Giornata di studio:
Modelli Matematici e Statistici per l'Economia e le Imprese
Centro per la Modellistica, il Calcolo e la Statistica (CMCS)
Università di Ferrara (HTTP://CMCS.UNIFE.IT)

3 Dicembre 2004, ore 15

Sala Affrescata del Dipartimento di Economia, istituzioni e territorio, Università di Ferrara

Corso Ercole I D'este, 44, 44100, FERRARA

Microscopic Dynamics and Mathematical Modelling in Economy

Lorenzo Pareschi, Dipartimento di Matematica, Università di Ferrara

We consider simple models of economic systems which are originated from microscopic interactions between economic agents.

First, we refer to closed economic systems where the total money or wealth is conserved. A generalized Boltzmann equation which takes into account several types of monetary transactions is derived and its properties analyzed. For time reversible trading rules it is shown that the stationary state is given by a Boltzmann-Gibbs law independently on the characteristic of the market. For non reversible trading we characterize all monetary transactions in a symmetric way through the three concepts of saving propensity, potential transaction and risk. Nontrivial stationary states then may occur and the market behavior becomes more complex.

Next, we consider the effects of an open economy where the inclusion of investments lead to a growing total amount of money. Other effects, like taxes and subsidies, are also discussed. Fokker-Planck asymptotics are derived which present Pareto power law tails. Monte Carlo methods are also constructed.

Nonparametric Permutation Tests with Applications in Management

F. Pesarin, L. Salmaso, L. Corain, Dipartimento di Scienze Statistiche, Università di Padova

In many scientific disciplines and industrial fields researchers and practitioners are often faced with complex problems when dealing with comparisons between two or more groups using classical parametric methods although real problems rarely agree with the stringent assumptions required by such methods. The NPC methodology (Pesarin, 2001) frees the researcher from stringent assumptions of parametric methods and allows a more flexible analysis both in terms of specification of multivariate hypotheses and in terms of the nature of the variables involved in the analysis. One of the most relevant features of NPC Test is that it does not need a modelling for dependence among variables.

The methodology of the NonParametric Combination (NPC) of Dependent Permutation Tests has been applied in the area of management studies to explore the differences in behavior between those companies that develop successful products and those that are less successful. The research is based on a sample of 85 Italian companies working in a B2B (business to business) market in two specific manufacturing industries and considers New Products launched over a three year period. The sample has been divided into four groups, on the basis of the performances of the new product on the market and on the performances of the NPD process. We assume that each group of companies has different configurations in Product Architecture Approach, Organizational Mechanisms, Development Process and Strategic Capabilities. The results confirm the differences in Product Architecture Approach and Strategic Capability variables, whereas only a few of the Development Process and Organizational Mechanisms variables are different among groups.

La giornata di studio è coordinata dal Prof. Fausto Segala, Direttore del Dipartimento di Economia, istituzioni e territorio.