

NADALJEVALNA EKONOMETRIJA

UČNI NAČRT PREDMETA/COURSE SYLLABUS

Predmet:	Nadaljevalna ekonometrija
Course title:	Advanced Econometrics
Članica nosilka/UL Member:	UL EF

Študijski programi in stopnja	Študijska smer	Letnik	Semestri	Izbirnost
Ekonomске in poslovne vede, tretja stopnja, doktorski	Ni členitve (študijski program)		2. semester	izbirni

Univerzitetna koda predmeta/University course code:	0099023
Koda učne enote na članici/UL Member course code:	198004

Predavanja /Lectures	Seminar /Seminar	Vaje /Tutorials	Klinične vaje /Clinical tutorials	Druge oblike študija /Other forms of study	Samostojno delo /Individual student work	ECTS
40		25		40	135	8

Nosilec predmeta/Lecturer: Martin Wagner

Izvajalci predavanj:	
Izvajalci seminarjev:	
Izvajalci vaj:	
Izvajalci kliničnih vaj:	
Izvajalci drugih oblik:	
Izvajalci praktičnega usposabljanja:	

Vrsta predmeta/Course type: Metodološke osnove /Methodological foundations

Jeziki/Languages:	Predavanja/Lectures:	Angleščina, Slovenščina
	Vaje/Tutorial:	Angleščina, Slovenščina

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:

Opravljena Ekonometrija 2 na magistrskem programu Ekonomija, Ekonomija s podatkovno analizo ali Denar in finance na Ekonomski fakulteti Univerze v Ljubljani ali enakovreden predmet ter osvojena znanja predmetov metodoloških osnov Matematika za ekonomske in poslovne vede in Verjetnost in statistika.

Orientacijska učbenika za predhodno znanje:
Amemiya, T. (1994), Introduction to Statistics and Econometrics, Harvard University Press.

Prerequisites:

Completed Econometrics 2 in the MSc programme Economics, Economics with Data Science, or Money and Finance at the School of Economics and Business, University of Ljubljana or equivalent and acquired knowledge of methodological foundation courses Mathematics for Economics and Business and Probability and Statistics.

Representative pre-requisite textbooks:
Amemiya, T. (1994), Introduction to Statistics and Econometrics, Harvard University Press.

Sydsaeter, K., Hammond P., Seierstad, A. and Strom, A. (2008), Further Mathematics for Economic Analysis, 2nd Edition, Prentice Hall.	Sydsaeter, K., Hammond P., Seierstad, A. and Strom, A. (2008), Further Mathematics for Economic Analysis, 2nd Edition, Prentice Hall.
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Vsebina:	Content (Syllabus outline):
<p>Napredna ekonometrična teorija</p> <ul style="list-style-type: none"> • Uvod • Opisna linearna regresija • Klasični linearni regresijski model • Posplošeni linearni regresijski model • Normalni linearni regresijski model: ocenjevanje parametrov in preizkušanje domnev po principu največjega verjetja • Temelji asimptotične teorije • Asimptotična analiza posplošenega linearnega regresijskega modela • Asimptotično sklepanje v posplošenih linearnih regresijskih modelih (robustno sklepanje) • Endogeni regresorji: ocenjevanje s pomočjo instrumentalnih spremenljivk in posplošene metode momentov 	<p>Advanced Econometric Theory</p> <ul style="list-style-type: none"> • Introduction • Descriptive Linear Regression • The Classical Linear Regression Model • The Generalized Linear Regression Model • The Normal Linear Regression Model: Maximum Likelihood Estimation and Hypothesis Testing • Some Basics of Asymptotic Theory • Asymptotic Analysis of the Generalized Linear Regression Model • Large Sample Inference in the Generalized Linear Regression Model (Robust Inference) • Endogenous Regressors: IV and GMM Estimation

