Topics in Econometrics (A)

Academic Year: (2020 / 2021) **Review date: 07-09-2020**

Department assigned to the subject: Economics Department

Coordinating teacher: DELGADO GONZALEZ, MIGUEL ANGEL

Type: Electives ECTS Credits : 4.0

Year : 2 Semester : 2

REQUIREMENTS (SUBJECTS THAT ARE ASSUMED TO BE KNOWN)

Econometrics I, Econometrics II and Econometrics III

OBJECTIVES

This course covers advanced topics of econometric and statistical theory that are not studied by the sufficient depth in the previous courses, providing key tools for the development of research in econometric methodology. Its contents are decided in agreement to the current importance of the topics and they will cover themes on non- and semi-parametric inference and identification, stochastic processes, inference based on empirical processes, bootstrap methods in Econometrics and specification tests.

DESCRIPTION OF CONTENTS: PROGRAMME

1. Inference on Lebesgue densities and regression curves.
2. Inference on semiparametric models using smoothing.
3. Specification testing using grouped data: Chi-squared tests.
4. Omnibus specification testing: Empirical processes and smoothing.

ASSESSMENT SYSTEM

Continuous evaluation: 2 assignments

Final exam: take home exam.

% end-of-term-examination:	50
% of continuous assessment (assigments, laboratory, practicals…):	50

BASIC BIBLIOGRAPHY

- Fan, J. ¿Local Linear Somoothers and Their Minimax Efficiencies¿, Annals of Statistics 21, 196 ¿ 216, 1993

- Manski, C.F ¿Adaptive Estimation of Non-linear Regression Models¿, Econometric Reviews 3, 145-194, 1984

- Newey, W. K. ¿Adaptive Estimation of Regression Models via Moment Restrictions¿, Journal of Econometrics 38, 301 ¿ 339, 1988
- Newey, W.K ¿Efficient Instrumental Variables Estimation of Nonlinear Models", Econometrica 58, 809 ¿ 837., 1990

- Powell, J, Stock, J. and Stoker, T ¿Semiparametric Estimation of Index Coefficients¿, Econometrica 57, 1403 ¿ 1430
- Robinson, P. M Asymptotically Efficient Estimation in the Presence of Heteroskedasticity of Unknown Form¿. , Econometrica 55, 875-891, 1988
- Robinson, P. M ¿Semiparametric Econometrics: A Survey", Journal of Applied Econometrics 3, 35-51, 1988

- Robinson, P. M ¿Root ¿N-Consistent Semiparametric Regression¿, Econometrica 6, 931-954, 1988

- Stone, C.J. ¿Adaptive Maximum-likelihood Estimation of a Location Parameter¿., Annals of Statistics 3, 267-284, 1975

ADDITIONAL BIBLIOGRAPHY

- Abadie, A. Bootstrap tests for distributional treatment effects in instrumental variable models. , Journal of the American Statistical Association, 97(457), 284-292, 2002
- Abadie, A., & Imbens, G. W. Large sample properties of matching estimators for average treatment

effects., Econometrica, 74(1), 235-267., 2006

- Anderson, T.W. Goodness of fit tests for spectral distributions, The Annals of Statistics, 21, 830-847, 1993

- Andrews, D. W. K. A conditional Kolmogorov test, Econometrica, 65, 1097--1128., 1997

- Anselin, L. Spatial Econometrics: Methods and Models , (Vol. 4). Springer Science & Business Media., 2013

- Bai, J. and Ng, S. A test for conditional symmetry in time series models, Journal of Econometrics 103, 225-258, 2001

- Bartlett, M.S Problèmes de l'analyse spectral des séries temporelles stationnaires, Publ. Inst. Statist. Univ. Paris III-3, 119-134, 1954

- Bickel, P.J. and M. Rosenblat On Some Global Measures of the Deviations of Density Function Estimates, Annals of Statistics, 1, 1071-1095, 1973

- Bierens, H. Consistent model specification test, Journal of Econometrics, 20, 105--134., 1982

- Bierens, H. A Consistent conditional moment test of functional form, Econometrica, 58, 1443-1458., 1990

- Bierens, H. and W. Ploberger Asymptotic theory of integrated conditional moment tests, Econometrica, 65, 1129--1151, 1997

- Blinder, A. S. Wage discrimination: reduced form and structural estimates, Journal of Human Resources, 436-455., 1973

- Blum, J.R., J. Kiefer and M. Rosenblatt Distribution free tests of independence based on the sample distribution function, Annals of Mathematical Statistics, 32, 485-498., 1961

- Butler, C.C. A test for symmetry using the sample distribution function, Annals of Mathematical Statistics 40, 2209-2210., 1969

