(Not so) cheap talk: Interview with Joel Sobel

Mirjam van Praag
A personal story on the joy of research
Tinbergen Magazine is published by Tinbergen Institute, the research institute and graduate school operated jointly by the Economics and Econometrics faculties of three Dutch universities: Erasmus University Rotterdam, University of Amsterdam and VU University Amsterdam. Tinbergen Magazine highlights on-going research at Tinbergen Institute and is published twice a year.

Photographs
Henk Thomas, Amsterdam
Levien Willemse, Rotterdam
Ineke Oostveen, Landsmeer
Ronald van den Heerik, Dordrecht
Michelle Muus, Rotterdam
Riechelle van der Valk, Amsterdam

Editorial services
Etc. Editorial, Breda
etc.editing@ziggo.nl

Design
Crasborn Grafisch Ontwerpers bno,
Valkenburg a.d. Geul
www.crasborn.nl

Printing
Drukkerij van Deventer BV,
’s-Gravenzande

ISSN 1566-3213

Addresses
Tinbergen Institute Amsterdam
Gustav Mahlerplein 117
1082 MS Amsterdam
The Netherlands
Telephone: +31 (0)20 525 1600

Tinbergen Institute Rotterdam
Burg. Oudlaan 50
3062 PA Rotterdam
The Netherlands
Telephone: +31 (0)10 408 8900

e-mail: tinbergen@tinbergen.nl
www.tinbergen.nl

contents

TI News 4
upClose 10
(Not so) cheap talk: An interview with Joel Sobel
by Benoit Crutzen

Column 15
Women at the Erasmus School of Economics
by Philip Hans Franses

inDepth 16
Mirjam van Praag Economics of Entrepreneurship:
A personal story on the joy of research

Letters from Alumni 22
> Sumedha Gupta, Indiana University-Purdue University Indianapolis

inShort 23
References 27
Papers in journals 27
Discussion papers 31
Theses 34

About us 35
PhD Corner 36
magazine
In memoriam Mars Cramer

It is with great sadness that Tinbergen Institute learned of Mars (J.S.) Cramer’s passing. Jan Salomon Cramer was emeritus professor of statistics and econometrics at the University of Amsterdam (UvA). He died, unexpectedly, on March 15, 2014. Mars was an extraordinary researcher and an honorary fellow of TI. Tinbergen Institute is indebted to Mars for his commitment and involvement as researcher and as former chairman of TI’s supervisory board. Mars was an active academic and until recently he was very involved with supporting our students and PhD candidates. For more information, please visit the website of the University of Amsterdam. Mars Cramer supervised the PhD thesis of TI fellow Mirjam van Praag, whose InDepth article in this issue of the magazine refers to this remarkable researcher.

Research fellows


Martijn Burger is an assistant professor of industrial and regional economics at Erasmus University Rotterdam (EUR). Martijn holds a PhD (2011, cum laude) in regional economics and economic geography from the EUR. His PhD thesis was entitled ‘Structure and Coopetition in Urban Networks’. Martijn has published articles in refereed journals including Social Networks, Journal of Economic Geography and Journal of Economic Surveys. From April 2012 to April 2014, Martijn is a visiting researcher at the department of economic geography at Utrecht University. His research focuses on spatial economics, including location decisions of multinational corporations, institutional and social conditions for economic development, and urban and regional inequalities in wealth and subjective well-being. He is involved at the Erasmus Happiness Economics Research Organization (EHERO) and the World Database of Happiness. Since 2013, he is an associate director of the globalization and world cities research network, and from 2010 member of the board of the Dutch Regional Science Association.


TI Lectures and Conferences

9th Tinbergen Institute Conference 2014:
70 years Theory of Games and Economic Behavior
The conference aims to provide an overview of the advances that Game Theory has brought to the field of economics and to discover new challenges for the future. For this, leading researchers in Game Theory will give lectures on different topics in both non-cooperative and cooperative game theory and their applications to the field of economics covering a variety of areas in Economics, including experimental economics, behavioral economics, information economics, industrial organization, political economy, evolutionary growth and public- and welfare economics. The 9th TI Conference will be held June 25 – 27, 2014, at TI Amsterdam.

Tinbergen Institute Economics Lecture 2014:
Markets with Asymmetric Information
Market failures and inefficiencies due to asymmetric information have been at the heart of recent policy debates about credit markets, health insurance and other regulatory and social programs. While the theory of asymmetric information has been well-established for decades, empirical research that attempts to identify and measure the sources and consequences of asymmetric information has blossomed only in the last decade. These lectures will cover recent work on demand, pricing, competition and regulation in markets with adverse selection and moral hazard problems, including consumer credit markets and insurance markets. Lectures will be given by Jonathan Levin and Liran Einav, of the Department of Economics at Stanford University.
Date: 2-4 June, 2014.

Tinbergen Institute Econometrics Lecture 2014:
The Econometric Analysis of Recurrent Events in Macroeconomics and Finance
TI will host the 2014 Econometric Lectures at the Erasmus University Rotterdam with keynote speakers: Adrian Pagan and Don Harding. Pagan is professor of economics in the School of Economics at the University of Sydney, and has published a wide array of papers in the area of theoretical and applied econometrics. He is a fellow of the Academy of Social Sciences, the Econometric Society and the Journal of Econometrics. Don Harding joined the Economics and Finance Department at the Latrobe University as a Professor at the beginning of 2008. Prior to this, Harding was at the University of Melbourne, where he taught in the department of economics and was a Senior Research Fellow at the Melbourne Institute. Harding’s main research interests are in macroeconomics, econometrics and applied economics. Much of his research has been on the business cycle. He also has a keen interest in public policy.
Date: June 11-13, 2014.

Grants and awards

Gerard van den Berg elected Fellow of the Econometric Society
TI Fellow Gerard J. van den Berg has been elected a Fellow of the Econometric Society, an elite professional body composed of economic researchers from around the world. Founded in 1930, the Econometric Society is the globally most significant society in economic science. Its aim is to promote the integration of theoretical and empirical quantitative approaches to economic problems. The Society also publishes the leading journal Econometrika. Among the approximately 450 active Fellows, only two others are based in the Netherlands (Eric van Damme in Tilburg and TI Fellow Peter Wakker in Rotterdam). Van den Berg’s major contributions to the advancement of econometrics and labor economics proved to be decisive for his election. These concern in particular his studies on unemployment durations, job mobility, and the economic determinants of human longevity. Gerard J. van den Berg (1962) is Alexander von Humboldt Professor in Econometrics and Empirical Economics at the University of Mannheim and affiliated with VU University Amsterdam.

Cars Hommes wins Distinguished Lorentz Prize and Fellowship
TI Fellow Cars Hommes, professor of Nonlinear Economics Dynamics at the University of Amsterdam (UvA), has been awarded with the 6th Distinguished Lorentz Fellowship 2014. The Distinguished Lorentz Prize and Fellowship are awarded to eminent researchers whose research is interdisciplinary, socially relevant and bridges the gap between the humanities, the social sciences and natural sciences. The Distinguished Lorentz Fellowship Prize of €10,000 and workshop are part of the NIASS-Lorentz Program – a collaboration between the Netherlands Institute for Advanced Study in the Humanities and Social Sciences (NIAS, Wassenaar) and the Lorentz Center (Leiden). During his ten-month fellowship, Cars Hommes will investigate predictive models of economic behavior. In his research, Hommes will use methods that have already been successfully used in the natural sciences. Unlike natural systems, socio-economic systems are influenced by expectations and the behavioral adjustments of individuals. The need for a new conceptual framework, interdisciplinary collaboration and improved forecasting models is an issue that has been raised repeatedly by international policymakers.
New candidate fellows

Koen Vermeylen is an assistant professor in economics at the University of Amsterdam. He holds an MSc in economics from LSE and a PhD in Economics from MIT. His main research interests are macroeconomics, the methodology and limits of modern macroeconomics, and how this is illustrated in environmental and resource economics. His main research project is to develop new tools to solve macroeconomic models that are too high-dimensional for current mathematical and numerical techniques.

Vincent van Kervel is an assistant professor (tenure track position) at the finance department of the Faculty of Economics and Business Administration (FEWEB) of the VU University Amsterdam since September 2012. His research focuses on empirical and theoretical market microstructure. In particular, he works on competition between stock exchanges, high-frequency trading and optimal trade execution strategies. He received his PhD from the finance department of Tilburg University in January 2013.

Konrad Raff is an assistant professor of finance at VU University Amsterdam. Prior to that, he spent two years as a visiting fellow at the Institute for Financial Research (SIFR) in Stockholm, Sweden. He studied at the University of Mannheim and holds a PhD in economics from Toulouse School of Economics (2010). His research interests involve corporate governance, corporate finance and financial contracting.

