Leeds University Business School

UNIVERSITY OF LEEDS

LUBS 5289
Panel Data

2012/13 Module Handbook
Module Leader: Professor Kevin Keasey
Module Tutor: Professor Julio Pindado

SECTION A: basic information

- **Introduction**

  Welcome to LUBS5289. This module is compulsory for the LUBS PGR Training Pathways Programme. It extends over semester two and comprises of 8 sessions of both practical and seminar. It is worth15 credits if successfully completed. The course is assessed by means of a 3,000 word project.

- **Prerequisites**

  Students should understand the basic linear regression model for this module.

- **Aims**

  The aim of this course is to communicate the skills necessary to understand and assess the applications of panel data analysis reported in the Finance and Business Economics literature, and to provide skills which could be applied to analysing a variety of research and policy problems related to Corporate Finance, Governance and Business Economics.

- **Objectives**

  On completion of this module you should have:

  Acquired analytical skills associated with this level of training for postgraduate research so as to enable you to undertake advanced level empirical analysis. On completing the module you will be able to:

  - Understand the advantages and limitations of panel data
  - Understand and make informed judgements about the latest approaches towards analysing panel data (including static and dynamic models),
  - Understand how to derive economic models from panel data,
  - Interpret research findings based on panel data,
  - Develop basic skills associated with using panel data and Stata®

Success Criteria

Assessment banding for Level M (Masters)

The marking guidelines below indicate the quality of work expected for the award of a particular grade. Tutors will take these guidelines into account when grading submitted work. These are **not** minimum criteria which must be met in all respects in order to gain a particular grade, but are indicative of the general standard of work expected at each level. **If the marker(s) of an assignment judge that unattributed material has been included, that the referencing is inadequate or that there has been inappropriate collusion by students on an individual assignment, such work will normally be awarded a grade in the range 0-39, i.e. a poor fail. Alternatively, the marker(s) may judge that there is a possibility that the offences of "plagiarism" or "malpractice in university assessment" have been committed and draw this to the attention of the School.**

Assessment banding for Level M (Masters) – FAIL (pass mark 50)

	0 – 39	**40 – 48***
Coverage (***range and understanding of sources; synthesis and focusing of ideas on the topic***)	Limited range of ideas; shows weak acquaintance with sources; ideas unfocused.	Evidence of reading in the field; identification of some pertinent issues; some superficiality in treatment of the topic.
Analysis ***(organisation/coherence of argument; support through example/detail/ quotations/references/ experience; critical approach)***	Disjointed organisation; unsupported arguments; little use of relevant experience; descriptive and without critical analysis.	Appropriate organisation; some evidence of understanding of ideas and ability to relate ideas and experience; mainly descriptive with limited attempt at critical judgement.
Presentation ***(length; use of academic conventions; spelling, grammar, paragraphing etc; layout; proof-reading)***	Length requirements not observed; use of unattributed material; incomplete referencing; presentation consistently marred by language errors affecting comprehensibility; inadequate proof-reading.	Length requirements observed; basic command of academic conventions; some errors in proof-reading and editing; presentation occasionally marred by language errors affecting comprehensibility.
Where appropriate: **Investigation /Research** ***(questions; rationale; theoretical background; data collection methods; critical analysis; implications)***	*Where appropriate:* Research questions unclear; rationale weak; theoretical background very limited; research methods not well-chosen or misapplied; analysis sketchy or unjustified by data; implications asserted or untenable.	*Where appropriate:* Basic research questions; limited rationale; some theoretical background attempted; research methods adequate; analysis attempted but may lack depth; some implications examined.

** a mark of 49 is not used, a clear decision as to whether the work is a pass (mark 50) or a fail should be made*

Assessment banding for Level M (Masters) – PASS (50-59); MERIT (60-69); DISTINCTION (70+)