- Cantelli, F.   Sulla probabilita come limita della frequenza, . Rend. Accad. Lincei 26(1), p. 39, 1933

- Case, A. C. Spatial patterns in household demand, Econometrica: Journal of the Econometric Society, 953-965., 1991

- Chen, H. and J.P. Romano Bootstrap-assisted goodness-of-fit tests in the frequency domain, Journal of Time Series Analysis, 20, 619 ¿ 654, 2002

- Chen, X. and Y. Fan (Consistent hypothesis testing in semiparametric and nonparametric models for econometric time series, Journal of Econometrics, 91, 373--401., 1999

- Chernozhukov, V., Fernández-Val, I., & Melly, B Inference on counterfactual distributions. , Econometrica, 81(6), 2205-2268., 2013

- D'Agostino, R.B. and M.A. Stephens Goodness-of-fit techniques, Marcel Dekker., 1986

- Delgado On testing conditional moment restrictions. Structural Econometrics: Essays in Methodology and Applications, B. Dutta ed., Oxford University Press, Oxford., 285-313., 2010

- Delgado, M Testing the equality of nonparametric regression curves, Statistics and Probability Letters, 17, 199--204, 1993

- Delgado, M. A. Hoeffding-Blum-Kiefer-Rosenblatt process. Encyclopedia of Statistical Sciences, Update Volume 3, Kotz et al eds. 326-328., 1999

- Delgado, M. and W. González-Manteiga Significance testing in nonparametric regression based on the bootstrap, The Annals of Statistics, 29, 1469-1507., 2001

- Delgado, M., M. A. Domínguez and P. Lavergne Consistent tests of conditional moment restrictions. , Annales d'Economie et de Statistique, 81(1), 33-67., 2006

- Delgado, M.A. Testing serial independence using the sample distribution function, Journal of Time Series Analysis, 17, 271-286, 1996

- Delgado, M.A. and J. Mora A nonparametric test for serial independence of regression errors, Biometrika, 87, 228-234, 2000

- Delgado, M.A. and J.C. Escanciano Nonparametric tests for conditional symmetry in dynamic models, Journal of Econometrics, 652-682., 2007

- Delgado, M.A. and T. Stengos Semiparametric testing in non-nested econometric models, Review of Economic Studies, 303, 291-303, 1994

- Delgado, M.A., Hidalgo, J. and Velasco, C. Distribution free goodness-of-fit tests for linear processes, The Annals of Statistics, 33, 2568-2609, 2005

- Delgado, M.A., Stute, W Distribution-free specification tests of conditional models, Journal of Econometrics 143, 37 55, 2008

- Durbin, J. Weak convergence of the sample distribution function when parameters are estimated, The Annals of Statistics, 1, 279-290, 1973

- Durbin, J. and M. Knott Components of Cramér-von Mises statistic I, Journal of the Royal Statistical Society, Series B, 34, 290-307., 1972

- Durbin, J., C.C. Taylor and M. Knott Components of Cramér-von Mises statistic II, Journal of the Royal Statistical Society, Series B, 37, 216-237, 1975

- Escanciano, J.C. Weak convergence of non-stationary multivariate marked processes with applications to martingale testing, Journal of Multivariate Analysis, 98, 1321-1336., 2007

- Escanciano, J.C. and C. Velasco Generalized spectral tests for the martingale difference hypothesis, Journal of Econometrics, 134, 151-185., 2006