Edith Leung joined the Erasmus School of Economics (EUR), department of business economics as an assistant professor in financial accounting in September 2013. She earned her PhD at Tilburg University (September 2013) and was a visiting PhD student at the University of Chicago Booth School of Business, from 2012-2013 (sponsored by the NWO graduate program grant and a Limperg Instituut scholarship). Her dissertation examined the effects of international accounting standards and inter-firm relationships on financial reporting and disclosure. Her research interests include the effects of regulation, managerial incentives and competitive interactions between firms on disclosures and capital markets.

Julia Schaumburg is a postdoctoral researcher, holding a joint position at the Econometrics and Finance departments at VU University Amsterdam. Her research is part of the European Union project SYRTO – Systemic Risk Tomography – Signals, Measurements, Transmission Channels and Policy Interventions. She received her PhD in Economics from Humboldt-Universitaet zu Berlin after having defended her thesis in February 2013. A chapter of her dissertation is published in Computational Statistics & Data Analysis (2012). Her research interests include applied econometrics, econometrics, financial econometrics and risk management.

Domenico Massaro is a postdoc researcher at CeNDEF, University of Amsterdam. He obtained his PhD in Economics from the University of Amsterdam in March 2012. The dissertation focuses on introducing individual bounded rationality and heterogeneous expectations in dynamic macroeconomic models. His research interests include heterogeneous agents models, expectation formation and learning, bounded rationality, experimental economics, nonlinear dynamical systems, DSGE models and monetary policy. Domenico published in the Journal of Economic Dynamics and Control (2013) and in Macroeconomic Dynamics (2013). Domenico won the competition for best PhD Thesis Award of the Unicredit & Universities Foundation (2013).

After completing a master thesis in economic modeling in 2008, Isabelle Salle earned a PhD degree from the University of Bordeaux, in 2012, in the field of complex systems applied to macroeconomic issues, in particular to monetary policy and central bank communications. Isabelle joined the CeNDEF, at the University of Amsterdam, in September 2013 as a post-doc researcher on the European FP7 project Rastanews. The main goal of this project is to investigate the impact of monetary and fiscal policies when the economy is stuck in a liquidity trap, and agents do not hold rational expectations. Isabelle’s research interests include macroeconomic modeling, learning and expectations, monetary policy, DSGE models, complex adaptive systems, agent-based models and evolutionary modeling.

Erik Asnsink is an assistant professor at the Department of Spatial Economics of VU University Amsterdam. He defended his PhD thesis on the economics of water allocation in transboundary rivers at Wageningen University in 2009. Subsequently, he worked as a senior researcher at the Institute for Environmental Studies at VU University Amsterdam, before joining the Department of Spatial Economics in 2013. Asnsink’s main research topic is environmental economics, with a focus on water resource economics.

Since September 2012, Sofie Hoozée is an assistant professor in management accounting at the Department of Business Economics of the Erasmus School of Economics (EUR). She earned her Msc and PhD at Ghent University. She successfully defended her PhD thesis entitled ‘On the determinants and the role of costing accuracy of time-driven activity-based costing’ in 2010. Sophie was an assistant professor at the ISEG School of Management in Lille until 2012. Her research interests include the design of costing systems, in particular, and of management control systems, in general.

Christiaan Behrens (1985) is a postdoctoral researcher at the department of spatial economics at the VU University Amsterdam, where he is working in the ERC program of Ti fellow Erik Verhoef, ‘Optimizing Policies for Transport: Accounting for Industrial Organization in Network Markets (OPTION)’. Christiaan defended his PhD thesis in September 2013 entitled ‘Product differentiation in aviation passenger markets: The impact of demand heterogeneity on competition’. His supervisor was Erik Verhoef. His research interests are industrial organization, networks, regional and urban economics, and transport economics.
Anne Gielen is an assistant professor at the Department of Applied Economics – Health Economics (EUR). After obtaining her PhD (Tilburg University, 2008), Anne worked as a postdoc at Maastricht University (2007-2009), and as senior research associate at IZA (2009 to the present). Since April 2012, she also holds a position as assistant professor at the EUR. Her main research interests are labor mobility, program evaluation and health economics. Currently, she is working on a project on the causal effects of working on health, for which she obtained a Marie Curie research grant. She has published in journals such as Labor Economics, Economics Letters and Oxford Economic Papers. Her latest publication on "Social support substitution and the earnings rebound: Evidence from a regression discontinuity in disability insurance reform" is forthcoming in the American Economic Journal: Economic Policy.

Laurent Callot is a postdoctoral researcher at the Department of Econometrics and Operations Research of the VU University Amsterdam, since 2012. He holds a PhD from Aarhus University, and wrote his thesis on ‘Large Panels and High Dimensional VARs.’ His research interests include Econometric Theory, International Economics, Macroecometrics, Macroeconomics and Time Series Econometrics.

Norman Seeger is an assistant professor of finance at the department of finance of the VU University Amsterdam, since 2012. He holds a PhD in finance (summa cum laude, 2009) from Goethe University, and wrote his thesis on ‘Essays on Market Frictions and Model Misspecification in Asset Pricing’. From 2009 until 2012 Norman worked as an assistant professor of finance at the University of St. Gallen. His research interests include Applied Econometrics, Asset Pricing, Finance, Financial Econometrics and Risk Management.


Radomir Todorov is an assistant professor in finance at the Amsterdam Business School of the University of Amsterdam. He holds a PhD (2013) in finance from Tilburg University and MPhil degrees from Tilburg University (2009) and Goethe University (2008). He has published in Economic Policy (2013). His research interests include Banking, Corporate Finance, Finance, and Regulation.
Appointments

**TI Fellow Matthijs van Veelen appointed Professor Evolution & Behavior**

TI Fellow Matthijs van Veelen (1972) has been appointed full professor Evolution & Behavior at the Faculty of Economics and Business of the University of Amsterdam. His main research theme is the evolution of altruism, fairness and morality. In his research he uses evolutionary game theory to mathematically describe strategic interactions. Matthijs developed a unified theory to explain the evolution of cooperation and altruism that links the classic explanations from the field of theoretical biology and game theory. Since 2004, Matthijs works at the Center for Research in Experimental Economics and Political Decision Making (CREED) of the University of Amsterdam.

**TI Fellow Bas Donkers New Director of Business Economics Department**

TI Fellow Bas Donkers has been appointed director of the department of Business Economics at the Erasmus School of Economics as of January 1st, 2014. He succeeds TI fellow Benedict Dellaert, who had been director of the department since Willem Verschoor left to become the new dean of the Faculty of Economics and Business Administration of VU University Amsterdam. Bas Donkers is professor of marketing research at the Erasmus School of Economics (EUR). His research examines consumer decision-making from a behavioral perspective, and relies on the use of advanced quantitative analyses and various advanced market research techniques to establish new and groundbreaking insights in the field. Bas has published articles in the leading journals in the field including the *Journal of Marketing Research* and *Marketing Science*.

**Massimo Giuliodori appointed Professor of Empirical Macroeconomics**

Massimo Giuliodori has been appointed full professor of Empirical Macroeconomics at the Faculty of Economics and Business of the University of Amsterdam (UvA), as of January 2014. Giuliodori’s research interests are in the field of monetary and fiscal economics, in particular the empirical analysis on fiscal policy, monetary transmission mechanism and housing dynamics. He has conducted empirical research aimed at identifying and quantifying the relative importance of alternative transmission channels of both monetary and fiscal policies. Giuliodori has been working on how the Eurozone crisis has affected the responsiveness of sovereign bonds markets to auctions, news and the unconventional monetary policies implemented by the European Central Bank.

**Placement PhD Student Bart Yueshen: INSEAD**

TI would like to congratulate PhD student Bart Zhou Yueshen, one of our job market candidates, with his new position (forthcoming) as assistant professor in finance at INSEAD at Fontainebleau. Bart Zhou Yueshen is an alumnus of the TI MPhil program (2011, cum laude) and a PhD candidate in finance at the VU University Amsterdam. His supervisor is fellow Albert Menkveld. Bart’s research interests are in the field of Asset Pricing, Finance, Game Theory and Market Microstructure. His research focuses on the financial securities markets and the trading of financial securities. Currently, Bart is a visiting PhD student at MIT in the United States, hosted by Bengt Holmström.
Key Publications

Ti Fellow **Ingolf Dittmann** (EUR), together with Ernst Maug (University of Mannheim) and Oliver Spalt (Tilburg University), published their article on ‘Indexing Executive Compensation Contracts’ in *The Review of Financial Studies* (December 2013). Dittmann et al. analyzed the efficiency of indexing executive pay by calibrating the standard compensation model to a large sample of US CEOs. The authors’ findings may justify the common practice of “pay-for-luck.”

