CENTER FOR OPERATIONS RESEARCH AND ECONOMETRICS

2012

REPORT OF THE RESEARCH DIRECTOR

2013

CORE

Contents

PRESENTATION

PREAMBLE

Founded in 1966, the Center for Operations Research and Econometrics (CORE) is an interdisciplinary research center of the Université catholique de Louvain. In 2010, CORE became one of the poles of IMMAQ, a research institute associating researchers from three different research entities: CORE, IRES (Institut de Recherches Economiques et Sociales) and ISBA (Institute of Statistics, Biostatistics and Actuarial Sciences).

CORE follows three objectives. The first objective is the development of scientific research in the fields of economics, game theory, operations research and econometrics. The second objective is the training of young researchers at the doctoral and postdoctoral stages of their career. The third objective is the promotion of inter-university and international scientific exchanges and collaborations. This report gives an overview of the activities developed in the Summer 2012 – Summer 2013 period to meet these objectives. A more dynamic follow-up of the current activities can be found in the CORE-Newsletter, which is published three times a year (http://www.uclouvain.be/en-330033.html), on the CORE-website (http://www.uclouvain.be/en-core.html), and on the CORE-Facebook page (https://www.facebook.com/CORE.UCL).

HIGHLIGHTS

Scientific life at CORE has been marked in 2012–2013 by the transformation of ECORE into ECORES. ECORE was the federation of CORE and ECARES, the excellence research centre of ULB in economics and statistics. ECORE has opened its door to CES, the Center of Economic Studies of the KU Leuven. Together, CORE, ECARES and CES now form ECORES, a European Center in Operations Research, Economics and Statistics. The design of this new institution was completed in February 2013. Joint seminars began at that time, too. Three times per semester, one

centre hosts a seminar in which a researcher from another centre presents a paper that is then discussed by a researcher from the third center. Also, we held in May 2013 the first ECORES summer school in Leuven. The format of that summer school was identical to that of former ECORE summer schools. The new ECORES structure received legal status in October 2013. Details about all ECORES scientific events of 2012-2013 can be found in this report.

The academic year 2012–2013 has been rich in scientific events of different kinds, as will be explained in this report. A major source of satisfaction has also been the award of several prizes to CORE members. Maybe the main one was the John von Neuman Theory Prize awarded by INFORMS to Laurence Wolsey for his fundamental contributions to theory in operations research and management science. The prize was shared with George Nemhauser, a former research director of CORE, in 1975–1977. George is at Georgia Institute of Technology since 1985. Laurence and George's (1988) book on integer and combinatorial optimization has now received 6703 citations (Google Scholars account).

People

In Section 1, we present the people working at CORE, Faculty members, administrative staff members, PhD students, and the many long term, short term and regular visitors. In 2012–2013, CORE has hosted 77 short and long-term visitors. One of the main features of CORE since its very foundation has been its focus on developing inter-university and international scientific exchanges. CORE has continued actively this tradition of networking, both at the institutional and at the personal level. CORE offers an office for short visits (for a few days or a few weeks) to researchers coming to present their work at one of the weekly research seminars, to participate in CORE workshops or conferences, or simply to work with a co-author. In addition, Research Associates and Associate Fellows are regularly present at CORE. Each year a new cohort of post-doctoral research fellows – selected on an international and competitive basis – arrives at CORE.

We also present in the section our administrative staff. CORE could never have become the lively, stimulating and hospitable research environment it is today without its efficient and friendly staff. They create a place where the academics can concentrate on research and teaching without having to bother too much about practical

issues. This is a necessary condition for CORE to remain an attractive place for visitors. Many thanks, therefore, to the administrative staff.

The last paragraph of Section 1 gives you some details about prizes and awards.

Research

CORE's activities integrate fundamental and applied research. They are oriented towards providing frameworks for the analysis of a wide range of problems. Theoretical, statistical and computational dimensions of these frameworks are part of the research output. The problems that are analyzed arise from economic policy and the management of private and public firms. The emphasis of the research is on interactive work with a solid theoretical basis. Our works in many fields are unified by mathematical modeling and reasoning.

CORE's research covers a wide variety of topics. They are classified according to the following research domains: econometrics, energy economics, environmental economics, game theory, general equilibrium, growth and development, industrial organization, macroeconomic policies, microeconomic theory, optimization methods and operations research, public and welfare economics, supply chain management, trade, transport and economic geography.

Section 2 describes the recent research output. In 2012–2013, 6 books have been written or edited by CORE members. Then, 106 papers have been published in scientific journals, of which 78 have been included in the CORE Reprints Series. Also, 77 discussion papers have been written, of which 64 have been included in the CORE Discussion Papers. We also mention at the end of Section 2 a number of newspaper articles written by CORE members.

Training

Training of young researchers is an important facet of CORE's activities. In Section 3, we present activities linked to that training. In 2012–2013, 6 PhD students defended their dissertation at CORE. Overall, 36 students developed their research at CORE at that time.

Seminars and Conferences

In Section 4, we give information on seminars. In addition to the ECORES seminars presented above, weekly research seminars in the fields of econometrics, economic theory, mathematical programming, trade and economic geography, and welfare economics allowed CORE members and visitors to present their work and share ideas. There were also regular reading seminars in economics and operations research.
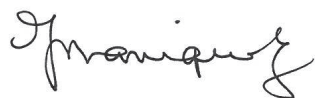
In Section 5, we present the conferences organized or co-organized by CORE members. CORE has been an official organizer of 8 of them. Let me point out the conference that was held in Jerusalem in memory of Jean-François Mertens. Many Israeli and Belgian colleagues and friends of Jean-François, as well as colleagues and friends from many other countries, came to present their work. The list of speakers includes four laureates of the Nobel prize.

We also list in Section 6 the presentations made by CORE members in seminars and conferences outside CORE.

Support

These activities are supported by CORE's participation in a long list of research projects and joint contracts, of which we present the details in Section 7. They are financed by different institutions (the Belgian Federal Government, the Belgian French Community (Fédération Wallonie-Bruxelles), the Walloon Region (Région Wallonne), the European Commission and private partners).

Finally, we are grateful for the continuing and indispensable support of the Université catholique de Louvain.

François MANIQUET

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PERSONNEL

- Management
- The Faculty
- Administrative Staff
- Doctoral Students and Research Assistants
- Research Fellows
- Associate Fellows
- Research Associates
- Short Term Visitors
- Research Fellows and Visiting Faculty Members for 2013-2014
- Prizes and Awards

■ MANAGEMENT

Officers for the period covered by this report:

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President:	Luc BAUWENS
Research Director:	François MANIQUET
Co-directors:	Philippe CHEVALIER
	Vincent VANNETELBOSCH
Executive Director:	Francisco SANTANA FERRA

■ THE FACULTY

■ BOARD MEMBERS

During the academic year 2012-2013, the permanent staff of CORE consisted of *Faculty Members* of Université catholique de Louvain, Université libre de Bruxelles, Université Saint-Louis, Brussels, KU Leuven, Université de Liège, Facultés universitaires catholiques de Mons, Université de Namur, Universiteit Maastricht and Université du Luxembourg.

PER AGRELL

• Professor, Université catholique de Louvain (Louvain School of Management, Louvain-la-Neuve campus), Belgium, part-time professor, Norwegian School of Economics (NHH), Bergen, Norway.

• *Operations management (supply chain management, network regulation).*

• Ph.D. (production economics), Linköping University, Sweden, 1995.

• Researcher, International Institute for Applied Analysis (IIASA), Laxenburg, Austria, 1993–1994; post doctoral researcher, University of Georgia, Athens (GA), USA; visiting associate professor in operations research, Copenhagen University, Denmark; 1997–1999; associate professor in managerial economics, Copenhagen University, Denmark, 1998–2001; senior researcher, Universitat Autonoma de Barcelona, Spain, 2008; president of the Louvain School of Management Research Institute, UCL, Belgium, 2010–2011.

• *Current editorial activities:* Editorial board member, *International Journal of Production Economics.*

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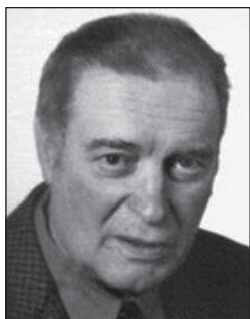
Anton Barten

- Professor emeritus, KU Leuven and Université catholique de Louvain, Belgium.

- **Econometrics and macroeconomic models**.

- Ph.D. (economische wetenschappen), Nederlandse Economische School, Rotterdam, 1966.

- Visiting professor, University of California, Berkeley (CA), USA, 1962–1963; University of Wisconsin, Madison (WI), USA, 1963; University of Pennsylvania, Philadelphia (PA), 1964; University of Chicago (IL), USA, 1969–1970.

- *Prizes & Awards :* Fellow of the Econometric Society, 1977; member of the International Statistical Institute; corresponding member of the Royal Netherlands Academy of Sciences; foreign member of the Royal Belgian Academy of Sciences.

Luc Bauwens

- Professor, Université catholique de Louvain (Faculté des sciences économiques, sociales, politiques et de communication, Ecole des sciences économiques), Belgium.

- **Econometrics and statistics**.

- Docteur en sciences économiques, Université catholique de Louvain, Belgium, 1983.

- Consultant at World Bank Washington (DC), USA, 1983–1984; senior researcher at Facultés universitaires catholiques de Mons, Belgium, 1984–1987; senior lecturer at Ecole des Hautes Etudes en Sciences Sociales (EHESS), Marseille, France, 1987–1991; chairman, Département des sciences économiques, Université catholique de Louvain, Belgium, 2000–2003; research director, CORE, Université catholique de Louvain, Belgium, 2006–2009; president, CORE, Université catholique de Louvain, Belgium, 2010–2013.

- *Prizes & Awards :* Leonard J. Savage Thesis Award, 1984; Francqui Chair, Facultés universitaires Notre-Dame de la Paix, Namur, Belgium, 2005–2006.

- *Previous editorial activities:* Associate editor, *Computational Statistics* and *Empirical Economics*.

- *Current editorial activities:* Associate editor, *Computational Statistics and Data Analysis (Annals of Financial Econometrics)*, *International Econometric Review*, *Journal of Applied Econometrics*, *Journal of Financial Econometrics*, and *Risk Letters*.

Paul Belleflamme

- Professor, Université catholique de Louvain (Louvain School of Management, Louvain-la-Neuve campus), Belgium; research affiliate, Center for Economic Studies and Ifo Institute for Economic Research (CESifo), Münich, Germany; member of the board of AIDE (Association Internationale de Droit Economique).

- **Microeconomics (industrial organization, game theory).**

- Docteur en sciences économiques, Facultés universitaires Notre-Dame de la Paix, Namur, Belgium, 1997.

- Research fellow, Facultés universitaires Notre-Dame de la Paix, Namur, Belgium, 1997–1999; Lecturer in economics, Queen Mary, University of London, United Kingdom, 1999–2002.

- *Prizes & Awards*: Prix du Fonds International WERNAERS for scientific research and knowledge diffusion, 2012, Francqui Chair, 2013.

- *Previous editorial activities:* Associate editor, *Information Economics and Policy*.

- *Current editorial activities:* Associate editor, *E-economics* and *Review of Networks Economics*.

Raouf Boucekkine

- Professor, Université catholique de Louvain (Faculté des sciences économiques, sociales, politiques et de communication, Ecole des sciences économiques), Belgium; professor and research director, Aix-Marseille School of Economics, France.

- **Mathematical and computational methods in economics, growth theory and development, economic and mathematical demography.**

• Docteur en sciences économiques, Université Paris 1, France, 1993.

• Assistant and Associate professor, Universidad Carlos III de Madrid, Spain, 1993–1998; visiting professor, Université Louis Pasteur, Strasbourg, France, 2000–2003; KU Leuven, Belgium, 2001–2005; HEC-Paris, France, 2003–2007; part-time chair, University of Glasgow, United Kingdom, 2007–2010.

• *Previous editorial activities:* Associate editor, *Mathematical Population Studies* and *Investigaciones Economicas.*

• *Current editorial activities:* Associate editor, *Annales d'Economie et Statistique, Journal of Public Economic Theory, Macroeconomic Dynamics*, and *Mathematical Social Sciences.*

Thierry Bréchet

• Professor, Université catholique de Louvain (Louvain School of Management, Louvain-la-Neuve campus); Belgium.

• ***Environmental economics.***

• Docteur en sciences économiques, Université Paris 1, France, 2000.

• Expert for the European Commission, Belgium, 1992–1994; expert for the Bureau Fédéral du Plan, Belgique, 1994–2000; holder of the Chair Lhoist Berghams in Environmental Economics and Management, 2002–2011; invited professor, Université Lille 1, France, 2010–2011; visiting professor, European University of St Petersburg, Russia, 2009–2012; associate research fellow, Grantham Institute for Climate Change, Imperial College London, 2011–2012.

• *Current editorial activities:* Editorial board member, *Regards Economiques.*

Philippe Chevalier

• Professor, Université catholique de Louvain (Louvain School of Management, Louvain-la-Neuve campus), Belgium.

• ***Operations research: stochastic models, supply chain management.***

• Ph.D. (operations research), Massachusetts Institute of Technology, Cambridge (MA), USA, 1992.

• Associate Professor, Universidad de Chile, 1992–1994.

• *Previous editorial activities:* Member of editorial board, *Manufacturing and Service Operations Management.*

Claude d'Aspremont

• Professor emeritus, Université catholique de Louvain, Belgium.

• ***Mathematical economics, social choice theory, industrial organization.***

• Ph.D. (decision sciences), Graduate School of Business, Stanford University (CA), USA, 1973.

• Visiting professor, Université d'Aix-Marseille III, France, 1984–1996; Université Louis Pasteur, Strasbourg, France, 1988–1999; Ecole Polytechnique de Paris, France, 1995; Facultés universitaires Saint-Louis, 1981-2001; visiting scholar, Graduate School of Business, Stanford (CA), USA, Summer, 1987 and Spring 1995; president, Département des sciences économiques, Université catholique de Louvain, Belgium, 1991–1994; research director, 1995–1998 and president, 2006–2010, CORE, Université catholique de Louvain, Belgium; president, IMMAQ, Université catholique de Louvain, Belgium, 2010–2011.

• *Prizes & Awards:* Fellow of the Econometric Society, 1984; Francqui Prize, 1995; Doctor Honoris Causa, Université Louis Pasteur, Strasbourg, France, 2002; founding fellow of the Society for the Advancement of Economic Theory (SAET), 2011.

• *Previous editorial activities:* Associate editor, *European Economic Review, Games and Economic Behavior, Journal of Economics/Zeitschrift für Nationalökonomie, Journal of Mathematical Economics*, and *Revue de philosophie économique.*

• *Current editorial activities:* Associate editor, *Journal of Public Economic Theory,* and *Social Choice and Welfare.*

JULIO DAVILA

• Professor, Université catholique de Louvain (Faculté des sciences économiques, sociales, politiques et de communication, Ecole des sciences économiques), Belgium; Directeur de Recherches CNRS, Paris, France.

• ***Economic theory; general equilibrium and game theory.***

• Docteur en sciences économiques, Ecole des Hautes Etudes en Sciences Sociales, Paris, France, 1994.

• Chargé de Recherches CNRS, Paris, France, 1998–2009; assistant professor, University of Pennsylvania (PA), USA, 1999–2004; profesor titular, Universidad Autónoma de Barcelona, Spain, 1994–1998; postdoctoral fellow, Harvard University, Cambridge (MA), USA, 1995; associate professor, Paris School of Economics, France, 2008–to date; visiting professor, Universiad Carlos III de Madrid, Spain, 2006; ECARES-Université libre de Bruxelles and Solvay Business School, Brussels, Belgium, 2005–2008.

• *Current editorial activities:* Associate editor, *Economics Bulletin.*

PIERRE DEHEZ

• Professor, Université catholique de Louvain (Faculté des sciences économiques, sociales, politiques et de communication, Ecole des sciences économiques), Belgium.

• ***Microeconomics, general equilibrium, game theory.***

• Doctorate in Economics, Université catholique de Louvain and European Doctoral Program, 1980.

• Professor: European University Institute, Florence, Italy, 1983–1990 and Erasmus Universiteit Rotterdam, The Netherlands, 1991–1992; visiting professor University of Illinois, USA, University of Namur, Belgium, University of Mannheim, Germany, University of Cergy-Pontoise, France, University of Strasbourg, France, University of Nancy, France, University of Pisa, Italy; chairperson, Department of Economics, European University Institute, Florence, Italy,

1985–1987 and 1989; president, Department of Economics, Université catholique de Louvain, Belgium, 1994–2000; prorector in charge of the sector of human and social sciences, Université catholique de Louvain, Belgium, 2001–2004.

DAVID DE LA CROIX

• Professor, Université catholique de Louvain (Faculté des sciences économiques, sociales, politiques et de communication, Ecole des sciences économiques), Belgium.

• ***Growth theory, human capital and demography, overlapping generations.***

• Docteur en sciences économiques, Université catholique de Louvain, Belgium, 1992.

• Research fellow, Universiteit Maastricht, The Netherlands, 1992; visiting professor, University of California, Los Angeles (CA), USA, 2000-2001.

• *Prizes & Awards:* Francqui Chair, Ghent Universiteit, Belgium, 2004; chercheur qualifié honoraire, Fonds National de la Recherche Scientifique (FNRS), Belgium; United Nations: Panel on New Challenges in Population and Development (IUSSP), 2010–2013.

• *Current editorial activities:* Associate editor, *Journal of Economic Dynamics and Control, Journal of Development Economics, Journal of Public Economic Theory;* editorial board member, *Ciometrica, Fiscal Studies*, and *Recherches Economiques de Louvain.*

JACQUES DRÈZE

• Professor emeritus, Université catholique de Louvain, Belgium.

• ***Economic theory and macroeconomics***

• Ph.D. (economics), Columbia University, New York (NY), USA, 1958.

• Visiting professor, Carnegie Institute of Technology, Pittsburgh (PA), USA, 1957–1958; Northwestern University, Evanston (IL), USA, 1962; University of Chicago (IL), USA, 1963–1968.

• *Prizes & Awards:* Fellow, 1964 and president, 1970 of the Econometric Society; Francqui Chair, Université libre de Bruxelles, Brussels, Belgium, 1970–1971 and KU Leuven, Belgium, 1982–1983; Andrew D. White professor at large, Cornell University, Ithaca (NY), USA, 1971–1977; president of the European Economic Association, 1985–1986; president of the International Economic Association, 1996–1999.

• *Previous editorial activities:* Co-editor, *Econometrica.*

LOUIS EECKHOUDT

• Professor emeritus, Facultés universitaires catholiques de Mons, Belgium.

• **Decision under risk and health economics.**

• Ph.D. (economics), Michigan State University, East Lansing (MI), USA, 1970.

Prizes & Awards: Robert Witt Research Award, 2002 and 2004; Kulp Wright Book Award, 2007; 2008 Publication award of the Decision Analysis Society (Informs).

• *Previous editorial activities:* Associate Editor, *Revue Economique.*

• *Current editorial activities:* Associate Editor, *Geneva Risk and Insurance Review* and *Journal of Risk and Insurance*

JEAN J. GABSZEWICZ

• Professor emeritus, Université catholique de Louvain, Belgium.

• **Economic theory.**

• Docteur en droit, Université catholique de Louvain, Belgium, 1961; docteur en sciences économiques, Université catholique de Louvain, Belgium, 1968.

• Visiting professor, Polish Academy of Sciences, Warzaw, Poland, 1973; University of Tel-Aviv; Israël, 1973; Université de Paris Dauphine, France, 1973; Université de Paris Val de Marne, France; 1979; Université d'Aix-en-Provence, France, 1981; Université de Lyon, France, 1981; Université de Strasbourg, France, 1982; Université de Dijon, France, 1983; European University Institute, Firenze, Italy,

1984; Université Paris 1 Panthéon-Sorbonne, France, 1999–2000; Université de Paris Panthéon-Assas, France, 1999–2001.

• *Prizes & Awards:* Fellow of the Econometric Society, 1979; administrator of CEPREMAP, Paris, France; member of the Council of the European Economic Association, 1986–1989; Doctor Honoris Causa, Université d'Aix-Marseille II, France, 2003; Fellow of the European Economic Association, 2004.

• *Previous editorial activities: Journal of Economics, Ricerche Economiche, Journal of Economic Theory*, and *European Economic Review.*

VICTOR GINSBURGH

• Professor emeritus, Université libre de Bruxelles, Brussels, Belgium.

• **Economic theory, cultural economics, economics of languages.**

• Docteur en sciences économiques, Université libre de Bruxelles, Brussels, Belgium, 1972.

• Researcher, Cowles Foundation, Yale University, New Haven (CT), USA, 1975; visiting professor, Université catholique de Louvain, Belgium, 1973, 1978 and 1985; University of Virginia, Charlottesville (VI), USA, 1979; Université Paris 1 Panthéon-Sorbonne, France, 1986–1987 and 1991–1992; Université Paris Panthéon-Assas, France, 1986–2004; Université d'Aix-Marseille II, France, 1986–1989; University of Chicago (IL), USA, 1996.

• *Prizes & Awards:* Francqui Chair, Université de Liège, Belgium, 1992–1993; president of the International Association of Cultural Economics, 2002–2004; co-director, European Center for Advanced Research in Economics and Statistics (ECARES), Université libre de Bruxelles, Brussels, Belgium, 2002–2009.

• *Previous editorial activities: Annales d'Economie et de Statistique, European Economic Review*, and *Journal of Cultural Economics.*

• *Current editorial activities:* Co-editor, *Journal of Wine Economics*; associate editor, *Recherches Economiques de Louvain-Louvain Economic Review.*

Pierre Giot

- Professor, University of Namur, Belgium.

- **Financial econometrics, modeling volatility and risk, market microstructure, venture capital economics.**

- Docteur en sciences économiques (financial econometrics), Université catholique de Louvain, Belgium, 1999.

- Assistant professor, Department of quantitative economics, Universiteit Maastricht, The Netherlands, 2000–2001; visiting professor, Université catholique de Louvain, Belgium, 2000–to date and Université Paris 1, France, 2002.

- *Prizes & Awards:* Winner of the 2005 Joseph de la Vega price and Winner of the annual prize of the French Finance Association, 2010.