	50 -59	60 -69	70 - 79	80+*
Coverage (*range and understanding of sources; synthesis and focusing of ideas on the topic*)	Shows acquaintance with and understanding of key concepts and issues from a range of sources; ideas synthesised and related to the topic.	Competent coverage of major sources; shows depth of understanding of the topic; relationships between ideas cogently made.	Thorough coverage of sources; evidence of scholarship in understanding and synthesis of ideas.	Comprehensive coverage of sources; evidence of extensive research and original thinking in understanding and synthesis of ideas; integration of materials from the programme and other sources.
Analysis *(organisation/coherence of argument; support through example/detail/ quotations/references/ experience; critical approach)*	Ideas organised and grouped into a coherent argument; use of examples / detail / quotations / references / experience to support argument; some critical analysis of ideas/ evidence; limited appraisal of implications.	Critical review and synthesis of ideas; coherent, realistic and well-supported argument; insightful use of personal ideas and experience; perceptive appraisal of implications.	Systematic critical questioning of received ideas and suggestion of alternative perspectives; thorough, well-supported analysis; insightful evaluation and discussion of implications.	Systematic critical analysis of received ideas and creative consideration of alternative perspectives; well-supported in-depth analysis; insightful evaluation and discussion; clear evidence of reflection; excellent use of examples.
Presentation *(length; use of academic conventions; spelling, grammar, paragraphing etc; layout; proof-reading)*	Length requirements observed; appropriate use of academic conventions; accurate spelling, grammar etc.; careful proof-reading.	Competent control of length; skilled use of academic conventions; almost all errors eliminated in proof-reading.	Concise and effectively argued, within the length allowed; skilled use of academic conventions; accurate proof-reading.	Exceptionally clearly and cogently argued within the constraints imposed by the word limits; skilled use of academic conventions; accurate proof-reading.
Where appropriate: **Investigation /Research** *(questions; rationale; theoretical background; data collection methods; critical analysis; implications)*	***Where appropriate:*** Research questions clearly stated; rationale for research given; some relation to underlying theories established; research methods appropriate; some critical analysis of data; appropriate implications drawn from the study.	***Where appropriate:*** Perceptive identification of research questions; cogent, theoretically-based rationale; good research design with critical critically applied; critical analysis of data; careful appraisal of implications.	***Where appropriate:*** Perceptive identification of research questions; critical appreciation of underlying theory and rationale; appropriate research design, carefully and critically applied; insightful and critical analysis of data; critical interpretation of implications.	***Where appropriate:*** Perceptive identification of research questions; full appreciation of underlying theory and rationale; clear rationale for the research design selection, having considered alternatives; insightful and critical analysis of data; critical interpretation of implications with evidence of originality in the conclusions.

80+ marks should be awarded for answers which are exceptionally good for Masters level students. In addition to meeting all the descriptors for the 70-79 category answers should excel in one or more of the four areas described i.e. Coverage; Analysis; Presentation; and Investigation/Research (if appropriate).

- **Contacting your Module Leader**

  Your module leader is: **Professor Kevin Keasey**
  Tel: 0113 343 2618
  Room: 2.16
  E-mail: kk@lubs.leeds.ac.uk

  Your module tutor is: **Professor Julio Pindado**
  Room: Room 2.02 (Business School)
  Email: pindado@usal.es

  The module tutor's usual office hours during Semester Two are:

  Monday 11th March – 1pm – 6pm
  Tuesday 12th March – 1pm – 6pm
  Wednesday 13 th March – 1pm – 6pm
  Thursday 14 th March – 1pm – 6pm
  Friday 15 th March – 1pm – 6pm
  Tuesday 16th April – 1pm – 6pm
  Wednesday 17 th April – 1pm – 6pm

  Availability without an appointment in room 2.02

  If you have any queries or are experiencing any difficulties with the module, then you should contact the module manager sooner rather than later. You can contact them at any time by e-mail if you need to.

SECTION B: what you can expect and what is required from you

- **Module delivery structure**

Lectures and Classes

Panel Data	Seminar 1	Prof Julio Pindado	Sem 2	Y 1 or 2	11/03/2013	Mon	10:00-12:00	Liberty Building G.28
Panel Data	Seminar 2	Prof Julio Pindado	Sem 2	Y 1 or 2	12/03/2013	Tue	9:00-12:00	Charlies Thackrah SR 5 (1.05)
Panel Data	Practical	Prof Julio Pindado	Sem 2	Y 1 or 2	13/03/2013	Wed	9:00-12:00	Bragg A Cluster 10.05)
Panel Data	Seminar 3	Prof Julio Pindado	Sem 2	Y 1 or 2	14/03/2013	Thu	9:00-12:00	Charlies Thackrah SR1 (1.01)
Panel Data	Seminar 4	Prof Julio Pindado	Sem 2	Y 1 or 2	15/03/2013	Fri	9:00-12:00	Liberty Building G.28
Panel Data	Practical	Prof Julio Pindado	Sem 2	Y 1 or 2	16/04/2013	Tue	9:00-12:00	Social Sciences Cluster 9.02
Panel Data	Practical	Prof Julio Pindado	Sem 2	Y 1 or 2	17/04/2013	Wed	9:00-12:00	Charlies Thackrah SR 5 (1.05)
Panel Data	Seminar 5	Prof Julio Pindado	Sem 2	Y 1 or 2	18/04/2013	Thu	9:00-11:00	Liberty Building G.28

- **Outline of teaching sessions**

PART I. ECONOMETRIC MODELS FOR PANEL DATA

- **Lesson 1. Introduction to Panel Data Models**

1.1. Data Structures
1.2. Characterizing Panel Data Methods
I.3. Advantages and Limitations of Panel Data
1.4. Why is the panel data methodology needed?

