State-Level Higher Education Research: Building and Analyzing State-Level Panel Datasets
EDHI 788M
Spring 2013

Department of Education Leadership, Higher Education & International Education

Day: Wednesdays
Time: 7:00 pm – 9:45 pm
Place: Benjamin 2119

Instructor: Marvin A. Titus, Ph.D.
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Office: Benjamin, 2200
Office hours: Tuesdays 1pm - 3pm and by appointment

Teaching Assistant: John Burczek Dreier
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Course Objective: This course is intended to instruct students on how to conduct state-level higher education policy research that addresses such questions as how college enrollment rates across states are influenced by the economic and political context of state higher education policy or how college completion rates across states are affected by state governance and the regulation of higher education. Based on their interests, students are instructed on how to design, build, and customize state-level panel datasets. Students will be introduced to, discuss, and may draw from such data sources as the Center for the Study of Education Policy (Grapevine), National Association of State Student Grant and Aid Programs (NASSGAP), National Center for Education Statistics (NCES), Education Commission on the States, U.S. Bureau of Economic Analysis, the U.S. Bureau of Census’ Current Population Survey of State Government Finances, the U.S. Bureau of Labor Statistics, the Washington Higher Education Coordinating Board, the Education Commission on the States, and other sources. The class will use a format that will alternate between seminars and "hands-on" workshops. The course syllabus will be primarily based on the specific interests of the students who enroll in the class. The course will also involve the use of computer and online labs. Students who also have an interest in state higher policy analysis and academic research using quantitative techniques will benefit from this course. Among the areas to be covered in this course are the following:

1. Identifying pertinent sources of state- or national-level secondary data with respect to state higher education policy research;

2. Designing and customizing state- or national-level panel datasets used to address specific research questions with respect to state higher education policy; and

3. Employing appropriate quantitative statistical techniques with panel datasets to address specific state higher education policy questions
Course prerequisite: Before enrolling in the course, students should have a basic knowledge of theories of measurement, measures of central tendencies and variance, theories of probability, population sampling, and hypothesis testing (typically but not exclusively covered in EDMS 645). Although not required, it is recommended that students should also have a basic knowledge of ordinary least squares (OLS) regression analysis. It is also recommended that students should be experienced users of a statistical software package such as SAS, SPSS, or Stata. (Note: For this course, the instructor will use Stata.)

Format. This course will be taught in a seminar and workshop format, which includes discussion and labs. Both discussion and labs are required, as this is a "hands-on" course. Discussions and labs are informal, meant to provide opportunities for questions and answers. Discussions will include the description of state and other higher education policy issues, research questions, available sources of data, and appropriate analyses as well as quantitative techniques. The labs will offer "how-to" experiences in gathering data, and building datasets, and using the statistical software. Although out-of-class work involves reading and working on the policy research paper, the majority of the time that students invest is spent in learning to extract secondary data, building a dataset, using the most pertinent variables, and applying the most appropriate techniques in analyses of research problems. In this course, there are no exams. However, students taking the course for credit will receive a letter grade. Assignments of class members not receiving course credit will be evaluated on the same scale. Students should plan on spending much time during the course period becoming oriented with the various sources of data, databases, learning and conducting analysis, and writing up the results of their findings. The final project will include both a paper and an oral presentation.

Requirements. Minimum requirements include attending all class discussions and labs, as well as completing assigned readings. Because the course is designed around building pertinent datasets and the application of appropriate quantitative techniques to help inform state higher education policy, all students (including auditors) are expected to complete the assignments, in order to learn how to identify a pertinent data, select the most germane variables, and apply the most appropriate research techniques. If for some reason, students need to be absent from a class, they are still expected to complete the assignments.

The course assignments include a written proposal for a state higher education policy research paper, and a short presentation to the class (15 minutes), and a written policy research paper of 15-18 pages (excluding tables, figures, and references). Students must work individually on all the assignments, including the policy research paper.

Data. Using secondary sources, students will be responsible for building their own datasets. Class members are welcome to use their own primary data, which they have previously collected, and supplemented from other secondary sources. If you plan to do this, you should discuss it with me to make sure the data are appropriate for use in this course.

Student Responsibilities. Because the pace of the course is fast, students are expected to complete an assignment that requires analysis, interpreting, and writing. It is expected that students will read the assigned material, contribute to the construction of a dataset, and complete any written assignments as well as a final project. Because of the fast pace of the course, requests for extensions on written assignments are discouraged. It is important that students practice the skills covered in lab and master them promptly. The topics and reading assignments listed for each session are approximate, based on the pace we think we will follow, and reflecting
the order of topics covered in each session. Although the progression will be the same as listed in the syllabus, the session in which each topic is covered depends, to some extent, on how the course progresses. Reading and written assignment deadlines, however, will not change. Because the assignments are sequential and cumulative, keeping up with the readings and assignment deadlines are critical.