François Glineur

- Professor, Université catholique de Louvain (Ecole Polytechnique de Louvain, Pôle en ingénierie mathématique), Belgium.

- **Optimization, mathematical programming and operations research (algorithms, modeling and applications).**

- Docteur en sciences appliquées, Faculté polytechnique de Mons, Belgium, 2001.

- FNRS Postdoctoral Researcher 2001–2002 (Faculté Polytechnique de Mons, Belgium and McMaster University, Canada).

Christian Hafner

- Professor, Université catholique de Louvain (Louvain School of Statistics, Biostatistics and Actuarial Sciences), Belgium.

- **Econometrics and statistics.**

- Ph.D. in Economics, Humbold-Universität zu Berlin, Germany, 1996.

- Postdoctoral fellow, CORE, Université catholique de Louvain, Belgium, 1996–1997; research associate, Humboldt Universität zu Berlin, Germany, 1997–1999; chief analyst, Electrabel, Louvain-la-Neuve, Belgium, 1999–2002; assistant professor, Erasmus Universiteit Rotterdam, The Netherlands, 2002–2005; president, Louvain School of Statistics, Biostatistics and Actuarial Science, UCL, Belgium, 2010–to date.

- *Past editorial activities:* Associate editor, *Banking and Finance Review*.

- *Current editorial activities:* Associate editor, *Computational Statistics, International Econometric Review*, and *Studies in Nonlinear Dynamics and Econometrics*.

Jean Hindriks

- Professor, Université catholique de Louvain (Faculté des sciences économiques, sociales, politiques et de communication, Ecole des sciences économiques), Belgium; Senior fellow, Itinera Institute, Brussels, Belgium, member of the public pension committee and member of the Belgian price and inflation scientific committee.

- **Public economics, political economy and education economics.**

- Docteur en sciences économiques, Facultés universitaires Notre-Dame de la Paix, Namur, Belgium, 1996.

- Visiting fellow, University of Essex, United Kingdom, 1997–1998; lecturer in economics, University of Exeter, United Kingdom, 1998–2000; Queen Mary College, University of London, United Kingdom, 2000–2002.

- *Previous editorial activities:* Associate editor, *European Journal of Political Economy*.

- *Current editorial activities:* Associate editor, *Journal of Public Economic Theory* and *Fiscal Studies.*

SÉBASTIEN LAURENT

- Professor in econometrics, IAE-GREQAM, Université Aix-Marseille II, France; visiting professor, Université catholique de Louvain, Belgium.

- ***Financial econometrics, modeling volatility and risk.***

- Ph.D. in Financial Econometrics, Universiteit Maastricht, The Netherlands, 2002.

- Assistant/Associate professor in economics, Facultés universitaires Notre-Dame de la Paix, Namur, Belgium, 2003–2009; visiting professor, London School of Economics, 2008–2009; associate professor in econometrics, Universiteit Maastricht, 2009-2013.

ETIENNE LOUTE

- Professor emeritus, Facultés universitaires Saint-Louis, Brussels (Doctoral School of Management, UCL, Belgium, Brussels campus), Belgium.

- ***Mathematical programming: algorithmic and implementation issues, management and engineering applications of mathematical programming.***

- Docteur en sciences appliquées, Université catholique de Louvain, Belgium, 1976.

- Visiting professor, Brookhaven National Laboratory, Upton (NY), USA, 1977; IIASA, Vienne, Austria, 1979; HEC Montréal, Canada, 1981; Université de Genève, Switzerland, 1992; Université de Savoie, France, 1992–2004; National University of Vietnam, Ho Chi Minh City, Vietnam, 1998–2002.

- *Prizes & Awards:* Dean, Faculté des sciences économiques et politiques, Facultés universitaires Saint-Louis, Brussels, Belgium, 1993–1996; President of SOGESCI (2004–2006), Director of Doctoral School of Management, UCL, Belgium, Brussels campus, Belgium, 2007–2011, member of INFORMS, SIAM, SOGESCI, and Mathematical Programming Society.
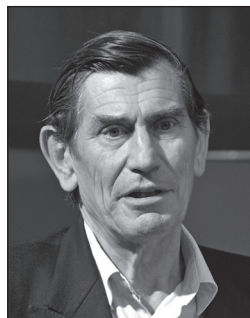
FRANÇOIS MANIQUET

- Professor, Université catholique de Louvain (Faculté des sciences économiques, sociales, politiques et de communication, Ecole des sciences économiques), Belgium; part-time professor, University of Warwick, United Kingdom; research director, CORE, Université catholique de Louvain, Belgium, 2011–2014.

- ***Microeconomic theory, welfare economics, public economics, political economics.***

- Docteur en sciences économiques, Facultés universitaires Notre-Dame de la Paix, Namur, Belgium, 1994.

- *Prizes & Awards:* SCW Prize, 2004, best paper in *Review of Economic Design*, 2004; Chercheur qualifié honoraire, Fonds National de la Recherche Scientifique (FNRS), Belgium; Francqui Chair 2009–2010 at Facultés universitaires Saint-Louis, Brussels, Belgium; Francqui Prize, 2010; ERC grant laureate 2010.

- *Current editorial activities:* Editor, *Economics and Philosophy*; associate editor, *Annals of Economics and Statistics, Mathematical Social Sciences* and *Social Choice and Welfare.*

ANA MAULEON

- Maître de recherches, Fonds National de la Recherche Scientifique (FNRS), Belgium, and associate professor at Université Saint-Louis (Faculté des sciences économiques, sociales et politiques), Brussels, Belgium; co-director of the Center for Research in Economics (CEREC), 2008–to date, Université Saint-Louis, Brussels, Belgium.

- ***Game theory, industrial organization and matching theory.***

- Ph.D. in Economics, Universidad del Pais Vasco, Bilbao, Spain, 1997.

- Lecturer, Department of Economic Analysis, Universidad del Paìs Vasco, Bilbao, Spain, 1989–1997; Assistant Professor, Department of Economic Analysis, Universidad del Paìs Vasco, Bilbao, Spain, 1997–1999; Associate Professor, Department of Economic Analysis, Universidad del Paìs Vasco, Bilbao, Spain, 1999–2006; LABORES (URA 362, CNRS), Université Catholique de Lille, France, 2001–2004.

Florian Mayneris

- Assistant professor, Université catholique de Louvain (Faculté des sciences économiques, sociales, politiques et de communication, Ecole des sciences économiques), Belgium.

- ***International trade, economic geography, urban economics.***

- Ph.D. in Economics, EHESS-Paris School of Economics, France, 2009.

- Postdoc, CORE, Université catholique de Louvain, Belgium, 2009–2011.

- *Prizes & awards* : Young economist award at the European Economic Association Congress, 2010; Louis Forest Prize for the best Ph.D. dissertation from the Chancellerie des Université de Paris, 2010.

- *Current editorial activities:* Associate editor, *Journal of Regional Science.*

Michel Mouchart

- Professor emeritus, Université catholique de Louvain, Belgium.

- ***Statistics and econometrics.***

- Docteur en sciences économiques, Université catholique de Louvain, Belgium, 1973.

- International professor CIENES, Santiago, Chili, 1966–1967; visiting professor, University of Chili, Chili, 1967–1968; University College, London, United Kingdom, 1976; Université de Strasbourg, France, 1981; Indian Statistical Institute, New Delhi, India, 1982; Université d'Aix-Marseille II, France, 1982; Università di Bologna, Italy, 1984; Carnegie-Mellon University, Pittsburgh (PA), 1985; Université des Sciences Sociales de Toulouse, France 1991–1993; Université de Paris Panthéon-Sorbonne, France, 1993–1994.

- *Prizes & Awards:* Elected member of the International Statistical Institute, Elected fellow of the International Society for Bayesian Analysis, ISBA, UCL, Belgium, Bernoulli Society, Société Belge de Statistique.

- *Current editorial activities:* Associate Editor, *Statistica, International Econometric Review.*

Yurii Nesterov

- Professor, Université catholique de Louvain (Ecole Polytechnique de Louvain, Pôle en ingénierie mathématique), Belgium.

- ***Convex and nonlinear optimization, complexity analysis of optimization schemes, polynomial-time algorithms, fast gradient methods, approximation of combinatorial problems, equilibrium in congested transportation networks.***

- Doctor in applied mathematics, Institute of Control Sciences, Moscow, Russia, 1984.

- Research associate, Central Economic and Mathematical Institute of the Russian Academy of Science, Moscow, Russia, 1997–1992; visiting professor, Université de Genève, Switzerland, 1992–1993; invited professor, CORE, Université catholique de Louvain, Belgium, 1993–2000.

- *Prizes & Awards:* Dantzig Prize, 2000; John Von Neumann Theory Prize, 2009; Best Paper Award, Optimization Methods and Software, 2010; EUROPT fellow, 2010; Francqui Chair 2012, Université de Liège, Belgium, Honorable Simon Stevin Lecture on Optimization in Engineering, Katholieke Universiteit Leuven, 2013.

- *Previous editorial activities:* Associate editor, *Mathematical Programming.*

- *Current editorial activities:* Associate editor, *Foundation of Computational Mathematics, Optimization and Engineering* and *Optimization Methods and Software.*

Anthony Papavasiliou

- Assistant professor, Université catholique de Louvain (Ecole Polytechnique de Louvain, Pôle en ingénierie mathématique), Belgium and GDF-Suez faculty chair in Quantitative and Energy Economics.

- ***Optimization under uncertainty, energy markets, electric power systems planning and operations.***

- Ph.D. in Industrial Engineering and Operations Research, University of California at Berkeley, USA, 2011.

- Post-doctoral researcher: University of California at Berkeley, USA; Research intern: Pacific Gas and Electric, Federal Energy Regulatory Commission, XEROX Palo Alto Research Center, Energy Environment and Economic Modeling Laboratory, USA.

DOMINIQUE PEETERS

- Professor, Université catholique de Louvain (Faculté des Sciences, Ecole de géographie), Belgium.

- *Location theory, economic geography, regional science, mathematical programming, operations research.*

- Docteur en sciences appliquées, Université catholique de Louvain, Belgium, 1980; agrégé de l'enseignement supérieur, Université catholique de Louvain, Belgium, 1995.

- Post-doctoral fellow, McMaster University, Hamilton, Ontario, Canada, 1986; Université de Bourgogne, France, 1991; University of Tsukuba, Japan, 1996–1997; Université Louis Pasteur, Strasbourg, France, 2006.

PIERRE PESTIEAU

- Professor emeritus, Université de Liège, Belgium; Associate member, Paris School of Economics, France; CEPR, CESIfo, IZA research fellow.

- *Population economics and public economics.*

- Ph.D. (economics), Yale University, New Haven (CT), USA, 1971.

- Assistant professor, Cornell University, Ithaca (NY), USA, 1971–1976; professor, Université de Liège, Belgium, 1976–2008.

- *Prizes & Awards:* Francqui Prize, 1989; AGF ASSUBEL Prize, 1995; Einaudi Chair in European Studies, Cornell University, Ithaca (NY), 1997; Prix Risque-Les Echos, 2006; Honorary Degree Uppsala University, 2011.

- *Previous editorial activities*: Co-editor, *Journal of Population Economics.*

- *Current editorial activities*: Co-editor, *Journal of Public Economics*; associate editor, *CESifo Economic Studies, Economica, Finanz-Archiv*, and *Journal of Public Economic Theory.*

PIERRE PICARD

- Professor, Faculty of Law, Economics and Finance, Université du Luxembourg.

- *Microeconomics, regional and urban economics, international economics and public economics.*

- Docteur en sciences économiques, Université catholique de Louvain, Belgium, 1998.

- Research fellow, Facultés universitaires Notre-Dame de la Paix, Namur, Belgium, 1998–1999; Lecturer and Senior Lecturer in Economics, School of Economic Studies, University of Manchester, United Kingdom, 1999–2008.

- *Current editorial activities:* Co-editor, *Manchester School.*

ERIK SCHOKKAERT

- Professor, KU Leuven, Belgium.

- *Public economics, health economics, social choice.*

- Ph.D. (economics), KU Leuven, Belgium, 1982.

- Visiting professor, Universiteit Antwerpen, Belgium, 1985–1986, Université catholique de Louvain, Belgium, 1988–1989, London School of Economics, United Kingdom, 2006–2007, 2012–2013; research director, CORE, Université catholique de Louvain, Belgium, 2009–2011.

- *Prizes & Awards:* Francqui chair 2005-2006, Universiteit Antwerpen, Belgium.

- *Current editorial activities:* Associate editor, *Economics & Philosophy, Health Policy*, and *Social Choice and Welfare.*

LÉOPOLD SIMAR

- Professor emeritus, Université catholique de Louvain, Brussels, Belgium.

- *Mathematical statistics, nonparametric statistics and econometrics, resampling methods, production and efficiency analysis.*

- Docteur en sciences appliquées (mathématiques appliquées), Université catholique de Louvain, Belgium, 1974.

- Visiting professor, Cornell University, Ithaca (NY), USA, 1974; IDEI, Université des Sciences Sociales, Toulouse, France, 1991–2013; Humboldt Universität, Berlin, Germany, 1993–2003; Texas University, Austin (TX), USA, 1995–2005; Rice University, Houston (TX), USA, 1996; 1998; 2009; ENSAI, Rennes, France, 1999–2001; Australian National University, Canberra, Australia, 1999; Universität of Mainz, Germany, 2002–2004; University of Pisa, Italy, 2003–2006; University of Bologna, Italy, 2010–2011; ENSAE, Paris, France, 2001–2009; Institut Français du Pétrole, Rueil, France, 1991–2013; Clemson University (SC), USA, 2007–2012; Professore di Chiara Fama, 2006 and 2007; Italian Ministry of Research, Scuola Superiore San'Anna, Pisa, Italy; Chaire d'Excellence Pierre de Fermat, 2008–2009, Region Midi-Pyrénées, Toulouse School of Economics, France; Universität Karlsruhe (TH), Germany, 2008–2009; Universität Bonn, Germany, 2011; University of Salento, Lecce, Italy, 2010–2013; University of Queensland, Brisbane, Australia, 2011, 2013; University of Rome La Sapienza, Italy, 2011–2013.

- *Prizes & Awards:* Professore di Chiara Fama, 2006 and 2007, Italian Ministry of Research Scuola Superiore San'Anna, Pisa, Italy; Chaire d'Excellence Pierre de Fermat, 2008-2009, Region Midi-Pyrénées, Toulouse School of Economics, France; 2013–2014 Messageri della Connoscenza, Italian Ministry of Research, University of Salento, Lecce, Italy; Elected member of the International Statistical Institute; dean, Facultés des sciences économiques, sociales et politiques, Facultés universitaires Saint-Louis, Brussels, Belgium, 1978–1990; Founder-Chairman, Institut de statistique, Université catholique de Louvain, Belgium, 1992–2004; President of the Belgian Statistical Society, 1999–2002; Honorary member of the Belgian Statistical Society.

- *Current editorial activities*: Associate editor, *Journal of Productivity Analysis* and *Operations Research.*

YVES SMEERS

- Professor emeritus, Université catholique de Louvain, Belgium.

- *Computational economics and risk management in the electricity and gas industries.*

- Master of Science (industrial administration) and Ph.D. (operations research), Carnegie-Mellon University, Pittsburgh (PA), USA, 1971.

- *Prizes & Awards:* INFORMS Fellow, 2012.

- *Current editorial activities*: Associate editor, *Energy Economics.*

FRANS SPINNEWYN

- Professor emeritus, KU Leuven, Belgium.

- *Microeconomics.*

- Ph.D. (economics), London School of Economics, United Kingdom, 1975.

- Bevoegd verklaard navorser, Nationaal Fonds voor Wetenschappelijk Onderzoek, Belgium, 1977–1979; assistant, KU Leuven, Belgium, 1979–1983; visiting professor, Cornell University, Ithaca (NY), USA, 1985.

- *Prizes & Awards:* B.A.C. Prize, 1976.

JACQUES-FRANÇOIS THISSE

- Professor emeritus, Université catholique de Louvain, Belgium.

- *Economic theory, industrial organization, economic geography.*

- Docteur en sciences économiques, Université de Liège, Belgium, 1975.

- Visiting professor, McMaster University, Hamilton, Ontario Canada, 1981; University of Pennsylvania, Philadelphia (PA), USA, 1985; INSEAD, Fontainebleau, France, 1987; Virginia Polytechnic Institute, Blacksburgh (VA), USA, 1990; Université Paris 1 (Panthéon-Sorbonne),
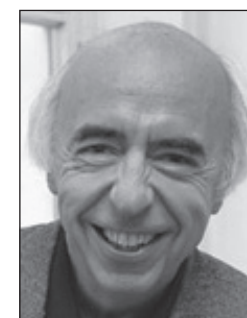
France, 1991–1996; Institut National de Recherche Agronomique, Dijon, France, 2003; Kyoto University, Japan, 2006.

• *Prizes & Awards:* Fellow of the Econometric Society, 1992; Fellow of the Regional Science Association International, 2003; Fellow of the European Economic Association, 2004; William Alonso Memorial Prize, 2004; Prix scientifique quinquennal Ernest-John Solvay (FNRS), 2005; European Prize in Regional Science, 2007; Doctor Honoris Causa, Université de Montréal, Canada, 2005, Université Paris Panthéon-Assas, France, 2010, Ecole Normale Supérieure de Cachan, France, 2010 and Université Jean Monet, Saint-Etienne, France, 2011.

• *Previous editorial activities:* Associate editor, *Geographical Analysis, International Journal of Industrial Organization, Journal of the European Economic Association, Journal of Industrial Economics* and *Journal of Regional Science.*

• *Current editorial activities:* Associate editor, *International Journal of Economic Theory, Japanese Economic Review, Journal of Economic Geography, Journal of Economics and Management Strategy* and *Regional Science and Urban Economics.*

Isabelle Thomas

• Directeur de Recherches, Fonds National de la Recherche Scientifique (FRS-FNRS), Belgium, and professor, Université catholique de Louvain (Faculté des sciences, Ecole de géographie), Belgium; member of the board of ERSA, ASRDLF, BIVEC/GIBET, Comité National de Géographie.

• *Economic geography, transport geography, optimal locations, cartography, quantitative analysis in geography, economic theory and game theory.*

• Docteur en sciences (géographiques), Université catholique de Louvain, Belgium, 1984; agrégée de l'enseignement supérieur, Université catholique de Louvain, Belgium, 2000.

• *Prizes & Awards:* Prix Aydalot in Regional Science, 1989; BMW Scientific Award, 2001; Prix de la Compagnie du Bois Sauvage 2011-2012.

• *Current editorial activities:* editorial board member, *Belgéo, Cybergéo, L'Espace Géographique, International Regional Science Review,* and *Revue d'Economie Régionale et Urbaine.*

Henry Tulkens

• Professor emeritus, Université catholique de Louvain, Belgium.

• *Economic theory and public finance.*

• Visiting positions (teaching and/or research) held at: University of Chicago 1963–1964; University of California; Berkeley (CA), USA, 1964–1965; Université d'Aix-Marseille II, France, 1971; Université Libre de Bruxelles, Brussels, Belgium, 1971–1972 and 1973–74; Princeton University (PA, USA, 1973 and 1983; Stanford University (CA), USA, 1973 and 1979; Hebrew University of Jerusalem, Israël, 1976 and 1981; Université Laval, Canada, 1977; Université Paris XII (Val de Marne), France, 1978; Université de Montréal, Canada, 1985; Beijer Institute of Ecological Economics, Stockholm, Sweden, 1992 and 1993; Fondazione ENI Enrico Mattei, Milan, Italy, 1993; Ecole Nationale de la Statistique et de l'Administration Economique, Paris, France, 1995; International Monetary Fund, Washington (DC), USA, 1997 and 2004; Université de Paris 1 Panthéon-Sorbonne, France, 2003; University of the South Pacific, Suva, Fiji, 2004; National University of Singapore, Singapore, 2002, 2007 and 2008; Università Ca' Foscari Venezia, Italy, 2011 and 2013; dean, Faculté des sciences économiques, sociales et politiques, Facultés universitaires Saint-Louis, Brussels, Belgium, 1970–1974; chairman, département des sciences économiques, Université catholique de Louvain, Belgium, 1978–1981; vice-president, International Institute of Public Finance, 1994–2000; general secretary of the European Economic Association, 1998–2004.
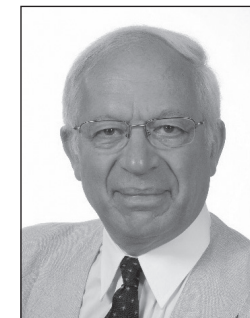
Sébastien Van Bellegem

• Professor, Université catholique de Louvain (Faculté des sciences économiques, sociales, politiques et de communication, Ecole des sciences économiques), Belgium.

• *Econometric theory and mathematical statistics.*

• Docteur en sciences, Université catholique de Louvain, Belgium, 2003.

• Chargé de cours, Institut de statistique, Université catholique de Louvain, Belgium, 2004–2008; professeur des

universités, Toulouse School of Economics, Université de Toulouse 1, 2008–2012; invited professor, Université catholique de Louvain, Belgium, 2010–2011; Pontificia Universidad de Chile, 2011.

- *Prizes & Awards:* Prix Marie-Jeanne Laurent-Duhamel, 2005.

- *Current editorial activities:* Associate editor, *Journal de la Société Française de Statistique, International Econometrics Review.*

HYLKE VANDENBUSSCHE

- Professor, Université catholique de Louvain (Faculté des sciences économiques, sociales, politiques et de communication, Chaire Jacquemin, Ecole des sciences économiques), Belgium.

- ***International economics, empirical trade, trade policy, programme evaluation, tax policy.***

- Ph.D. in Economics, Universiteit Antwerpen, Belgium, 1995.

- Lecturer in Industrial Economics, Judge Institute of Management of the University of Cambridge, United Kingdom, 1994–1996; postdoctoral researcher, Nationaal Fonds voor Wetenschappelijk Onderzoek, Belgium, 1999; visiting professor, Dartmouth college, Hanover (SH), USA, 2001 and 2003.

- *Prizes & Awards:* Vereniging voor Economie Vlaanderen (VEW-Award), 1999.

- *Previous editorial activities:* Panel member, *Economic Policy*, 2000–2002.

VINCENT VANNETELBOSCH

- Maître de Recherches, Fonds National de la Recherche Scientifique (FNRS), Belgium and professor, Université catholique de Louvain (Faculté des sciences économiques, sociales, politiques et de communication, Ecole des sciences économiques), Belgium.

