

DOKTORANTŪROS STUDIJŲ DALYKO SANDAS

Dalyko pavadinimas	Mokslo kryptis (šaka) kodas	Fakultetas	Katedra
Topics in Econometrics	Ekonomika S 004	Ekonomikos ir verslo administravimo fakultetas Kauno fakultetas	
Studijų būdas	Kreditų skaičius ECTS	Studijų būdas	Kreditų skaičius
paskaitos	1	konsultacijos	
individualus	6	seminarai	

Dalyko anotacija

Objective of the course: The central objective of the course is to provide theoretical and quantitative foundations of econometrics with special focus on identification and disentangling of causal mechanism. To achieve this objective, as well as provide a comprehensive overview of econometrics, the course is divided into three parts:

1. General econometrics,
2. Micro-econometrics,
3. Macro-econometrics.

The first part will establish fundamental concepts, tools and methods in econometrics. Students will learn about causal inference, asymptotic properties of different estimators, linear and nonlinear estimators, and instrumental variables. The second part will focus on econometric issues and applications associated with widely available micro-datasets. Specifically, students will learn about structure of micro-datasets and its implication for estimation and inference, and application of nonlinear estimators. The third part of the course focuses on time series data and the problem of causality and forecasting associated with this type of data. Students will learn about the issue of stationarity/non-stationarity, dynamic causal effects, and vector auto-regressions..

Learning outcomes: After successful completion of the course students will have a broad overview about various econometrics concepts and methods. They will develop the skills to disentangle correlation from causality, frame proper research questions, and implement different econometric methods using programming language R.

Course outline:

a. **General Econometrics** (8 hours)

- i. **Lecture 1:** Basics Concepts in Statistics: Expectations, Random Variables, Asymptotics. Definition of Estimators. Their Properties: Linearity, Unbiasedness, Efficiency (Asymptotic Efficiency). Modes of Convergence. Slutsky's Theorem. Law of Large Numbers. Central Limit Theorem.
- ii. **Lecture 2:** OLS and Gauss-Markov Theorem. Large sample properties of OLS. Maximum Likelihood (ML), Fisher Information. Relationship between OLS and MLE.
- iii. **Lecture 3:** Causality and Regression. OLS and Program Evaluation.

iv. **Lecture 4:** Causality and Regression. OLS and Instrumental Variables.

b. **Micro-econometrics** (8 hours)

- i. **Lecture 1:** Structure of micro-economic datasets, inference in these datasets; finite populations, super-populations, sampling variance of the mean, sampling weights, stratification and clustering.
- ii. **Lecture 2:** How survey designs affect regressions, how to deal with clustered samples and different types of weights, heteroscedasticity and simple quantile regressions, and estimation of censored regression variables.
- iii. **Lecture 3:** Generalized method of moment (GMM) estimation.

iv. **Lecture 4:** Maximum likelihood (ML) estimation.

c. **Macro-econometrics** (8 hours)

- i. **Lecture 1:** Introduction to time series data, autoregressive models, and Granger causality.
- ii. **Lecture 2:** Forecasting, forecast criteria, trends and non-stationarity.
- iii. **Lecture 3:** Dynamic causal effects in single dependent variable models, interpretation of causal effects.
- iv. **Lecture 4:** Vector auto-regression, and methods for estimation of dynamic causal effects.

Evaluation (exam and grading):

The evaluation is divided into two parts: one exam accounting for 40 percent, and one take home assignment accounting for 60 percent. The weights associated with each sub-module in exam are as follows:

- General econometrics: 30 percent i.e. 12 percent overall.
- Micro-econometrics: 35 percent i.e. 14 percent overall.
- Macro-econometrics: 35 percent i.e. 14 percent overall.

The assignment can be done in a group of two students. The rules of assignment are as follows: lecturers will propose some empirical papers conditional on the size of the class. The assignment is to replicate the results of that empirical paper. Each group will submit their preference for the paper. Based on the preferences, papers will be assigned. The instructors are supposed to guide students in replication of the paper. However, independent initiative from the student's side will be rewarded. In the end, students will have to submit the replication code, and properly written results in LaTeX.

Pre-requisite: It is absolutely necessary that you have a basic understanding of linear algebra (especially matrix manipulations) and probability theory. Further, you should have taken a basic course in econometrics. Further, if you don't know R, then you should start learning. It will be needed in assignment/exam. There are many online resources for learning. It is recommended that you download RStudio and then go through RBootCamp by Jared Knowles [Link].

Pagrindinė literatūra
a. General econometrics
Text books:
Angrist, Joshua D. and Jörn-Steffen Pischke: Mostly Harmless Econometrics: An Empiricist's Companion, Princeton University Press, 2009. (optional)
Stachurski, John: A Primer in Econometric Theory, The MIT Press, 2016. (mandatory)
Articles:
Acemoglu, Daron, Simon Johnson and James A. Robinson (2001). "The Colonial Origins of Comparative Development: An Empirical Investigation". American Economic Review. 91 (5): 1369-1401.
Angrist, Joshua and Alan Krueger (1991). "Does Compulsory School Attendance Affect Schooling and Earnings?", Quarterly Journal of Economics, 106 (4): 979- 1014. Angrist, Joshua (1990). "Lifetime Earnings and the Vietnam Draft Lottery: Evidence from Social Security Administrative Records". American Economic Review. 80 (3): 313-336.
Card, David and Alan B. Krueger (1994). "Minimum Wages and Employment: A Case Study of the Fast-Food Industry in New Jersey and Pennsylvania". American Economic Review. 84 (4): 772-793.
b. Micro-econometrics
Text books:
Cameron, A. C., & Trivedi, P. K. (2005). Microeconometrics: methods and applications. Cambridge university press.
Deaton, A. (1997). The Analysis of Household Survey: Microeconomic Analysis for Development Policy. Princeton: John Hopkins. [Available online: link]
Articles:
Will be recommended conditional on the progress of the class.
c. Macro-econometrics
Text book:
Stock, J. H., & Watson, M. W. (2007). Introduction to Econometrics. Boston: Pearson/Addison Wesley.
Articles:
Will be recommended conditional on the progress of the class.

