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Employment

Research Fellow, European Commission, 2017–present.

Postdoctoral teaching fellow, University of Warwick, 2013–2017.

Postdoctoral research associate, University of Cambridge, 2012/13.

Education

Ph.D. in Economics, econometric track, Tilburg University, 2013.

Research Master in Economics, econometric track, Tilburg University, 2009.

M.Sc. in Economics, Università degli Studi di Siena, 2009.

M.Sc. in Econometrics and Operation Research, Tilburg University, 2008.

Visiting student, Faculty of Economics, Goethe Universität Frankfurt, 2006.

B.Sc. in Economics, Università degli Studi di Siena, 2004.

Field of specialization

Econometrics, in particular methods for panel data (static and dynamic linear models, cross-sectional dependence, large heterogeneous panels). I also have an interest in Robust Statistics, that is in estimation methods that are robust to outlying observations.

Publications

Robust estimation and moment selection in dynamic fixed-effects panel data models (2018, with P. Čížek), *Computational Statistics*, 33:2, 675–708.

Robust estimation of dynamic fixed-effects panel data models (2014, with P. Čížek), *Statistical Papers*, 55:1, 169–186.

One-step robust estimation of fixed-effects panel data models (2013, with P. Čížek), *Computational Statistics & Data Analysis*, 57:1, 536–548.

Working papers

Estimation and Inference for Spatial Models with Heterogeneous Coefficients: An Application to U.S. House Prices (2019, with N. Bailey and M.H. Pesaran), CESifo Working Paper No. 7542.

Work in progress

Pairwise difference estimation of dynamic panel data models (with P. Čížek).

Understanding housing market spillovers (with C. Badarinza).

Abstracts

(Most recent entries on top.)

Estimation and Inference for Spatial Models with Heterogeneous Coefficients: An Application to U.S. House Prices (2019, with N. Bailey and M.H. Pesaran).

Abstract. This paper considers the problem of identification, estimation and inference in the case of spatial panel data models with heterogeneous spatial lag coefficients, with and without (weakly) exogenous regressors, and subject to heteroskedastic errors. A quasi maximum likelihood (QML) estimation procedure is developed and the conditions for identification of spatial coefficients are derived. Regularity conditions are established for the QML estimators of individual spatial coefficients, as well as their means (the mean group estimators), to be consistent and asymptotically normal. Small sample properties of the proposed estimators are investigated by Monte Carlo simulations for Gaussian and non-Gaussian errors, and with spatial weight matrices of differing degrees of sparsity. The simulation results are in line with the paper's key theoretical findings even for panels with moderate time dimensions, irrespective of the number of cross section units. An empirical application to U.S. house price changes during the 1975-2014 period shows a significant degree of heterogeneity in spill-over effects over the 338 Metropolitan Statistical Areas considered.

Robust estimation and moment selection in dynamic fixed-effects panel data models (2018, with P. Čížek), *Computational Statistics*, 33:2, 675–708.

Abstract. Considering linear dynamic panel data models with fixed effects, existing outlier-robust estimators based on the median ratio of two consecutive pairs of first-differenced data are extended to higher-order differencing. The estimation procedure is thus based on many pairwise differences and their ratios and is designed to combine high precision and good robust properties. In particular, the proposed two-step GMM estimator based on the corresponding moment equations relies on an innovative weighting scheme reflecting both the variance and bias of those moment equations, where the bias is assumed to stem from data contamination. To estimate the bias, the influence function is derived and evaluated. The robust properties of the estimator are characterized both under contamination by independent additive outliers and the patches of additive outliers. The proposed estimator is additionally compared with existing methods by means of Monte Carlo simulations.

Robust estimation of dynamic fixed-effects panel data models (2014, with P. Čížek), *Statistical Papers*, 55:1, 169-186.

Abstract. This paper extends an existing outlier-robust estimator of linear dynamic panel data models with fixed effects, which is based on the median ratio of two consecutive pairs of first-order differenced data. To improve its precision and robustness properties, a general procedure based on higher-order pairwise differences and their ratios is designed. The asymptotic distribution of this class of estimators is derived. Further, the breakdown point properties are obtained under contamination by independent additive outliers and by the patches of additive outliers, and are used to select the pairwise differences that do not compromise the robustness properties of the procedure. The proposed estimator is additionally compared with existing methods by means of Monte Carlo simulations.

One-step robust estimation of fixed-effects panel data models (2013, with P. Čížek), *Computational Statistics & Data Analysis*, 57:1, 536–548.