- ***Game theory and industrial organization.***

- Docteur en sciences économiques, Université catholique de Louvain, Belgium, 1996 (European Doctoral Program);

- Extramural Fellow of METEOR, Universiteit Maastricht, The Netherlands, 2003–to date; associate fellow of CEREC, Facultés universitaires Saint-Louis, Brussels,

Belgium, 2005–to date; director of the European Doctoral Program in Quantitative Economics, 2004–to date.

MATHIEU VAN VYVE

- Associate Professor, Université catholique de Louvain (Louvain School of Management, Louvain-la-Neuve campus), Belgium.

- ***Discrete optimization, computational economics, operations research.***

- Docteur en sciences appliquées, Université catholique de Louvain, Belgium, 2003; Master in Philosophy, Université catholique de Louvain, Belgium, 1999.

- Assistant Professor, Université libre de Bruxelles, Belgium, 2004–2005; Senior Analyst, GdF-Suez s.a., 2005–2007; Senior Consultant, N-Side s.a., 2007–2009.

XAVIER WAUTHY

- Professor, Université Saint-Louis, Brussels, Belgium; visiting professor, Université catholique de Louvain, Belgium.

- ***Industrial organization, microeconomic theory.***

- Docteur en sciences économiques, Université catholique de Louvain, Belgium, 1995.

- Research fellow, Universiteit Maastricht, The Netherlands, 1996; chargé de recherches, Fonds National de la Recherche Scientifique (FNRS), Belgium, 1997–1998.

- *Current editorial activities:* editorial board member, *Louvain Economic Review.*

Laurence Wolsey

- Professor emeritus, Université catholique de Louvain, Belgium.

- **Discrete optimization, operations research, applied mathematics.**

- Ph.D. (mathematics), Massachusetts Institute of Technology, Cambridge (MA), USA, 1969.

- Visiting researcher, Manchester Business School, United Kingdom, 1969-1971; London School of Economics, United Kingdom, 1978–1979; Cornell University, Ithaca (NY), USA, 1983; visiting professor, Ecole Polytechnique de Lausanne; Switzerland, 1986–1987; Denders professor, Department of Computer Science, University of Utrecht, The Netherlands, Spring, 1998.

- *Prizes & Awards:* Dantzig Prize of the Mathematical Optimization Society, 2012; John Neuman Theory Prize (INFORMS), 2012.

- *Current editorial activities:* Associate editor, *Mathematical Programming A.*

■ **CORE Faculty (not members of the Board)**

Constantin Blome

- Professor, Université catholique de Louvain (Louvain School of Management, Louvain-la-Neuve campus) and GSK Vaccines Chair in Strategic Sourcing and Procurement.

- **Procurement; sourcing; supply chain management, sustainability.**

- Ph.D. (management), Technische Universität Berlin, Germany, 2006.

- Assistant Professor at European Business School, Wiesbaden, 2011.

- *Prizes & Awards:* Best reviewer award of *Journal of Supply Chain Management*, 2011; best paper award at the 21st Annual North American Research Symposium on Purchasing and Supply Chain Management of ISM, 2011; University of San Diego Harold E. Fearon Best Paper Award for the best article in *Journal of Supply Chain*

Management, 2010; Senior Research Fellow South China University of Technology, Guangzhou, China, 2010.

- *Previous editorial activities:* Associate editor, *Decision Sciences Journal* and *Decision Sciences Journal of Innovative Education*; editorial board member, *Journal of Operations Management*, *Journal of Supply Chain Management* and *Journal of Purchasing and Supply Management.*

Mathieu Parenti

- Assistant professor, Université catholique de Louvain (Faculté des sciences économiques, sociales, politiques et de communication), Belgium.

- **Industrial organization; international trade**.

- Ph.D. (international trade), Paris School of Economics, 2012.

- *Prizes & Awards:* 2013 Aguirre-Basualdo Prize from the "Chancellerie des universités de Paris" for the best PhD thesis in economics and management.

■ Administrative Staff

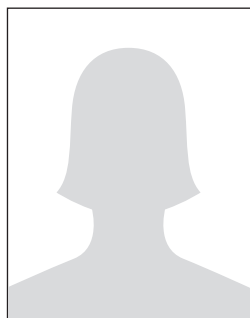|		
Maristella Angotzi	Micheline Delize	Catherine Germain
Congress Manager, ERSA	Administrative Assistant	Administrative Assistant

Alain GILLIS
Librarian

Fabienne HENRY
Administrative Assistant

Richard KELLY
Executive Director, ERSA

Caroline LEGRAND
Administrative Assistant

Sylvie MAUROY
Administrative Assistant

Anne-Marie PESSLEUX
Accountant

Francisco SANTANA FERRA
Executive Director

■ DOCTORAL STUDENTS AND RESEARCH ASSISTANTS

Abdelrahaman ALY · Rytis BADGZIUNAS · Mikel BEDAYO · Stéphane BOUCHÉ · Manuela BRAIONE · Camille COTTEELS · Nguyen Thang DAO · Karen DECANCQ · Benoît DECERF · Olivier DEVOLDER · Aditi DIMRI · Arnaud DUFAYS · Mery FERRANDO GUTIERREZ · Sophie FLAGOTHIER · Manuel FÖRSTER · Adel HATAMI-MARBINI · Claudia HUPKAU · Jonathan JONES · Tanguy KEGELART · Daniel KOCH · Alejandro LAMAS VILCHES · Arnaud LATIERS · Tanja MLINAR · Margherita NEGRI · Vadislav NORA · Wenli PENG · Paolo Giovanni PIACQUADIO · Andrew PUA · Nicolas SCHOLTES · Alice SERVAIS · Fahimeh SHAMSAEI · Fabio SIGISMONDI · Felix SOMMER · Ines VALENTE RUSSINO MOUGA SANTOS · Martin VAN DER LINDEN · Simon VERELST

■ RESEARCH FELLOWS

Research Fellows are scholars who work at CORE for a predefined time period (from one to three years).

Ignace ADANT, Ecole Polytechnique, Palaiseau, France
Chiara CANTA, Toulouse School of Economics, France
Marion LETURCQ, Paris School of Economics, France
Dirk NEUMANN, Forschungsinstitut zur Zukunft der Arbeit, Bonn, Germany
Vladimir SHIKHMAN, Rheinisch-Westfaelische Technische Hochschule, Aachen, Germany
Eve RAMAEKERS, Université de Namur, Belgium
Monalisa SEN, Moody's Quantitative Research New York (NY), USA
Claudio TELHA CORNEJA, University of Chile, Chile
Tom TRUYTS, KU Leuven, Belgium
Yukai Kevin YANG, Aahrus Universitet, Denmark

■ ASSOCIATE FELLOWS

Associate Fellows are scholars who work at CORE on a regular weekly basis and are assigned an office for a predefined time period.

Sophie BÉREAU, LSM, UCL, Belgium
Koen DECANCQ, KU Leuven, Belgium
Jean-Charles DELVENNE, Ecole Polytechnique de Louvain, UCL, Belgium

Claire DUJARDIN, Institut Wallon de l'Évaluation, de la Prospective et de la Statistique, Namur, Belgium

Axel GAUTIER, Université de Liège, Belgium

Jan JOHANNES, ISBA, UCL, Belgium

Stéphane LAMBRECHT, Université de Lille I, France

Pascal MOSSAY, University of Reading, United Kingdom

Mikael PETITJEAN, LSM, UCL, Belgium

Joe THARAKAN, Université de Liège, Belgium

Dirk VAN DE GAER, Universiteit Gent, Belgium

Wouter VERGOTE, Université Saint-Louis, Brussels, Belgium

■ RESEARCH ASSOCIATES

Research Associates are scholars who visit CORE on a regular yearly basis.

Francis BLOCH, Ecole Polytechnique, Paris, France

Jan EECKHOUT, University College London, United Kingdom

Johanna GOERTZ, University of Guelph, Canada

Jean-Jacques HERINGS, Universiteit Maastricht, The Netherlands

Marie-Louise LEROUX, Université du Québec à Montréal, Canada

Dunia LOPEZ PINTADO, Universidad Pablo de Olavide, Seville, Spain

Roland LUTTENS, Fund for Scientific Research, Universiteit Gent, Belgium

Juan MORENO TERNERO, Universidad Pablo de Olavide, Seville, Spain

Dimitri PAOLONI, Università degli Studi di Sassari, Italy

Guillaume ROELS, University of California at Los Angeles (CA), USA

Jeroen ROMBOUTS, HEC, Montréal, Canada

Ernesto SAN MARTIN, Pontificia Universidad Católica de Chile, Chile

Jose J. SEMPERE MONERRIS, Universidad de Valencia, Spain

Shin-Huei WANG, National Tsing Hua University, Taiwan

■ SHORT TERM VISITORS

In addition to the longer stays of the visiting faculty and research fellows, CORE benefited from the visit of a number of scholars whose stays ranged from a few days to a few months. Among them

Jorge AMAYA, Universidad de Chile, Santiago Chile

Margarida CARVALHO, Universidade do Porto, Portugal

Andres CARVAJAL, Western University Social Science Centre London, Canada

Alejandro CARRASCO, Pontificia Universidad Católica de Chile, Santiago, Chile

Maria del Mar RACIONERO, Australian National University, Canberra, Australia

Eric DELMELLE, University of North Carolina at Charlotte (NC), USA

Federico DE STEFANO, Banco Populare di Sondrio (BPS), Italy

Yuri DORN, Moscow Institute of Physics and Technology, Russia

Bartosz FILIPECKI, University of Edinburgh, United Kingdom

Jorge GONZALEZ, Pontificia Universidad Católica de Chile, Santiago, Chile

Jean-Jacques HERINGS, Universiteit Maastricht, The Netherlands

Norbert HOUNKONNOU, ICMPA-UNESCO Chair and University of Zambia, Lusaka, Zambia

Anatoli IOUDITSKI, Université de Grenoble, France

Alexey ISKAKOV, Russian Academy of Sciences, Russia

Mikhail ISKAKOV, Russian Academy of Sciences, Russia

Pierre-André JOUVET, Université Paris Ouest, Nanterre, France

Rebecca KILLICK, Lancaster University, United Kingdom

Marie-Louise LEROUX, Université de Québec, Montréal, Canada

Hans-Jakob LÜTHI, ETH Zürich, Zwitzerland

Yukihiro NISHIMURA, Osaka University, Japan

Giorgia OGGIONI, Università degli Studi di Bergamo, Italy

Manoranjan PAL, Indian Statistical Institute, New Delhi, India

Wilfredo PALMA, Pontificia Universidad Católica de Chile, Santiago, Chile

Susana PERALTA, Universidade Nova de Lisboa, Portugal

Peter RICHTARIK, University of Edinburgh, United Kingdom

Sebastian Martin RIVAS, Universidad de Malaga, Spain

Nils RÖHL, Universität Paderborn, Germany

Ernesto SAN MARTIN, Pontificia Universidad Católica de Chile, Santiago, Chile

Margarita SANMARTIN, Universidad Carlos III de Madrid, Spain

James SAUNDERSON, Massachusetts Institute of Technology (MIT), Cambridge (MA), USA

Monalisa SEN, University of Illinois at Urbana Champaign (IL), USA

Joachim SPOERHASE, Universität Würzburg, Germany

Igor SLOEV, Higher School of Economics, Moscow, Russia

Sergey SHPIRKO, Moscow Institute of Physics and Technology, Russia

Yves Sprumont, Université de Montréal, Canada

Jose Soto, Technische Universität Berlin, Germany

Genaro Sucarrat, BI Norwegian Business School, Norway

Ornella Tarola, Universita di Roma "La Sapienza", Italy

Hiroshi Uno, Osaka Prefecture University, Japan

Manachaya Uruyos, Chulalongkorn University, Bangkok, Taiwan

Filipp Ushchev, Higher School of Economics, Moscow, Russia

Yoo-Jao Whang, Seoul National University, Korea

■ Research Fellows and Visiting Faculty Members for 2013-2014

The following scholars will be in residence for all or part of the next academic year

Ignace Adant, CORE, UCL, Belgium

Constantin Blome, CORE, UCL, Belgium

Koen Decancq, KU Leuven, Belgium

Adel Hatami-Marbini, CORE, UCL, Belgium

Marion Leturcq, Paris School of Economics, France

Elena Mattana, Stockholm School of Economics, Stockholm, Sweden

Joniada Milla, University of Guelph, Ontario, Canada

Yukihiro Nishimura, Osaka University, Japan

Vladimir Shikhman, CORE, UCL, Belgium

Yukai Kevin Yang, CORE, UCL, Belgium

■ Prizes and Awards

• Paul Belleflamme obtained one of the six Prices Wernaers 2012 offered by the FNRS. The price rewards the "péda-blog" that Paul Belleflamme created with Alain Strowel (Université Saint Louis, Brussels, Belgium). IPdigIT is a blog about Intellectual Property (IP), the digital economy (DIGIT) and Information Technology (IT). It aims at discussing the law and economics of innovation ('Dig it!').

• The Université de Liège awarded its 2013's "Francqui Chair" to Paul Belleflamme, inviting him to participate in the scientific life and provide specialized activities of HEC-ULg, as well as to provide a series of special lectures. He gave a series

of six lectures articulated around the theme 'Microeconomics 2.0: Understanding the economics of Internet and the digital world'.

• Belgium calls on 12 experts to reform Belgian pension system. Among the experts are two CORE members: Jean Hindriks (CORE & Itinera Institute) and Erik Schokkaert (CORE and KU Leuven and former Research Director at CORE).

• In 2012 George Nemhauser and Laurence Wolsey have been awarded the John von Neuman Theory Prize from INFORMS. This prize is awarded annually to scholars who have made fundamental, sustained contributions to theory in operations research and the management sciences.

• Mathieu Parenti has been awarded the 2013 Aguirre-Basualdo Prize from the "Chancellerie des universités de Paris" for the best Ph.D. thesis in economics and management.

• Yves Smeers has been elected INFORMS (Institute for Operations Research and Management Sciences) fellow 2012. INFORMS fellows are examples of outstanding lifetime achievement in operations research and the management sciences. They have demonstrated exceptional accomplishments and made significant contributions to the advancement of OR/MS over a period of time.

PUBLICATIONS

- Books and Edited Books
- CORE Reprints
- Other Published Papers
- CORE Discussion pPapers
- Other Discussion Papers and Manuscripts
- Articles in Newspapers
- Reports

■ Books and Edited Books

● **Growth and Development**

* David DE LA CROIX. *Fertility, Education, Growth, and Sustainability.* Cambridge: Cambridge University Press, 2012.

This book provides a set of general equilibrium models where heterogeneous households rationally choose their number of children. We show that if indeed fertility is not only determined by exogenous cultural factors but responds to economic incentives, it has important consequences for inequality, education, and sustainability.

First, as soon as one assumes that the most important cost of having children is a time cost, economic theory says that fertility negatively depends on mother's labor income. This has strong implications for the relationship between income inequality and growth. A rise in inequality makes the rich richer, and leads them to have fewer highly educated children. Poor are poorer, and still have many uneducated children. Average human capital in the future is kept low by the mass of grown up children from poor families. Hence, inequality is particularly damageable for growth when one takes into account fertility incentives.

Second, one key message of the theory is that fertility and education are joint decisions. Hence, the cost of education is an important factor determining fertility. A policy aimed at providing free public education to all would tend to equalize fertility across income group, which is good for inequality, but will also incentivize households to have more children than under private education, which might hampers growth. A mixed system combining private and public education might not be at the expense of the poor, as long as the quality of public schools is chosen in a democratic way.

Third, fertility can be seen as a strategic variable in the fight for power between different (cultural, ethnic, religious) groups. Neglecting such a role would be acceptable in the short-run; however, effects on population growth are cumulative, and long-run outcomes may depend crucially on the fertility incentives of the different groups. The survival of ethnically diverse societies depends on these incentives.

Finally, fertility might be affected by policies targeted at other objectives. For example, taxing output to control pollution may delay the demographic transition. Hence, any evaluation of a policy should consider carefully its possible effects on fertility and population dynamics.

● **Public Economics**

* Jean HINDRIKS. *Gestion publique: Théorie et pratique.* Louvain-la-Neuve: De Boeck, 2012.

This book is about public management from an economic perspective. The objective is to show that efficiency and transparency should be core values in the public sector. The key message is that rather than cutbacks we should promote quality in the public sector. The central tenet is that public management is deeply different from private management. The book describes the principles and difficulties that govern public management. The theoretical part covers issues such as changing incentives, measuring public performance, promoting public efficiency and public accountability, developing specific forms of competition and coordination. The practical part includes case studies dealing with schools, higher education, pensions, federalism and local governments.

* Jean HINDRIKS and Gareth MYLES. *Intermediate Public Economics, 2nd edition.* Cambridge (MA): MIT Press, 2013.

Public economics studies how government taxing and spending activities affect the economy — economic efficiency and the distribution of income and wealth. This comprehensive text on public economics covers the core topics of market failure and taxation as well as recent developments in both policy and the academic literature. It is unique not only in its broad scope but in its balance between public finance and public choice and its combination of theory and relevant empirical evidence.

The book covers the theory and methodology of public economics; presents a historical and theoretical overview of the public sector; and discusses such topics as departures from efficiency (including imperfect competition and asymmetric information), issues in political economy, equity, taxation, fiscal federalism, and tax competition among independent jurisdictions. Suggestions for further reading, from classic papers to recent research, appear in each chapter, as do exercises. The mathematics has been kept to a minimum without sacrificing intellectual rigor; the book remains analytical rather than discursive. This second edition has been thoroughly updated throughout. It offers new chapters on behavioral economics, limits to redistribution, international taxation, cost-benefit analysis, and the economics of climate policy. Additional exercises have been added and many sections revised in response to advice from readers of the first edition.

* Nigar HASHIMZADE, Jean HINDRIKS and Gareth MYLES. *Solutions Manual to Accompany Intermediate Public Economics, 2nd edition.* Cambridge (MA): MIT Press, 2013.

A solutions manual for all 582 exercises in the second edition of Intermediate Public Economics.

* Mathieu LEBEBVRE and Pierre PESTIEAU. *L'Etat-providence en Europe. Performance et dumping Social.* Paris: Editions du CEPREMAP, 2012.

In this paper we use data on five social inclusion indicators (poverty, inequality, unemployment, education and health) to assess and compare the performance of 27 European Union welfare states over the last 15 years. Aggregate measures of performance are obtained using index number methods similar to those employed in the construction of the widely used Human Development Index. These are compared with alternative measures derived from data envelopment analysis methods. We are particularly interested by the comparison between the old members of the European union and the 12 newcomers. Unsurprisingly the Nordic countries are doing extremely well. Also among the newcomers some countries are ranking among the top performers and others are relegated in the bottom of the ranking. Another striking result is that in spite of increasing economic integration we do not observe any race to the bottom in the generosity and the performance of these welfare states.

● **Optimization Methods and Operations Research**

* Vladimir SHIKHMAN. *Topological Aspects of Nonsmooth Optimization. (Nonconvex Optimization and its Applications).* Springer Optimization and its Applications, New York: Springer, 2012.

This book deals with nonsmooth structures arising within the optimization setting. It considers four optimization problems, namely, mathematical programs with complementarity constraints, general semi-infinite programming problems, mathematical programs with vanishing constraints and bilevel optimization. The author uses the topological approach and topological invariants of corresponding feasible sets are investigated. Moreover, the critical point theory in the sense of Morse is presented and parametric and stability issues are considered. The material progresses systematically and establishes a comprehensive theory for a rather broad class of optimization problems tailored to their particular type of nonsmoothness.

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■ CORE Discussion Papers

- **Econometrics**

2012/37   Jean-François Carpentier and Arnaud Dufays
       Commodities volatility and the theory of storage

One implication of the theory of storage states that commodity price volatility should increase when inventories are low. We document this volatility feature by estimating asymmetric volatility models for 16 commodity return series, on the period 1994–2011 and show how to account for this feature in Value-at-Risk forecasting. Our contribution is threefold: (i) This study is the first to investigate systematically the volatility implication of the theory of storage for a large panel of commodity types (agriculturals, metals, precious metals and tree crops); (ii) Since inventories are hard to measure and define, especially for high frequency data, we use in the volatility model positive return shocks as a new original proxy for inventories; (iii) We finally develop an original asymmetric version of the spline GARCH model and find that the inventory effect remains robust if we allow the unconditional variance to vary over time.

2012/39   Shui-Ki Wan, Shin-Huei Wang and Chi-Keung Woo
      Total tourist arrival forecast: aggregation vs. disaggregation

Total tourist arrivals are the sum of disaggregate subcomponent arrivals by country of origin. We use seven time-series models to assess whether the aggregate approach that directly forecasts the total tourist arrivals outperforms the disaggregate approach that produces the total arrival forecast as an unweighted sum of its subcomponent forecasts. Based on Hong Kong's monthly tourist arrival data, we find (a) the seasonal autoregressive integrated moving average model outperforms the other non-seasonal and seasonal models under the aggregate approach, and (b) forecast performance can be improved by the disaggregate approach.

2012/43   Arnaud DUFAYS

Infinite-state Markov-switching for dynamic volatility and correlation models

Dynamic volatility and correlation models with fixed parameters are restrictive for time series subject to breaks. GARCH and DCC models with changing parameters are specified using the sticky infinite hidden Markov-chain framework. Estimation by Bayesian inference determines the adequate number of regimes as well as the optimal specification (Markov-switching or change-point). The new estimation algorithm is studied in terms of mixing properties and computational time. Applications highlight the flexibility of the model.

2012/48   Shin-Huei WANG, Luc BAUWENS and Cheng HSIAO

Estimating and forecasting structural breaks in financial time series

We develop an easy-to-implement method for forecasting a stationary autoregressive fractionally integrated moving average (ARFIMA) process subject to structural breaks with unknown break dates. We show that an ARFIMA process subject to a mean shift and a change in the long memory parameter can be well approximated by an autoregressive (AR) model and suggest using an information criterion (AIC or Mallows' Cp) to choose the order of the approximate AR model. Our method avoids the issue of estimation inaccuracy of the long memory parameter and the issue of spurious breaks in finite sample. Insights from our theoretical analysis are confirmed by Monte Carlo experiments, through which we also find that our method provides a substantial improvement over existing prediction methods. An empirical application to the realized volatility of three exchange rates illustrates the usefulness of our forecasting procedure. The empirical success of the HAR-RV model is explained, from an econometric perspective, by our theoretical and simulation results.

