ANDREI SIRCHENKO

RESEARCH STATEMENT

My research interests are in the field of econometrics, both in the methodology and its macro- as well as micro-applications.

The focus of my current research is in developing the new discrete-choice models in the context of both time-series and cross-sectional data, as well as long narrow panel data. The primary goal is to model the preponderance of zeros (so called “zero inflation”), a stylized fact that ordinal responses, when the decisionmakers face the choices to reduce, leave unchanged or increase (consumption, price, rating or policy interest rate) or when they have to indicate the negative, neutral or positive attitudes or opinions, are often characterized by the abundant -- and generated by different processes -- observations in the middle neutral or zero category (indifferent attitude to survey questions, no change to the rate, etc). The proposed multi-equation models address the heterogeneity of the underlying data-generating process.

More generally, as a former experimental physicist I am interested in causality, experimental economics, natural experiments and sample selection. Given my consulting experience my interests are also in forecasting and financial econometrics. Having had Professors Helmut Lütkepohl, James D. Hamilton and John Geweke as advisors I have also developed deep interest in time series analysis, monetary policy and Bayesian inference.

My dissertation studies the econometric identification and predictability of monetary policy decisions. It combines three papers, which I briefly describe below. The more detailed three-page overview of my dissertation is available on my website at the Research page.

A model for ordinal responses with an application to policy interest rate.

(JOB MARKET PAPER)

(received Zvi Griliches Excellence Award from EERC)

This paper develops a two-stage cross-nested model for ordinal outcomes (such as changes to the policy interest rates) that are characterized by abundant – and potentially generated by different processes -- observations in the middle no-change category, and where the positive and negative outcomes can also be driven by distinct sources. In such situation, it would be a misspecification to treat all the observations as coming from the same data-generating process and apply a standard single-equation model. In the policy rate setting context, the first stage, a policy inclination decision, determines a latent policy stance (loose, neutral or tight), whereas the two latent amount decisions, conditional on a loose or tight stance, fine-tune the rate at the second stage. The model allows for the possible correlation among the three latent decisions. This three-part approach separates different decision-making paths for three types of zero observations: “neutral” zeros, generated directly by the neutral policy stance, and two kinds of “offset” zeros, “loose” and “tight” zeros, generated by the loose or tight stance, offset at the second stage. Monte Carlo experiments show good performance in small samples. Both the simulations and empirical applications to the panel data on individual policymakers' votes for the interest rate demonstrate the superiority with respect to the conventional and two-part models.

Policymakers’ votes and predictability of monetary policy.

(UCSD Working Paper No. 1672194)

Though the vast majority of central banks currently conduct monetary policy by a committee, only nine banks release the voting records of policymaking meetings, either immediately together with the policy decisions or within three weeks. Only in Poland are the voting records released with six weeks delay, after the subsequent policy meeting. This unique situation provides an interesting opportunity to investigate whether the disclosure of votes could help to predict the forthcoming policy decisions.

Using real-time data, this paper shows that a prompter release of the voting records could improve the predictability of policy decisions. The voting patterns reveal strong and robust predictive content even after controlling for "policy bias" statements and responses

to inflation, real activity, exchange rates and financial market indicators. They contain information not embedded in the spreads and moves in the market interest rates, nor in the explicit forecasts of the next policy decision made by market analysts in Reuters surveys. Moreover, the direction of policymakers' dissent explains the direction of analysts' forecast bias. These findings are based on the voting patterns only, without the knowledge of policymakers' names attached to each vote. Therefore, they might be of interest to the central banks that do not currently publish the voting records because of the reluctance to disclose the individual votes.

Modeling monetary policy in real time: Does discreteness matter?

(EERC Working Paper No. 08-07)

(received Zvi Griliches Excellence Award from EERC)

This paper applies an empirical framework, combining the use of ordered probit approach, novel real-time data set and decision-making meetings of monetary authority as a unit of observation, to estimate highly systematic reaction patterns between policy interest rate decisions and incoming economic data. The study proposes a methodology to measure the empirical significance of the discrete nature of the dependent variable by assessing formally the statistical effects of using the conventional regression models for continuous dependent variables instead of the discrete-choice models. The paper demonstrates that both the discrete-choice approach and real-time policy-meeting data do matter in the econometric identification of monetary policy in Poland.

The study detects structural breaks in policy, which switched its focus from current to expected inflation and from exchange rate to real activity. The response to inflationary expectation is shown to be highly asymmetrical depending on whether the expectation is above or below the inflation target. The policy rate appears to be driven by key economic indicators without evidence for intentional interest-rate smoothing by central bank. The estimated rules explain correctly 95 percent of observed policy actions and surpass the market anticipation, made one day prior to a policy meeting, both in and out of sample.