Appendix A. New Approaches in Modern Econometric Analysis
A.1. Role of Conditional Expectations in Econometrics
A.2. Linear Regression Framework
A.3.The endogeneity problem: sources and responses
A.4. Instrumental Variables Estimation
A.5. Generalized Method of Moments

- **Lesson 2. Linear Static Models for Panel Data**

2.1. Introduction to Linear Static Models
2.2. Fixed Effects Models
2.3. Random Effects Models
2.4. Fixed Effects Models versus Random Effects Models
2.5. Limitations of Linear Static Panel Data

- **Lesson 3. Linear Dynamic Models for Panel Data**

3.1. Autoregressive Models
3.2. Models with Predetermined Variables
3.3. Models with Strictly Exogenous Variables
3.4. System GMM
    3.4.1 System GMM for Autoregressive Models
    3.4.2 System GMM for Models with Predetermined Variables
3.5. Specification Tests
    3.5.1 Testing for Residual Serial Correlation
    3.5.2. Testing for over identifying Restrictions
    3.5.3. Incremental Sargan Tests

- **Lesson 4. Nonlinear Panel Data Models**

4.1. Introduction to Discrete Response Models
4.2. Fixed Effects Logit
4.3. Random Effects Logit
4.4. Censored Regression Models

PART II. PANEL DATA METHODS WITH Stata®

- **Lesson 5. Introduction to Data Management with Stata®**

5.1. Basic Concepts
5.2. Data Management
5.3. Variables Management
5.4. How to Work Doing Research

- **Lesson 6. Model Estimation with Stata®**

6.1. Introduction to Model Estimation with Stata®
6.2. Estimation of Linear Static Models for Panel Data
6.3. Estimation of Linear Dynamic Models for Panel Data
    6.3.1. The Difference GMM Estimator
    6.3.2. The System GMM Estimator
6.4. Estimation of Nonlinear Panel Data Models

- **Lesson 7. Deriving Economic Models Combining Panel Data and Stata®: Case Analyses**

7.1. Improving Previous Models
7.2. Computing Parameters and Elasticities
7.3. Implementing New Research Strategies

7.4. Obtaining the Optimal Value of Parameters

Appendix B. Panel data and publication
B.1. Writing the panel data methodology in the paper
B.2. How to answer the referee topic related to methodology

- **Lesson 8. Efficient Research Process by Using Panel Data and Stata®: A Case Analysis**

8.1. Collecting and Joining the Data
8.2. Constructing Variables
8.3. Constructing Variables by Using Estimation Results
8.4. Panel Data Structure and Variable Analysis
8.5. Estimation of the Model
8.6. Process of Incorporating New Ideas

Basic References

- Arellano, M. (2003), Panel Data Econometrics (Advanced Texts in Econometrics), Oxford University Press.
- Bond, S.R. (2002): "Dynamic Panel Data Models: A Guide to Micro Data Methods and Practice". Cemmap Working Paper Series No. CWP09/02, Institute for Fiscal Studies, London.
- Greene, W. (2008): Econometric Analysis (5th Edition), Prentice Hall.
- Petersen, M.A. (2009): "Estimating Standard Errors in Finance Panel Data Sets: Comparing Approaches". The Review of Financial Studies, 22(1), 436-480.
- Pindado, J. and Requejo, I. (2012): "Panel data: a methodology for model specification and testing". In Encyclopedia of Management. Wiley (in press).
- Roodman, D. (2009): "How to do xtabond2: An introduction to difference and system GMM in Stata" The Stata Journal, 9 (1), 86-136.
- Roodman, D. (2009): "A Note on the Theme of Too Many Instruments" Oxford Bulletin of Economics and Statistics, 71, 1, 135-158.
- Wooldridge, J. M. (2002), Econometric Analysis of Cross Section and Panel Data, MIT Press.