Temeljna literatura in viri/Readings:
<p>Temeljni vir za študij so predavateljeve skripte predavanj. Nadaljnji viri o izbranih obravnavanih temah bodo predstavljeni med predavanji, podroben seznam literature je naveden tudi v skriptah predavanj./A detailed set of lecture notes will be distributed that is the primary necessary reading. For further reading on specific issues covered, these will be indicated during the lectures and, furthermore, the lecture notes contain a detailed set of references.</p> <p>Učbeniki, ki pokrivajo dele predmeta na ustrezni ravni zahtevnosti, so npr.:/Some examples of books covering parts of the material discussed in the course at similar levels include: Hayashi, F. (2000), Econometrics, Princeton University Press. Rao, C.R. (1973), Linear Statistical Inference and its Applications, 2nd Edition, John Wiley and Sons. Ruud, P.A. (2000), An Introduction to Classical Econometric Theory, Oxford University Press.</p>

Cilji in kompetence:	Objectives and competences:
<p>Cilji predmeta so (i) študentom ponuditi zadostno znanje ekonometrične teorije, da bodo znali uporabiti (zahtevnejše) ekonometrične metode na primeren način in v ustreznih kontekstih, (ii) dati študentom izhodiščna znanja za nadaljnje teoretične in aplikativne ekonometrične predmete in (iii) usposobiti študente za samostojen študij nadaljnjih ekonometričnih vsebin in metod, ki jih npr. potrebujejo pri svoji doktorski disertaciji.</p>	<p>The objectives of the course are (i) to provide students with the foundations in econometric theory to be able to apply (high-level) suitable econometric methods in an appropriate way and in adequate contexts, (ii) to equip students with the necessary prerequisites to be able to participate in subsequent further econometrics courses, both theoretical and applied, and (iii) to be able to study further econometric material and methods (required, e.g., for the thesis project) independently.</p>

Predvideni študijski rezultati:	Intended learning outcomes:
Znanje in razumevanje:	Knowledge and understanding:

<ul style="list-style-type: none"> • Znanje ekonometrične teorije na ravni, primerni za doktorski študij ekonomije, mednarodne ekonomije ali denarja in financ. <p>Uporaba in analiza</p> <ul style="list-style-type: none"> • Razumevanje in uporaba ustreznih ekonometričnih metod, potrebnih za empirično ekonomsko analizo in raziskovalno delo. • Priprava za absorpcijo nadaljnjih naprednih in specializiranih ekonometričnih vsebin. • Uporaba obravnavanih ekonometričnih metod v ustreznih programih. <p>Vrednotenje in sinteza:</p> <ul style="list-style-type: none"> • Spodobnost izbire ustreznih in uporabnih ekonometričnih metod za določen empirični problem. 	<ul style="list-style-type: none"> • Knowledge of econometric theory at a level appropriate for PhD students in Economics, International Economics, or Money and Finance. <p>Application and analysis:</p> <ul style="list-style-type: none"> • Solid basis for understanding and application of appropriate econometric methods as used in empirical economic analysis and research. • Preparation for being able to follow advanced courses on specialized econometric topics. • Experience in applying the discussed econometric methods in appropriate software. <p>Evaluation and synthesis:</p> <ul style="list-style-type: none"> • Ability to make appropriate choices concerning useful and applicable econometric methods for a given empirical problem.
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Metode poučevanja in učenja:	Learning and teaching methods:
Predavanja, samostojen (ampak voden) študij na podlagi rednih analitičnih in empiričnih računalniških domačih nalog in vaj.	Lectures, independent (but supervised) self-study by means of regular pencil and paper as well as empirical computer-based homework and exercise sessions.