**Analyzing Wimbledon: New Book by Ti Fellows Klaassen and Magnus**
The game of tennis creates many assumptions that a statistician would like to analyze. Does using new balls to serve come with an advantage? Do real champions win the big points? Is it true that beginning to serve in a set gives an advantage? In their book *Analyzing Wimbledon: The Power of Statistics* (Oxford University Press), Ti Fellows **Franc Klaassen** (University of Amsterdam) and **Jan Magnus** (VU University Amsterdam) formulated these questions and many more as ‘hypotheses’, tested these statistically and invalidated a number of these assumptions. Klaassen and Magnus used a dataset of nearly 100,000 points played over the years at Wimbledon, as well as data from other tennis grand slam tournaments. In *Analyzing Wimbledon*, Klaassen and Magnus also use the power of statistical reasoning to discuss how the outcome of a match can be predicted, which points are important and which are not, how to choose an optimal service strategy, and whether a ‘winning mood’ actually exists in tennis. This book is not only relevant for people interested in tennis, mathematics and statistics, but also teaches us something about human behavior.

**Mixed students, male professors**

For the last few years, roughly one-third of MPhil students at TI have been female. How about our fellows? *Tinbergen Magazine* did an inventory among fellows, and found that TI only has one female full professor (Kristen Rhode, EUR) and one female associate professor (Audrey Hu, UvA). Only among assistant professors is the share of women somewhat representative of our student population, with 39% female assistant professors at EUR and 35% at VU, followed at a great distance by UvA, which has only 8% female assistant professors. What does this mean for the future? If we assume that new full or associate professors are recruited from the current assistant professors of both genders, then it would take 15-30 years for women to attain a representative share of 30% full professorships. Yet, in reality, almost half of our new professors come from outside TI. If those are mostly male (like last year), then the catch-up of women could take much longer...
(Not so) cheap talk:
An interview with
Joel Sobel*

*Joel Sobel is Professor of Economics at UC San Diego. Since September 2013, he has been visiting professor at Erasmus School of Economics at Erasmus University Rotterdam. His research focuses on game theory. Professor Sobel has published in such highly respected journals as American Economic Review, Econometrica and Review of Economic Studies.
Professor Sobel, you do research on (strategic) communication, so it seems natural to start this interview with a few broad questions about this topic. First of all, what got you interested in communication earlier on in your career? In the early 1980s Vince Crawford and I worked on various models of bargaining with incomplete information. These models demonstrated that incomplete information might explain some of the breakdowns in bargaining (delays in reaching an agreement or, more generally, failure to reach an efficient agreement). We then thought that it was natural to ask: If incomplete information leads to inefficiency, when might the possibility of exchanging information freely lead to improvements? Eventually we arrived at a formulation that allowed us to identify situations in which (what is now known as) “cheap talk” may lead to improvements.

Your wife is a linguistic anthropologist and is thus also interested in languages and communication. Did you ever consider carrying out some work together?

My wife has taught me what little I know about sociolinguistics, and she introduced me to the classic literature in anthropology and philosophy on language. She is an insightful critic of my own work. I acknowledge her help in several of my papers, but the questions we study and the methods we use are quite different. We haven’t collaborated on any academic research. Our twenty-one year-old son is the only lasting “product” of our collaboration.

Have your ideas and theories ever found a concrete commercial or business application? If not, would you wish they had?

I am not aware of any commercial application of my ideas. I am delighted that I can think about things without being constrained by the need to come up with marketable applications. I would be even more delighted if I managed to do something that had an immediate and useful application.

You have now spent a few months in The Netherlands. Is there anything that has struck you about the Dutch way of communicating? Are there any remarkable differences between Amsterdam and Rotterdam in the way that people communicate?

Everyone I meet in the Netherlands speaks essentially perfect English and switches to the language to accommodate me without apparent pain or inconvenience. People respond directly and in a helpful way to questions — although I have found sometimes that if you do not ask the right question, people will not volunteer useful relevant information. As for noticing any differences in communication styles in the two cities, I can only say that I do not have enough data to distinguish Amsterdam and Rotterdam. I have spent a lot of time as a tourist in Amsterdam, whereas in Rotterdam I spend most of my time on the ninth floor of building H. So in Rotterdam I can take advantage of being in the same profession as everyone I meet, which makes interactions more predictable.
In all likelihood we’ll see increasing pressure towards homogeneity— but we are far from arriving at a boundary solution (and I hope that we never get there).
You gave a Tinbergen Institute course on strategic communication. Did you feel you had to tailor the way you gave this course to the Tinbergen Institute audience, compared to the way you gave similar courses to previous audiences?

I consulted several local experts when planning the course, and tried to present material so that it would be useful to TI students. In the end, the material I taught was roughly on the level of what I would present to first- or second-year PhD students in the US. I failed to induce much interaction during class sessions (I talked, they listened). If I were to teach another class here, I would try to improve class participation.

More generally, do you try to tailor the way you communicate to the local audiences you meet? After all, the way we communicate is obviously part of our culture.

My professional audiences have common research interests. The "culture" of the discipline (or sub discipline) structures my research presentations more than the local language or culture does.

We constantly hear about homogenization of cultures and values, and the resulting loss of local cultures. How would you describe the impact of globalization on our cultures—and thus on communication? Would you say that humanity is tending towards a single, homogeneous culture and thus a unique mode of communication? Is communication becoming more, or less, complex? How do you think the ICT developments of recent decades affect this type of communication?

While not everyone speaks English as well as the Dutch, English has become the dominant professional language for academic economists and the de facto second language of all of Europe. I am not sure what "globalization" means, but the technological changes that have lowered the cost of traveling and communicating have made it more valuable to coordinate on a common second language. There is sometimes a tension between preserving diversity of cultures and creating an environment in which coordination is possible. Here is an analogy. It helps to have homogeneous preferences for public goods; this makes it easier for people to agree what to do. It helps to have heterogeneous preferences for private goods; this creates gains from trade. In a world with public and private goods, the “optimal” distribution of preferences is not clear (nor is it a standard question for economists). Diverse cultures are a treasure that should be valued and preserved, but minority languages and cultures will always be costly to preserve and will inevitably generate coordination problems. In all likelihood we’ll see increasing pressure towards homogeneity (both because dominant cultures will be globally available and because coordination costs will make it increasingly valuable for more people to be able to be comfortable under the conventions of the dominant culture)— but we are far from arriving at a boundary solution (and I hope that we never get there).

**Academics have publications as a central means of communication. You are co-editor at Econometrica. Could you give us your views on how publishing has evolved in the last few decades?** For example, some claim that the number of submissions has grown faster than the number of outlets where these works can get published. Would you agree with this view? Have publications become more quantitative than in the past?

Each part of this question is empirical and I do not have the data. I’m also not sure that my editorial position gives me a better perspective than someone active in the profession. Having said that, I hazard two observations: first, that the number of people who aspire to publish in the best (say, top-five) journals seems to have increased much faster than the number of articles published in these journals, and second, that the number of places where one can publish peer-reviewed academic research in economics has increased faster than the supply of articles. By any measure, the level of sophistication expected in technical articles has increased.

Have publication requirements changed in the last few years (e.g. less normative, more positive questions, more empirics, more interdisciplinary work and so forth)? Behavioral economics (broadly defined) has become a central field. Papers that contain experimental results or use theoretical models that relax classical assumptions on behavior are quite common now— but twenty years ago they were rare.

Economists have arguably developed a set of analysis and communication tools that have allowed them to make inroads in other disciplines of the social sciences. Would you agree that economic science has been more successful in this respect than other social sciences—such as sociology or political science, for example? Do you see this as a good or bad development? Are there red lines that, in your view, economists should not cross?

Compared to other social sciences, economics has a stronger core methodology. This makes it easier to identify an application of an “economic” approach rather than, for example, a “sociological” approach. This makes the inroads that economics has made into other disciplines more visible. Attempts to apply economic thinking to a wide range of problems that were not considered to be economics (a research program that I associate with Gary Becker) have been extremely successful.

Game theory is a technique for thinking about many-agent decision problems. These problems arise in economics, but they also arise in other disciplines. There are reasons why game theoretic methods fit nicely with classical economic reason, but it may still be an accident that most social scientists who use game theory are economists. From this perspective, the application of game theory to other social sciences is an example of economists making contributions into other disciplines—but let’s not confuse this necessarily with economics itself making contributions.

I do agree that economics has made more of an impact on other social sciences than vice versa, but this may not be permanent.
Surely behavioral economics owes a great debt to psychology, and field experiments increasingly use methods of ethnography that are typically associated with anthropology. Cognitive neuroscience is not social science, but the spread of neural imaging as a tool for studying choice behavior is an example of techniques from physical science making inroads into economics. The use of sophisticated techniques from mathematics and statistics is another example that we take for granted now. All technical tools have limitations. These limitations constrain the kinds of questions one can answer and therefore the kinds of questions one asks. The danger is that the discipline becomes so bound to techniques that scientists stop trying to answer the most important questions. It is artificial to limit the techniques of economics to narrowly defined economic problems. Expanding the domain of applications is thus unambiguously a good thing. Similarly, it is artificial to neglect cultural or psychological aspects when studying economic interactions. It behooves economists to be open to approaches from other fields.