Additional References

- Ahn, S.C. and Schmidt, P. (1995): "Efficient Estimation of Models for Dynamic Panel Data". Journal of Econometric. 68, 5-28.
- Anderson, T.W. and Hsiao, C. (1981): "Estimation of Dynamic Models with Error Components". Journal of the American Statistical Association. 76, 598-606.
- Anderson, T.W and Hsiao, C (1982): "Formulation and estimation of dynamic models using panel data". *Journal of Econometrics.* 18, 47-82.
- Arellano, M. and Bover, O. (1995): "Another look at the instrumental variable estimation of error-components models". *Journal of Econometrics*. 68, 29-51.
- Arellano, M. and S. Bond (1991): "Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations". *Review of Economic Studies*, 58, 277-297.
- Baltagi, B.H. (2005): "Econometric Analysis of Panel Data. Wiley.
- Blundell, R.W. and Bond, S.R. (1998): Initial Conditions and Moment Restrictions in Dynamic Panel Data Models". Journal of Econometrics, 87, 115-143.
- Bover, O. and M. Arellano (1997): "Estimating Dynamic Limited Dependent Variable Models from Panel Data", *Investigaciones Economicas* 21, 141-165.
- Chamberlain, G. (1980), "Analysis of covariance with qualitative data", *Review of Economic Studies*, 47, 225-238.
- Chamberlain, G. (1984), "Panel data", en Griliches, Z. and M.D. Intriligator (comp.), *Handbook of Econometrics Vol. 2*, North -Holland, Amsterdam.

- Doornik, J.; M. Arellano and S. Bond (1999): "Panel Data estimation using DPD for Ox " *Working paper* Nuffield College, Oxford.
- Hausman, J. A: (1978): “Specification Tests in Econometrics”, Econometrica, Vol. 46, 1251-1272.
- Hillier, D.; Pindado J.; V. de Queiroz and C. de la Torre (2011): “The Impact of Country-level Corporate Governance on Research and Development”. Journal of International Business Studies, 42, 76–98.
- Hsiao, C. (1990): *Analysis of panel data*. Cambridge University Press, Cambridge.
- Larcker, D.F. and T.O. Rusticus (2010): “On the use of instrumental variables in accounting research”. *Journal of Accounting and Economics*, 49, 186-205.
- Maestro, M and J. Pindado (2005): “Capital structure and stock prices: Additional evidence.” *Applies Financial Economics Letters,* 1, 355-360.
- Miguel, A. and J. Pindado (2001) “Determinants of Capital Structure: New Evidence from Spanish Panel Data”, *Journal of Corporate Finance* 7, 77-99.
- Miguel, A., J. Pindado, and C. de la Torre (2004): “Ownership structure and firm value: New evidence from the Spanish case.” *Strategic Management Journal*, 25, 1199-1207.
- Miguel, A., J. Pindado and C. de la Torre (2005): “How do entrenchment and expropriation phenomena affect control mechanisms?” *Corporate Governance: An International Review*, 13, 505-516.
- Mundlak, Y. (1961): "Empirical Production Function Free of Management Bias". *Journal of Farm Economics* 43, 44-56.
- Pindado J.; V. de Queiroz and C. de la Torre (2010). “How do Firm Characteristics Influence the Relationship between R&D and Firm Value?” *Financial Management*, 39, (2), 757-782.
- Pindado J.; I. Requejo and C. de la Torre (2011). “Family control and investment-cash flow sensitivity: Empirical evidence from the Euro zone”. Journal of Corporate Finance, 17, (2), 1389–1409.
- Pindado J.; I. Requejo and C. de la Torre (2012). ““Do family firms use dividend policy as a governance mechanism? Evidence from the Euro Zone”, Corporate Governance: An International Review, 20(5): 413–431.
- Pindado J.; L. Rodrigues and C. de la Torre (2008). “Estimating Financial Distress Likelihood”, *Journal of Business Research.* 61, (9), 995-1003.
- Pindado, J. and L. Rodrigues, (2005). “Determinants of financial distress costs”, *Financial Markets and Portfolio Management,* 19, (4), 343-359.
- Windmeijer, F. (2005). “A -finite sample correction for the variance of linear efficient two-step GMM estimators”, *Journal of Econometrics*, 126, 25 – 51.
- Wintoki, M.B., J.S. Linck and J.M. Netter (2012): “Endogeneity and the dynamics of internal corporate governance”, Journal of Financial Economics, 105, 581 – 606.