Abstract. The panel-data regression models are frequently applied to micro-level data, which often suffer from data contamination, erroneous observations, or unobserved heterogeneity. Despite the adverse effects of outliers on classical estimation methods, there are only a few robust estimation methods available for fixed-effects panel data. A new estimation approach based on two different data transformations is therefore proposed. Considering several robust estimation methods applied to the transformed data, the robust and asymptotic properties of the proposed estimators are derived, including their breakdown points and asymptotic distributions. The finite-sample performance of the existing and proposed methods is compared by means of Monte Carlo simulations.

Pairwise difference estimation of dynamic panel data models, (with P. Čížek).

Abstract. A new estimation procedure of dynamic panel data models with fixed effects is proposed. To improve upon existing estimators, we propose to apply the pairwise-difference data transformation to the generalized method of moments based estimators. A particular focus is given to the long difference (LD) estimation procedure of Hahn et al. (2007), which was proved to retain strong moment conditions even when data are persistent without imposing further assumptions. The bias and asymptotic distribution of the original LD estimator and its proposed extensions are derived. A simulation study is conducted to assess the finite-sample properties of the estimators.

Conference and seminar presentations

2019: 25th International Panel Data Conference, Vilnius, LT. 6th Annual Conference of the International Association for Applied Econometrics (IAAE), Nicosia, GY.

2018: 1st Italian Workshop of Econometrics and Empirical Economics (IWEEM): panel data models and applications, Milan, IT. Asian Meeting of the Econometric Society (AMES), Seoul, SK.

2016: Warwick Econometrics Summer Workshop, Coventry, UK. IX World Conference of the Spatial Econometrics Association (SEA), Rome, IT.

2015: Annual Conference of the International Association for Applied Econometrics (IAAE), Thessaloniki, GR.

2013: CERGE-EI, Prague, CZ. Cross-sectional dependence in panel data models, Cambridge, UK.

2012: 18th International Panel Data Conference, Paris, FR. 7th Netherlands Econometric Study Group (NESG) conference, Groningen, NL. Tilburg University, Tilburg, NL.

Computer experience

Julia, Matlab, R and Stata (most used languages).

Teaching

University of Warwick, Department of Economics

EC338 Econometrics 2: microeconometrics (lecturer), 2013/14–2016/17.

EC961 Introductory mathematics and statistics (lecturer), 2014/15–2016/17.

EC9A3 Advanced econometric theory (class tutor), 2013/14–2015/16.

EC910 Econometrics B (class tutor), 2013/14–2016/17.

EC331 Undergraduate dissertation (supervisor), 2013/14–2016/17.

EC959 Postgraduate dissertation (supervisor), 2013/14–2016/17.

University of Warwick, Warwick Business School

EC976 Econometrics, MFSE degree course (class tutor), 2013/14–2016/17.

Tilburg University, Department of Econometrics

Introduction to econometrics (teaching assistant), 2009/10–2011/12.

Statistics (teaching assistant), 2010/11.

Panel data analysis of microeconomic decision (teaching assistant), 2008/09.

Others

Warwick economic summer school: microeconometrics (lecturer), 2015, 2016.

Syllabi (main modules only):

EC338 Econometrics 2: Microeconometrics (Together with Claire Crawford). This is a third-year advanced undergraduate module in microeconometrics attended by a relatively small group of self-selected students. The module is divided into two parts. In the first part, estimation methods of causal effects and policy evaluation are presented (the Rubin potential outcome model, selection bias, regression analysis, regression discontinuity, difference-in-differences method). The second part deals with the notion of causality with observational data and nonlinear models (binary response outcomes, corner solutions, sample selection).

EC910 Econometrics B: Microeconometrics (Lecturer: Wiji Arulampalam). This is an advanced postgraduate module in microeconometrics. It focuses on the most popular linear and nonlinear models in microeconometrics, and on how to address the issue of endogeneity in these models. The analysis is at the level of Wooldridge (2010), or Cameron and Trivedi (2005).

EC9A3 Advanced Econometric Theory (Lecturer: Clement de Chaisemartin). This is a rigorous, PhD-level module in modern microeconometrics. The following topics are covered: Causality, selection, and randomized experiments; Estimating estimands: large sample theory; The OLS regression estimand; The OLS regression estimator; Regression and causality; M-estimation and the generalized method of moments; The two-stage least squares estimand, and its estimator; The two-stage least squares and causality in the linear and constant effect model; The two-stage least squares and causality with heterogeneous effects.

Awards

Tilburg University scholarship programme, in recognition of the status of excellent student, 2008.

Graduate-level scholarship, 2007.

Erasmus scholarship, master thesis abroad, Goethe Universität, Frankfurt am Main, 2006.

Socrates intensive programme *Labour movements and corporate location strategies with the European Union*, Université de Poitiers, 2006.

Professional experience

Research assistant, Netspar (Prof. A.H.O. van Soest), 2008/09.