A few final questions for our students. Regarding research, what are, in your view, the hottest research areas in microeconomics for the next few years? Looking back on the last ten or fifteen years, I would say that behavioral economics and development economics are the two areas that have been hot. These areas have attracted a significant fraction of the best young researchers. The techniques of behavioral economics—gathering data through laboratory experiments and using models that relax classical assumptions of rationality—are now mainstream. Research in development has had important applications. An increasing fraction of the work done in this area is published in top journals, has captured the attention of the media, and is being rewarded with visible prizes. Presumably in 2030, it will be easy to look back and identify different hot fields. Since you’ve asked me to look into the future, however, I will attempt two guesses—which I dare to do, being confident that no one will be reading this interview in 2030.

My first guess has to do with “big data.” I believe that the ability to collect and analyze rich data sets will change the way that we do research. Already we see this happening. Econometricians can collect and analyze high-frequency trading data. Exploiting this is clearly an important topic for applied research. The Internet has increasingly become a source for data, whether it is cheaply obtained experimental data or the kind of information volunteered by browsing behavior or participation in social media. At a theoretical level, we need to have better methods for distinguishing real from artificial patterns, so that we can know data mining when we see it. We will need to know whether experimental data obtained from Mechanical Turk is more reliable than data obtained from a pool of university students—and if so, whether it is more representative of natural behavior. In many ways, information economics may be turned upside down: Google may know my preferences better than I do.

My second guess about hot research field is to health economics. The fraction of resources going into health care has increased dramatically over the past generation. My non-expert’s opinion is that there are huge inefficiencies in the industry. At a high level these inefficiencies are well understood. Adverse selection and moral hazard play a central role in health care. Yet, although there has been an explosion of insightful work in industrial organization based on tools of game theory and information economics developed in the 1970s and 1980s, I do not think that this work has helped us to improve quality of care, access to care and efficiency of delivery. As a final “dot on the ‘i’” to these ‘guesses’: I expect that research in both of these topics will require stronger connections between microeconomic theory and econometrics.

How would you describe the outlook for academic economists? Is their future bright or blight? For thirty-five years, I have worked for a public institution in the United States that values basic research and gives people the time and incentives to pursue research that does not have a direct commercial application. There is decreasing public support for research universities in California and, I think, throughout the world. This means that university professors will need to rely on other sources of funding for their research. It is likely that more people at universities will do research directly connected to applications: research directly funded by private for-profit entities or by the promise of producing things that can be marketed. It will be more important for researchers to have the skills needed to obtain funding for their research. One of these skills will be the ability to communicate to funding sources about the value of the research.

What publications have inspired you over the years?
Women at the Erasmus School of Economics

All academics with a position at the Erasmus School of Economics (ESE) teach and do academic research. This includes PhD students, assistant professors, full professors and even the Dean. At the ESE we believe that it is important that students get the best academic education, and such education should build on the most recent and important academic insights. Annual appraisals of academic staff are thus based on teaching and research performance, where at the same time we also encourage our staff to be visible— in the media, if possible, but also at high schools, for example, lecturing to prospective students. For all of us at the ESE this means that our days contain plenty of activities, with no sign of any nine-to-five mentality.

Diversity is important to the ESE. Our students come from all over the world, and hence our staff should in part reflect that. We are an internationally oriented school, and thus we also have our three English language bachelor programs. Within our double bachelor program, combining economics and econometrics, we already have in-house a share of our future MPhil students. At the same time, 30% of our students are women, and also perhaps close to 20% have an ethnic minority background (taking Dutch demographics as a reference point).

There is no reason to believe that only white males can perform well in academia, and therefore the ESE strives for diversity simply because we do not want to ignore talent. Indeed, any type of individual can be talented. When we recruit our junior staff we look for talent, and in that process the ESE keeps an open mind. When a woman is best for the job, we hire her; if a man is best, we hire him. We believe that talent can be spotted quite early in a career, perhaps already in the dissertation stage, and our seniors are aware of that. We do not attempt to entice them with money and privileges at the beginning of their career. Our approach is to treat all tenure-trackers alike; that is, in six years they have to show that they fit into an ESE position, where both research and teaching are important. Indeed, in the event that a particular tenure-tracker needs special consideration, perhaps because of a change in personal situation, we accommodate that, as we believe that all junior staff should have a fair chance to prove themselves.

At the ESE we meticulously monitor the tenure-track stage, as well as the promotion from assistant professor to associate professor. Indeed, once an individual becomes an associate professor, chances are high that he or she becomes an endowed professor— and perhaps later on a full professor. Currently, some 30% of our PhD students are female and about 30% of our assistant professors are female; in the near future we therefore also expect that 30% of our associate professors will be female. Since becoming an endowed professor may take an average of at least ten years after PhD graduation, the ESE expects to have a nice coverage of female full professors in the future.

Philip Hans Franses
Dean, Erasmus School of Economics (ESE), Erasmus University Rotterdam
Mirjam van Praag

Economics of Entrepreneurship: A personal story on the joy of research
Why entrepreneurship?
Trained as an econometrician and interested in labor economics, I had the opportunity to write a PhD thesis under the supervision of two TI scholars, Mars Cramer (who passed away on March 15th; see TI News section), econometrician, and Joop Hartog, labor economist. Stubbornly, I insisted on studying entrepreneurs. To my surprise, this most influential part of the labor market had been hardly studied. Almost all labor economists studied wage employees. Is this the so-called ‘streetlight effect’? Of course, employees comprise the majority—oftentimes around ninety percent—of the labor force. The other ten percent, however, has a greater effect on growth, innovation and employment (Van Praag and Versloot, 2007). This part is more dynamic, more heterogeneous, less predictable and therefore, perhaps, harder to study. I became intrigued by the topic and actually considered the sparse literature basis to be an advantage, requiring less reading.

At the time I found inspiration in two influential papers, which both proposed models that explain the occupational choice for entrepreneurship (as opposed to wage employment) and the ensuing firm size of entrepreneurs. Lucas (1978) proposed that individuals with the highest (possibly innate) skill levels and talents become entrepreneurs. And given the choice for entrepreneurship, more talented entrepreneurs will end up with larger firms. According to the theory of Kihlstrom and Laffont (1979), risk aversion is the discriminating factor between entrepreneurs and employees and between owners of large and small firms.

Starting from a labor economics perspective, my determination has been to study the research question, ‘What makes entrepreneurs (successful)?’ The empirical methods I apply have developed over time, moving along with what is accepted in our profession. Nowadays, most of my research is based on experiments, often in the field.

This article provides an overview of (mostly my own) research on human capital and entrepreneurship. I look first at whether entrepreneurship is something that can be learned, or whether gurus such as Richard Branson are correct in stating that one is born (or not) as an entrepreneur. This is followed by a discussion on the returns to education, intelligence and specific abilities in entrepreneurship. The next part examines evidence of the (in)effectiveness of entrepreneurship education programs for pupils and students. Finally, since most ventures nowadays are being started up by teams of entrepreneurs rather than by solo entrepreneurs, the discussion turns to look at the driving forces of successful entrepreneurial teams.

Nature or Nurture
Are entrepreneurs born or raised?
The results from research into the determinants of (successful) entrepreneurship are more applicable to both public policy and educational policies if nurture plays a larger role than nature. The literature has until now used two methods to discriminate between the nature and nurture origins of entrepreneurship. One strand of research is based on comparing the

Mirjam van Praag has recently become Mærsk Mc-Kinney Møller Professor of Entrepreneurship at the Copenhagen Business School. She is also Professor of Entrepreneurship and Organization at the University of Amsterdam and fellow of the Tinbergen Institute. Her research interests include the economics of entrepreneurship and organization.
correlations in entrepreneurship outcomes between monozygotic and dizygotic twins (e.g., Nicolaou et al., 2008). These twin studies suggest a significant role of nature, whereas the role of nurture is more difficult to infer (Koellinger et al., 2010). The second, more recent, strand investigates the human genome to identify genetic causes of entrepreneurial behavior using Genome Wide Association Studies (GWAS; Koellinger et al.). Methodological difficulties have thus far prevented GWAS finding any relevant genetic factors explaining entrepreneurship. Koellinger et al. conclude, “Given the methodological difficulties of GWAS and twin studies, it is possible that twin studies tend to give an ‘upper bound’ for the relevance of genes …, while GWAS give a ‘lower bound’”.

Supplementing these two strands of research, we recently applied a third methodology to measure the relative importance of nature and nurture for entrepreneurship (Sol et al., 2014). Using a unique sample of 4,000 Swedish (adult) adoptees, we compare the correlations between the adoptees’ entrepreneurship outcomes with those of their adoptive (nurture) and biological parents (nature). Although both sets of parents have a strong effect on entrepreneurship outcomes, the effect of the adoptive parents is twice as large as the effect of biological parents. Nurture is thus indeed important, and further investigation suggests that nurturing parents affect their children by being role models for them. Apparently, not only genes determine entrepreneurship, but also the environment. I must say that I was rather pleased (however non-neutral this attitude may be, for an academic) with this large effect of nurture, as this result provides a strong motivation for policy and education fostering entrepreneurship.