Relationship of delivery methods to objectives

The mixture of lectures and classes are intended to provide you with essential information, to help you structure that information and to be a source of explanation. The classes are a vehicle for you to build on the knowledge gained in the lectures, to develop a methodology for applying your knowledge to problems and to refine your analytical and communication skills, and to develop your ability to use key sources of data.

Feedback to students (formative feedback)

Feedback will be provided to students in the classes both through discussion and through practical exercises to test their understanding of course material. Students can also obtain feedback on a one-to-one basis from the module tutor outside the class setting.

Feedback to students (summative feedback)

Following the submission of your assignment you will receive a grade and written feedback on your assessed work

- **Assessment details**

General
Assessment will be by means of a 3,000 word project. It is LUBS policy that coursework and examination scripts are anonymised before being marked. What is required to achieve a particular grade of mark in this module is set out under 'Aims and objectives' above.
FOR ASSIGNMENTS IF APPLICABLE

Submit one paper copy of the assignment to the Research Office. Emailed or faxed assignments are not accepted. Fasten the assignment securely together - stapled ONLY. The assignment should not be bound in any way. An electronic copy of the assignment should be uploaded via the relevant module resource in the VLE, further instructions on how to do this can be found below. The electronic copy and the hard copy of the assignments must be *exact* copies of each other and both must be submitted before 12 noon on the deadline date, otherwise a late penalty will apply.

Please read section C on the rules governing the submission of coursework, including penalties for late submission, and the University's rules about plagiarism and cheating.

- **Reading**

- Pindado, J. and Requejo, I. (2012): "Panel data: a methodology for model specification and testing". In Encyclopedia of Management. Wiley (in press).
- Hillier, D.; Pindado J.; V. de Queiroz and C. de la Torre (2011): "The Impact of Country-level Corporate Governance on Research and Development". Journal of International Business Studies, 42, 76–98.
- Miguel, A. and J. Pindado (2001) "Determinants of Capital Structure: New Evidence from Spanish Panel Data", *Journal of Corporate Finance* 7, 77-99.
- Miguel, A., J. Pindado, and C. de la Torre (2004): "Ownership structure and firm value: New evidence from the Spanish case." *Strategic Management Journal*, 25, 1199-1207.
- Pindado J.; I. Requejo and C. de la Torre (2011). "Family control and investment-cash flow sensitivity: Empirical evidence from the Euro zone". Journal of Corporate Finance, 17, (2), 1389–1409.
- Pindado J.; I. Requejo and C. de la Torre (2012). ""Do family firms use dividend policy as a governance mechanism? Evidence from the Euro Zone", Corporate Governance: An International Review, 20(5): 413–431
- Pindado J.; L. Rodrigues and C. de la Torre (2008). "Estimating Financial Distress Likelihood", *Journal of Business Research.* 61, (9), 995-1003.
- Wintoki, M.B., J.S. Linck and J.M. Netter (2012): "Endogeneity and the dynamics of internal corporate governance", Journal of Financial Economics, 105, 581 – 606.

- **Work Requirements**

The work requirements associated with this course are as follows:

- attendance at lectures and classes
- preparation for classes
- reading as directed

Attendance at classes is compulsory and is recorded. Where there is a good reason for absence please let the tutor know, in advance if possible. Failure to meet the work requirements may lead to exclusion from the course. Even if that does not occur, failing to meet the work requirements is likely to reduce your chances of obtaining a good result.

- **Student Feedback and Complaints**

  Feedback
  The University requires student feedback to be obtained and evaluated for each module in every session. It is LUBS policy that the preferred way of achieving this is by means of an evaluation form.

  The University and the School have a well-defined student complaints procedure. You can obtain details of this from the Taught Postgraduate Office or your Programme Handbook.

SECTION C: further information

- **Plagiarism, Cheating, etc.**
  Offences in this area can result in attendance at a University-level committee and penalties including expulsion from the University. You need to be familiar with the rules. The details can be found on the VLE website at:
  https://vlebb.leeds.ac.uk

- **Rules of submission for assessed coursework**
  The School has detailed rules and procedures governing the submission of assessed coursework. You need to be familiar with them. The details can be found on the VLE website at: https://vlebb.leeds.ac.uk

- **Late Submission of Assessed Coursework**
  The University attaches penalties to the late submission of assessed coursework. You need to be familiar with the University's rules. The details can be found on the VLE website at: https://vlebb.leeds.ac.uk

- **The VLE (Blackboard)**
  Copies of lecture notes and other materials are available electronically through Blackboard, the University's virtual learning environment at:
  https://vlebb.leeds.ac.uk