- Escanciano, J.C. and C. Velasco Testing the martingale difference hypothesis using integrated regression functions, Computational Statistics & Data Analysis, 51, 2278-2294., 2006
- Fan, Y. Testing goodness-of-fit of a parametric density function by kenel method, Econometric Theory, 10, 316-356., 1994
- Fan, Y. and Q. Li Consistent model specification tests: omitted variables, parametric and semiparametric functional forms, Econometrica, 64, 865--890, 1996
- Fan, Y. and Q. Li Consistent model specification tests, Econometric Theory, 16, 1016-1041., 2000
- Foresi, S., & Peracchi, F. The conditional distribution of excess returns: An empirical analysis., Journal of the American Statistical Association, 90(430), 451-466., 1995
- Glivenko, V. Sulla determinazione empirica delle leggi di probabilita, Giornale dell'Istituta Italiano degli Attuari 4, p. 92., 1933
- Hart, J. Nonparametric Smoothing and Lack-of-Fit Tests, Springer, 1993
- Hill, B.M. A simple general approach to inference about the tail of a distribution, Annals of Mathematical Statistics, 3, 1163-1174, 1975
- Hoeffding, W. A nonparametric test of independence, Annals of Mathematical Statistics, 19, 546-557., 1948
- Hong, Y. Generalized spectral tests for serial dependence, Journal of the Royal Statistical Society. Series B, Vol. 62, 557-554., 2000
- Horowitz, J.L. and V.G. Spokoiny An adaptive, rate-optimal test of a parametric model against a nonparametric alternative, Econometrica, 69(3), 599-631., 2001
- Hsing, T. On tail index estimation using dependent data, Annals of Statistics, 19, 1547-1569., 1991
- Härdle, W Applied Nonparametric Regression, Cambridge Univ. Press, 1986
- Härdle, W. and E. Mammen Comparing nonparametric versus parametric regression fits, The Annals of Statististics, 21, 1926-1947, 1993
- Imbens, G. W., & Wooldridge, J. M. Recent developments in the econometrics of program evaluation., Journal of Economic Literature, 47(1), 5-86., 2009
- Khmaladze, E.V Martingale approach to the goodness of fit tests, Theory of Probability and its Applications, 26, 246-265., 1981
- Khmaladze, E.V. An innovation approach in goodness of fit tests in Rm, The Annals of Statistics, 16, 1503-1516, 1988
- Khmaladze, E.V.   Goodness of fit problem and scanning innovation martingales, The Annals of Statistics, 21, 798-829, 1993
- Kolmogorov, A. Sulla determinazione empirica di una leggi di distribuzione, Giornale dell'Istituta Italiano degli Attuari 4, 33, 1933
- Koul, H. L. and Stute, W. Nonparametric Model Checks for Time Series, The Annals of Statistics, 27, 204-236., 1999
- Lavergne, P. and Q. H. Vuong Nonparametric significance testing, Econometric Theory, 16, 576-601, 2000
- Leadbetter, M.R., G. Lindgren & H. Rootzen Extremes and Related Properties of Random Sequences and Processes. , Springer-Verlag, 1983
- Lee, M-j Methods of Moments and Semiparametric Econometrics for Limited Variable Models, , Springer, 1996
- Lehmann, E.L. and J.P. Romano Testing statistical hypotheses, Springer, 2006
- Li Q, Racine JS. Nonparametric Econometrics: Theory and Practice , Princeton University Press, 2007
- Li Q. and S. Wang A simple consistent bootstrap test for a parametric regression function, Journal of Econometrics, 87, 145--165, 1998
- Nikabadze, A. and W. Stute Model checks under random censorship, Statistics and Probability Letters, 32, 249-259, 1997
- Oaxaca, R. Male-female wage differentials in urban labor markets, International Economic Review, 693-709., 1973
- Robinson, P.M. Hypothesis testing in semiparametric and nonparametric models for econometric time series, The Review of Economic Studies, 56, 511-534, 1989
- Rosenblatt M. A quadratic measure of deviation of two-dimensional density estimates and a test of independence, The The Annals of Statistics, 3, 1-14, 1975
- Silverman, B Density Estimation for Statistic and Data Analysis, Chapman Hall., 1986
- Simonov, J.S Smoothing Methods in Statistics, Springer, 1996
- Skaug, H.J. and Tjøstheim A nonparametric test of serial independence based on the empirical distribution function, Biometrika, 80, 591-602, 1993
- Smirnov, N. V. On the distribution of the ¿² criterion of von Mises, Rec. Math. (NS) 2, 973-993., 1937
- Smirnov, N.U. Sur un critére de symétrie de la loi de distribution d'une variable aléatoire, C.R. (Doklady) Acad. Sci. URSS 56, 11-14, 1945
- Stute, W. Nonparametric model checks for regression, The Annals of Statistics 25 613-641., 1997

- Stute, W. and Zhu, L.-X. Nonparametric checks for single-index models, The Annals of Statistics, 33, 1048-1083., 2005
- Stute, W., Thies, S. and Zhu, L.-X. Model checks for regression: an innovation process approach, The Annals of Statistics, 26, 1916-1934, 1998
- Stute, W., W. Gonzalez-Manteiga and M. Presedo Bootstrap Approximations in Model Checks for Regression, Journal of the American Statistical Association, 93, 141-149., 1998
- Tsybakov, A.E Introduction to Nonparametric Estimation, Springer, 2009
- Wand, M.P. and M.C. Jones Kernel Smoothing, Chapman & Hall, 1995
- Whang, Y.J. Consistent bootstrap tests of parametric regression functions, Journal of Econometrics, 98, 27-46, 2000
- Whang, Y.J. Consistent specification testing for conditional moment restrictions, Economics Letters, 71, 299-306, 2001
- Zheng, X. A consistent test of functional form via nonparametric estimation techniques, Journal of Econometrics, 75, 263-289, 1996
- Zheng, X. A consistent nonparametric test of parametric regression models under conditional quantile restrictions, Econometric Theory, 14, 123-138, 1998