**Human Capital**

One of the most influential sources of human capital development is education. Is it possible that entrepreneurial skills (whatever way they are defined, Lucas’ definition was vague) are developed in school? Hundreds of studies have correlated education with entrepreneurship outcomes (for a meta-analysis, see Van der Sluis et al., 2008). The correlation with entrepreneurial income, for instance, is high. Correlations may not be the greatest measure of causal effects, however, and little effort has been put into using sophisticated identification strategies (Van der Sluis et al.). This observation motivated two studies, Parker and Van Praag (2006) and Van Praag et al. (2013), which use econometric methods that somehow take into account the fact that people self-select into education and entrepreneurship. The returns to education for entrepreneurs are rather high— even higher than for employees, as we show in a comparison. The high returns seem to be caused partly by the signal of education to capital providers (Parker and Van Praag) and partly by the greater decision authority of entrepreneurs compared to employees about how to employ their human capital in the production process (Van Praag et al.).

If entrepreneurs experience high returns from their education due to (signaling and) useful learning, the next question is: What do people learn in school that is useful for entrepreneurial venturing? What are useful skills and knowledge areas for entrepreneurs? The concept of entrepreneurial ability that was used by Lucas (1978) is rather vague, and researchers have tried to understand what it is. Most notable is the research initiated by Lazear (2005), who asserts that entrepreneurship requires being a generalist (a “Jack-of-All-Trades”, JAT) rather than a specialist. Bringing people, ideas and physical resources together requires (basic) knowledge of a large number of business areas and a variety of skills to judge other peoples’ abilities and how to combine them. Hartog et al. (2010) tested which skills (that is, not only general IQ, but also five other skills: technical, analytical, language, data processing or social skills) have value for entrepreneurship, and which are (more) valuable when people work as an employee. This research also explored the extent to which a balanced combination of these skills (which describes a JAT) is fruitful for the proceeds of an entrepreneur, compared to the earnings of employees. General intelligence, analytical, technical and social skills have higher returns in entrepreneurship than in wage employment. The other skills (language and data processing) have a higher pay-off in wage employment. A balanced combination of all five skills is indeed a source of success for entrepreneurs, but not for wage employees. If permitted (despite there being so few studies, each with their limitations), we would conclude that (i) the returns to education are higher for entrepreneurs than for employees and (ii) this is possibly due in part to the ability of entrepreneurs to tailor their production to their own human assets and (iii) the skills that are (particularly) useful to entrepreneurs and possibly produced in school include general intelligence and specific skills such as analytical, technical and social skills. On top, entrepreneurs benefit from developing balanced skills.

**Entrepreneurship education**

Thus far we have established that general education may be interesting and desirable for prospective entrepreneurs, and have based this assertion on three observations. First, the environment can develop entrepreneurship; second, more (successful) entrepreneurs are a desirable
I must say that I was rather pleased (however non-neutral this attitude may be, for an academic) with this large effect of nurture, as this result provides a strong motivation for policy and education fostering entrepreneurship.
policy outcome; and third, high returns to education suggest that education may indeed foster successful entrepreneurship. As a next step we therefore turn to explore whether specific entrepreneurship education provides the stimulus and development desired by policymakers. Entrepreneurship education programs are proliferating in the US and Europe. Although evaluation studies were performed in the past to judge specific entrepreneurship education, they did not apply experimental methods (Martin et al., 2013). Only lately has this changed. Oosterbeek et al. (2010) and Von Graevenitz et al. (2010) evaluate programs for students, whereas Rosendahl Huber et al. (2012) evaluate a large entrepreneurship education program (Bizworld) taught by entrepreneurs to pupils in the last grade of primary school. Von Graevenitz et al. measure how the program affects the intention to become an entrepreneur; Oosterbeek et al. measure, in addition, the effectiveness of a large and global program in terms of developing entrepreneurial skills such as pro-activeness and creativity. Rosendahl Huber et al. study the largest set of outcome variables, also including the development of entrepreneurship-relevant knowledge.

In general, the results are discouraging. Only the Bizworld program carried out in primary schools generates a positive result. Pupils in the treatment group develop their entrepreneurial skills significantly better than do those in the control group. The five-day-long Bizworld program—in which teams of pupils set up a company that designs, produces, markets and sells friendship bracelets—seems an effective means of developing entrepreneurial skills. However, the fact that the results do not support the effectiveness of the other programs suggests, at best, that the entrepreneurship education community should still develop and test new programs that are effective in later stages of education.

Entrepreneurial Teams

All of the studies discussed thus far share (at least) the following limitation: they study individual entrepreneurs. However, most of the people nowadays who start up firms—especially in high tech and high growth sectors—do so in teams. The outdated image of the entrepreneur as a lone wolf represents a call for new perspectives in studying what successful entrepreneurship involves. The composition of teams may be an additional driver of business success.

Business teams are long-term units in which team members interact. A team is more than the sum of its members, however—a fact that makes it difficult to study effective team composition in a laboratory. Studying the effectiveness of teams using real-world data is also cumbersome, due to non-random team composition. Field experiments might afford a way out. Actually, the education programs discussed above provide unique opportunities. Students (and pupils) start up real firms in identical circumstances within these programs. Researchers can

the skills that are useful to entrepreneurs and possibly produced in school include general intelligence and specific skills such as analytical, technical and social skills

Figure 1

Relation Between Share of Women and Sales

<table>
<thead>
<tr>
<th>Share of women</th>
<th>0.0</th>
<th>0.1</th>
<th>0.2</th>
<th>0.3</th>
<th>0.4</th>
<th>0.5</th>
<th>0.6</th>
<th>0.7</th>
<th>0.8</th>
<th>0.9</th>
<th>1.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales (euros)</td>
<td>0.0</td>
<td>1,000</td>
<td>2,000</td>
<td>3,000</td>
<td>4,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. Kernel = Epanechnikov, degree = 1, bandwidth = 0.21, p-width = 0.32.
Entrepreneurship is a hot topic, both in practice and in academia. Entrepreneurship economics is becoming a particularly fast-growing research field—although it is, admittedly, still in its infancy. Tests and retests (in particular) are scarce. Thorough and repeated empirical testing can be valuable for evidence-based policy. The increased attention being given to entrepreneurship policies mirrors the increasing awareness of the importance of entrepreneurs for economic outcomes and innovation. New developments in entrepreneurship—such as crowdfunding, for instance—create new questions and thus merit further research. Fascinating research opportunities in this domain are also offered in applications of behavioral economics, for instance, or the use of methodologies such as field experiments and the use of big data.

What is next?

Entrepreneurship is a hot topic, both in practice and in academia. Entrepreneurship economics is becoming a particularly fast-growing research field—although it is, admittedly, still in its infancy. Tests and retests (in particular) are scarce. Thorough and repeated empirical testing can be valuable for evidence-based policy. The increased attention being given to entrepreneurship policies mirrors the increasing awareness of the importance of entrepreneurs for economic outcomes and innovation. New developments in entrepreneurship—such as crowdfunding, for instance—create new questions and thus merit further research. Fascinating research opportunities in this domain are also offered in applications of behavioral economics, for instance, or the use of methodologies such as field experiments and the use of big data.

References


It seems like only yesterday, when I was on the TI Magazine’s Editorial Board, and I sent out a request that someone else submit a Letter from Alumni for the upcoming issue of the magazine. In those days, I ‘almost lived’ at TI Amsterdam, at Roetterstraat 31, eating meals at the UvA cafeteria or from Happy Corner. But that was about seven years ago— and a lot has happened since.

Although I had submitted my PhD thesis in August 2009, it wasn’t until May 2010 that I finally defended my thesis and got my degree. A personalized graduation ceremony with a public defense of the dissertation is very different from an American PhD graduation where you ‘walk’ with thousands of other students including undergrads, Masters, PhD’s and awardees of any other diploma that the University may grant. So it was rather hard for my interviewers at Northwestern University (where I eventually joined the faculty as a postdoc at the Institute for Policy Research (IPR) after the submission of my dissertation) to fathom why it would take so long to have the graduation ceremony and why for months I had no idea of the exact date of my defense. Fast-forwarding time, through endless letters from my advisor at TI and the Dean at VU explaining the process, we arrive at the place where I landed myself the two-year post-doc position. Besides being at an excellent school, I was also delighted to have found a job in the Chicago area— since my spouse had three more years of grad school left at Northwestern.

The time I spent at Northwestern and specifically IPR was a very interesting experience. As this was my first job in a new country, I was struck by the differences in academia and more generally in the way of life in the US compared to Europe. For the first time I found academia to be very competitive and driven by a race for grant money. Also there was a very palpable time crunch on publishing— with a great deal of emphasis on quickly putting the idea out there. Soon I realized that some of these differences were actually the distinctions between a traditional Economics Department and an interdisciplinary public policy school. But the pressure to publish fast is real, and may be what gives research coming from American academics its cutting edge. But having being trained in a more traditional Economics grad school that excelled in Econometrics, I found that doing inter-disciplinary research that focuses much more on associations was surely not my “cup of tea”. So I was happy to move on to a tenure track position at the Economics Department at Indiana University-Purdue University Indianapolis.