Načini ocenjevanja:	Delež/Weight	Assessment:
Načini: pisni izpit, ustno izpraševanje, vaje in domače naloge Pisni izpit: 70 % Vaje: 30 %		Types: written examination, oral examination, exercise sessions and homework Final exam: 70% Exercises: 30%

Ocenjevalna lestvica:	Grading system:

Reference nosilca/Lecturer's references:

Prof. Dr. Martin Wagner (Publications in refereed journals since 2014):

1. Stypka, O., M. Wagner, P. Grabarczyk and R. Kawka (2024): Cointegrating Polynomial Regression Models: Robustness of Fully Modified OLS. Forthcoming in: Econometric Theory.
2. Wagner, M. (2023): Fully Modified Estimation and Inference for Systems of Cointegrating Polynomial Regressions. Economics Letters **228**, 111186.
3. Wagner, M. and K. Reichold (2023): Panel Cointegrating Polynomial Regressions: Group-Mean Fully Modified Estimation and Inference. Econometric Reviews **42**, 358 – 392.
4. Wagner, M. (2023): Residual Based Cointegration and Non-Cointegration Tests for Cointegrating Polynomial Regressions. Empirical Economics **65**, 1 – 31.
5. de Jong, R. and M. Wagner (2022): Panel Cointegrating Polynomial Regression Analysis and the Environmental Kuznets Curve. Econometrics and Statistics, in press.
6. Reynolds, J., L. Sögner and M. Wagner (2021): Deviations from Triangular Arbitrage Parity in Foreign Exchange and Bitcoin Markets. Central European Journal of Economic Modelling and Econometrics **13**, 105 – 146.
7. Knorre, F., M. Wagner and M. Grupe (2021): Monitoring Cointegrating Polynomial Regressions: Theory and Application to the Environmental Kuznets Curves for Carbon and Sulfur Dioxide Emissions. Econometrics **9**, 12 (35 pages).

8. Bauer, D., L. Matuschek, P. de Matos Ribeiro and M. Wagner (2020): A State Space Parameterization for Unit Root Processes: Structure Theory with a Focus on Hypothesis Testing. Econometrics **8**, 42 (54 pages).
9. Wagner, M., P. Grabarczyk and S.H. Hong (2020): Fully Modified OLS Estimation and Inference for Seemingly Unrelated Cointegrating Polynomial Regressions and the Environmental Kuznets Curve for Carbon Dioxide Emissions. Journal of Econometrics **214**, 216 – 255.
10. Stypka, O. and M. Wagner (2019): The Phillips Unit Root Tests for Polynomials of Integrated Processes Revisited. Economics Letters **176**, 109 – 113.
11. Wagner, M. and A. Zeileis (2019): Heterogeneity and Spatial Dependence of Regional Growth in the European Union: A Recursive Partitioning Approach. German Economic Review **20**, 67 – 82.
12. Grabarczyk, P., M. Wagner, M. Frondel and S. Sommer (2018): A Cointegrating Polynomial Regression Analysis of the Material Kuznets Curve Hypothesis. Resources Policy **57**, 236 – 245.
13. Wagner, M. and D. Wied (2017): Consistent Monitoring of Cointegrating Relationships: The US Housing Market and the Subprime Crisis. Journal of Time Series Analysis **38**, 960 – 980.
14. Deistler, M. and M. Wagner (2017): Cointegration in Singular ARMA Models. Economics Letters **155**, 39 – 42.
15. Wagner, M. and S.H. Hong (2016): Cointegrating Polynomial Regressions: Fully Modified OLS Estimation and Inference. Econometric Theory **32**, 1289 – 1315.
16. Wagner, M. (2015): The Environmental Kuznets Curve, Cointegration and Nonlinearity. Journal of Applied Econometrics **30**, 948 – 967.
17. Wagner, M. and J. Hlouskova (2015): Growth Regressions, Principal Components and Frequentist Model Averaging. Jahrbücher für Nationalökonomie und Statistik **235**, 642 – 662.
18. Pedroni, P., T.J. Vogelsang, M. Wagner and J. Westerlund (2015): Nonparametric Rank Tests for Non-Stationary Panels. Journal of Econometrics **185**, 378 – 391.
19. Vogelsang, T.J. and M. Wagner (2014): Integrated Modified OLS Estimation and Fixed-b Inference for Cointegrating Regressions. Journal of Econometrics **178**, 741 – 760.