2013/14   Luc BAUWENS and Edoardo OTRANTO

Modeling the dependence of conditional correlations on volatility

Several models have been developed to capture the dynamics of the conditional correlations between time series of financial returns, but few studies have investigated the determinants of the correlation dynamics. A common opinion is that the market volatility is a major determinant of the correlations. We extend some models to capture explicitly the dependence of the correlations on the volatility of the market of interest. The models differ in the way by which the volatility influences the correlations, which can be transmitted through linear or nonlinear, and direct or indirect effects. They are applied to different data sets to verify the presence and possible regularity of the volatility impact on correlations.

2013/22   Christian M. HAFNER and Oliver LINTON

An almost closed form estimator for the EGARCH model

The EGARCH is a popular model for discrete time volatility since it allows for asymmetric effects and naturally ensures positivity even when including exogenous variables. Estimation and inference is usually done via maximum likelihood. Although some progress has been made recently, a complete distribution theory of MLE for EGARCH models is still missing. Furthermore, the estimation procedure itself may be highly sensitive to starting values, the choice of numerical optimization algorithm, etc. We present an alternative estimator that is available in a simple closed form and which could be used, for example, as starting values for MLE. The estimator of the dynamic parameter is independent of the innovation distribution. For the other parameters we assume that the innovation distribution belongs to the class of Generalized Error Distributions (GED), profiling out its parameter in the estimation procedure. We discuss the properties of the proposed estimator and illustrate its performance in a simulation study.

2013/25   Fabian Y.R.P. BOCART and Christian M. HAFNER

Fair re-valuation of wine as an investment

The prices of wine is a key topic for market participants interested in valuing their stock, including dealers, restaurants or consumers who may be interested in optimizing their purchases. As a closely related issue, re-valuation is the need to regularly update the value of a stock. This need is especially met by fund managers in the growing industry of wine as an investment. In this case, fair-value measurement is compulsory by law. We briefly review methods available to funds and introduce a new quantitative method aimed at meeting IFRS 13 compliance for fair valuation. Using auction data, we apply our method to compute current fair value of a basket of wines.

2013/29   Kent WANG, Shin-Huei WANG and Zheyao PAN

Can federal reserve policy deviation explain response patterns of financial markets over time?

Yes. By using real-time structure break monitoring techniques we find evidence against monotonic response pattern, specifically three response structures of US stock market to the federal monetary policy actions based on a sample from 1989–2010. We re-estimate the market response in each of the three structures and find results stronger than previously documented especially in 2001–2008. We propose a "FedGap" variable which measures the deviation of Fed policy from the "Taylor Rule" in explanation and find it to be significant with economic meaning. We conclude that market responses proportionally to the size of the FedGap and it thus serves as a new "macro-state" factor which can explain the dynamic

response patterns of financial markets. We also examine the issue from the bond market, and find similar results.

2013/44   Volker Britz, P. Jean-Jacques Herings and Arkadi Predtetchinski
         On the convergence to the Nash bargaining solution for action-dependent bargaining protocols

We consider a non–cooperative multilateral bargaining game and study an action–dependent bargaining protocol, that is, the probability with which a player becomes the proposer in a round of bargaining depends on the identity of the player who previously rejected. An important example is the frequently studied rejector–becomes–proposer protocol. We focus on subgame perfect equilibria in stationary strategies which are shown to exist and to be efficient. Equilibrium proposals do not depend on the probability to propose conditional on the rejection by another player, though equilibrium acceptance sets do depend on these probabilities. Next we consider the limit, as the bargaining friction vanishes. In case no player has a positive probability to propose conditional on his rejection, each player receives his utopia payoff conditional on being recognized and equilibrium payoffs are in general Pareto inefficient. Otherwise, equilibrium proposals of all players converge to a weighted Nash Bargaining Solution, where the weights are determined by the probability to propose conditional on a rejection.

• **Energy Economics**

2013/3   Per J. Agrell, Mehdi Farsi, Massimo Filippini and Martin Koller
         Unobserved heterogeneous effects in the cost efficiency analysis of electricity distribution systems

The purpose of this study is to analyze the cost efficiency of electricity distribution systems in order to enable regulatory authorities to establish price- or revenue cap regulation regimes. The increasing use of efficiency analysis in the last decades has raised serious concerns among regulators and companies regarding the reliability of efficiency estimates. One important dimension affecting the reliability is the presence of unobserved factors. Since these factors are treated differently in various models, the resulting estimates can vary across methods. Therefore, we decompose the benchmarking process into two steps. In the first step, we identify classes of similar companies with comparable network and structural characteristics using a latent class cost model. We obtain cost best practice within each class in the second step, based on deterministic and stochastic cost frontier models. The results of this analysis show that the decomposition of the benchmarking process into two steps has reduced unobserved heterogeneity within classes and, hence, reduced the unexplained variance previously claimed as inefficiency.

2013/7   Per J. Agrell and Pooria Niknazar
         Robustness, outliers and mavericks in network regulation

Benchmarking methods, primarily non-parametric techniques such as Data Envelopment Analysis, have become well-established and informative tools for economic regulation, in particular in energy infrastructure regulation. The axiomatic features of the non-parametric methods correspond closely to the procedural and economic criteria for good practice network regulation. However, critique has been voiced against the robustness of best-practice regulation in presence of uncertainty regarding model specification, data definition and collection. This paper investigates the foundation of the critique both conceptually and by describing the actual state-of-the-art used in energy network regulation using frontier analysis models in Sweden (2000–2003) and in Germany (2007–). A principal component of the applied frontier regulation is the systematic use of outlier detection models to define homogeneous reference sets and to exclude maverick reports. We review two families of outlier detection methods in terms of their function and application using a data set from Swedish electricity distribution, illustrating the different types of outliers. Finally, the paper concludes on the role of outlier detection as a mean to implement regulation with higher robustness.

2013/8   Per J. Agrell and Peter Bogetoft
         Benchmarking and regulation

Benchmarking methods, and in particular Data Envelopment Analysis (DEA), have become well- established and informative tools for economic regulation. DEA is now routinely used by European regulators to set reasonable revenue caps for energy transmission and distribution system operators. The application of benchmarking in regulation, however, requires specific steps in terms of data validation, model specification and outlier detection that are not systematically documented in open publications, leading to discussions about regulatory stability and economic feasibility of these techniques. In this paper, we review the modern foundations for frontier-based regulation and we discuss its actual use in several jurisdictions.

2013/18   Diane Pierret
         The systemic risk of energy markets

This paper investigates the meaning of systemic risk in energy markets and proposes a methodology to measure it. Energy Systemic Risk is defined by the risk of an energy crisis raising the prices of all energy commodities with negative consequences for the real economy. Measures of the total cost (EnSysRISK) and the net impact (ΔMES) of an energy crisis on the rest of the economy are proposed. The measures are derived from the Marginal Expected Shortfall (MES) capturing the tail dependence between the asset and the energy market factor. The adapted MES accounts for causality and dynamic exposure to common latent factors. The methodology is applied to the European Energy Exchange and the DAX

industrial index, where a minor decline in industrial productivity is observed from recent energy shocks.

• Environmental Economics

2012/40   Thierry BRÉCHET, Yann MÉNIÈRE and Pierre M. PICARD
The clean development mechanism in a global carbon market

This paper discusses the role of the Clean Development Mechanism (CDM) on the market for carbon quotas and countries' commitments to reduce their carbon emission levels. We show that the CDM contributes to an efficient funding of clean technology investments in least developed countries. However, the CDM is not neutral on the global level of carbon emissions as it entices countries to raise their emission caps. The CDM may also make inappropriate the inclusion of any country that takes no emission abatement commitment. It can even make inefficient a country's decision to commit to an emission target.

2012/49   Thierry BRÉCHET, Carmen CAMACHO and Vladimir M. VELIOV
Adaptive model-predictive climate policies in a multi-country setting

The purpose of this paper is to extend the use of integrated assessment models by defining rational policies based on predictive control and adaptive behavior. The paper begins with a review of the main IAMs and their use. Then the concept of Model Predictive Nash Equilibrium (MPNE) is introduced within a general model involving heterogeneous economic agents operating in (and interfering with) a common environment. This concept captures the fact that agents do not have a perfect foresight for several ingredients of the model, including that of the environment. A version of the canonical IAM (DICE) is developed as a benchmark case. The concept of MPNE is then enhanced with adaptive learning about the environmental dynamics and the damages caused by global warming. The approach is illustrated by some numerical experiments in a two-region setting for several scenarios.

2013/2   Thierry BRÉCHET and Henry TULKENS
Climate policies: a burden or a gain?

That climate policies are costly is evident and therefore often creates major fears. But the alernative (no action) also has a cost. Mitigation costs and damages incurred depend on what the climate policies are, and in addition, they are substitutes. This brings climate policies naturally in the realm of benefit-cost analysis. In this paper we illustrate the "direct" cost components of various policies, and then confront them with the benefits generated, that is, the damage cost avoided. However, the sheer benefit-cost criterion is not a sufficient incentive to induce cooperation among countries, a necessary condition for an effective global climate

policy. Thus, we also explore how to make use of this criterion in the context of international climate cooperation.

• Game Theory

2012/46   Mikel BEDAYO, Ana MAULEON and Vincent VANNETELBOSCH
Bargaining and delay in trading networks

We study a model in which heterogeneous agents first form a trading network where link formation is costless. Then, a seller and a buyer are randomly selected among the agents to bargain through a chain of intermediaries. We determine both the trading path and the allocation of the surplus among the seller, the buyer and the intermediaries at equilibrium. We show that a trading network is pairwise stable if and only if it is a core periphery network where the core consists of all weak (or impatient) agents who are linked to each other and the periphery consists of all strong (or patient) agents who have a single link towards a weak agent. Once agents do not know the impatience of the other agents, each bilateral bargaining session may involve delay, but not perpetual disagreement, in equilibrium. When an agent chooses another agent on a path from the buyer to the seller to negotiate bilaterally a partial agreement, her choice now depends both on the type of this other agent and on how much time the succeeding agents on the path will need to reach their partial agreements. We provide sufficient conditions such that core periphery networks are pairwise stable in presence of private information.

2012/50   Vladyslav NORA and Hiroshi UNO
Saddle functions and robust sets of equilibria

This paper introduces games with a saddle function. A saddle function is a real valued function on the set of action profiles such that, for one player, minimizing the function implies choosing her best-response, and, for the other players, maximizing it implies choosing their best-responses. We provide a new sufficient condition for robustness to incomplete information of sets of equilibria in a sense of Kajii and Morris (1997, *Econometrica*), Morris and Ui (2005, *Journal of Econonmic Theory*) for games with a saddle function. Our result unifies and generalizes sufficient conditions for zero- sum and best-response potential games.

2013/15   Jens L. HOUGAARD, Juan D. MORENO-TERNERO and Lars P. ØSTERDAL
Assigning agents to a line

We consider the problem of assigning agents to slots on a line, where only one agent can be served at a slot and each agent prefers to be served as close as possible to his target. Our focus is on utilitarian methods, i.e., those that minimize the total gap between targets and assigned slots. We first consider deterministic assignment of agents to slots, and provide a

direct method for testing if a given deterministic assignment is utilitarian. We then consider probabilistic assignment of agents to slots, and make use of the previous method to propose a utilitarian modification of the classic random priority method to solve this class of problems. We also provide some logical relations in our setting among standard axioms in the literature on assignment problems.

2013/23   Johanna M. GOERTZ and François MANIQUET
Large elections with multiple alternatives: A Condorcet Jury Theorem and inefficient equilibria

We investigate whether the plurality rule aggregates information efficiently in large elections with multiple alternatives, in which voters have common interests. Voters' preferences depend on an unknown state of nature, and they receive imprecise private signals about the state of nature prior to the election. Similar to two-alternative elections (e.g., Myerson (1998)), there always exists an informationally efficient equilibrium in which the correct alternative is elected. However, we identify new types of coordination failures in elections with more than two alternatives that lead to new types of inefficient equilibria. These can have interesting new properties: Voters may vote informatively, but the correct alternative is not elected.

2013/31   Ana MAULEON, Jose SEMPERE-MONERRIS and Vincent VANNETELBOSCH
Contractually stable alliances

We analyze how different rules for exiting an alliance (simple majority, unanimity or unanimity with side payments) will affect the formation of strategic alliances. We find that no alliance structure is contractually stable under the simple majority rule. Once unanimous consent is required, asymmetric alliance structures consisting of two alliances are contractually stable. In addition, the grand alliance which is the efficient structure is stable. Allowing for side payments to compensate former partners improves efficiency. Finally, we show that different rules of exit may coexist in different alliances in the long run.

2013/32   Jean-François CAULIER, Ana MAULEON and Vincent VANNETELBOSCH
Allocation rules for coalitional network games

Coalitional network games are real-valued functions defined on a set of players organized into a network and a coalition structure. We adopt a flexible approach assuming that players organize themselves the best way possible by forming the efficient coalitional network structure. We propose two allocation rules that distribute the value of the efficient coalitional network structure: the atom-based flexible coalitional network allocation rule and the player-based flexible coalitional network allocation rule.

2013/33   Georg KIRCHSTEIGER, Marco MANTOVANI, Ana MAULEON and Vincent VANNETELBOSCH
Limited farsightedness in network formation

Pairwise stability Jackson and Wolinsky [1996] is the standard stability concept in network formation. It assumes myopic behavior of the agents in the sense that they do not forecast how others might react to their actions. Assuming that agents are perfectly farsighted, related stability concepts have been proposed. We design a simple network formation experiment to test these extreme theories, but find evidence against both of them: the subjects are consistent with an intermediate rule of behavior, which we interpret as a form of limited farsightedness. On aggregate, the selection among multiple pairwise stable networks (and the performance of farsighted stability) crucially depends on the level of farsightedness needed to sustain them, and not on efficiency or cooperative considerations. Individual behavior analysis corroborates this interpretation, and suggests, in general, a low level of farsightedness (around two steps) on the part of the agents.

2013/34   Ana MAULEON and Vincent VANNETELBOSCH
Relative concerns and delays in bargaining with private information

We consider Rubinstein's two-person alternating-offer bargaining model with two-sided incomplete information. We investigate the effects of one party having relative concerns on the bargaining outcome and the delay in reaching an agreement. We find that facing an opponent having stronger relative concerns only hurts the bargainer when she is stronger than her opponent. In addition, we show that an increase of one party's relative concerns will decrease the maximum delay in reaching an agreement.

2013/50   Manuel FÖRSTER, Ana MAULEON and Vincent VANNETELBOSCH
Trust and manipulation in social networks

We investigate the role of manipulation in a model of opinion formation where agents have opinions about some common question of interest. Agents repeatedly communicate with their neighbors in the social network, can exert some effort to manipulate the trust of others, and update their opinions taking weighted averages of neighbors' opinions. The incentives to manipulate are given by the agents' preferences. We show that manipulation can modify the trust structure and lead to a connected society, and thus, make the society reaching a consensus. Manipulation fosters opinion leadership, but the manipulated agent may even gain influence on the long-run opinions. In sufficiently homophilic societies, manipulation accelerates (slows down) convergence if it decreases (increases) homophily. Finally, we investigate the tension between information aggregation and spread of misinformation. We find that if the ability of the manipulating agent is weak and the agents underselling (overselling)

their information gain (lose) overall influence, then manipulation reduces misinformation and agents converge jointly to more accurate opinions about some underlying true state.

● **Growth and Development**

2013/30   Nguyen Thang DAO and Julio DAVILA
Can geography lock a society in stagnation?

We extend Galor and Weil (2000) by including geographical factors in order to show that under some initial conditions, an economy may be locked in Malthusian stagnation and never take off. Specifically, we characterize the set of geographical factors for which this happens, and this way we show how the interplay of the available "land", its suitability for living, and its degree of isolation, determines whether an economy can escape stagnation.

● **Industrial Organization**

2012/41   Nikolaos GEORGANTZIS, Rafael MONER-COLONQUES, Vicente ORTS and José J. SEMPERE-MONERRIS
Theoretical and experimental insights on firms' internationalization decisions under uncertainty

We revisit and extend previous theoretical work on internationalization decisions by firms which are imperfectly informed on the state of the demand in the market into which they are planning to export or enter through foreign direct investment (FDI). The latter is a costly strategy mitigating the international firm's demand uncertainty, while the local firm is perfectly informed. We report results from an experimental test of the aforementioned framework which confirm dominant strategy play by local firms under both the good and bad states of the local demand. Also, the prediction that the magnitude of the FDI-specific cost determines whether foreign firms enter via FDI is confirmed in qualitative terms. However, in the case in which FDI is the dominant strategy under risk neutrality, less than full FDI adoption is obtained. We also find an unexpected interaction between the internationalization decision and the market strategy once entry has occurred, indicating the presence of relevant behavioral and strategic factors which are not anticipated by the theoretical model.

2012/44   Miguel JARA, Dimitri PAOLINI and J.D. TENA
Management efficiency in football: An empirical analysis of two extreme cases

Analysis of managerial efficiency in sport economics typically focuses on evaluating coach decisions instead of assessing the organization as a whole. This paper studies the relative importance of variables related to power and managerial decisions by estimating stochastic production frontiers models for the Chilean and Italian football. We find the presence of

technical inefficiencies in both cases. However, managerial decisions play a more significant role in the Italian league. This difference can be explained by a less open and balanced competition in the Chilean case, that could be due to a lower demand and/or financial constraints faced by small clubs in that country.

2012/47   Pierre M. PICARD and Ridwan D. RUSLI
State owned firms: Private debt, cost revelation and welfare

In this paper we study the role of private debt financing in disciplining a state owned firm operating for a government that incurs a cost of public financing. We show that debt contracts allow the government to avoid socially costly subsidies by letting unprofitable state-owned firms default. Debt is never used when the firm and government share the same information about the firm. By contrast, when the state-owned firm has private information, the government has an incentive to use debt to reduce the firm's information rents. We identify the conditions under which a positive debt level benefits governments. They depend on the cost of public funds, the interbank funding rate, the share of foreign investors, the level and uncertainty of the firm's cost.

2013/12   Pierre DEHEZ and Sophie POUKENS
The Shapley value as a guide to FRAND licensing agreements

We consider the problem of specifying *Fair, Reasonable And Non-Discriminatory* agreements faced by standard-setting organizations. Along with Layne-Farrar, Padilla and Schmalensee (2007), we model the problem as a cooperative game with transferable utility, allowing for patents to be *weak* in the sense that they have substitutes. Assuming that a value has been assigned to weak patents, we obtain a formula for the Shapley value that gives an insight into what FRAND agreements should look like.

2013/24   Axel GAUTIER and Jean-Christophe POUDOU
Reforming the postal universal service

The postal sector has undergone dramatic changes over the recent years under the double effect of ongoing liberalization and increased competition with alternative communication channels (e-substitution). As a result, the mail volume handled by the historical operator has declined sharply while the latter's ability to match the same standard of universal service may be under threat. Thus, a reform of the postal universal service is on the agenda. This paper examines possible reforming options ranging from keeping universal service within the postal sector to redefining universal service as spanning postal and electronic technologies.

• **Macroeconomic Policies**

2013/13   Jacques H. DRÈZE and Alain DURRÉ

Fiscal integration and growth stimulation in Europe (with an Appendix by Jacques DRÈZE and Jean-François CARPANTIER)

With the current sovereign debt crisis, the incompleteness of economic integration in the Economic and Monetary Union (EMU) has become patent leading to an intense debate among academics and policy makers. Most of the debate focuses on the needs to strengthen fiscal rules and to restore fiscal imbalances through austerity measures which weigh on growth prospects. In this paper we analyse current economic developments within the euro area through the lens of general equilibrium theory. We address two issues (international sharing of macroeconomics risks and coordinated growth stimulation) which are essential to guarantee the sustainability of the EMU. More specifically, we propose mechanisms to cope with intergenerational and interregional risks while focusing on (fiscally neutral) investments meeting social needs and apt to break the vicious circle between fiscal imbalances and stagnation.

• **Microeconomic Theory**

2013/9   Jacques H. DRÈZE

When Borch's Theorem does not apply: some key implications of market incompleteness, with policy relevance today

Markets are incomplete when the assets available to the agents do not span the space of future contingencies. Efficiency is then assessed by the weak criterion of "constrained efficiency" (efficiency relative to the set of allocations compatible with the asset structure). That criterion requires firms to optimise relative to shadow-prices reflecting shareholders' preferences. Yet, even when firms do so, competitive equilibria on the markets for assets and commodities fail (generically) to be constrained efficient (section 3). Pareto-superior allocations can be implemented through price/wage rigidities and quantity constraints (section 4). But nominal rigidities are conducive to multiple equilibria, implying endogenous macroeconomic uncertainties that compound the primitive (exogenous) uncertainties (section 5). Various policy implications can be drawn, which are of some relevance to the current crisis.

2013/10   Jacques H. DRÈZE

Existence and multiplicity of temporary equilibria under nominal price rigidities

This paper proves existence of a multiplicity of equilibria in a 2-period TGE model with money and nominal rigidities. Households have incomplete preferences and firms reach decisions through the "control principle" (cf. Drèze 1989).

2013/19   Pascal MOSSAY and Pierre M. PICARD

Spatial segregation and urban structure

In this paper, we study social interactions between two populations of individuals living in a city. Agents consume land and benefit from intra- and inter-group social interactions. We show that in equilibrium segregation arises: populations get separated in distinct spatial neighborhoods. Two- and three-district urban structures are characterized. For high population ratios or strong inter-group interactions, only a three-district city exists. In other cases, multiplicity of equilibria arises. Moreover, for sufficiently low population ratios or very weak inter-group interactions, all individuals agree on which spatial equilibrium is best.