Upon reflection, my experience at Northwestern taught me some important things about applied health research. First, you don’t need to be an economist to have good research ideas. And a good idea can fly with basic but sound econometrics. Second, if you want tenure in an Economics department, you need to publish in Economics journals that mandate a careful attempt at causal inference. This means that you might have to defer exciting inter-disciplinary research to post-tenure. Finally, junior faculty in the US is often hired for their expertise in the very narrow area of their dissertation research. So, people want to collaborate with you, the assistant professor, on research that is very close to your thesis— and it is hard to diversify while on the tenure clock. This means that I’m continuing to reap the benefits of choosing a dissertation topic that I enjoy working on— as I will be working in the area for a loooooong time.

Indiana is now home. My department is supportive, and as economists we all ‘speak the same language’. I definitely miss the excitement of living in a vibrant city like Amsterdam or Chicago, but being on a tenure clock, having few distractions, is not so bad. I am still working on health outcomes research that focuses on the long-lasting impact of early life disadvantage, a subject that is close to my heart and an area of research in which I am beginning to have some comparative advantage.

On the personal front, the last seven years saw me first becoming a wife and more recently a mother. Life as a full-time working mom can sometimes be challenging, but doing what you truly enjoy definitely helps. Weighed against the pressures of American academia, the passion for economics research that TI instilled in me makes that difference.
Bidding to Give in the Field
In a door-to-door charitable giving field experiment that involves a direct comparison of three commonly used fundraising mechanisms we find that the all-pay auction (APA) does not raise more money than the voluntary-contributions mechanism (VCM) or a lottery (LOT). This contrasts with previous studies that showed the APA to be the superior fundraising mechanism both in theory and in the laboratory. In our study, the APA raised €1.06 per targeted household, which is even significantly less than the €1.25 raised by the anonymous VCM— the mechanism commonly used by Dutch charities in their door-to-door fundraising activities. Our data of 4,500 households in Amstelveen reveal that this result can be attributed to substantially lower participation in the APA than in the other mechanisms: 55% of all households at home donated, compared to 64-67% for the other treatments. After exploring various explanations for this lower participation, we favor the one that argues that competition in the all-pay mechanism crowds out intrinsic motivations to contribute: the difference between the VCM, the LOT and the APA is that in the latter two treatments, participating households were eligible to win a prize. In LOT, a prize was awarded among every 300 households, with each household’s chances of winning being proportional to their donation. In APA, for each group of 300 addresses the prize was awarded to the household that donated the highest amount. The idea that there is a prize ‘up for grabs’ may be interpreted by some people as a sign that the lottery organizers are appealing to other motivations than just the intrinsic pro-social feelings. APA and LOT are both likely to have precisely this effect. One may feel somewhat uncomfortable with the divergent results obtained from theoretical analysis, laboratory research and field experiments. To us, this simply demonstrates that the external validity of any single field experiment is limited.

Authors

Weighted Temporal Utility
Empirical evidence shows that many decisions are time-inconsistent, in the sense that the mere passage of time makes people change their plans. Such time-inconsistencies can cause under-investment and unhealthy lifestyles, which impose a large cost on society. A good understanding of the drivers of these time-inconsistencies can help to provide solutions to overcome them and to reduce the associated costs. The literature on intertemporal choice has focused almost exclusively on one potential driver of time-inconsistencies: non-stationarity. In turn, deviations from stationarities are often thought to be irrational. This paper shows that deviations from stationarity need not be irrational. Stationarity holds if a preference between outcomes to be received at different points in time is unaffected by a common additional delay of all outcomes. Deviations from stationarity are often thought to be driven by pure time preference, being the way people weight future points in time, irrespective of the outcomes received at these points in time. Non-stationarities in pure time preferences are mostly driven by non-linear perception of time. To the extent that such non-linear perception is irrational, deviations from stationary pure time preference can be considered irrational. This paper proposes an additional driver of non-stationarities, which need not be irrational at all. We introduce a weighted temporal utility model, where deviations from stationarity are caused not only by pure time preference, but also by the time-dependence of the utility of an outcome. Such time-dependence naturally arises whenever the decision maker has some baseline consumption to which he adds any outcome he receives. If the decision maker expects his baseline consumption to change over
time, then the utility of an outcome depends on its timing—irrespective of pure time preference. This dependency, which can induce non-stationarity, can be viewed as foresight of future utility and, thereby, is not irrational as long as it is perfect foresight. Our model accommodates rank-dependent utility, prospect theory, exponential discounting and hyperbolic discounting as special cases. We also show how our model can be measured in a non-parametric way.

**TI discussion paper**
Anke Gerber (University of Hamburg) and Kirsten I.M. Rohde (EUR), Weighted Temporal Utility, TI 2013-167/1

---

**CSC Cooperative Behaviour, Strategic Interaction and Complex Systems**

**Reflexivity, Expectations Feedback and Almost Self-fulfilling Equilibria: Economic Theory, Empirical Evidence and Laboratory Experiments**

George Soros is a famous and successful international investor. As a practitioner, Soros has been criticizing economic theory as “unrealistic”, for not taking into account what he calls “reflexivity” and “fallibility”. Reflexivity means that what is in the mind of market participants affects real market realizations. A reflexivity feedback loop is in fact an expectations feedback loop. Fallibility means that participants’ view of the world never perfectly corresponds to the actual state of affairs. This means that in reality expectations are not perfectly rational (i.e. are not model-consistent).

The paper discusses advances in bounded rationality and learning in relation to Soros’ principle of reflexivity, and stresses the empirical importance of non-rational, almost self-fulfilling equilibria in positive feedback systems. As an empirical example, a behavioral asset pricing model with heterogeneous expectations is discussed. Bubbles and market crashes are triggered by shocks to fundamentals and amplified by agents switching endogenously between a mean-reverting fundamental rule and a trend-following rule, based upon their relative performance. The paper also discusses learning-to-forecast laboratory experiments, showing that in positive feedback systems individuals coordinate expectations on non-rational, almost self-fulfilling equilibria with persistent price fluctuations very different from rational equilibria. The assumption of rationality ignores these empirically relevant almost self-fulfilling equilibria. Economic policy analysis should be based on more realistic and empirically relevant behavioral equilibria and policy analysis may benefit enormously by focusing on efficiency and welfare gains in correcting mispricing along such almost self-fulfilling equilibria.

**TI discussion paper**
Cars H. Hommes (UvA), Reflexivity, expectations feedback and almost self-fulfilling equilibria: Economic theory, empirical evidence and laboratory experiments, TI 13-206/l

---

**Note**
Further, the study considers estimation of the parameters. costs involved with the simulation method that and develop a flexible adaptive from a Bayesian point of view multivariate volatility models, parameter estimation of. The focus then turns to the volatility models and should therefore not be neglected. volatility measures the current popular after the 2007-2008 crisis, measures the current state of financial variables that influence economic behavior and the future state of the economy. An application to daily returns of 16 bank holding companies in the US leads to the result that such an index improves the fit and forecasting power of the volatility models and should therefore not be neglected. The focus then turns to the parameter estimation of multivariate volatility models, which is problematic if the number of considered assets increases. We investigate this from a Bayesian point of view and develop a flexible adaptive simulation method that reduces the computational costs involved with the estimation of the parameters. Further, the study considers high-frequency data of the US Treasury market and relates volatility with two types of information. We find that beyond public information (macroeconomic announcements), private information also matters for explaining volatility of US Treasury bond futures. Finally, attention turns to forecasting techniques of volatility, with the focus on the combination of density forecasts, based on a range of recently developed univariate volatility models. We develop a new technique that produces weights assigned to each density forecast. Results show that combining density forecasts based on this technique outperforms the benchmark.

**Thesis**

**Understanding Financial Market Volatility** by Anne Opschoor. Published in the Tinbergen Institute Research Series #574

**FIN Finance**

**Learning to Forecast the Exchange Rate: Two Competing Approaches**

The poor explanatory power of existing theories of the nominal exchange rate is one of the major weaknesses of international finance. One of the assumptions underlying most of the proposed theories is the rational expectations hypothesis. As empirical evidence against this hypothesis has accumulated, researchers have increasingly looked for alternative approaches to model agents’ expectations. This paper compares two competing approaches to model investors’ expectations: statistical learning and fitness learning. In both mechanisms investors are assumed to learn from their mistakes by testing and revising their forecasting schemes. We examine which of the learning approaches is best in terms of replicating the exchange rate puzzles. We find that both learning methods reveal the fundamental value of the exchange rate in the equilibrium. Only fitness learning creates the so-called disconnection phenomenon, and only statistical learning replicates the volatility clustering puzzle. Because none of the mechanisms is able to produce all of the exchange rate regularities, further research on the investors’ expectations is needed.

**Authors**

Paul de Grauwe (LSE) and Agnieszka P. Markiewicz (EUR, TI), Learning to Forecast the Exchange Rate: Two Competing Approaches, Journal of International Money and Finance (2013), vol. 32, pp. 42-76.

