

SOE 15: Economic models II

Time: Wednesday 12:15–13:15

Location: H36

SOE 15.1 Wed 12:15 H36

Two faces of word-of-mouth: Understanding the impact of social interactions on demand curves for innovative products

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Word-of-mouth (WOM) is a puzzling phenomenon. It strongly influences the innovation diffusion process and is responsible for the 'S' shape of the adoption curve. However, it is not clear how WOM affects demand curves for innovative products and strategic decisions of producers. We build an agent-based model of innovation diffusion, which links the opinions of individuals with their market behavior via the concept of reservation prices. Using Monte Carlo simulations (for artificial and real social networks from Facebook and Google+) and mean-field semi-analytical treatment (for artificial networks) we demonstrate that WOM may have ambiguous consequences and should be taken into account when designing marketing strategies. Conditional on the targeted penetration level and the market price, the company should aim either at weakening or strengthening the WOM effect. By doing so, it can increase the demand and increase potential revenues.

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SOE 15.2 Wed 12:30 H36

Ising model of financial markets with many assets —

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In the past many models have emerged with the purpose of studying the regularities of financial markets. Most of these models focused on markets with only one asset. Since these models can not catch the complex correlations between the prices of different assets, we want to take a further step and propose an Ising model of a multi-asset market. This model is able to reproduce the most important stylized facts for every asset and shows complex cross-correlations between the assets.

SOE 15.3 Wed 12:45 H36

Evaluating Multilevel Predictions from Trading Data —

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If one wants to predict the behaviour of a complex, multi-level system such as the economy one can use observables on different levels of aggregation. Naively, one might think that going to a higher aggregation level always deteriorates performance because it means losing information and therefore using a microscopic description is the best. However, this is usually not the case since no complete microscopic model is available in most applications. Instead, the predictor has to be inferred from data which may become practically infeasible due to high-dimensional microscopic state spaces and exponentially increasing data requirements. We study the trade-off between the higher information content of less aggregated descriptions and the better inferability of higher-level aggregates on real world data on international trade. We compare different predictors for GDP growth considering aggregations over meaningful groups of products representing mesoscopic levels of the export structure and highly aggregated measures of economic complexity (Hidalgo/Hausmann 2009) and fitness (Tacchella et al. 2012) previously shown to have predictive power regarding the growth potential of countries. We present evidence that mesoscopic observables may outperform these highly-aggregated measures while still allowing proper inference of the predictor from the limited amount of data.

SOE 15.4 Wed 13:00 H36

Employment trajectories in the Stockholm County: networks and sequences —

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An individual's career path in the labour market is likely to be influenced by other people within the organization she is employed at, as well as by the characteristics of the organization itself. In this study, we use Swedish longitudinal register data on employment in the Stockholm County to study the statistical properties of employment trajectories for a whole region. Employment trajectories are modelled as network paths through organizations. We look at statistics of permanence and switching between organizations, and how they correlate to the dimensions of public or private ownership and organizational size. Sequence analysis is used to cluster typical trajectories and their hierarchical structure along the mentioned dimensions.

Keywords: labour market dynamics, employment trajectories, sequence analysis.