Konsultuojančiųjų dėstytojų vardas, pavardė	Mokslo laipsnis	Svarbiausieji darbai mokslo kryptyje (šakoje) paskelbti per pastaruosius 5 metus
Povilas Lastauskas	Dr.	<p>Lastauskas, P., & Stakenas, J. (2018). Structural labour market reforms in the EU-15: Single-country vs. coordinated counterfactuals. Structural Change and Economic Dynamics, 44, 88-99.</p> <p>Lastauskas, P., & Stakenas, J. (2018). Openness and Structural Labor Market Reforms: Ex Ante Counterfactuals. Contemporary Economic Policy, 36(4), 723-757.</p> <p>Constantinescu, M., & Lastauskas, P. (2018). The knotty interplay between credit and housing. The Quarterly Review of Economics and Finance, 70, 241-266.</p> <p>Araujo, J. D., Lastauskas, P., & Papageorgiou, C. (2017). Evolution of Bilateral Capital Flows to</p>

		<p>Developing Countries at Intensive and Extensive Margins. <i>Journal of Money, Credit and Banking</i>, 49(7), 1517-1554.</p> <p>Lastauskas, P., & Stakenas, J. (2016). Labour Market Institutions in Open Economy (No. 33). Bank of Lithuania.</p> <p>Lastauskas, P., & Stakėnas, J. (2016). Openness and Structural Labour Market Reforms: Counterfactuals for Lithuania (No. 1). Bank of Lithuania.</p> <p>Araujo, J., Lastauskas, P., & Papageorgiou, C. (2015). Evolution of Bilateral Capital Flows to Developing Countries at Intensive and Extensive Margins. Available at SSRN 2584723.</p> <p>Lastauskas, P., & Stakenas, J. (2015). Global Perspective on Structural Labour Market Reforms in Europe.</p> <p>Guadarrama-Baena, R., & Lastauskas, P. (2015). Fiscal Policy and Trade Margins: An Educational Channel.</p> <p>Lastauskas, P., & Tatsi, E. (2013). Spatial Nexus in Crime and unemployment in Times of crisis: Evidence from Germany.</p> <p>Lastauskas, P. (2013). Europe's revolving doors: Import competition and endogenous firm entry institutions.</p> <p>Bičiūnaitė, A., & Lastauskas, P. (2012). Strategies for Deeper Integration: Case Study of the Baltics. Available at SSRN 2193691.</p> <p>Karpuškienė, V., & Lastauskas, P. (2010). Ekonometrinis modeliavimas su EViews: praktinis gidas.</p> <p>Lezgovko, A., & Lastauskas, P. (2008). ŠIUOLAIKINĖ DRAUDIMO RINKA ES ŠALYSE IR LIETUVOJE: ANALIZĖ IR PERSPEKTYVOS. <i>Ekonomika/Economics</i>, 82.</p> <p>Lezgovko, A., & Lastauskas, P. (2008). DRAUDIMO VERSLO PLĖTRA: TEORINIAI ASPEKTAI IR RINKOS PLĖTROS PRIELAIDOS. <i>Business: Theory & Practice</i>, 9(2).</p>
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Konsultuojančiųjų dėstytojų vardas, pavardė	Mokslo laipsnis	Svarbiausieji darbai mokslo kryptyje (šakoje) paskelbti per pastaruosius 5 metus
Soroosh Soofi Siavash	Dr.	<p>Siavash, S. S. (in progress). On the Macroeconomic Effects of Intermediaries Balance Sheet Shocks: Sectoral Propagation</p> <p>Siavash, S. S., Binder, M. (2017). Measuring Global Financial Connectedness</p> <p>Siavash, S. S. (2018). Dominant U.S. Manufacturing Sectors: A Factor Model Analysis</p> <p>Siavash, S. S., Binder, M. (2014). Measuring Global Financial Connectedness</p>

Konsultuojančiųjų dėstytojų vardas, pavardė	Mokslo laipsnis	Svarbiausieji darbai mokslo kryptyje (šakoje) paskelbti per pastaruosius 5 metus
Swapnil Singh	Dr.	<p>Luke, N., Munshi, K., Anu Oommen, M., Singh, S. (2019). Economic Development, the Nutrition Trap, and Noncommunicable Disease.</p> <p>Singh, S., Beetsma, R. (2018) Optimal Monetary</p>

	<p>Policy under Sectoral Interconnections, Netherlands Economic Review (De Economist).</p> <p>Swapnil Singh & Christian A. Stoltenbergz, (2018). "How Much Do Households Really Know About Their Future Income?," Bank of Lithuania Working Paper Series 55, Bank of Lithuania.</p> <p>Singh, S. (2018). "Public insurance of married versus single households in the US: trends and welfare consequences," Bank of Lithuania Working Paper Series 54, Bank of Lithuania.</p> <p>Jakucionyte, E., Singh, S. (2018). Mortgage Foreclosure Risk After the Great Recession.</p> <p>Singh, S. (2016). Public insurance of married versus single households in the US: trends and welfare consequences. Job Market Paper.</p>
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Doktorantūros komiteto teikimu patvirtinta fakulteto/instituto taryboje 20__ m. __ mėn. __ d. ,
protokolo Nr.

Tarybos pirmininkas

Pastaba: jei doktorantūros teisė bus suteikta kartu su kita institucija, tvirtinama ne fakulteto taryboje, o jungtinėje komisijoje.