**LHED Labour, Health, Education and Development**

**The Causal Links between Aid and Government Expenditures**

A large body of literature on aid effectiveness has tried to assess the impact of aid on growth, poverty reduction and living standards in developing countries. Although the most recent studies on aid effectiveness report a positive effect of aid on growth, the channels through which this impact is achieved are less clear. To the extent that aid goes through the budget of the recipient government, the positive impact of aid reflects either an aid-financed increase in government expenditures (quantity effect) or an improvement in the use of government resources as a result of donor involvement and lower taxes (quality effect). This study investigates the causal link between on-budget aid and government expenditures using a large cross-country panel data set for 53 countries and recent methodology to test Granger causality in heterogeneous panels. For most countries, no evidence of causality is found, which suggests the following: (i) contrary to conventional wisdom, on-budget aid does not increase expenditures and aid is to a large extent fungible; recipients adjust other sources of government revenues e.g. taxation, (ii) donors do not react to the changes in government expenditures, presumably because there is little scope for changing the timing of disbursement. My findings indicate that the positive impact of aid on development outcomes presented in recent studies does not reflect the financing role of on-budget aid (the quantity effect). Rather, it is evidence of changes in the use of government resources and reduced domestic resource mobilization (the quality effect) or the effectiveness of off-budget aid.

**TI discussion paper**

Łukasz Marc (VU), The Causal Links between Aid and Government Expenditures, TI 14-012/V
that, in a labor market with high involuntary unemployment, this effect leads to more, not less, efficient outcomes. As workers who care little for work voluntarily exit the labor market, this creates jobs for the involuntarily unemployed, who derive more value from work. Finally, the thesis rejects the standard assumption of welfare economics—that people always act in their own interest. Using UK data on people’s subjective well-being, it is found that people with low income tend to work less than is good for them, while people with a high income tend to work too much. To correct this, the UK could implement lower marginal tax rates for the bottom of the income distribution, and higher marginal tax rates for the top.

Thesis
Essays in Optimal Government Policy
Published in the Tinbergen Institute Research Series #577

OM Organizations and Markets
Don’t Demotivate, Discriminate
This paper offers a new theory of discrimination in the workplace. The following example helps to understand the main idea behind this theory.
Pete employs two workers: you and his son, John. You and John are juniors. Both you and John are uncertain about your own abilities. Pete is very experienced. You and John are sure that Pete knows your and John’s abilities. Suppose that Pete needs to assign a prestigious task, and that he assigns it to John. How is your perception of your abilities affected by Pete’s decision? You may conclude that John is better than you. Alternatively, you and John may believe that John got the task because John is Pete’s son. Pete would only have chosen you if John’s ability were very low compared to yours. Then, giving John the task would not affect your self-perception much. However, it would have severely damaged John’s self-perception if you had received the task.

How Pete’s choice affects your beliefs and those of John depends on whether you and John believe that Pete treats his son as the favorite. Also important is that this belief may affect Pete’s decision. If giving you the task severely damages John’s perception of his abilities, it may be in the interest of the business to give John the task even if you are better. The paper presents a model that shows that the mere anticipation of discrimination induces managers actually to discriminate. This anticipation can be based on nepotism, ethnicity, gender or something seemingly trivial, such as a shared love for wine. Even without a taste for wine. Even without a taste for discrimination, only discriminatory equilibria are stable. The paper explains that discrimination in the workplace takes many shapes, that it is of all ages, and that it is hard to combat.

Ti discussion paper
Jurjen J.A. Kamphorst (EUR) and Otto H. Swank (EUR), Don’t demotivate, discriminate Ti 14-017/VII

McInteconomics and International Economics
Essays in Optimal Government Policy
Redistribution is more effectively realized through progressive taxation than through a statutory minimum wage. Both a higher minimum wage and a tax cut for low-income workers lead to higher net income for the working poor. Unlike a tax cut, a higher minimum wage causes wage costs for the firm to increase. In a theoretical model of the labor market, this is shown to have two effects. First, it leads to higher unemployment among low-skilled workers. This is a social-welfare loss, as the unemployed do not pay taxes, claim unemployment benefits, and suffer immaterial costs from unemployment. Second, to avoid the increased probability of unemployment, low-skilled workers are incentivized to invest more in education. This is a social-welfare gain, as more educated workers generally pay more taxes. In an empirical calibration of the model, it is shown that the social welfare costs of higher unemployment outweigh the social welfare benefits of higher education for a large number of OECD countries. Therefore, it would be socially desirable to reduce the minimum wage while compensating the working poor with appropriate tax cuts. It is well known that higher labor-income taxes and unemployment benefits incentivize workers to supply less labor. In standard economic models this is referred to as the distortionary effect of taxation. It is shown

Wages and Commuting
This paper examines individual-level compensating differentials for commuting distance in a quasi-natural experiment setting by examining how wages respond to changes in commuting distance induced by firm relocations. This set-up enables us to test for the relevance of job search frictions within labour market models. The quasi-experimental set-up makes it possible to avoid a range of endogeneity issues. One issue is that wage responses to firm relocations may differ in the short- and the long run— with the short-run response likely to be much smaller than the long-term response. Our quasi-natural experiment allows us to distinguish between the short and the long run. Using Danish data, we demonstrate that a 1 km increase in commuting distance induces an almost negligible wage increase in the year after the relocation, but a more substantial wage increase of about 0.15% three years later. An important finding is that employers have market power and pay below workers’ productivity, particularly to workers that live close to the firm.

Authors
Ismir Mulalic (Technical University of Denmark), Jos N. Van Ommeren (VU) and Ninette Pilegaard (Technical University of Denmark), Wages and Commuting: Quasi-natural Experiments’ Evidence from Firms that Relocate, The Economic Journal 123 (573), forthcoming.
### References

**Papers in journals**

#### Behavioral and Experimental Economics


#### Cooperative Behavior, Strategic Interaction and Complex Systems


#### Econometrics and Operations Research


Franses, P.H., B. de Groot (2013), Do commercial real estate prices have predictive content for GDP?, *Applied Economics*, 45(31), 4379-84.


Finance


Labor, Health, Education and Development


Macroeconomics and International Economics


Organizations and Markets


References


Spatial, Transport, and Environmental Economics


### Discussion papers

#### Behavioral and Experimental Economics

**13-190**

Thomas Buser, UvA, Anna Dreber, Stockholm School of Economics, *The Flipside of Comparative Payment Schemes*

**13-192**

Aaron Kamm, Arthur Schram, UvA, *A Simultaneous Analysis of Turnout and Voting under Proportional Representation: Theory and Experiments*

**14-013**

Matthijs van Veelen, UvA, Shishi Luo, Los Alamos National Laboratory, Burton Simon, University of Colorado, *A Simple Model of Group Selection that Cannot be Analyzed with Inclusive Fitness*

**14-015**

Audrey Hu, Theo Offerman, Liang Zou, UvA, *How Risk Sharing May Enhance Efficiency in English Auctions*

**14-019**


#### Cooperative Behaviour, Strategic Interaction and Complex Systems

**13-188**

Maurice Koster, UvA, Sascha Kurz, University of Bayreuth, Ines Lindner, VU, Stefan Napel, University of Bayreuth, *The Prediction Value*

**13-204**

Cars Hommes, CeNDEF, UvA, *Behaviorally Rational Expectations and almost Self-Fulfilling Equilibrium*

**13-205**

Tiziana Assenza, Università Cattolica del Sacro Cuore, Milano, and UvA, CeNDEF, William A. Brock, University of Wisconsin, Madison, and University of Missouri, Columbia, Cars H. Hommes, UvA, CeNDEF, *Animal Spirits, Heterogeneous Expectations and the Emergence of Booms and Busts*

**13-206**

**Finance**

**14-028**
David Ardia, Laval University, Quebec, Lukasz Gatarek, EUR, Lennart F. Hoogerheide, VU, *A New Bootstrap Test for the Validity of a Set of Marginal Models for Multiple Dependent Time Series: An Application to Risk Analysis*

**14-029**
Francisco Blasques, Siem Jan Koopman, Andre Lucas, VU, *Maximum Likelihood Estimation for Generalized Autoregressive Score Models*

---

**Labor, Health, Education and Development**

**14-001**

**14-012**
Lukasz Marc, VU, *The Causal Link between Aid and Government Expenditures*

---

**Macroeconomics and International Economics**

**13-200**
Koen Vermeylen, UvA, *The Methodology of Modern Macroeconomics and the Descriptive Approach to Discounting*

**13-201**
Koen Vermeylen, UvA, *The Consumption Discount Rate for the Distant Future (if we do not die out)*

**13-202**
Roder van Arkel, Research Institute, Social Trade Organisation, Utrecht, Koen Vermeylen, UvA, *The Interest Rate and Capital Durability, and the Importance of Methodological Pluralism*