2013/28   Manuel FÖRSTER, Michel GRABISCH and Agnieszka RUSINOWSKA

Anonymous social influence

We study a stochastic model of influence where agents have "yes" or "no" inclinations on some issue, and opinions may change due to mutual influence among the agents. Each agent independently aggregates the opinions of the other agents and possibly herself. We study influence processes modelled by ordered weighted averaging operators, which are anonymous: they only depend on how many agents share an opinion. For instance, this allows to study situations where the influence process is based on majorities, which are not covered by the classical approach of weighted averaging aggregation. We find a necessary and sufficient condition for convergence to consensus and characterize outcomes where the society ends up polarized. Our results can also be used to understand more general situations, where ordered weighted averaging operators are only used to some extend. We provide an analysis of the speed of convergence and the possible outcomes of the process. Furthermore, we apply our results to fuzzy linguistic quantifiers, i.e., expressions like "most" or "at least a few".

2013/43   Nada BELHADJ, Jean J. GABSZEWICZ and Ornella TAROLA

Social awareness and duopoly competition

Human actions are often guided both by individual rationality and by social norms. In this paper we explore how duopoly market competition values the variants of a product, when these variants embody at different levels the requirements derived from some social norm.

In a model where preferences of consumers depend partially on the levels of compliance of the variants with the social norm, we characterize the equilibrium path along which firms choose sequentially their level of compliance and their price.

● **Optimization Methods and Operations Research**

2012/31 Mathieu Van Vyve, Laurence A. Wolsey and Hande Yaman
Relaxations for two-level multi-item lot-sizing problem

We consider several variants of the two-level lot-sizing problem with one item at the upper level facing dependent demand, and multiple items or clients at the lower level, facing independent demands. We first show that under a natural cost assumption, it is sufficient to optimize over a stock-dominant relaxation. We further study the polyhedral structure of a strong relaxation of this problem involving only initial inventory variables and setup variables. We consider several variants: uncapacitated at both levels with or without start-up costs, uncapacitated at the upper level and constant capacity at the lower level, constant capacity at both levels. We finally demonstrate how the strong formulations described improve our ability to solve instances with up to several dozens of periods and a few hundred products.

2013/4 Adel Hatami-Marbini, Per J. Agrell and Nazila Aghayi
Imprecise data envelopment analysis for the two-stage process

The aggregate black-box approach of conventional Data Envelopment Analysis (DEA) limits its usefulness in situations where the observation is the result of independent decision making in sub-units (sub-DMUs), sequentially linked through processes or semi-finished products. The situation is commonly found in e.g supply chain management, health care provision and environmental management (waste water treatment). Alternative approaches for sublevel evaluations include two-stage or multi-stage models, where intermediate outputs or inputs are identified to span local production possibility spaces. However, the reliance upon numeric values for such intermediate inputs or outputs adds an additional difficulty that may lower the value of the assessment. In this paper, we present an approach for two-stage evaluation with interval data to resolve this problem. The results show that ignoring the interval quality of the data leads to distorted evaluations, both for the subunit and the system efficiency. The proposed method obtains an efficiency interval consisting in an upper and a lower bound for the system efficiency and the sub-DMU efficiency. In order to link two stages, we consider the interval intermediate measures that are outputs and inputs for the first stage and the second stage, respectively. The derived interval metric, along with its mean, provides a more informative basis for multi-stage evaluation in the presence of imprecise data. The ranks of DMUs and sub-DMUs are obtained based on their interval efficiencies.

2013/5 Farhad Hosseinzadeh Lotfi, Adel Hatami-Marbini, Per J. Agrell, Kobra Gholami and Zahra Ghelej Beigi
Centralized resource reduction and target setting under DEA control

Data envelopment analysis (DEA) is a powerful tool for measuring the relative efficiencies of a set of decision making units (DMUs) such as schools and bank branches that transform multiple inputs to multiple outputs. In centralized decision-making systems, management normally imposes common resource constraints such as fixed capital, budgets for operating capital and staff count. In consequence, the profit or net value added of the units subject to resource reductions will decrease. In terms of performance evaluation combined with resource allocation, the interest of central management is to restore the general efficiency value of the DMUs. The paper makes four contributions to the literature: (1) we take into consideration the performance evaluation of the centralized budgeting of hierarchical organizations along with sales and market allocation within manufacturing and distribution organizations; (2) we address the evaluation problems that the central decision maker does not desire to deteriorate the efficiency score of the DMUs after input and/or output reduction; (3) we develop a common set of weights (CSW) method based on the goal program (GP) concept to control the total weight flexibility in the conventional DEA models; (4) we extend a new approach to optimize the inputs and/or outputs contraction such that the efficiency of all DMUs will get bigger than or equal to the efficiency of previous change. We ultimately present a numerical example involving with three inputs and two outputs to illustrate the applicability and efficacy of the proposed approach.

2013/16 Olivier Devolder, François Glineur and Yurii Nesterov
First-order methods with inexact oracle: the strongly convex case

The goal of this paper is to study the effect of inexact first-order information on the first-order methods designed for smooth strongly convex optimization problems. It can be seen as a generalization to the strongly convex case of our previous paper [1].

We introduce the notion of (δ,L,μ)-oracle, that can be seen as an extension of the (δ,L)-oracle (previously introduced in [1]), taking into account strong convexity. We consider different examples of (δ,L,μ)-oracle: strongly convex function with first-order information computed at a shifted point, strongly convex function with approximate gradient and strongly convex max-function with inexact resolution of subproblems.

The core of this paper is devoted to the behavior analysis of three first-order methods, respectively the primal, the dual and the fast gradient method, when used with a (δ, L, μ)-oracle. As in the smooth convex case (studied in [1]), we obtain that the simple gradient methods can be seen as robust but relatively slow, whereas the fast gradient method is faster but more sensitive to oracle errors. However, the strong convexity leads to much

faster convergence rates (linear instead of sublinear) for every method and to a reduced sensitivity with respect to oracle errors.

We also prove that the notion of (δ, L, μ)-oracle can be used in order to model exact first-order information but for functions with weaker level of smoothness and different level of convexity. This observation allows us to apply methods, originally designed for smooth strongly convex function, to weakly smooth uniformly convex functions and to derive corresponding performance guarantees.

2013/17 Olivier DEVOLDER, François GLINEUR and Yurii NESTEROV
      Intermediate gradient methods for smooth convex problems with inexact oracle

Between the robust but slow (primal or dual) gradient methods and the fast but sensitive to errors fast gradient methods, our goal in this paper is to develop first-order methods for smooth convex problems with intermediate speed and intermediate sensitivity to errors. We develop a general family of first-order methods, the Intermediate Gradient Method (IGM), based on two sequences of coefficients. We prove that the behavior of such kind of method is directly governed by the choice of coefficients and that the existing dual and fast gradient methods can be retrieved with particular choices for the coefficients. Moreover, the degree of freedom in the choice of these coefficients can be also used in order to generate intermediate behaviors. We propose a switching policy for the coefficients that allows us to see the corresponding IGM as a smart switching between fast and dual gradient methods and to reach target accuracies, unreachable by the fast gradient methods, in a significantly smaller number of iterations compared to what is needed using the slow gradient methods. With another choice for the coefficients, we are also able to generate methods exhibiting the full spectrum of convergence rates, corresponding to every possible trade off between fastness of the method and robustness to errors.

2013/21 Dominik DORSCH, Hubertus Th. JONGEN, Jan.-Joachim RÜCKMANN and Vladimir SHIKHMAN
      On implicit functions in nonsmooth analysis

We study systems of equations, $F(x) = 0$, given by piecewise differentiable functions $F :$ $\mathbb{R}^n \to \mathbb{R}^k, k \leq n$. The focus is on the representability of the solution set locally as an $(n-k)$-dimensional Lipschitz manifold. For that, nonsmooth versions of inverse function theorems are applied. It turns out that their applicability depends on the choice of a particular basis. To overcome this obstacle we introduce a strong full-rank assumption (SFRA) in terms of Clarke's generalized Jacobians. The SFRA claims the existence of a basis in which Clarke's inverse function theorem can be applied. Aiming at a characterization of SFRA, we consider also a full-rank assumption (FRA). The FRA insures the full rank of all matrices from the Clarke's generalized Jacobian. The article is devoted to the conjectured equivalence of

SFRA and FRA. For min-type functions, we give reformulations of SFRA and FRA using orthogonal projections, basis enlargements, cross products, dual variables, as well as via exponentially many convex cones. The equivalence of SFRA and FRA is shown to be true for min-type functions in the new case $k = 3$.

2013/26 Yurii NESTEROV
      Universal gradient methods for convex optimization problems

In this paper, we present new methods for black-box convex minimization. They do not need to know in advance the actual level of smoothness of the objective function. The only essential input parameter is the required accuracy of the solution. At the same time, for each particular problem class they automatically ensure the best possible rate of convergence. We confirm our theoretical results by encouraging numerical experiments, which demonstrate that the fast rate of convergence, typical for the smooth optimization problems, sometimes can be achieved even on nonsmooth problem instances.

2013/27 Gérard CORNUÉJOLS, Laurence WOLSEY and Sercan YILDIZ
      Sufficiency of cut-generating functions

This note settles an open problem about cut-generating functions, a concept that has its origin in the work of Gomory and Johnson from the 1970's and has received renewed attention in recent years.

2013/45 Pasquale AVELLA, Maurizio BOCCIA and Laurence WOLSEY
      Single item reformulations for a vendor managed inventory routing problem:
      computational experience with benchmark instances

The Inventory Routing Problem (IRP) involves the distribution of one or more products from a supplier to a set of customers over a discrete planning horizon. The version treated here, the so-called Vendor Managed Inventory Routing Problem (VMIRP), is the Inventory Routing problem arising when the replenishment policy is decided a priori. We consider two replenishment policies. The first is known as Order-Up (OU): if a client is visited in a period, then the amount shipped to the client must bring the stock level up to the upper bound. The latter is called Maximum Level (ML): the maximum stock level in each period cannot be exceeded. The objective is to find replenishment decisions minimizing the sum of the storage and distribution costs.

VMIRP contains two important subproblems: a lot-sizing problem for each customer and a classical vehicle routing problem for each time period. In this paper we present a-priori reformulations of VMIRP-OU and VMIRP-ML derived from the single-item lot-sizing

substructure. In addition we introduce two new cutting plane families – the Cut Inequalities – deriving from the interaction between the Lot-Sizing and the Routing substructures.

A Branch-and-Cut algorithm has been implemented to demonstrate the effectiveness of Single-Item reformulations. Computational results on the benchmark instances with 50 customers and 6 periods with a single product and a single vehicle are presented.

● **Public and Welfare Economics**

2012/36   Aitor CALO-BLANCO
   The compensation problem with fresh starts

Forgiveness is an ethical ideal that advocates that a fresh start should be conferred on those individuals who regret their past choices. Grounded on such a principle, Fleurbaey (2005) proposes the use of the equivalent endowment as the proper measure of the welfare loss experienced by those who have mismanaged their initial resources. In this paper we provide the forgiveness framework with an ethical foundation that allows us to formally deal with the compensation problem. We obtain that different solutions to the ideal of forgiveness can arise according to the distributional requirements that society wants to satisfy.

2012/38   Jean-François CARPANTIER and Christelle SAPATA
   Unfair inequalities in France: A regional comparison

This paper proposes a regional comparison of ex-post inequality of opportunity in France by measuring, within each region, the inequality between individuals exerting the same effort. According to the concept of equality of opportunity, inequalities due to factors for which the individual is not responsible are unfair and should be removed but inequalities due to factors for which the individual can be held responsible (effort) are fair and should be preserved. Therefore, our analysis defends a responsibility-sensitive egalitarianism whose aim is to show whether (1) regions reward equally effort, (2) inequality of opportunity is equally distributed among regions and (3) it is correlated with income inequality. In this paper, we use a direct measure of effort to measure ex-post inequality of opportunity across regions in France. To this end, we define a fair income that fulfills ex-post equality of opportunity requirements. Unfairness is measured by an unfair Gini based on the distance between the actual income and the fair income. Our findings reveal that regions display differences in the magnitude of ex-post inequality of opportunity and this is due to differences in reward schemes and differences in the impact of the non responsibility factors of income. As a consequence, this paper motivates decentralized policies to solve the problem of unequal opportunities in France. Finally, the positive correlation between income inequality and inequality of opportunity confirms previous results given in the literature.

2012/42   Berardino CESI and Dimitri PAOLINI
   Peer group and distance: when widening university participation is better

We analyze the welfare effect of allowing a new university in a local area where another university is already operating. We use a two-city model in which individuals, whose education depends on the average peer ability (peer group effect), can sort across cities by facing a mobility cost. Comparing monopoly with a two-university system we find that introducing the second university is always welfare improving. We obtain a symmetric Nash equilibrium for every mobility costs and asymmetric Nash equilibria only for sufficiently low mobility costs. In particular, in the symmetric scenario both universities have the same peer groups (lower than the peer group under monopoly) and the same number of students. The asymmetric scenario instead is such that the "top" ("bottom") university has a peer group higher (lower) than the monopolistic one. Moreover, we find that the symmetric scenario always induces the highest welfare. After checking for equilibrium refinements we find that asymmetric equilibria are never strong Nash whereas the symmetric equilibrium is strong Nash only for sufficiently high mobility costs.

2013/1   Pierre PESTIEAU and Maria RACIONERO
   Harsh occupations, health status and social security

We study the optimal design of a social security system when individuals differ in health status and occupation. Health status is private information but is imperfectly correlated with occupation: individuals in harsh occupations are more likely to be in poor health. We explore the desirability of letting the social security policy differ by occupation and compare the results with those obtained when disability tests are used instead. We show that tagging by occupation is preferable to testing when the audit technology is relatively expensive and/or the proportion of disabled workers differs markedly across occupations. We also study the implications of imposing horizontal equity among disabled workers and show that those in the harsh occupation may be induced to retire later.

2003/11   Jean HINDRIKS, Susana PERALTA and Shlomo WEBER
   Local taxation of global corporation: a simple solution

The explosion of globalization has increased firms incentives to exploit international tax differentials to their benefit. In this paper we consider a simple world with two countries with different market sizes and two multinationals with a division in each country. Both countries use a source-based profit tax on multinationals, who compete à la Cournot in each local market and use profit shifting based on the tax differential. We assess policies aimed to mitigate inefficient tax choices and show that tax harmonization cannot benefit the small country which adopts a lower tax rate to channel a tax revenue from the large country. We

propose a simple revenue sharing mechanism in which countries share equal proportion of their own revenue with each other. It is shown that revenue sharing increases equilibrium tax rates in each country, reduces the tax differential, and benefits both countries despite of reallocation of resources from the high tax to the low tax country.

2013/35 Kristof BOSMANS, Koen DECANCQ and Erwin OOGHE
What do normative indices of multidimensional inequality really measure?

We argue that normative indices of multidimensional inequality do not only measure a distribution's extent of inequity (i.e., the gaps between the better-off and the worse-off), but also its extent of inefficiency (i.e., the non-realized mutually beneficial exchanges of goods). We provide a decomposition that allows quantifying these two parts of inequality. Exact formulas of the inequity and inefficiency components are provided for a generic class of social welfare functions. The inequity component turns out to be a two-stage measure, which applies a unidimensional inequality measure to the vector of well-being levels. We critically discuss two prominent transfer principles, viz., uniform majorization and correlation increasing majorization, in the light of the decomposition. A decomposition of inequality in human development illustrates the analysis.

2013/37 Lionel ARTIGE, Antoine DEDRY and Pierre PESTIEAU
Social security and economic integration

The purpose of this letter is to analyze the impact of economic integration when countries differ in their social security systems, more specifically in the degree of funding of their pensions, and in the regulation of the retirement age. Funding and mandatory early retirement are two features which foster capital accumulation relative to pay-as-you-go pensions with flexible retirement. In case of economic integration they both imply some capital outflow and may lead to some utility losses.

2013/38 Nicolas BOUCKAERT and Erik SCHOKKAERT
Differing types of medical prevention appeal to different individuals

We analyse participation in medical prevention with an expected utility model that is sufficiently rich to capture diverging features of different prevention procedures. We distinguish primary and secondary prevention (with one or two rounds) for both fatal or non-fatal diseases. Moreover, we introduce a flexible relationship between the specific disease for which the prevention procedure is set up and the general background health of the individual. We show how these various possibilities change the comparative statics of the prevention decision and we test the differential predictions with data from SHARE (Survey of Health, Ageing

and Retirement in Europe) about participation in mammography, dental caries screening and flu vaccination.

2013/41 Chiara CANTA and Marie-Louise LEROUX
Public and private hospitals, congestion, and redistribution

This paper studies how congestion in the public health sector can be used as a redistributive tool. In our model, agents differ in income and they can obtain a health service either from a congested public hospital or from a non congested private one at a higher price. With pure in-kind redistribution, agents fail to internalize their impact on congestion, and the demand for the public hospital is higher than optimal. We show that under full information, the optimal redistribution and sorting across hospitals can be obtained using a lump-sum tax and a subsidy on the private hospital. If income is not observable but the social planner can assign agents across hospitals, the optimal congestion is higher than in the first best in order to relax incentive constraints. Finally, if agents can freely choose across hospitals, the optimal subsidy on the private hospital price may be negative or positive depending on the relative importance of redistribution and efficiency concerns.

2013/42 Mathieu LEFÈBVRE, Pierre PESTIEAU and Gregory PONTHIÈRE
FGT poverty measures and the mortality paradox: theory and evidence

Income-differentiated mortality, by reducing the share of poor persons in the population, leads to what can be called the "Mortality Paradox": the worse the survival conditions of the poor are, the lower the measured poverty is. We show that the extent to which FGT measures (Foster Greer Thorbecke 1984) underestimate old-age poverty under income-differentiated mortality depends on whether the prematurely dead would have, in case of survival, suffered from a more severe poverty than the average surviving population. Taking adjusted FGT measures with ex-tended lifetime income profiles as a benchmark, we identify conditions under which the selection bias induced by income-differentiated mortality is higher for distribution-sensitive measures than for headcount measures. Finally, we show, on the basis of data on poverty in 11 European economies, that the size of the selection bias varies across different sub-classes of FGT measures and across countries.

2013/47 Helmuth CREMER, Firouz GAHVARI and Pierre PESTIEAU
Uncertain altruism and the provision of long term care

This paper studies the role of private and public long term care (LTC) insurance programs in a world in which family assistance is uncertain. Benefits are paid in case of disability but cannot be conditioned (directly), due to moral hazard problems, on family aid. Under a topping up scheme, when the probability of altruism is high, there is no need for insurance.

At lower probabilities, insurance is required, thought not full insurance. This can be provided either privately or publicly if insurance premiums are fair, and publicly otherwise. Moreover, the amount of LTC insurance varies negatively with the probability of altruism. With an opting out scheme, there will be three possible equilibria depending on the children's degree of altruism being "low," "moderate," or "very high". These imply: full LTC insurance with no aid from children, less than full insurance just enough to induce aid, and full insurance with aid. Fair private insurance markets can support the first equilibrium, but not the other two equilibria. Only a public opting-out scheme can attain them by creating incentives for self-targeting and ensuring that only dependent parents who are not helped by their children seek help from the government.

2013/49   Marc Fleurbaey, Marie-Louise Leroux, Pierre Pestieau and Grégory Ponthière
Fair retirement under risky lifetime

A premature death unexpectedly brings a life and a career to their end, leading to substantial welfare losses. We study the retirement decision in an economy with risky lifetime, and compare the laissez-faire with egalitarian social optima. We consider two social objectives: (1) the maximin on expected lifetime welfare (ex ante), allowing for a compensation for unequal life expectancies; (2) the maximin on realized lifetime welfare (ex post), allowing for a compensation for unequal lifetimes. The latter optimum involves, in general, decreasing lifetime consumption profiles, as well as raising the retirement age, unlike the ex ante egalitarian optimum. This result is robust to the introduction of unequal life expectancies and unequal productivities. Hence, the postponement of the retirement age can, quite surprisingly, be defended on egalitarian grounds – although the conclusion is reversed when mortality strikes only after retirement.

• **Supply Chain Management**

2012/45   Guillaume Roels, Philippe Chevalier, and Ying Wei
United we stand? Coordinating capacity investment and allocation in joint ventures

Among the recent innovative strategies for coping with product variety and market risk some firms have partnered to leverage economies of scale and risk pooling by sharing manufacturing capacity. In this paper we study how to structure such a joint venture to achieve full efficiency at low transaction costs. Specifically, we study whether capacity should be owned jointly or separately. Overall, we find that the two ownership structures have complementary strengths and weaknesses in term of their incentives for coordinating capacity allocation and investment. On the one hand, capacity allocation is simple to coordinate under joint ownership, but may entail high transaction costs under separate ownership when the joint venture consists of many firms with different profit margins. On the other hand, capacity investments remain simple to coordinate under separate ownership, but are efficient under joint ownership only in the presence of large economies of scale or asymmetric demands or asymmetric profit margins, and would otherwise entail high transaction costs. Our analysis thus characterizes the trade-off between economic benefits and transaction costs in the choice of capacity ownership structure.

2013/6   Per J. Agrell and Peter Bogetoft
A three-stage supply chain investment model under asymmetric information

Specific supply-chain investments are vital in achieving faster lead-time performance and more competitive costs. In practice, such as in the highly leveraged telecom sector, the coordinating original equipment manufacturers (OEM) often delegate the upstream coordination of suppliers to contract manufacturers. This can be justified by informational advantages or economies of scale. However, the rationale of such schemes has also been challenged by analytical work on three-stage chains, leading to open questions. In this paper, we study the organizational and contractual choice of a supply chain coordinator (say an OEM) to either control or delegate the investment decision of some shared resource (say dedicated machines, information or product standards, etc.) to a contract manufacturer (CM) or to an upstream supplier in a three-stage supply chain. The analysis derives closed-form results for the economic performance of three scenarios under asymmetric information on investment cost: direct contracting with an integrated CM-supplier, decentralized contracting to tier-1 suppliers and centralized contracting to tier-1 and tier-2 suppliers. The results show that the observed practice to delegate investments to tier-1 and possibly tier-2 suppliers leads to relatively poor performance due to under-investments. The superior arrangement is the centralized conditional model, where the OEM forces coordination among upstream suppliers by offering conditional financing. We close the paper with an analogy to the Boeing 787 supply chain and some discussion about the assumptions and applicability of the model.

2013/40   Tanja B. Mlinar and Philippe Chevalier
Pooling in manufacturing: do opposites attract?

