneity</li> </ul>	2 WLH

<p>3. Special Topics</p> <p>3.1 Heterogeneous Panels</p> <p>3.2 Random Trend Models</p> <p>3.3 General Models with Specific Slopes</p> <p>3.4 Robustness of Standard Fixed Effects Estimators</p> <p>3.5 Testing for Correlated Random Slopes</p> <p><i>Non-linear Panel Data Models</i></p> <p>4. Panel Data Models for Discrete Variables</p> <p>4.1 Introduction. Binary Response Panel Data Models with Strictly Exogenous Variables</p> <p>4.2 Linear Probability Model</p> <p>4.3 Fixed versus Random Effects</p> <p>4.4 Other issues: Endogenous explanatory variables/Selection Bias</p> <p>The course is organized as a series of lectures complemented with tutorials.</p> <p><b>2. Panel Data Econometrics</b> (Tutorial)</p> <p><i>Contents:</i></p> <p>The computer software package STATA will be used for practical work.</p>	<p>2 WLH</p>
<p><b>Examination: Term Paper (max. 10 pages, based on the tutorial)</b></p>	<p>2 C</p>
<p><b>Examination: Written examination (120 minutes)</b></p>	<p>4 C</p>
<p><b>Examination requirements:</b></p> <p>After taking the course, students should be able to:</p> <ul style="list-style-type: none"> <li>• formulate static and dynamic econometric models for panel data on the basis of economic theories, recognise the reasons why panel data is a richer data framework than pure cross-section or pure time-series data,</li> <li>• translate models for cross-section and for time-series into panel data models,</li> <li>• use the computer software package STATA to estimate panel data models,</li> <li>• estimate parameter in panel data models using real datasets and test hypotheses by using STATA,</li> <li>• interpret and evaluate the results of empirical estimations of economic models, which is an important feature of the study and application of economics.</li> </ul>	
<p><b>Admission requirements:</b></p> <p>none</p>	<p><b>Recommended previous knowledge:</b></p> <p>Previous knowledge of intermediate econometrics is required.</p>
<p><b>Language:</b></p> <p>English</p>	<p><b>Person responsible for module:</b></p> <p>Prof. Dr. Inmaculada Martinez-Zarzoso</p>
<p><b>Course frequency:</b></p> <p>each summer semester</p>	<p><b>Duration:</b></p> <p>1 semester[s]</p>

---

<b>Number of repeat examinations permitted:</b> twice	<b>Recommended semester:</b> 2 - 4
<b>Maximum number of students:</b> 30	