**13-203**
Koen Vermeylen, UvA, *Non-Marginal Cost-Benefit Analysis and the Tyranny of Discounting*

**13-212**
Dennis Bonam, VU, Jasper Lukkezen, Utrecht University, and CPB Netherlands Bureau for Economic Policy Analysis, *Government Spending Shocks, Sovereign Risk and the Exchange Rate Regime*

**14-004/DSF70**
Sweder van Wijnbergen, Christiaan van der Kwaak, UvA, *Financial Fragility and the Fiscal Multiplier*

**14-006**
Dennis Bonam, VU, Jasper Lukkezen, Utrecht University, and CPB Netherlands Bureau for Economic Policy Analysis, *Fiscal and Monetary Policy Coordination, Macroeconomic Stability, and Sovereign Risk*

**14-008**
Frank A.G. den Butter, VU, Mathieu L.L. Segers, Utrecht University, *Prospects for an EMU between Federalism and Nationalism*

---

**Organizations and Markets**

**13-196**
Jan Tichem, EUR, *Leniency Bias in Long-Term Workplace Relationships*

**13-198**
Jan Tichem, EUR, *Endogenous Effort Norms in Hierarchical Firms*

**14-009**
Okemena Onemu, EUR, *Social Relations, Incentives, and Gender in the Workplace*

**14-011**
Jolanda Hessels, EUR, and Panteia/EIM, Udo Brixy, Institute for Employment Research (IAB), Nuremberg, and Ludwig-Maximilians University, Munich, Wim Naudé, Maastricht School of Management, Maastricht University, and IZA, Thomas Gries, University of Paderborn, *Skill Variety, Innovation and New Business Formation*

**14-017**
Jurjen J.A. Kamphorst, Otto H. Swank, EUR, *Don’t Demotivate, Discriminate*

**14-020**
Martijn J. Burger, EUR, Mark Thissen, Netherlands Environmental Assessment Agency (PBL), Frank G. van Oort, Dario Diodato, Utrecht University, The Magnitude and Distance Decay of Trade in Goods and Services: New Evidence for European Countries

Spatial, Transport, and Environmental Economics

Hugo Emilo Silva, Erik T. Verhoef, Vincent van den Berg, VU, Airline Route Structure Competition and Network Policy

Karima Kourtit, Peter Nijkamp, VU, In Search of Creative Champions in High-Tech Spaces

Karima Kourtit, Daniel Arribas-Bel, Peter Nijkamp, VU, High Performance in Complex Spatial Systems: A Self-Organizing Mapping Approach with Reference to the Netherlands

Karima Kourtit, Jan Möhlmann, Peter Nijkamp, Jan Rouwendal, VU, The Spatial Distribution of Creative Industries and Cultural Heritage in the Netherlands

Erik Ansink, VU, Hans-Peter Weikard, Wageningen University, Composition Properties in the River Claims Problem

Adriaan Hendrik van der Weijde, Vincent A.C. van den Berg, VU, Stochastic User Equilibrium Traffic Assignment with Price-sensitive Demand: Do Methods Matter (much)?

Mesbah J. Motamed, US Department of Agriculture, Raymond J.G.M. Florax, Purdue University, and VU, William A. Masters, Tufts University, Agriculture, Transportation and the Timing of Urbanization: Global Analysis at the Grid Cell Level

Theses

MICHEL GERRITSE (January 20, 2014) Policy Competition and the Spatial Economy

ANNE OPSCHOOR (February 20, 2014) Understanding Financial Market Volatility

RUBEN R. VAN LOON (February 26, 2014) Tourism and the Economic Valuation of Cultural Heritage

IVAN LYUBIMOV (March 7, 2014) Essays on Political Economy and Economic Development

AART GERRITSEN (February 21, 2014) Essays in Optimal Government Policy

MARTIN L. SCHOLTUS (February 27, 2014) The Impact of High-Frequency Trading on Financial Markets

ERAN RAVIV (March 14, 2014) Forecasting Financial and Macroeconomic Variables: Shrinkage, Dimension Reduction, and Aggregation

JAN TICHEM (May 15, 2014) Altruism, Conformism, and Incentives in the Workplace

EVA S. HENDRIKS (June 6, 2014) Essays in Law and Economics

XIAOYU SHEN (May 26, 2014) Essays on Empirical Asset Pricing


XIAOYUE LI (May 20, 2014) Temporary Price Deviation, Limited Attention and Information Acquisition in the Stock Market

YUN DAI (May 23, 2014) Efficiency in Corporate Takeovers
Tinbergen Research Institute

Eight themes distinguish Tinbergen Institute’s research program:

I. Econometrics and Operations Research – ECTOR
II. Finance – FIN
III. Labour, Health, Education, and Development – LHED
IV. Macroeconomics and International Economics – MIE
V. Behavioral and Experimental Economics – BEE
VI. Organizations and Markets – OM
VII. Spatial, Transport and Environmental Economics – STEE
VIII. Cooperative Behaviour, Strategic Interaction and Complex Systems – CSC

Discussion Papers

Research is pre-published in the institute’s own Discussion Paper Series. Download discussion papers at http://www.tinbergen.nl/discussionpapers/ E-mail address for correspondence: tinbergen-magazine@tinbergen.nl.

Tinbergen Graduate School

Tinbergen Institute offers two research master tracks (MPhil): one in Economics and one in Econometrics. Due to the demanding nature of the programs, the MPhil programs are open only to a rigorously selected group of students. An excellent preparation for PhD thesis research, the MPhil programs are connected to three-year PhD positions in the economics departments of Erasmus University Rotterdam, University of Amsterdam, and VU University Amsterdam.

The research master program has been accredited by the Dutch and Flemish Accreditation Organization for higher education (NVAO), and eligible students can claim two years of financial aid (“studiefinanciering”). In addition, Tinbergen Institute allocates scholarships each year based on academic merit. Detailed information on the institute’s graduate program and the application procedure can be found in the Graduate School section of www.tinbergen.nl. Please send any questions to applications@tinbergen.nl.

Board

C.N. Teulings (Chair), H.P. Boswijk, A. Italianer, J.L. Moraga-Gonzalez, H.D. Webbink

General Director

B. Visser

Director of Graduate Studies

M. Giuliodori

Research Program Co-ordinators

Econometrics and Operations Research – ECTOR:
R. Paap, S.J. Koopman, A.P.M. Wagelmans
Finance – FIN:
R.C.J. Zwinkels, A.J. Menkveld
Labour, Health, Education, and Development – LHED:
E.J.S. Plug, E.K.A. van Doorslaer
Macroeconomics and International Economics – MIE:
E.M. Bosker, P.A. Gautier

Behavioral and Experimental Economics – BEE:
J.H. Sonnemans, H. Bleichrodt
Organizations and Markets – OM:
O.H. Swank, J. Hinloopen
Spatial, Transport and Environmental Economics – STEE:
C.A.A.M. Withagen
Cooperative Behaviour, Strategic Interaction and Complex Systems – CSC:
C.H. Hommes

Alumni Board Tinbergen Institute

I. Ossokina (Chair), Y. Chung Cheung, E. Mendys, M. van der Wel

Editorial Board Tinbergen Institute

B. Sadaba, S.L. Blauw, L. Geijtenbeek, B.S.Y. Crutzen, E.E.W. van den Berg, B. Visser

How to subscribe?

Address for correspondence/subscriptions:
Tinbergen Institute Rotterdam
Burg. Oudlaan 50
3062 PA Rotterdam
the Netherlands

E-mail: tinbergen-magazine@tinbergen.nl
Address changes may be sent to the above e-mail address.
Highlight?
The highlight of my time as a PhD student was my semester-long visit to UC Berkeley. At Berkeley I found out what it means to be in a top research department. There are so many great people to talk to and work with, and the courses and seminars are all of extremely high quality. Also, I liked the crazy hippy lifestyle in Berkeley, and the fact that it was so close to San Francisco. Last and most importantly, I met my fiancée during my first lecture in Berkeley.

Biggest bloopers?
This is a very good question. I have probably made many, but no specific bloopers come to my mind.

What should you have known before you started?
Economics is a very special field. Unlike natural scientists, most economists are somewhat skeptical of their own methodology. The results in your paper crucially depend on the assumptions you make and many of the assumptions are at least somewhat arbitrary. At the same time, unlike most other social scientists, we want to give directions for policy on the basis of our research. Therefore, perhaps the most challenging question for economists is how to give policy advice with models that, according to your own judgment, depend on arbitrary assumptions. Walking the fine line between becoming overly skeptical of your own research, which kills your motivation for doing it at all, and becoming overly complacent in your own assumptions, which leads to bad and uninspired research, has sometimes been an emotional rollercoaster for me.

Advice for MPhils or new PhD students?
Go out of your office and visit your colleagues’ offices, seminars, workshops and conferences! Also, if you do not understand something, it’s okay to admit that you don’t know—and don’t be afraid to ask questions. Most people in academia are very willing to explain to you exactly what they are doing, or give suggestions on how to improve your research.

What’s next?
I am currently an assistant professor at the NHH in Bergen, Norway.