By the end of this course, the instructor expects that students will be able to demonstrate they can:
- identify germane secondary data sources to address state-level higher education policy questions;
- design and customize their own state-level panel dataset; and
- identify and use an appropriate quantitative technique with a pertinent customized state-level panel dataset to address a specific state higher education policy question.

Instructor Responsibilities
The instructor for this course has high expectations not only for students in the course but also for himself. Students should expect that the instructor in this course will:
- Be prepared for class, read and return students’ work in a timely manner, and be interested and engaged in students’ projects;
- Remember that each student brings a different experience, and perspective to this course;
- Meet with students individually or in groups upon request and be available in person, by telephone, and by e-mail; and
- Work hard, have fun, and empower students to have a better understanding of topics covered in the course.

Required texts:

Other Required Readings:
On BlackBoard
Handouts

Required software:
Stata

Recommended texts: *Statistics – Beginning and intermediate level*
Baum, C.F. (2006). *An Introduction to Modern Econometrics Using Stata*. College Station, TX: Stata Press. [Note: “Econometrics” is the economist’s term for “statistics”.
Hamilton, L.C. (2004). *Statistics with Stata*. Belmont, CA: Brooks/Cole – Thomson Learning. [Although it is for an earlier release (Stata version 8), this book provides a good overview of procedures (from data management through time series analysis) and an introduction to programming in Stata.]


**Recommended texts:** *Statistics – Advanced level*

Arellano, M. (2003). *Panel Data Econometrics*. New York: Oxford University Press. [This is a very good but advanced text on using econometric techniques with panel data that are introduced in this course.]

Cameron, A. C. and Trivedi, P. K., (2009). *Microeconometrics Using Stata*. College Station, TX: Stata Press. [This is a comprehensive book on the use of Stata and econometrics.]


Hayashi, F. (2000). *Econometrics*. Princeton, NJ: Princeton University Press. [This is a comprehensive text, covering OLS regression through cointegration analysis, that is very mathematical.]


Woodbridge, J. M. (2002). *Econometric Analysis of Cross Section and Panel Data*. Cambridge, MA: The MIT Press. [This is a comprehensive that is intended for use in a second-semester graduate level course on micro-econometrics.]
Required Statistical Software
In this course, I use Stata, an econometric software package. I recommend that you purchase the Stata/IC 12.0 student version of Stata (this includes either a six-month, one-year or perpetual license). The other student version, Small Stata 12.0 has substantial limitations (maximum number of variables is 99; maximum number of independent variables is 99; maximum number of cases is 1,200; not designed for parallel processing). I do not recommend that you purchase the Small Stata. If your budget permits and you think you may want to use Stata after you complete the course, you may want to consider purchasing Stata/IC with a perpetual license (check the Stata web page http://www.stata.com/order/new/edu/gradplans/gp-direct.html, under Faculty or students, for prices).

In this class, students there will be some instruction in the use of Stata. In addition, here is a list of useful websites to help you to learn Stata:
http://www.stata.com/support/qs/
http://www.stata.com/support/qs/res/statalist.html
http://www.ats.ucla.edu/stat/stata/
http://stataproject.blogspot.com/
http://kurt.schmidheiny.name/teaching/shortguides.htm

Class Sessions, Schedule, and Assignments:

Session 1 January 23
Introduction and Overview
State Higher Education Policy Issues

Session 2 January 30
Background, Context, and Problems
Required readings:

Discussion of possible topics for the policy research proposal
(required readings continued on next page)

**State Higher Education Policy Questions (Hypotheses): Examples**

**Required readings:**


Stata online PDF documentation, Chapters 1 – 5.

**Discussion of possible topics for the policy research proposal**

Lab: Introduction to Stata

**Session 3**

**February 6**

**State Higher Education Policy Research: Theoretical Perspectives and Conceptual Models**

**Required readings:**


**Discussion of possible topics for the policy research proposal**

(required readings continued on next page)


Recommended Readings

**Discussion of possible topics for the policy research proposal**

Stata online PDF documentation, Chapters 6 – 11

Lab – Introduction to Stata (continued)

**Session 4**

**February 13**

**State Level-Higher Education Policy-Relevant Indicators: Examples**

WICHE - [http://www.wiche.edu/factbook](http://www.wiche.edu/factbook)