In a stochastic environment pooling naturally leads to economies of scale, but heterogeneity can also create variability. In this article, we investigate this trade-off in the case of a manufacturing environment. Pooling for queueing systems has been widely investigated while much less attention has been given to manufacturing systems where jobs are given a due date upon arrival. In such system it is not the elapsed time until the actual completion of the job that counts, but rather the lead time that can be promised to the customer in order to guarantee a high service level. In this paper, we study the benefits of pooling stochastic

systems in such manufacturing setting with multiple customer types. Our results demonstrate that, in stark contrast with what was previously observed in service environments, heterogeneity is generally not deteriorating performance. Furthermore, our analytical and simulation studies reveal that the benefits of pooling in terms of the expected sojourn time can serve as a good prediction for the benefits of pooling on the average due-date lead time in a wide range of situations.

2013/46   Alejandro LAMAS, Tanja MLINAR, Liang LU and Philippe CHEVALIER
          Revenue management for operations with urgent orders

This article is motivated by the case of a company manufacturing industrial equipment that faces two types of demand: on the one hand there are the so-called regular orders for installations or refurbishing of existing facilities, these orders have a relatively long lead time; on the other hand there are urgent orders mostly related to spare parts when a facility has a breakdown, the delay in such case is much shorter but higher margins can be obtained. We study the order acceptance problem for a firm that serves two classes of demand over an infinite horizon. The firm has to decide whether to accept a regular order (or equivalently how much capacity to set aside for urgent orders) in order to maximize its profit. We formulate this problem as a multi-dimensional Markovian Decision Process (MDP). We propose a family of approximate formulations to reduce the dimension of the state space via aggregation. We show how our approach can be used to compute bounds on the profit associated with the optimal order acceptance policy. Finally, we show that the value of revenue management is commensurate with the operational flexibility of the firm.

- **Trade, Transport and Economic Geography**

2013/36   Alain PHOLO BALA, Dominique PEETERS and Isabelle THOMAS
          Spatial issues on a hedonic estimation of rents in Brussels

Using Belgian microdata, we assess the impact, on a hedonic regression, of the distortions arising from the choice of either a specific zoning system or the delineation of the study area. We also evaluate the biases that arise when spatial effects are not accounted for. Given that the dependent variable is interval-coded, controlling for spatial dependence in this context is challenging. We address this problem with two alternative strategies. Firstly, we use the Gibbs Sampling algorithm to estimate spatial econometric models which extends the interval regression model. A major drawback of this approach is that the implied estimation is proned to the endogeneity biases inherent to our hedonic regression model. To circumvent the endogeneity issues triggered by the first estimation strategy, we also use a two-stage estimation procedure with locational fixed effects. In all specifications, results are sensitive to the Modifiable Areal Unit Problem (MAUP) and to the choice of the delineation of the study

area. Moreover, they confirm the existence of substantive spatial dependence. Conversely to the previous results with a negative elasticity for the percentage of the area covered by agriculture and a positive elasticity for the potential accessibility to jobs, the second approach implies opposite effects for those two variables. This indicates that dwellings close to agricultural areas and with a lower accessibility to the main employment centers are highly demanded and that endogeneity biases are not negligible.

2013/39   Pierre M. PICARD
          Trade, economic geography and the choice of product quality

The present paper studies the effect of the choice of product quality on trade and location of firms. We discuss a model where consumers have preferences for the quality of a set of differentiated varieties. Firms do not only develop and sell manufacturing varieties in a monopolistic competitive market but also determine the quality level of their varieties by investing in research and development. We explore the price and quality equilibrium properties when firms are immobile. We then consider a footloose capital model where capital is allocated to the manufacturing firms in the region offering the highest return. We show that the larger region produces varieties of higher quality and that the quality gap increases with larger asymmetries in region sizes and with larger trade costs. Finally, the home market effect is mitigated when firms choose their product quality.

2013/48   Claire DUJARDIN, Vincent LORANT and Isabelle THOMAS
          Self-assessed health of elderly people in Brussels: does the built environment matter?

The built environment plays a key role in the strategy of "Aging in Place". Here, we study the influence of the built environment on the health status of elderly people living in Brussels. Using census and geocoded data, we analysed if built environment factors were associated with poor self-assessed health status and functional limitations of elderly aged 65+. We concluded that the evidence of the built-environment hypothesis is weak and vulnerable to the composition of the neighborhood.

■ OTHER DISCUSSION PAPERS AND MANUSCRIPTS

- **Econometrics**

  · Rachida EL MEHDI and Christian M. HAFNER. Inference in stochastic frontier analysis with dependent error terms. ISBA Discussion Paper 2012/38, UCL, Belgium.

  · Rachida EL MEHDI and Christian M. HAFNER. Local government efficiency: The case of Moroccan municipalities? ISBA Discussion Paper 2013/01, UCL, Belgium.

· Fabian Y.R.P. BOCART and Christian M. HAFNER. Fair re-valuation of wine as an investment. ISBA Discussion Paper 2013/03, UCL, Belgium.

· Christian HAFNER and Oliver LINTON. An almost closed form estimator for the EGARCH model. ISBA Discussion Paper 2013/10, UCL, Belgium.

● **Energy Economics**

· Anthony PAPAVASILIOU and Shmuel S. OREN. A comparative study of stochastic unit commitment and security constrained unit commitment using high performance computing. Proceeding of the European Control Conference ECC 2013, ETH, Zürich, Switzerland, July 17-19, 2013.

● **Growth and Development**

· David de la CROIX. Education = croissance? Itinera Institute Discussion Paper 2012/6, 2012.

● **Macroeconomic Policies**

· Claude d'ASPREMONT et Rodolphe DOS SANTOS FERREIRA. Investissement stratégique et fluctuations endogènes. Mimeo, 2013.

● **Optimization Methods and Operations Research**

· Anthony PAPAVASILIOU, Shmuel S. OREN, Zhu YANG, Pranavamoorthy BALASUBRAMARIAN and Kory HEDMAN. An application of high performance computing to transmission switching. 2013 IREP Symposium-Bulk Power System Dynamics and Control –IX (IREP), Rethymnon, Greece, August 25-30, 2013.

· Michele CONFORTI, Laurence A. WOLSEY and Giacomo ZAMBELLI. Split, MIR and Gomory inequalities. Mimeo, 2013.

● **Public and Welfare Economics**

· Koen DECANCQ and Erik SCHOKKAERT. Beyond GDP: measuring social progress in Europe. Euroforum Paper 4, KU Leuven, 2013.

· Koen DECANCQ, Tim GOEDEMÉ, Karel VAN DEN BOSCH and Josefine VANHILLE. The evolution of poverty in the Europe Union: concepts, measurement and data. ImPRovE WP 13/01, 2013.

● **Trade, Transport & Economic Geography**

· Óscar ÁLVAREZ-SANJAIME, Pedro CANTOS-SÁNCHEZ, Rafael MONER-COLONQUES e José J. SEMPERE-MONERRIS. Competencia entre puertos e integración vertial de los servicios. Documentos de Trabajo de la Secretaría de Estado de Presupuestos y Gastos (SEGP) DT 2012-9, 2012.

· Pedro MENDI, Rafael MONER-COLONQUES and José J. SEMPERE-MONERRIS. Licensing policies in North-South technology transfers. Navarra Center for International Development WP 12/2012.

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· Paul BELLEFLAMME. La gratuité est-elle forcément une bonne chose? *La Libre Belgique*, 11 décembre 2012.

· Paul BELLEFLAMME. La nouvelle loi Télécom conduira-t-elle à une baisse des prix? *Focus, www.regards-economiques.be*, 19 décembre 2012.

· Paul BELLEFLAMME. La nouvelle loi Télécom conduira-t-elle à une baisse des prix? (suite) *Focus, www.regards-economiques.be*, 1er février 2013.

· Paul BELLEFLAMME, Thomas LAMBERT and Armin SCHWIENBACHER. Le pouvoir de la foule. *Cosmos*, Institut Français de Presse Paris II, 3, Mars 2013.

· Paul BELLEFLAMME. L'or caché des pirates? *Focus*, www.regards-economiques.be, 7 mai 2013.

· Paul BELLEFLAMME. Passe d'armes autour du Speedy Pass de Walibi. Que faut-il en penser? *Focus, www.regards-economiques.be*, 12 juin 2013.

· Paul BELLEFLAMME. Corsaire de brevets. *La Libre Belgique*, 5 août 2013.

· Paul BELLEFLAMME et Xavier WAUTHY. Economie des contenus numériques: bientôt la fin du gratuit. *Regards Economiques*, 100, 2012.

· Constantin BLOME. Spitzenbildung und – Forschung für Einfautfs – und Supply-Chain-Profis im Zentrum Europas. *Beschaffung aktuell*, 6, 62–63, 2013.

· Constantin BLOME, Kai FOERSTL, Michael HENKE and David WUTZKE. Das Geheimnis erfolgreichen Financial Supply Chain Managements. Teil 3: Geld vergessen? Die richtige Entscheidung treffen. *Beschaffung aktuell*, 10, 26–28, 2012.

· Constantin BLOME, Michael HENKE, Margarita PROTOPAPPA-SIEKE and David WUTZKE. Das Geheimnis erfolgreichen Financial Supply Chain Managements. Teil 2: Geld vergessen? Doppelte integration. *Beschaffung aktuell*, 9, 16–17, 2013.

· Vincent BODART et Jean HINDRIKS. Les inégalités selon l'âge et le revenu. *Regards Economiques*, 102, 2013.

· Thierry BRÉCHET. Eau et gaz à tous les étages? Pas sûr, et certainement pas pour tout le monde. *Focus, www.regards-economiques.be*, 11 décembre 2012.

· Etienne DE CALLATAY, Bernard DUBUISSON et Victor GINSBURGH. Vertus et problèmes des monnaies alternatives. *L'Echo*, 17–18 mars 2013.

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· Michael PETITJEAN. De l'(in)utilité des agences de notation. *Regards Economiques* 98, 2012.

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· Michael PETITJEAN. Les agences de rating sur la bonne voie. *L'Echo*, 6 septembre 2012.

· Michael PETITJEAN. Les agences de rating n'ont pas usurpé leur pouvoir. *Le Soir*, 4 septembre 2012.

■ REPORTS

· Ignace ADANT et Paul BELLELFLAMME. PATLICINFO: Base de données en ligne pour une plateforme virtuelle d'information relative aux licences de brevets. Rapport final, Projet de recherche AG/KK/153 (Action de recherche AG), 2013.

· Ignace ADANT et Philippe CHEVALIER. MODEX: un outil pour la gestion stratégique de l'exploitation du sous-sol wallon. Ministère de l'environnement de l'aménagement du territoire et de la mobilité, 2013.

· Matthieu CROZET, Thierry MAYER, Florian MAYNERIS et Daniel MIRZA. Evaluation des dispositifs d'aides à l'exportation. French Ministry of Economy, 2012.

· Florian MAYNERIS, Clément MALGOUYRES, Thierry MAYER et Loriane PY. Évaluation des effets des politiques ciblées sur les territoires : le cas des Zones Franches Urbaines. Public report for the French Ministry of Labour, 2012.

DOCTORAL TRAINING

- Completed Ph.D. Dissertations
- Ph.D. Dissertations in Progress
- EDEEM
- European Doctoral Program in Quantitative Economics
- Doctoral Workshops

■ Completed Ph.D. Dissertations

Six doctoral students successfully defended their Doctoral Dissertation at CORE:

* Marco Marinucci. *A theoretical analysis on R&D cooperation among competing firms.* Doctoral School of Economics, UCL, September 2012, under the supervision of Paul Belleflamme and Vincent Vannetelbosch.

It is common knowledge that although firms invest their resources to increase their competitiveness in the final markets, they also tend to form cooperative agreements with one another. Cooperation can occur, by promoting anticompetitive practices (cartels, predatory behaviour etc.), by creating commercial partnerships and, last but not least, by forming R&D alliances. In this dissertation we focus on the latter form of cooperation with the objective of analyzing the formation of R&D partnerships among competing firms from a theoretical point of view. After a brief introduction, Chapter 2 provides a primer to the economic analysis made so far on the R&D cooperation among firms. Chapters 3 and 4 present two theoretical models based on the network game analysis. The former chapter is a joint work with Wouter Vergote and it consists of a setting of R&D co-opetition where we study how weak collaborations affect firms' strategic decisions during a patent contest, and how the latter influences the possible collaboration network structures the firms can hope to form. Chapter 4 proposes a network game model among heterogeneous agents with an indefinite number of players with the aim of providing a theoretical background to the increasing R&D cooperation among firms and public research institutions. Finally, Chapter 5 studies the formation and the performance of a single Joint Venture when the partners' contribution has a different impact on the Joint Venture profits.

Current position: Researcher at the Bank of Italy

* Paolo Piacquadio. *Essays on intergenerational justice.* Doctoral School of Economics, UCL, December 11, 2012, under the supervision of François Maniquet and Raouf Boucekkine.

In this thesis the following question is addressed: What do we owe to future generations? the research aims at providing a normative analysis of equitable distributions of resources over time. The main novelty lies in the approach proposed, based on the fairness literature: for each specification of the economy, axioms of efficiency and equity interpret the ethical concerns of the planner and give clear indications about which are the optimal (or more appealing) amount of goods that each generation should be allowed to consume. On the one hand, we do believe that this method constitutes an interesting way to overcome both the discounting debate (i.e. Nordhaus, Stern, and Weitzman) – concerned with the present value of goods in the future – and the quite negative results of the utility streams literature

– developed from the seminal result of Diamond (1965, "The evaluation of infinit
streams," *Econometrica*, 33, 170–77) stating the impossibility of a social welfare
that is both equitable and sensitive to the interest of all generations. On the oth
it closes the gap between the empirical assessment of climatologists about the co
of our planet and a normative understanding of a fair distribution of resources; i
for an integrated approach providing policy indications for environmental preserva
intergenerational justice.

Current position: Centre for the Study of Equality, Social Organization, and Perfo
Universitetet i Oslo, Norway

* Olivier DURAND-LASSERVE. *Stochastic scenarios for energy transition, an applied
  equilibrium approach.* Doctoral School of Economics, UCL, December 14, 2012, L
  under the supervision of Yves SMEERS and Axel PIERRU.

This dissertation studies how uncertainty affects technology choice and investment
in the context of a transition towards low-carbon economies. We use multi-region
applied general equilibrium models and stochastic programming. Chapter 1 deals
uncertainty about post-2020 regional emission reduction targets. In Chapter 2, un
is about the time the global economy will need to recover from the 2008 financial
Chapter 3, we propose an economic interpretation of the constraints that we imposed
the penetration of some technologies. In Chapter 4, we explain how the modeler's
the about future structural changes are translated into benchmark scenarios and emb
the calibration of the general equilibrium model. We also stress that these expectatio
counterfactual policy analysis. Chapter 5 illustrates this point by proposing analyz
impact of a carbon policy on the French economy, under alternative benchmarks s
that are contrasted in terms of energy efficiency gains and share of energy-intensive a
in the economy.

Current position: Working for GDF SUEZ at the Center of Expertise in Economic M
& Studies

* Olivier DEVOLDER. *Exactness, inexactness and stochasticity in first-order metho
  large-scale convex optimization.* Ecole Polytechnique de Louvain, UCL, March 23
  under the supervision of François GLINEUR and Yurii NESTEROV.

The goal of this thesis is to extend the analysis and the scope of first-order me
smooth convex optimization. We consider three challenging difficulties: inexact fii
information, lack of smoothness and presence of linear constraints. When used with
information, we show that the Gradient Method (GM) is slow but robust, whereas
Gradient Method (FGM) is fast but sensitive to errors. This trade-off between sp

sensitivity to errors is unavoidable: the faster a first-order method is, the worse its robust-
ness must be. Between the existing methods, we develop a novel scheme, the Intermediate
Gradient Method (IGM), which seeks an optimal compromise between speed and robustness
and significantly accelerates the generation of accurate solutions. We also show how much
strong convexity and stochastic first-order information can decrease the sensitivity to errors
of first-order methods. When the objective function is not as smooth as desired, we show
that first-order methods initially developed for smooth problems can still be applied. This
result breaks the wall between smooth and nonsmooth optimization. In particular, FGM can
be seen as a universal optimal first-order method. When linear constraints prevent the use
of usual first-order methods, we propose a new approach, the double smoothing technique.
We dualize the linear constraints, transform the dual function into a smooth strongly convex
function and apply FGM. This technique efficiently generates nearly optimal and feasible
primal solutions with accuracy guarantees.

Current position: Junior Associate at McKinsey & Company

* Adel HATAMI-MARBINI. *Three aspects on complex performance analysis under uncertainty.*
  Docotoral School of Management, UCL, April 15, 2013, under the supervision of Per
  AGRELL.

Data envelopment analysis (DEA) is a widely used non-parametric method for estimating
the relative input-output efficiency for a set of homogenous decision making units (DMUs).
Due to its solid underlying mathematical basis and wide applications to real-world problems,
much effort has been devoted to DEA models. Though DEA as a well-known methodology
provides many advantages relative to other approaches, there are some limitations, complex-
ities and challenges that need to be addressed. It is therefore important to extend the DEA
models to fit the real characteristics involving (i) the data generating process (DGP), (ii)
the production process, and (iii) the evaluation need. Conventional DEA methods require
accurate measurement of both input and output data. However, the observed values of the
inputs and outputs in real-world problems are sometimes ambiguous, uncertain and impre-
cise. In the first aspect of this thesis, we deal with such imperfect data in measuring the
managerial and operational efficiency of firms along with providing a robust ranking order
when both input and output data are imprecise. In the second aspect, we show how to apply
DEA methods in multilevel structures such as supply chains, also in the presence of uncer-
tainty. In the third aspect, we develop a fuzzy DEA model with imprecise and ambiguous
data in order to evolve the scope of application to a larger set of real-life problems. Finally,
we propose a two-stage algorithm to extend the DEA model using a common set of input
and output weights (CSW).

Current position: "Chargé de Recherche", Fonds National de la Recherche Scientifique (post-doctoral position at CORE)

* Arnaud Dufays. *Modeling structural changes in volatility.* Doctoral school of Economics, UCL, July 11, 2013, under the supervision of Luc Bauwens.

Generalized Auto-regressive Conditional Heteroskedastic (GARCH) models with fixed parameters are typically used to model and predict the volatility of financial time series. When estimating such models a common finding is that conditional variances are strongly persistent, especially for long time series. It has been argued that this feature is due to changes in the parameters of the GARCH process, which are overlooked if the model specification imposes fixed parameters. An interesting way of making GARCH models more flexible is enriching them with a dynamic discrete latent state Markov process in such a way that the parameters can switch from one value to another. These models are called Markov-switching (MS) and Change-point (CP) GARCH models. However estimation of MS- or CP-GARCH models is numerically unfeasible either by the method of maximum likelihood or by the Bayesian approach, given the path dependence problem. The thesis develops three different estimation methods that solve the issue. It also details how to choose the optimal number of regimes. The dissertation then explores numerous aspects of abrupt switching models in the context of financial time series. For instance, evidence of structural breaks in volatility processes is empirically observed in each Chapter.

Current position: Post-doctoral fellow at CREST in Paris and Associate fellow at CORE

■ Ph.D. Dissertations in Progress

* Abdelrahaman Aly
  · Topic: Implementation of optimization methods libraries working over encryption methods for decentralized computation
  · Supervisor: Mathieu Van Vyve
  · Started: 2011
  · Doctoral School: Graduate School in Systems, Optimization, Control and Networks, UCL, Belgium

* Rytis Bagdziunas
  · Topic: Functional data estimation in the presence of endogeneity
  · Supervisor: Sébastien Van Bellegem
  · Started: 2008
  · Doctoral School: Graduate School of Economics, UCL, Belgium

* Mikel Bedayo
  · Topic: Essays on social and economic networks
  · Supervisor: Vincent Vannetelbosch
  · Started: 2010
  · Doctoral School: Graduate School of Economics, UCL, Belgium (EDP Student)

* Stéphane Bouché
  · Topic: Growth and sustainable development
  · Supervisor: Julio Davila
  · Started: 2009
  · Doctoral School: Graduate School of Economics, UCL, Belgium (EDP Student)

* Manuela Braione
  · Topic: Essays on dynamic models for realized covariance matrices
  · Supervisor: Luc Bauwens
  · Started: 2013
  · Doctoral School: Graduate School of Economics, UCL, Belgium

* Nguyen Thang Dao
  · Topic: On the environmental externalities in the overlapping generation framework
  · Supervisor: Julio Davila
  · Started: 2009
  · Doctoral School: Graduate School of Economics, UCL, Belgium

* Karen Decancq
  · Topic: Equality of opportunity in an intergenerational mobility context
  · Supervisor: Erik Schokkaert
  · Started: 2008
  · Doctoral School: KU Leuven, Belgium

* Benoît Decerf
  · Topic: Social choice and welfare economics
  · Supervisor: François Maniquet
  · Started: 2011
  · Doctoral School: Graduate School of Economics, UCL, Belgium

* Aditi Dimri
  · Topic: Poverty measurement & anti-poverty policy design
  · Supervisors: François Maniquet and François Bourguignon
  · Started: 2012
  · Doctoral School: Erasmus Mundus (EDEEM) at UCL, Belgium, and Université Paris 1, France

* Mery FERRANDO
  · Topic: Well-being and intrahousehold inequality
  · Supervisor: François MANIQUET
  · Started: 2012
  · Doctoral School: Graduate School of Economics, UCL, Belgium

* Claudia HUPKAU
  · Topic: Essays on the economics of poverty
  · Supervisors: François MANIQUET and Yves ZENOU
  · Started: 2010
  · Doctoral School: Erasmus Mundus (EDEEM) at UCL, Belgium, and Université Paris 1, France

* Manuel FÖRSTER
  · Topic: Models of influence
  · Supervisors: Vincent VANNETELBOSCH, Michel GRABISCH and Agnieszka RUSINOWSKA
  · Started: 2012
  · Doctoral School: Erasmus Mundus (EDDEEM) at UCL, Belgium, and Université Paris 1, France

* Jonathan JONES
  · Topic: Spatial challenges in urban modeling
  · Supervisors: Dominique PEETERS and Isabelle THOMAS
  · Started: 2010
  · Doctoral School: School of Geography, UCL, Belgium

* Tanguy KEGELART
  · Topic: Modeling substitutability in supply chain applications at various decision levels
  · Supervisor: Mathieu VAN VYVE
  · Started: 2012
  · Doctoral School: Doctoral School of Management, UCL, Belgium

* Alejandro LAMAS
  · Topic: Horizontal collaboration for production activities without transfer payments
  · Supervisor: Philippe CHEVALIER
  · Started: 2012
  · Doctoral School: Doctoral School of Management, UCL, Belgium

* Arnaud LATIERS
  · Topic: Dynamic management of demand in electricity network
  · Supervisor: François GLINEUR
  · Started: 2012
  · Doctoral School: Graduate School in Systems, Optimization, Control and Networks, UCL, Belgium

* Tanja MLINAR
  · Topic: Stochastic models to the shared resources in supply chains
  · Supervisor: Philippe CHEVALIER
  · Started: 2008
  · Doctoral School: Doctoral School of Management, UCL, Belgium

* Margherita NEGRI
  · Topic: Essays in political economics
  · Supervisor: François MANIQUET
  · Started: 2009
  · Doctoral School: Graduate School of Economics, UCL, Belgium (EDP Student)

* Vladislav NORA
  · Topic: Refinements of correlated equilibria
  · Supervisor: Julio DAVILA
  · Started: 2009
  · Doctoral School: Graduate School of Economics, UCL, Belgium

* Wenli PENG
  · Topic: Global study chain modeling
  · Supervisor: Philippe CHEVALIER
  · Started: 2012
  · Doctoral School: Doctoral School of Management, UCL, Belgium

* Andrew PUA
  · Topic: Likelihood-based inference in dynamic panel data models with endogenous covariates
  · Supervisor: Sébastien VAN BELLEGEM
  · Started: 2012
  · Doctoral School: Erasmus Mundus (EDEEM) at UCL, Belgium, and Universiteit van Amsterdam, The Netherlands

* Alice SERVAIS
  · Topic: An interbank market in a DSGE model
  · Supervisors: Sébastien VAN BELLEGEM and Frank SMETS
  · Started: 2012
  · Doctoral School: Doctoral School of Economics, UCL, and Katholieke Universiteit Leuven, Belgium

* Fahimeh SHAMSAEI
  · Topic: An improved formulation for dynamic productivity lot sizing problems
  · Supervisor: Mathieu VAN VYVE
  · Started: 2010
  · Doctoral School: Doctoral School of Management, UCL, Belgium

* Felix SOMMER

  · Topic: Supply Chain Management
  · Supervisors: Per AGRELL and Constantin BLOME
  · Started: 2011
  · Doctoral School: Doctoral School of Management, UCL, Belgium

* Ines VALENTE RUSSINHO MOUGA SANTOS

  · Topic: Information integrity, inovation and coordination in supply network
  · Supervisor: Per AGRELL
  · Started: 2011
  · Doctoral School: Doctoral School of Management, UCL, Belgium

■ EDEEM

EDEEM is a doctoral program in economics. It is composed of 7 European institutions and is coordinated by the University of Paris 1 Panthéon-Sorbonne, France. The partners universities are Universiteit van Amsterdam (The Netherlands), the Universität Bielefeld (Germany), Universidade Nova de Lisboa (Portugal), Université catholique de Louvain (Belgium), Université Paris 1 Panthéon-Sorbonne (France), Ecole des Hautes Etudes en Sciences Sociales (France) and Università Ca'Foscari Venezia (Italy).

