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Contents

Bayesian Method of Moments Analysis of Time Series Models with an Application to Forecasting Turning Points in Output Growth Rates

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ABSTRACT

Bayesian method of moments (BMOM) analyses of central time series models are presented. These include derivations of post data densities for parameters, predictive densities for future observations and relative expected losses associated with alternative model specifications, e.g. a unit root versus a non-unit root AR(1) process or an AR(1) versus higher order AR processes. BMOM results are compared with those provided by traditional Bayesian and non-Bayesian approaches. An application to forecasting turning points in 18 countries' annual output growth rates, 1980-1995 is provided using several variants of an autoregressive leading indicator model. Optimal forecasts include not only forecasts of dichotomous outcomes, e.g. downturn or no downturn, as in previous work, but also trichotomous outcomes, e.g., minor downturn, major downturn or no downturn or minor upturn, major upturn or no upturn. Empirical results indicate that about 70 percent of dichotomous outcomes are forecasted correctly, in line with results obtained using earlier data for the period 1974-1986 for the same 18 countries. A summary of results and some comments on future research are provided.

Bisexual Branching Models with Immigration

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ABSTRACT

Modified bisexual Galton-Watson branching models allowing immigration of females and males, or mating units, are introduced. For the underlying Markov chains the classification of states is studied and relations between the probability generating functions are investigated. Estimators for some interesting parameter vectors are proposed and an illustrative example is given.

Testing the Independence hypothesis in Biparametric Auditing Models Using Bayesian Robustness Methodology

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ABSTRACT

A basic feature of the Bayesian biparametric models used in auditing is the estimation of the total amount of error of the accounting population, T_y . This can be expressed, Andrews and Smith (1989) as $T_y = T_x \cdot \phi \cdot \mu$, where T_x is the total book value of the population (a known quantity), and ϕ and μ are the two unknown parameters (the error rate of the population and the mean of the taint in error items, respectively). Various models have been proposed that depend on the prior specification of ϕ and μ (for example, Cox and Snell (1979); Godfrey and Neter (1984) and need to obtain an upper bound for the total amount of error (a quantile of the posterior distribution). However these constraints are difficult to fulfil without the hypothesis of independence between ϕ and μ , which is fundamental in the biparametric models mentioned above. In the absence of the independence hypothesis it may be necessary to elicit the bidimensional prior distribution of (ϕ, μ) without any subjective meaning. These considerations led us to study the robustness of specifications and the independence of the parameters; in other words, how these models react to variations of the marginal specifications or of the prior independence.

We examined these two versions of robustness using Bayesian methodologies as described in Lavine, Wasserman and Wolpert (1991) and Wasserman, Lavine and Wolpert (1993) but obtained different conclusions, as previously reported in Martel-Escobar (1996).

These conclusions denote a severe lack of robustness of the prior independence and suggest alternatives such as uniparametric models based on total amount of error, might be more appropriate.

Some Remarks on the Entropy maximization principle

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ABSTRACT

Since Akaike's entropy maximization principle is operable only if the data generating mechanism is known, it must be modified to make its application to practical problems possible. The most famous operable procedure for entropy maximization is the minimization of the Akaike information criterion (AIC; see Akaike (1973-1977)). Unfortunately, the AIC is a reasonable estimator of the expected negative entropy (or more precisely of two times the expected discrepancy between the data generating model and an approximating model) only under implausible assumptions. This paper justifies the use of the AIC by showing on the one hand that the fact that the AIC in general is a severely biased estimator of the expected negative entropy hardly affects its model selection properties and on the other hand that the AIC may not only be interpreted as an estimator of the expected negative entropy but also as a Bayesian extension of the maximum likelihood principle.

Estructuración Óptima de Carteras de Inversiones con una Aplicación en los Mercados Emergentes Latinoamericanos de Acciones

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RESUMEN

En el presente trabajo estudiamos el efecto del uso de estimadores robustos para el vector de medias y la matriz de covarianzas de los retornos en el modelo de Media-Varianza de Markowitz. Mostramos como las observaciones extremas, que aparecen con cierta frecuencia en las series financieras de los mercados emergentes latinoamericanos, perjudican los resultados de este modelo cuando se utilizan los estimadores clásicos. Con ejemplos numéricos ilustramos las ventajas de reemplazar dichos estimadores por los estimadores robustos.

Problemas para la Utilización del Gasto per Cápita como Variable de Clasificación.

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RESUMEN

Las encuestas de Ingresos y Gastos o de Presupuestos Familiares son las únicas que recogen información exhaustiva respecto de ingresos y gastos simultáneamente, así como de una cantidad de otras variables sociodemográficas.

La información proveniente de estas encuestas es utilizada, habitualmente, para realizar estudios sobre pobreza o distribución del ingreso en los que es preciso clasificar a los hogares observados de acuerdo a su nivel de vida.

Se ha discutido mucho acerca de cuál es la variable que mejor explica el nivel de vida de los hogares entendiendo que ella será la mas adecuada para obtener esta clasificación, y en muchos casos las opiniones se orientan hacia la elección del gasto per cápita aduciendo que el ingreso presenta problemas que impiden su correcta captación.

En este artículo se mostrará que la forma en que en general se diseñan las Encuestas de Ingresos y Gastos de los Hogares resulta incompatible con la utilización del gasto como variable de clasificación, porque las mismas están pensadas para obtener estimaciones del gasto realizado por la población durante el período en estudio pero no así de cada uno de los hogares investigados.

Frame Problems and Survey Design for the Brazilian Annual Retail and Wholesale Trade Survey

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ABSTRACT

The Annual Retail and Wholesale Trade Survey (ATS) is carried out yearly since 1988 in Brazil. It faced serious frame problems, requiring combination of 1985 census information (out of date) with social security register information (up to date, but with measurement error) to develop a sampling frame. A sample of enterprises was select and surveyed, breaking a tradition of using establishments as survey units. Simple, yet

effective, sample design and estimation procedures were adopted to cope with the poor quality of the frame information.

Further Results on Alternative Trend-Cycle Estimators for Current Economic Analysis

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ABSTRACT

In recent years statistical agencies throughout the world started to publish trend-cycle estimates along with the more volatile seasonally adjusted series to reveal better the movements in the economic cycle. Sometimes these trend-cycle estimates contain small ripples that can be falsely interpreted as turning points when they first appear. A case in point is come of the estimates obtained through the 13-term Henderson (H13) trend-cycle filter available in the widely used X11ARIMA method and its variants.

The modifications introduced into the 13-term Henderson trend estimation procedure by Dagum (1996) produced results superior to those obtained through the traditional Henderson trend estimation in X11ARIMA. The modified H13 procedure reduced the number of unwanted ripples and the size of revisions to preliminary values while it retained the timeliness of identifying turning points in the trend estimates of nine Canadian leading indicators. In a previous study the authors used three series to illustrate that the modified H13 procedure would also fair well when compared to certain model based estimators. In the study the objective is to confirm the results of Dagum (1996) on a larger sample of series, using statistical tests. Based on this same sample, the relative performance of the modified Henderson procedure and the structural model trend estimator is also evaluated.