**An Introduction to the Use of Panel Data**

**Required readings:**

**Data Sources Used in State Higher Education Policy Research: Examples**

Tandberg, D. (in press). Politics, interest groups and state funding of public higher education. *Research in Higher Education*. [Online at the library] [read section Variable Construction and Description & Appendix Table 2]

**Discussion of possible topics for the policy research proposal**

(required readings continued on next page)
[read p. 382, on section Data, state-level data]


**Discussion of possible topics for the policy research proposal**

Lab: Introduction to Stata (continued) and panel data

**Session 5**
**February 20**
**An Introduction to Methods Employed in State Higher Education Policy Research**

**Required readings:**

**Panel Datasets and Heterogeneity**

**Recommended readings:**

**Discussion of possible topics for the policy research proposal**

Lab: Using Stata to analyze data

**Session 6**
**February 27**
**Outline of Policy Research Paper Proposal Due**

**Review of Ordinary Least Squares (OLS) Regression Models**

**Required reading:**

Stata online PDF documentation, pp. 1518-1526, & 1529

**Recommended readings (continued on next page):**


**Discussion of the policy research proposal**

Lab: Using Stata to do OLS regression analysis

**Session 7**

**March 6**

**Policy Research Paper Proposal Due**

**An Introduction to Methods Employed in State Higher Education**

**Policy Research: Fixed-Effects Models**

**Required readings:**


Stata online documentation, pp. 442-444, 450-452.

**Recommended readings:**


**Discussion of the policy research proposal**

Lab: Using Stata to create and analyze panel data
Session 7  
March 13  
Required readings:  
Stata online PDF documentation, pp. 442-444, 453-455.

Spring Break

Session 8  
March 27  
Policy Research Paper Proposal Due  
Panel Data Techniques: Post-Estimation and Other Tests Employed in State Higher Education Policy Research  
Required readings:  
Testing for cross-sectional dependence  
Testing for serial correlation in linear panel-data models  
Residual diagnostics for panel-data models

Session 9  
April 3  
An Introduction to Methods Employed in State Higher Education Policy Research: Other Statistical Models – Two way error-component models  
Required readings:  
Hausman–Taylor estimator for error-components models  
Stata online documentation, pp. 165-174
Dynamic fixed-effects panel modeling
Recommended readings:

Lab: Using to Stata to analyze panel data

**Session 10**  
**April 10**  
Policy Research Paper Proposal Due  
An Introduction to Methods Employed in State Higher Education Policy Research: Other Statistical Models (Continued)

Fixed- and random-effects models with an autoregressive (AR) disturbance  
Stata online PDF documentation, pp. 475-482

Feasible generalized least square (FGLS) models  
Required readings  
Stata online documentation, pp. 153 - 160

Prais-Winsten regression models with correlated panels and corrected standard errors (PCSEs)  
Stata online documentation, pp. 372 - 381

Lab: Begin work on your final project.

**Session 11**  
**April 17**  
State Higher Education Policy Research: Describing the Methods  
Required readings:  

Discussion of Student Projects  
Lab: Continue work on your final project.

**Session 12**  
**April 24**  
Draft copies of policy research papers due  

State Higher Education Policy Research: Reporting Results  
Required readings:  

**Discussion of Student Projects**

**Lab:** Begin work on your final project.

**Session 13**

**May 1**

State Higher Education Policy Research: Discussing Implications; Presenting Tables and Figures

**Required readings:**

**Discussion of Student Projects**

**Lab:** Continue work on your final project.

**Session 14**

**May 8**

State Higher Education Policy Research:

Student Presentation and Final Policy Research Paper due

**Class evaluations:**
If you have not already done so, complete the course evaluation at: [www.courseevalum.umd.edu](http://www.courseevalum.umd.edu)

Farewells
Course requirements:

Class Participation – 30% of final grade
You are expected to attend and to be actively engaged in the class. You are also expected to participate in discussions in a manner that demonstrates an understanding of the subject matter. To do so, you must complete the readings that are assigned for each session of the class prior to attending that class session. Participation in class also includes contributing to the building of a customized database.

Proposal for the Policy Research Paper – 20% of final grade
Working individually, students are expected to produce a proposal for the state higher education policy research. The proposal should include the following: problem, context, background; purpose of the study; theoretical framework or conceptual model; research design (research questions; description of the data, list of variables, and description of the quantitative method); limitations and; possible implications for policy. The written proposal for the policy research paper should include references and be no more than two pages or 1,000 words (excluding references). The format of the proposal should be double-spaced, using 12-point Times New Roman font.

Student Presentation – (10% of final grade) Working individually, students are expected to develop and present a 12 minute presentation of their final state higher education policy research paper. A hard copy of the presentation must be submitted to the instructor.

