Quaderni del Dipartimento
Abstract

Abstract

quaderno2006_01 (Demography, Statistics)

La primonuzialità delle coorti femminili in Italia e nelle sue regioni

Costanza Giovannelli, Antonio Santini

Lo studio affronta il problema dei mutamenti che hanno segnato la primonuzialità, in Italia e nelle sue regioni, e l'influenza che questi possono aver esercitato sul declino della fecondità. L'analisi è condotta su una ricostruzione delle serie di primonuzialità (primi matrimoni ridotti) per le coorti femminili, ricostruite in collaborazione con l'ISTAT. Come per la fecondità, l'Italia si caratterizza per la presenza di due distinti modelli per quanto attiene all'intensità ed alla cadenza del processo matrimoniale femminile: il primo, comprendente le regioni settentrionali e centrali, segnato da una più bassa proporzione di donne coniugate almeno una volta e da una più alta età media al primo matrimonio; l'altro, relativo alle regioni del mezzogiorno, con una intensità finale più elevata e una più bassa età media. L'effetto dei mutamenti della primonuzialità sulla fecondità è certamente modesto e conseguente, soprattutto, al generale aumento dell'età media. I dati per coorte confermano, comunque, che l'effettivo calo dell'intensità del processo è sostanzialmente minore di quanto non appaia dalle misure del momento.

[Full text](#)

quaderno2006_02 (Statistics for experimental and technological research)

Split-plot e robust design

Rossella Berni, Arianna Pallottini

This work regards the split-plot design and its theory according to the concept of a robust-design. More precisely, we describe the fundamental elements of this plan in order to improve the planning of an experimental design in the technological field. The concept of robust design, which takes care of the roles of factors is considered in order to assign the variables to the whole-plot and to the sub-plot units. In addition, a final part of the work is devoted to the last developments of the split-plot design in literature.

[Full text](#)

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quaderno2005_01 (Demography)

La fecondità nella Riva Sud del Mediterraneo: realtà urbana e rurale a confronto

Letizia Mencarini, Silvana Salvini, Daniele Vignoli

The fertility patterns of the South-East Mediterranean shore are very different from those of the lowest-low fertility countries of the northern shore but recently fertility decline has been spreading rapidly in the region, especially in Maghreb. In some countries, urban and more educated women show a period TFR under replacement level. These recent developments question the reputation of this area (apart from Turkey) as a bastion of family conservatism and a high fertility rate. But are these groups of educated women forerunners of a wide and generalised spread of fertility decline or only of a plurality of behaviours in the increasing heterogeneity of such societies, in the balance between tradition and modernisation? In our study we analyse individual data from surveys carried out in four countries of Southern shore (Egypt, Morocco, Tunisia and Turkey) with the aim of highlighting different determinants and different models of fertility among groups of women, with particular attention to rural and urban contexts.

[Full text](#)

quaderno2005_02 (Statistics, Econometrics)

Processi a memoria lunga e Fractionally Integrated GARCH

Marco J. Lombardi, Giampiero M. Gallo

In this monograph we survey the most important topics in time series models with long memory, with a special focus on estimation issues for ARFIMA and FIGARCH models. Empirical examples illustrate how the models can be applied to real data sets.

[Full text](#)

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quaderno2002_49 (Econometrics)

A Method of Simulated Scores for Imputation of Continuous Variables Missing at Random

Giorgio Calzolari, Laura Neri

Given a set of continuous variables with missing data, we prove in this paper that the iterative application of a "least-squares estimation/multivariate normal imputation" procedure produces an efficient parameters estimator and is therefore an optimal parametric technique for imputation of missing data. There are two main assumptions behind our proof: (1) data are missing at random (MAR); (2) the data generating process is a multivariate normal linear regression. Disentangling the problem of convergence of the iterative procedure, we show that the estimator is a "method of simulated scores" (a particular case of McFadden's "method of simulated moments"), thus equivalent to maximum likelihood if the number of replications is conveniently large.

[Full text](#)

quaderno2001_48 (Econometrics)

Alternative Simulation-Based Estimators of Logit Models with Random Effects

Giorgio Calzolari, Fabrizia Mealli, Carla Rampichini

Logit models with random effects are now widely used in applied Statistics and Econometrics. They usually lead to intractable likelihood functions, as they involve integrals without closed form solution. Numerical integration can be used to compute the likelihood and software is available (Hedeker and Gibbons, 1996). Difficulties can be encountered when the number of random effct parameters is not very small. With a detailed Monte Carlo experimentation, we show in this paper that the simulation-based estimators are almost as effcient as maximum likelihood. They are Simulated Maximum Likelihood (Gouriéroux and Monfort, 1991), Indirect Inference (Gouriéroux, Monfort and Renault, 1993) using an auxiliary approximated likelihood estimator, and Indirect Inference using an auxiliary linear probability model. The advantage of the latter is its great simplicity and computational speed.

[Full text](#)

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quaderno1999_46 (Econometrics)

Indirect Estimation of Just-Identified Models with Control Variates

Giorgio Calzolari, Francesca Di Iorio, Gabriele Fiorentini

Simulation estimators, such as indirect inference or simulated maximum likelihood, are successfully employed for estimating models where the likelihood function does not have a simple analytical expression. They adjust for the bias (inconsistency) produced by the estimation of an *auxiliary* model that can be manageable, but is essentially misspecified. The price to be paid is an increased variance of the estimated parameters. A component of the variance depends on the stochastic simulation involved in the estimation procedure. To reduce this undesirable effect, one should properly increase the number of simulations (or the length of each simulation) and thus the computational cost. Alternatively, this paper shows how variance reduction can be achieved, at virtually no additional computational cost, by use of control variates. This technique can be easily applied in the just-identified context, that is when the number of parameters is the same in the *econometric* model (the model of interest) and the *auxiliary* model. This is a case which often occurs in practical applications. Several models are explicitly considered and experimented with: moving average model, ARMA model, stochastic differential equations, dynamic Tobit model, discrete time stochastic volatility models, logit models with random effects. Monte Carlo experiments show, in some cases, a global efficiency gain up to almost 50% over the simplest indirect estimator, obtained at about the same computational cost.

[Full text](#)