The EDEEM Programme welcomes around 25 students each year. The programme is organized in three years. Focus is made on research work, publication and presentation, with dedicated Jamborees and Summer Schools being an essential part of the training.

All PhD students are jointly supervised by two advisers through a co-tutelle agreement between two universities in the consortium. The student must spend at least two semesters in each of the two degree-granting universities. After having successfully completed the program, the student is awarded a double degree from the two hosting institutions.

Three students were at CORE in the scope of this program during academic year 2012–2013: Aditi DIMRI, Manuel FÖRSTER and Andrew PUA.

As part of the European Doctorate in Economics – Erasmus Mundus (EDEEM) consortium, CORE hosted the 2013 EDEEM Jamboree on July 2013. The event is one of the activities for doctoral students participating in the EDEEM program. The idea of the Jamboree is to give students the opportunity to present their work within the EDEEM network and to encourage discussion. Another activity in the Jamboree was a job market placement training session. Furthermore the annual monitoring of EDEEM doctoral students took place during the Jamboree.

July 8, 2013

· Michiel VAN DE LEUR, Universiteit van Amsterdam, The Netherlands, Universität Bielefeld, Germany, and Università Ca'Foscari Venezia, Italy
Random networks in financial markets

· Claudia HUPKAU, CORE, UCL, Belgium and Université Paris 1, France
Affirmative action and reputation

· Lalaina RAKOTONINDRAINY, Paris School of Economics, France and Universität Bielefeld, Germany
Dynamic in OLG with average cost pricing

July 9, 2013

· Peter ADDO, Université Paris 1, France and Università Ca'Foscari Venezia, Italy
Turning point chronology for the Euro-zone: a distance plot approach

· Andrew PUA, CORE, UCL, Belgium and Universiteit van Amsterdam, The Netherlands
The projected score approach to bias corrections for panel data models

· Hamze ARABZADEH, Paris School of Economics, France and IRES, UCL, Belgium
Dutch disease and investment on technology-enhancing public goods

· Baris VARDAR, Université Paris 1, France and CORE, UCL, Belgium
Imperfect energy substitution on optimal switching to clean technologies

· Achou BERTRAND, Paris School of Economics, France and Università Ca'Foscari Venezia, Italy
Portfolio choice in retirement: may housing be considered as a combination of life annuities and long-term care insurance?

· Yuliia STUPNYTSKA, Universität Bielefeld, Germany
Optimal policy and the role of social contracts in a search model with heterogeneous workers

· Juanxi WANG, Universiteit van Amsterdam, The Netherlands and Universität Bielefeld, Germany
Fund managers, investors and unstable financial market

· Julien PINTER, Université Paris 1, France
Measuring central bank financial strength

· Fanirisoa Zazaravaka RAHANTAMIALISOA, Université Paris 1, France and Università Ca'Foscari Venezia, Italy
Distorted bimodal distribution using an inverse S-shaped function

- Tugba ZEYDANLI, Paris School of Economics, France and Universidade Nova de Lisboa, Portugal
  Day-of-the-week effects in subjective well-being: does selectivity matter?

- Lan SUN, Université Paris 1, France and Universität Bielefeld, Germany
  Does the private information matter?

July 10, 2013

- Manuel FÖRSTER, CORE, UCL, Belgium and Université Paris 1, France
  Trust and manipulation in social networks

- Igor KHORENZHENKO, Université Paris 1, France
  Expectation formation and strategic behavior in agent-based macroeconomic models

- Nikoleta SCEKIC, Universität Bielefeld, Germany
  Non-robustness of the Crémer-McLean auction

- Pascal ASSMUTH, Universität Bielefeld, Germany and Paris School of Economics, France
  R&D funding restrictions, innovation and the impact on industrial sectors

- Hsin-Mien WANG, Universität Bielefeld, Germany and Universiteit van Amsterdam, The Netherlands
  An R&D race with knowledge accumulation, spillovers and absorptive capacity

- Christoph DIEHL, Universität Bielefeld, Germany and Université Paris 1, France
  Influential cheap talk equilibria are not robust

- Jörg BLEILE, Universität Bielefeld, Germany and Paris School of Economics, France
  Precision and condense dependent case based belief formation

- Tobias HELLMANN, Universität Bielefeld, Germany and Paris School of Economics, France
  The Foster-Hart measure of riskiness for general gambles

- Yuanyuan LI, Universität Bielefeld, Germany and Paris School of Economics, France
  Endogenous information revelation in a competitive credit market

- Sinem BAS, CORE, UCL, Belgium and Paris School of Economics, France
  Multidimensional inequality measurement with decision theory under multivariate risks

- Lorenzo BASTIANELLO, Paris School of Economics, France and Università Ca'Foscari Venezia, Italy
  About delay aversion

■ EUROPEAN DOCTORAL PROGRAM IN QUANTITATIVE ECONOMICS

The European Doctoram Program in Quantitative Economics is a joint project of CORE, Université catholique de Louvain (Belgium), with Universitat Pompeu Fabra, Barcelona (Spain), Rheinische Friedrich-Wilhelms-Universität Bonn (Germany), London School of Economics (United Kingdom), Ecole des Hautes Etudes en Sciences Sociales (France), the European University Institute in Florence (Italy), and as an associate member, University of Tel Aviv (Israël). Students in the program complete all the requirements for a doctorate in one of the participating universities. In addition, they spend at least one full academic year, typically their second year in the program, in one of the other universities.

The program started in 1977. Six students obtained their certificate during the academic year 2012-2013. Forty-six students are currently enrolled. Five are currently staying at CORE: Mikel BEDAYO, Stéphane BOUCHÉ, Jean-François CARPENTIER, Mery FERRANDO and Margherita NEGRI.

■ DOCTORAL WORKSHOPS

The doctoral workshops provide a research forum where the members of the Doctoral Program in Economics at UCL have the opportunity to present part of their completed or ongoing research. Even though presentations are reserved to doctoral students, access to the workshop is open to a larger public. Professors and researchers of the Department and from partner institutions are invited to attend all sessions. The Doctoral students from Facultés universitaires catholiques de Mons, Université de Namur, Université Saint-Louis, Brussels, Université libre de Bruxelles, Université de Liège, Universiteit Gent and KU Leuven are kindly invited to attend the sessions and present their research.

DW'13 – Doctoral Workshop in Economics, Université de Namur, Belgium

● JANUARY 28, 2013

Development Economics
Chair: Gany Aldashev, Université de Namur, Belgium

- Roberta ZIPARO, Université de Namur, Belgium
  Cooperation and communication in the household

- Jérémie GROSS, Université de Namur, Belgium
  The fate of daughters-in-law in West African extended families

- Olivier STERCK, IRES, UCL, Belgium
  Buying peace: the mirage of rebels' reinsertion in Burundi

Macroeconomics

Chair: David de la Croix, IRES and CORE, UCL, Belgium

- Pierre PECHER, IRES, UCL, Belgium
  Social conflict, growth and power dynamics

- Jolan MOHIMONT, Université de Namur, Belgium
  Macroeconomic stabilization policies to aid flows

- Martin NEVE, Université Saint-Louis, Brussels, Belgium
  Economic growth, environment, health and well-being

International Economics 1

Chair: Ilke Van Beveren, KU Leuven, Belgium

- Andrea ARIU, IRES, UCL, Belgium
  Crisis-proof services: why trade in services did not suffer from the 2008-2009 crisis?

- Sotiris BLANAS, IRES, UCL, Belgium
  Offshoring and skill upgrading within age groups

Macroeconomics and Labor

Chair: Romain Houssa, KU Leuven, Belgium

- Stijn BAERT, Universiteit Gent, Belgium
  Do employers discriminate less if their vacancies are difficult to fill? Evidence from a field experiment

- Olivier HUBERT, Université de Namur, Belgium
  Macroeconomic policy interactions and the yield curve for government securities

Industrial Organization and Microeconomics

Chair: Xavier Wauthy, Université Saint-Louis, Brussels and CORE, UCL, Belgium, and François Maniquet, CORE, UCL, Belgium

- Inês VALENTE RUSSINO, CORE, UCL, Belgium
  Information management in a supply chain

- Federico de STEFANO, CORE, UCL, Belgium
  A new Nash equilibrium refinement

International Economics 2

Chair: Florian Mayneris, CORE and IRES, UCL, Belgium

- Alexandre SIMONS, IRES, UCL, Belgium
  World income inequalities and multi-quality firms

- Francesco DI COMITE, IRES, UCL, Belgium
  Measuring quality and non-cost competitiveness at a country-product level

Keynote Session

- François MANIQUET, CORE, UCL, Belgium
  Measuring well-being

DW'13 – Doctoral Workshop in Economics, CORE, UCL, Belgium

Macroeconomics 1

Chair: Luca Pensieroso, IRES, UCL, Belgium

- Guzmán OURENS, IRES, UCL, Belgium
  Can globalization be welfare decreasing? Evaluation in a two sector model

- Marco DELOGU, IRES, UCL, Belgium
  Infrastructure policies: the role of brain drain and informality

Microeconomics 1

Chair: Pierre Dehez, CORE, UCL, Belgium

- Elias CARRONI, Université de Namur, Belgium
  Eliciting social networks through price discrimination

- Mikel BEDAYO, CORE, UCL, Belgium
  An analysis of a bank-firm network topology

Development 1

Chair: Philippe De Villé, IRES, UCL, Belgium

- Joaquim MORALES, Université de Namur, Belgium
  Decentralized aid and democracy

- Astrid SIMILON, Université de Namur, Belgium
  Venture philanthropy under asymmetry of information

Job Market Session 1

Chair: Vincent Bodart, IRES, UCL, Belgium

- Andrea ARIU, IRES, UCL, Belgium
  Crisis-proof services: why trade in services did not suffer from the 2008-2009 crisis?

- Margherita NEGRI, CORE, UCL, Belgium
  Electoral systems and vote buying

Job Market Session 2

Chair: Chiara Canta, CORE, UCL, Belgium

· Nguyen Thang DAO, CORE, UCL, Belgium
  Technology, gender inequality, and fertility

· Vladyslav NORA, CORE, UCL, Belgium
  Incentives in networks

Applied Economics

Chair: Sara Salomone, IRES, UCL, Belgium

· Maia GEJADZE, CORE, UCL, Belgium
  Within firms versus between firm syndication of VC-backed investments

· Nicolas GONNE, Université de Namur, Belgium
  Monopolistic competition, heterogeneity and capital structure

Microeconomics 2

Chair: Olivier Sterck, IRES, UCL, Belgium

· Benoît DECERF, CORE, UCL, Belgium
  Combining efficiency and equality objectives when distributing resources among other-regarding agents

· Anne MICHELS, Université de Namur, Belgium
  Migration and inheritance: evidence from the Bolivian Altiplano

Labour Economics 1

Chair: Morgane Laouenan, IRES, UCL, Belgium

· Stijn BAERT, Universiteit Gent, Belgium
  Career lesbians: getting hired for not having kids?

· Catherine SMITH, IRES, UCL, Belgium
  An evaluation of target hiring subsidies for elderly job-seekers in Belgium: a proposal

Macroeconomics 2

Chair: Bastien Chabé-Ferret, IRES, UCL, Belgium

· Joël MACHADO CARNEIRO, IRES, UCL, Belgium
  Cross-border migration and the world distribution of income

· Amandine AUBRY, IRES, UCL, Belgium
  Migration, FDI and the margins of trade

Microeconomics 3

Chair: Dirk Neumann, CORE, UCL, Belgium

· Eva-Maria SCHOLZ, CORE, UCL, Belgium
  Licensing to vertically related markets

· Oswaldo GRESSANI, ISBA, UCL, Belgium
  Heretogeneous quantal response equilibrium and learning dynamics

Labour Economics 2

Chair: Henri Snessens, IRES, UCL, Belgium

· Paola L. MONTERO LEDEZMA, IRES, UCL, Belgium
  Workers mobility and labour market outcomes

· Erica PEREGO, IRES, UCL, Belgium
  Sovereign debt and financial markets

● MAY 24, 2013

Labour Economics 3

Chair: Bruno Van der Linden, IRES, UCL, Belgium

· Alexandre OUNNAS, IRES, UCL, Belgium
  Mismatch unemployment

· Olivier BROLIS, IRES, UCL, Belgium
  Does the mission of the organization matter for job quality of low-skilled workers? An empirical study in the Belgian "voucher system"

· Vanessa LUTGEN, IRES, UCL, Belgium
  Regional equilibrium unemployment theory

Development 2

Chair: Jean-Marie Baland, Université de Namur, Belgium

· Giulia CAMILOTTI, Université de Namur, Belgium
  Networks and social norms

· Isabelle BONJEAN, Université de Namur, Belgium
  Market imperfections and innovation incentives: the dairy product market in the Peruvian highlands

· François LIBOIS, Université de Namur, Belgium
  Why are some communities able to preserve their natural resources when others fail to achieve it?

International Economics

Chair: Fabio Mariani, IRES, UCL, Belgium

· Sotiris Blanas, IRES, UCL, Belgium

  Offshoring and the age-skill composition of labour demand

· Christian Viegelahn, IRES, UCL, Belgium

  Trade protection and input switching: firm-level evidence from Indian importers

· Stéphane Bouché, CORE, UCL, Belgium

  Habits in consumption, pollution accumulation and intergenerational inequalities

Econometrics 1

Chair: Luc Bauwens, CORE, UCL, Belgium

· Arnaud Dufays, CORE, UCL, Belgium

  Specific Markov-switching behaviour for ARMA parameters

· Andrew Pua, CORE, UCL, Belgium

  The projected score approach to bias reduction in panel data models

Development 3

Chair: William Parienté, IRES, UCL, Belgium

· Ombeline De Bock, Université de Namur, Belgium

  Determinants of participation in semi-formal associations in rural Rwanda

· Ikelu Chinasa, IRES, UCL, Belgium

  The determinants of poverty in Nigeria: an empirical assessment

Microeconomics 4

Chair: François Maniquet, CORE, UCL, Belgium

· Mery Ferrando, CORE, UCL, Belgium

  Well-being and intrahousehold allocation of resources

· Claudia Hupkau, CORE, UCL, Belgium

  Affirmative action and identity

Econometrics 2

Chair: Sébastien Van Bellegem, CORE, UCL, Belgium

· Rytis Bagdziunas, CORE, UCL, Belgium

  Galerkin methods within a functional instrumental variables problem

· Gautier Attanasi, ISBA, UCL, Belgium

  Smooth transition modelling for panel data analysis

Development 4

Chair: Marion Leturcq, CORE, UCL, Belgium

· Aditi Dimri, CORE, Belgium

  Multidimensional poverty measurement with heterogeneous preferences

· Abhimanyua Arora

  Preferences in public procurement

Microeconomics 5

Chair: Ana Mauleon, Université Saint-Louis, Brussels and CORE, UCL, Belgium

· Manuel Förster, CORE, UCL, Belgium

  Trust and manipulation in social networks

· Dominique Chariot, Université Saint-Louis, Brussels, Belgium

  Trust and reciprocity

Keynote Lecture

· Jean-Marie Baland, Université de Namur, Belgium

  Extended networks and solidarity norms in Cameroon

Joint CEMS-NBB-CORE Doctoral Course

The CEnter for Study in Asset Management (CESAM from the LSM research institute, UCL Belgium), CORE (UCL, Belgium) and the National Bank of Belgium (NBB) organized its first CEMS doctoral course in Finance on June 2–4, 2013 at the National Bank in Brussels. This event has emerged from a gathering together of various initiatives undertaken by the participating institutions (CORE lectures series, CEMS/LSM doctoral schools, and NBB) and is expected to be organized on a regular basis on other advanced topics related to financial econometrics that would be relevant for the research conducted in both universities and monetary financial institutions.

Professor Eric Ghysels from the University of North Carolina-Chapel Hill came to introduce the Econometrics of Mixed Data Sampling (MIDAS) regressions and related methods to an audience consisting of PhD students from both Belgian and foreign universities as well as economists from central banks.

· **Module 1: Introduction to MIDAS Regressions**

  We start with a succinct discussion of mixed frequency data structures and link them to a regression analysis setting. We review some of the based MIDAS regression models and discuss some asymptotic theory results for such regressions.

· **Module 2: Kalman Filter and Mixed Frequency Data**
In a state space model setting one treats the low-frequency data as *"missing data"* and the Kalman filter is a convenient computational device to extract the missing data. See for example, Harvey and Pierse (1984), Harvey (1989), Bernanke, Gertler, and Watson (1997), Zadrozny (1990), Mariano and Murasawa (2003), Mittnik and Zadrozny (2004), Nunes (2005), Aruoba, Diebold, and Scotti (2009), Bai, Ghysels, and Wright (2013), Kuzin, Marcellino, and Schumacher (2009), among others. In this module we discuss the link between Kalman filters in a state space model setting and MIDAS regressions.

· **Module 3: TA Session - Introduction to MIDAS Matlab Toolbox**
This module is a TA session which consists of practical exercises with MIDAS Matlab Toolbox.

· **Module 4: Macroeconomic Forecasting with MIDAS**
In addition a number of recent papers have documented the advantages of using such MIDAS regressions in terms of improving quarterly macro forecasts with monthly and daily data. For instance, Bai, Ghysels, and Wright (2013), Kuzin, Marcellino, and Schumacher (2009), Armesto, Hernandez-Murillo, Owyang, and Piger (2009), Clements and Galvão (2009), Clements and Galvão (2008), Galvão (2006), Schumacher and Breitung (2008), Tay (2007), for the use of monthly data to improve quarterly forecasts. Similarly, quarterly and monthly macroeconomic predictions are improved by daily financial series, see e.g. Ghysels and Wright (2009), Hamilton (2006), Tay (2006), Monteforte and Moretti (2009), and Andreou, Ghysels, and Kourtellos (2013).

· **Module 5 & 7: Vector Autoregressive Models with Mixed Frequency Data**
We devote two modules on the broad topic of multivariate models with mixed frequency data. We cover VAR models with mixed frequency data, and study impulse response analysis. We also study testing for Granger causality in mixed frequency data settings.

· **Module 6: TA Session**
This module is a continuation of the first TA session.

· **Module 8: MIDAS Volatility and Correlation Models**
The initial work on MIDAS and volatility involved a likelihood-based on risk-return tradeoffs- see Ghysels, Santa-Clara, and Valkanov (2005). We discuss this approach, followed by recent model specifications involving mixture of ARCH-type and MIDAS specifications.

This includes studying the risk-return trade-off, MIDAS regression models for volatility

(Chen and Ghysels (2011), Forsberg and Ghysels (2006), and Ghysels, Santa-Clara, and Valkanov (2006), among others).

HYBRID-GARCH models pursued by Chen, Ghysels, and Wang (2011) and Chen, Ghysels, and Wang (2009) which provide a unifying framework, based on a generic GARCH-type model, that addresses the issue of volatility forecasting involving forecast horizons of a different frequency than the information set.

GARCH-MIDAS models of Engle, Ghysels, and Sohn (2013) which involve a mean reverting unit daily GARCH process for asset returns, similar to Engle and Rangel (2008), and a MIDAS polynomial which applies to monthly, quarterly, or bi-annual macroeconomic or financial variables. This allows us to study the macroeconomic sources of stock market volatility.

