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## Title and Date of Workshop

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**15-16th of April 2010**

The identification and treatment of outliers using Stata

Information about this event is available from the Strathclyde webpage

<http://www.strath.ac.uk/economics/sire-appliedrobustregression/>

## Venue

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The events will take place in the Department of Economics, University of Strathclyde, in the Sir William Duncan Building, Room 2.12.

## Purpose

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In regression analysis, the presence of outliers in the sample can strongly distort the classical least squares estimator and lead to unreliable results. The objective of this workshop is to discuss the identification and treatment of outliers using Stata. The workshop will not only cover standard methods such as the Hat matrix, standardized residuals, studentized residuals, DFFIT, Cook distances, DFBETA but also more robust alternatives such as M-estimators, S-estimators, MS-estimators, CLAD. Using Stata, several examples will be presented relying on both real and simulated data. Some multivariate robust data analysis tools will also be introduced, e.g. robust PCA.

## Outline

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1. Discussion of the classical methods of outlier identification: diagonal elements of the hat matrix, internally and externally studentised residuals, differences in fits, differences in betas, Cook and Mahalanobis distances.
2. Robust linear regression: Least Trimmed Squares (LTS) estimator, Least Median of Squares (LMS) estimator, M-estimators (and iteratively Reweighted LS), S-estimators, MM-estimators and MS-estimators. Discussion of the non-robustness of the well-known `rreg` command.
3. Robust non-linear regression: Robust Logit (weighted MLE and Bianco and Yohai robust Logit), CLAD and robust Tobit.
4. Instrumental variables and panel estimators: The Cohen-Freue and Zamar estimator and the robust within (and RE) estimators.
5. Multivariate outlier identification: Minimum Covariance Determinant (MCD), Minimum Volume Ellipsoid (MVE) and S-estimators of location and scatter. Comparison between robust Mahalanobis distances the well-known Hadi's distances.

## Speaker

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Vincenzo Verardi, Universite Libre de Bruxelles (ECARES)

Vincenzo is the author of several articles on the identification and treatment of outliers. He is also the author of several Stata commands.

<http://homepages.ulb.ac.be/~vverardi/>

1. Robust Regression in Stata, (2009), forthcoming in Stata Journal, joint with Christophe CROUX.
2. Beware of "Good" Outliers and Overoptimistic Conclusions, (2009), published in the Oxford Bulletin of Economics and Statistics, volume 71, issue 3, pp. 437-452 joint with Catherine DEHON and Marjorie GASSNER.
3. A New Hausman Type Test to Detect the Presence of Influential Outliers, (2009), forthcoming in Economics Letters, joint with Catherine DEHON and Marjorie GASSNER.

## Reimbursement

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Reasonable transport and accommodation expenses will be reimbursed.

If booking accommodation the following link may be useful <http://www.visitscotland.com/shop/accommodation/book-glasgow/>. However, The Premier Travel Inn, George Street would be a good option as it is very near the University, <http://www.premierinn.com/pti/dropdownSearch.do>

If you need any help or advice please contact [Kirsty Fontanella](#).

After the event, please send your expenses claims form to:

Kirsty Fontanella  
Department of Economics  
University of Strathclyde  
Glasgow  
G4 0GE  
Scotland UK

The expenses claims form can be found on the webpage <http://www.strath.ac.uk/economics/sire-appliedrobustregression/>.

Reimbursement will close 1 month after the event.

Reimbursement is on production of original receipts only.

## Registration

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To assist with organisation and due to capacity constraints, we require prior registration of all participants. Please register by **Friday 2<sup>nd</sup> April** by clicking on Registration on the webpage <http://www.strath.ac.uk/economics/sire-appliedrobustregression/>.

We will confirm your registration. We are looking forward seeing you at Strathclyde.

*Rodolphe Desbordes*