Policy Research Paper – (40% of final grade) Working individually, you are expected to complete a state higher education policy research paper. The topic for the final paper must be submitted in writing to the instructor for approval. For the policy research paper, you will design and complete a quantitative analysis that addresses a state higher education policy-relevant question or set of questions. The results of the analysis are to be presented in an 18-20 page (not including references, figures, and tables) paper that can be submitted for presentation consideration at a professional conference. The policy research paper should reflect the format of a journal article and, therefore, include the following:

1. Abstract (no more than 50 words) – separate page
2. Brief description of the problem, context, and background
3. Purpose of the study
4. Theoretical framework or conceptual model
5. Research design
   a. research question(s)
   b. description of the data
   c. list of the variables and sources
   d. description of the quantitative method
6. Limitations of the study
7. Results
8. Conclusions
9. Implications for policy
10. Recommendations for future research
11. Appendix (if needed)
12. Figures
13. Tables

The policy research paper, the figures and tables should adhere to the most recent APA Publication Manual. I encourage you to work in teams to read and critique each other’s written assignments. Thoughtful critiques from peers help to provide insight and information as we strive to improve as writers. A draft of the state higher education policy research paper is due two weeks prior to the
presentation of the paper in the final session of the class. The draft of the policy paper is to be shared with one other student in the class and the instructor for discussion and constructive written criticism.

Students should not take the time to conduct a comprehensive literature review. However, if students happen to have knowledge of relevant literature, they should feel free to cite it. The paper will account for 40% of your grade and the in-class presentation will account for 10%. A hard copy of the presentation is due at the time of presentation, the last class session.

A hard copy of the paper is due at the last class session. The format of the paper should resemble articles from scholarly journals, be 18-20 pages (no less than 17 and no more than 25 pages) in length (excluding references), double-spaced, 12-point Times New Roman font, and use the most recent APA editorial style. The paper must include a cover page that has a substantive title, your name(s), course, and date. The paper will be evaluated on clarity, cohesion, coherence, and quality of research. Purely descriptive policy papers (e.g., types of state student financial aid) and the use of basic statistics (e.g., totals or averages) are not acceptable. The use of advanced quantitative techniques not covered in this class (multilevel modeling, structural equation modeling, vector-error correction modeling, etc.) is highly discouraged.

I will not accept the paper after the due date.

Grading
This course will follow a plus/minus grading scheme as follows:

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<tr>
<th>Grade</th>
<th>Score Range</th>
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<tbody>
<tr>
<td>A+</td>
<td>100-97</td>
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<tr>
<td>A</td>
<td>96-93</td>
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<tr>
<td>A-</td>
<td>92-90</td>
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<tr>
<td>B+</td>
<td>89-87</td>
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<tr>
<td>B</td>
<td>86-83</td>
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<tr>
<td>B-</td>
<td>82-80</td>
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<td>C+</td>
<td>79-77</td>
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<td>C</td>
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<td>C-</td>
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Incompletes will be granted only for exceptional circumstances.

In accord with University of Maryland policy, students will not be penalized because of their religious beliefs and observances. Whenever possible, students will be given reasonable time to make up any academic assignment that is missed due to participation in a religious or secular observance. Students should inform the instructor of any conflicts between the course schedule and religious or secular observances as soon as possible (preferably within two weeks of the start of the semester) so that appropriate arrangements may be made.

ACADEMIC INTEGRITY
All students are expected to abide by the code of academic integrity throughout this course and all other courses offered at the University of Maryland. Academic dishonesty, including cheating, fabrication,
and plagiarism will not be tolerated and will be reported to the Dean of the Graduate School (or
designee). For specific definitions or examples of academic dishonesty and nonacademic misconduct
with possible sanctions, see the University of Maryland Honor and Honor Pledge on the web at:
www.jpo.umd.edu/aca/honorpledge.html. Students who have questions about the code, or their
obligations under the code, should contact the Honor Council at 301.314.8450.

ACCOMODATIONS FOR STUDENTS WITH DISABILITIES
A student with a documented disability or any other special need who wishes to discuss academic
accommodations should contact the instructor as soon as possible. The instructor will then consult with
the Department Chair and Dr. Jo Ann Hutchinson, at Disability Support Services (301.314.7681), who
will make arrangements with the student to determine and implement appropriate academic
accommodations.

COURSE EVALUATION
Students are strongly encouraged to complete the course evaluation at the following website:
www.coursesevalum.umd.edu. Participation in the evaluation of the courses is a responsibility you hold as a
student member of the University academic community. Your evaluation is confidential and important to the
improvement of teaching and learning at the University.