We conclude with DCC-MIDAS correlation models, introduced by Colacito, Engle, and Ghysels (2011).

· **Module 9: Miscellaneous Topics: MIDAS Quantile Regressions and MIDAS Optimal GMM Instruments**
In the last module we cover quantile regressions with MIDAS and GMM estimation with MIDAS instruments.

CORE SEMINARS
WORKSHOPS and
READING GROUPS

Weekly CORE Seminars

- Econometrics Seminar
- Economic Theory Seminar
- Mathematical Programming Seminar
- ECORES, joint CORE-ECARES-CES Seminar
- Trade & Economic Geography Seminar
- Welfare Economics Seminar

Reading Groups
Seminars and Workshops

- Economics Reading Group
- Reading Seminar in Operations Research

■ Weekly CORE Seminars

● **Econometrics Seminar**

· September 24, 2012. Marcel Fafchamps, Oxford University, United Kingdom
Networks and manufacturing firms in Africa: initial results from a randomized experiment
(Joint with PoRESP Economic Theory Seminar Series)

· October 1, 2012. Julie Le Gallo, Université de Franche Comté, Besançon, France
Exploring scan methods to test spatial dependence with an application to housing prices in Madrid
(Joint with Trade & Economic Geography Seminar)

· October 5, 2012. Wilfredo Palma, Pontificia Universidad Católica de Chile, Santiago, Chile
Regularization and prediction of long-memory time series
(Joint CORE-ISBA Seminar in the frame of the ARC project on time series)

· October 8, 2012. Francesco Lippi, Università degli Studi di Sassari, and Istituto Einaudi per l'Economia e la Finanza, Roma, Italy
Price setting with menu cost for multi-product firms
(Joint with Economic Theory Seminar)

· October 18, 2012. Torben Andersen, Kellogg School of Management, Northwestern University, Evanston (IL), USA
Parametric inference and dynamic state recovery from option panels
(Joint ECORE-KU Leuven Seminar)

· October 22, 2012. Christophe Andrieu, Bristol University, United Kingdom
Pseudo-marginal algorithms: a review and some of their properties

· November 5, 2012. Remco C.J. Zwinkels, Erasmus School of Economics, Erasmus Universiteit Rotterdam, The Netherlands
On the style switching behavior of mutual fund managers
(Joint with LSM Finance Seminar)

· November 12, 2012. Clément Dechaisemartin, Paris School of Economics, France
All you need is LATE

· November 19, 2012. Yukai Yang, CORE, UCL, Belgium
Specification, estimation and evaluation of vector smooth transition autoregressive models with applications

· December 10, 2012. Peter Reinhard HANSEN, European University Institute, Firenze, Italy, and Stanford University (CA), USA
Choice of sample split in out-of-sample forecast evaluation

· December 17, 2012. Christian BROWNLEES, Universitat Pompeu Fabra, Barcelona, Spain
NETS: network estimation for time series
(Joint with LSM Finance Seminar)

· February 4, 2013. Yoon-Jae WHANG, Seoul National University, South Korea
Testing for a general class of functional inequalities

· February 11, 2013. Monalisa SEN, University of Illinois at Urbana Champaign (IL), USA
Specification search for growth model: a dynamic space-time framework

· February 25, 2013. Barbara ROSSI, Universitat Pompeu Fabra, Barcelona, Spain
Density forecasts in the presence of instabilities

· March 4, 2013. David DE ANTONIO LIEDO, National Bank of Belgium
A joint model for Belgium and the euro area short-term forecasting
(Joint with LSM Finance Seminar)

· March 11, 2013. Luc BAUWENS, CORE, UCL, Belgium
Dynamic conditional correlation models for realized covariance matrices
(Joint CORE-ISBA Seminar in the frame of the ARC project on time series)

· March 18, 2013. Simone MANGANELLI, European Central Bank, Frankfurt am Main, Germany
VAR to VaR: measuring tail dependence using multivariate regression quantiles
(Joint with LSM Finance Seminar)

· April 15, 2013. Maurice BUN, Universiteit van Amsterdam, The Netherlands
Identification in linear dynamic panel data models
(Joint CORE-ISBA Seminar in the frame of the ARC project on time series)

· April 22, 2013. Frédérique BEC, Université de Cergy-Pontoise, France
Inventory investment and the business cycle: the usual suspect

· April 29, 2013. Leonardo IANIA, ILSM, UCL, Belgium and National Bank of Belgium
A macro financial analysis of the Euro area bond market
(Joint with LSM Finance Seminar)

· May 6, 2013. Edoardo OTRANTO, Università degli Studi di Messina, Italy
Modeling the dependence of conditional correlations on volatility

● **Economic Theory Seminar**

· September 24, 2012. Marcel FAFCHAMPS, Oxford University, United Kingdom
Networks and manufacturing firms in Africa: initial results from a randomized experiment
(Joint PoRESP Economic Theory Seminar Series and Econometrics Seminar)

· October 1, 2012. Annick LARUELLE, Universidad del Pais Vasco, Bilbao and Ikerbasque, Bilbao, Spain
Games with perceptions

· October 8, 2012. Francesco LIPPI, Università degli Studi di Sassari, and Istituto Einaudi per l'Economia e la Finanza, Roma, Italy
Price setting with menu cost for multi-product firms
(Joint with Econometric Seminar)

· November 5, 2012. Nagore IRIBERRI, Universidad del Pais Vasco, Bilbao and Universidad Pompeu Fabra, Barcelona, Spain
Le's (not) talk about sex: gender awareness and stereotype-threat on performance under competition

· November 12, 2012. Thomas CHANEY, University of Chicago (IL), USA
The gravity equation in international trade: an explanation

· November 19, 2012. Yuya TAKAHASHI, Universität Mannheim, Germany
Estimating a dynamic game of spatial competition: the case of the UK supermarket industry

· December 3, 2012. Sophie BADE, Royal Holloway University of London, United Kingdom
Serial dictatorship: the unique optimal allocation rule when information is endogenous

· December 10, 2012. Jens SUEDEKUM, Universität Duisburg-Essen, Germany
The size distribution across all "cities": a unifying approach
(Joint with Trade & Economic Geography Seminar)

· December 17, 2012. Jacques DRÈZE, CORE, UCL, Belgium
Temporary equilibria: existence, multiplicity and macroeconomic interface

· February 4, 2013. Adam SZEIDL, Central European University, Budapest, Hungary
Treasure hunt: social learning in the field

· February 25, 2013. Bernard DE MEYER, Université Paris 1, France
Risk aversion and price dynamics on the stock market

· March 4, 2013. Elena MATTANA, Stockholm School of Economics, Sweden
Flying the nest: intergenerational strategic interaction, coresidence, and social mobility

· March 11, 2013. Axel GAUTIER, CORE, UCL, Belgium and HEC-Université de Liège, Belgium
Strategic bypass deterrence

· March 18, 2013. John QUAH, University of Oxford, United Kingdom
Revealed preference test of weakly separable preferences

· April 15, 2013. Laurent GOBILLON, Institut National d'Etudes Démographiques (INED), Paris, France
The costs of agglomeration: land prices in French cities
(Joint with Trade & Economic Geography Seminar)

· April 22, 2013. Jean-Pierre PONSSARD, Ecole Polytechnique, Paris, France
Capacity decisions with demand fluctuations and carbon leakage

· April 29, 2013. Andrés CARVAJAL, Western University, London, Ontario, Canada
Arbitrage pricing in noncompetitive markets

· May 6, 2013. Eun Jeong HEO, Universität Bonn, Germany
Fair and efficient rules in school choice problem: maximal domain of preference profiles
(Joint with PoRESP Economic Theory Seminar Series and Welfare Economics Seminar)

· June 3, 2013. Francesco SQUINTANI, Warwick University, United Kingdom
Information revelation and pandering in elections

· June 10, 2013. Andrew CLARK, Paris School of Economics, France
Poverty and well-being: panel evidence from Germany

· June 17, 2013. Moranjan PAL, Indian Statistical Institute, New Delhi, India
Intra-household allocation of resources: a regression decomposition analysis

● **Mathematical Programming Seminar**

· October 2, 2012. James SAUNDERSON, Massachusetts Institute of Technology, Cambridge (MA), USA
Polynomial-sized semidefinite representations of derivative relaxations of spectrahedral cones

· October 9, 2012. Hans-Jacob LÜTHI, Eidgenössische Technische Hochschule Zürich, Zwitzerland
Optimization at work: market design for emission trading schemes

· October 23, 2012. Victor PODINOVSKI, University of Warwick, United Kingdom
The role of assumptions in productivity and efficiency analysis

· November 6, 2012. Vladimir SHIKHMAN, CORE, UCL, Belgium
On structure and computation of generalized Nash equilibria

· November 7, 2012. Claudio TELHA CORNEJA, CORE, UCL, Belgium
About the computational complexity of certain sequencing problems

· December 4, 2012. Roland HILDEBRAND, Université Joseph Fourier, Grenoble, France
Hessian potentials with parallel derivatives

· December 11, 2012. Apostolos FERTIG, Eidgenössische Technische Hochschule Zürich, Zwitzerland
Duality theory in optimizing robust conditional value-at-risk

· December 13, 2012. Coralia CARTIS, University of Edinburgh, United Kingdom
Quantitative recovery guarantees of nonconvex algorithms for compressed sensing problems

· December 14, 2012. Boris MORDUKHOVICH, Wayne State University, Detroit (MI), USA
Second-order variational analysis with applications to stability in optimization

· December 17, 2012. Santanu DEY, Georgia Institute of Technology, Atlanta (GA), USA
Some representability and duality results for convex integer programs

· February 5, 2013. Peter RICHTARIK, University of Edinburgh, United Kingdom
Big data optimization with parallel coordinate descent: partial separability, nonsmoothness, asynchronicity and distribution

· February 26, 2013. Anatoli IOUDITSKI, Université Joseph Fourier, Grenoble, France
Reduced complexity methods for large-scale learning problems

· March 19, 2013. Olivier STEIN, Karlsruhe Instute of Technology, Germany
On differentiability properties of Nash equilibrium problems

· April 16, 2013. Andrea LODI, Università di Bologna, Italy
On bilevel knapsack problems

· April 23, 2013. Laurence WOLSEY, CORE, UCL, Belgium
Continuous knapsack constraints with two integer variables

· May 7, 2013. Vladimir SHIKHMAN, CORE, UCL, Belgium
On implicit functions in nonsmooth analysis

· May 14, 2013. Joachim SPOERHASE, Universität Würzburg, Germany
Approximating the generalized minimum Manhattan network problem

· May 14, 2013. Jose A. SOTO, Technische Universität Berlin, Germany and Universidad de Chile, Santiago, Chile
Advances on matroid secretary problems: free order model and laminar case

· May 21, 2013. Alexander MITSOS, Rheinisch-Westfaelische Technische Hochschule Aachen, Germany
McCormick relaxations: convergence rate and extension to multivariate outer function

· May 28, 2013. Volker KABEL, Otto-von-Guericke Universität Magdeburg, Germany
Which matrices are slack matrices of polytopes?

· June 4, 2013. Claudia d'AMBROSIA, LIX, Laboratoire d'Informatique de l'Ecole Polytechnique, Palaiseau, France
Branch-and-bound method for box-constrained polynomial optimization

· June 11, 2013. Amir BECK, Israël Institute of Technology, Haifa, Israël
Sparsity constrained nonlinear optimization: optimality conditions and algorithms

● **ECORES, joint CORE-ECARES-KUL Seminar**

· October 15, 2012. Alex GROVES, ECARES, Université Libre de Bruxelles, Brussels, Belgium
Optimal commitment and the type of self-control

· November 26, 2012. Christian HAFNER, CORE and ISBA, UCL, Belgium
Volatility of price indices for heterogeneous goods

· February 18, 2013. Pierre PICARD, CORE, UCL, Belgium and CREA, Université du Luxembourg, Belgium
State owned firms: private debt, cost revelation and welfare

· March 25, 2013 Joris MORBEE, CES, KU Leuven, Belgium
Risk spillovers and hedging: why do firms invest too much in systemic risk?

· May 13, 2013. Rembert DE BLANDER, CES, KU Leuven, Belgium
Iterative estimation correcting for error autocorrelation in short panels applied to lagged dependent variable models

● **Trade & Economic Geography Seminar**

· October 1, 2012. Julie LE GALLO, Université de Franche-Comté, Besançon, France
Exploring scan methods to test spatial dependence with an application to housing prices in Madrid
(Joint with Econometrics Seminar)

· October 4, 2012. Carlo ALTOMONTE, Università Bocconi, Milano, Italy
Business groups as hierarchies of firms: determinants of vertical integration and performance
(Joint with IRES Research Seminar)

· November 12, 2012. Thomas CHANEY, University of Chicago (IL), USA
The gravity equation in international trade: an explanation
(Joint with Economic Theory Seminar)

· November 29, 2012. Vanessa STRAUSS-KAHN, ESCP Europe, Paris, France
Trade liberalization and export prices: the case of China
(Joint with IRES Research Seminar)

· December 10, 2012. Jens SUEDEKUM, Universität Duisburg-Essen, Germany
The size distribution across all "cities": a unifying approach
(Joint with Economic Theory Seminar)

· January 15, 2013. Florian MAYNERIS, CORE and IRES, UCL, Belgium
Reaping the gains from globalization with high-end products – Evidence from French luxury exporters
(Joint with Macroeconomics Lunch Seminar)

· February 21, 2013. Jean IMBS, Paris School of Economics, France
Economic integration and structural change
(Joint with IRES Research Seminar)

· March 21, 2013. Peter EGGER, Eidgenössische Technische Hochschule Zürich, Zwitzerland
Unobserved profit shifting and the tax elasticity of FDI
(Joint with IRES Research Seminar)

· April 15, 2013. Laurent GOBILLON, Institut National d'Etudes Démographiques (INED), Paris, France
The costs of agglomeration: land prices in French cities
(Joint with Economic Theory Seminar)

· May 7, 2013. Pascal Mossay, CORE and University of Reading, United Kingdom
On social interactions in a spatial economy
(Joint with IRES Research Seminar)

· May 14, 2013. Ina Simonovska, University of California, Davis (CA) and National Bureau of Economic Research, Cambridge (MA), USA
Different trade models, different trade elaslticities
(Joint with Macroeconomics Lunch Seminar)

· May 16, 2013. Amit Khandelwal, Columbia Business School, New York (NY), USA
Prices, markups and trade reform
(Joint with Macroeconomics Lunch Seminar)

● **Welfare Economic Seminar**

· September 4, 2012. Vladislav Nora, CORE, UCL, Belgium
Saddle functions and robust equilibria

· October 1, 2012. Erik Schokkaert, CORE, UCL and KU Leuven, Belgium
Arrow's theorem of the deductible: moral hazard and stop-loss in health insurance

· October 10, 2011. Dirk van de Gaer, CORE, UCL and Universiteit Gent, Belgium
Non-anonymous pro-poor growth: a characterization

· October 22, 2012. Tom Potoms, KU Leuven, Belgium
Ranking opportunity sets, indirect utility and indifferences

· October 29, 2012. Martin Van der Linden, CORE, UCL, Belgium
Possibility and impossibility of a Paretian egalitarian with other regarding preferences

· November 5, 2012. François Maniquet, CORE, UCL, Belgium
Poverty measurement and interpersonal comparisons of poverty

· November 12, 2012. Bernard Cornet, Université Paris 1, France
Lecture Series in Financial Economics

· November 19, 2012. Chiara Canta, CORE, UCL, Belgium
Efficiency, access, and the mixed delivery of health care services

· December 3, 2012. Manuel Förster, CORE, UCL, Belgium
Ordered weighted averaging in social networks

· December 10, 2012. Tom Truyts, CORE, UCL and KU Leuven, Belgium
Support for redistribution and social structure

· December 17, 2012. Claude d'Aspremont, CORE, UCL, Belgium
On some welfare criteria for justice within and between generations

· February 2, 2013. Marion Leturcq, CORE, UCL, Belgium
More or less married: the evolution of marriage and marital property regimes in France (1980 - 2010)

· March 4, 2013. Tom Truyts, CORE, UCL and KU Leuven, Belgium
The political economy of Belgium's return to agricultural trade protection 1880-1895

· March 18, 2013. Nils Röhl, Universität Paderborn, Germany
Robust equilibria in location games

· April 15, 2013. Kevin Spiritus, KU Leuven, Belgium
The taxation of commodities and capital returns when taxes on earnings are not optimal

· April 22, 2013. Vladyslav Nora, CORE, UCL, Belgium
Incentives in networks

· April 29, 2013. Benoît Decerf, CORE, UCL, Belgium
Aggregate poverty measures with endogenous income poverty line

· June 6, 2013. Kristof Bosmans, Universiteit Maastricht, The Netherlands
Welfare improving lossy transfers

· June 10, 2013. Aditi Dimri, CORE, UCL, Belgium
Multidimensional poverty measurement with heterogeneous preferences

· June 17, 2013. Margherita Negri, CORE, UCL, Belgium
Electoral systems and vote buying

■ Reading Groups, Seminars and Workshops

● **Economics Reading Group**

Starting in January 2012, a reading group for economics Ph.D. students at the Université catholique de Louvain was launched. The idea of the economics reading group is that there will be one faculty member present at each session to lead the group. This faculty member is asked to choose a recent paper in his research field. During the session, he or she gives a brief introduction to the background of the paper, and starts an informal discussion. Students read the paper in advance, and are expected to contribute to the discussion.

· October 17, 2012. Marion Leturcq, CORE, UCL, Belgium
Session 1: Mostly harmless econometrics: regression, interpretation and causality

October 31, 2012. Marion LETURCQ, CORE, UCL, Belgium
Session 2: Mostly harmless econometrics: heterogeneity, nonlinearities and matching

November 21, 2012. Marion LETURCQ, CORE, UCL, Belgium
Session 3: Mostly harmless econometrics: IV and 2 SLS

November 28, 2012. Marion LETURCQ, CORE, UCL, Belgium
Session 4: Mostly harmless econometrics: IV and heterogeneity, LATE

· December 12, 2012. Florian MAYNERIS, CORE and IRES, UCL, Belgium and Julien MARTIN, IRES, UCL, Belgium
Discussion of the paper *Trade liberalization and embedded institutional reform: evidence from Chinese exporters* by Amit Khandelwal, Peter Schott, and Shang-Jin Wei

January 16, 2013. Marion LETURCQ, CORE, UCL, Belgium
Session 5: Mostly harmless econometrics: Diff in diff, fixed effects, panel data and RDD

January 16, 2013. Marion LETURCQ, CORE, UCL, Belgium
Session 6: Extensions: quantiles and non standard standard errors

· February 27, 2013. Paul BELLEFLAMME, CORE, UCL, Belgium and Xavier WAUTHY, CORE and Université Saint-Louis, Brussels, Belgium
Discussion of the paper *Internet: A two-sided market analysis* by Nicholas Economides and Joacim Tåg

· May 15, 2013. François MANIQUET, CORE, UCL, Belgium
Discussion of the paper *Information, trade and common knowledge* by Paul Milgrom and Nancy Stokey

● **Reading Seminar in Operations Research**

· February 2, 2013. Arnaud LATIERS, CORE, UCL, Belgium
Presentation of the paper *Assessment of revenue potentials of ancillary service provision by flexible unit portfolios* by Stephan Koch and Göran Andersson

· February 19, 2013. Alejandro LAMAS, CORE, UCL, Belgium
Presentation of the paper *The price of fairness* by Dimitris Bertsimas, Vivek F. Farias and Nikolaos Trichakis

· February 19, 2013. Abdelrahaman ALY, Tanja MLINAR and Claudio TELHA CORNEJA, CORE, UCL, Belgium
Presentation of the paper *The price of fairness* by Reinier A.C. van der Veen, Alireza Abbasy and Rudi A. Hakvoort

· March 5, 2013. Tanguy KEGELART and Mehdi MANDANI, CORE, UCL, Belgium
Presentation of the paper *The dual in nonlinear programming and its economic interpretation* by Michel L. Balinski and William J. Baumol

· March 12, 2013 Olivier DEVOLDER, CORE, UCL, Belgium
Presentation of the paper *Smoothing and first order methods: a unified framework* by Amir Beck and Marc Teboulle

· March 19, 2013. Abdelrahaman ALY, Tanja MLINAR and Vladimir SHIKMAN, CORE, UCL, Belgium
Presentation of the paper *Agent-based analysis of the impact of the imbalance pricing mechanism on market behavior in electricity balancing markets* by Reinier A.C. van der Veen, Alireza Abbasy, Rudi A. Hakvoort

· April 16, 2013. Tanguy KEGELART, CORE, UCL, Belgium
Presentation of the paper *Inventory control with limited capacity and advance demand information* by by Özalp Özer and Wei Wei

· April 23, 2013. Wenli PENG, CORE, UCL, Belgium
Presentation of the paper *Modeling of financial supply chain* by Sushil Gupta and Kaushik Dutta.

MEETINGS

CORE Meetings

- VI Academia Belgica-Francqui Foundation Rome Conference
- International Workshop on Economic Development, Natural Resources, Energy, and the Environment
- 13th Workshop on Logistics and Supply Chain Management
- 2012 PoRESP Workshop: Well-being Measurement and Policy Design when Agents' Preferences are Other-regarding
- 2013 ECORE Summer School
- Games and Collective Decisions in Memory of Jean-François Mertens
- Francqui Conference: The Design of Economic and Political Institutions
- IWLS 2013: IVth International Workshop on Lot Sizing

Participation of CORE Members to Meetings' Organization

■ CORE Meetings

• VI Academia Belgica-Francqui Foundation Rome Conference: Political Economy, Social Choice Theory and Decision Theory

This conference was held at Academia Belgica, Roma on September 10–12, 2012 and organized by François Maniquet, CORE, UCL, Belgium

* *September 10, 2012*

· **Session 1: Conflict**

– Francesco Squintani, University of Warwick, United Kingdom
The value of conflict mediation

– Matija Kovacic, Università Ca' Foscari, Venezia, Italy
Ethnic diversity and conflict

– Margherita Negri, CORE, UCL, Belgium
Measuring the politicization of ethnicity

· **Session 2: Political Economy**

– Leonardo Boncinelli, Università degli Studi di Pisa, Italy
Disclosure of information in matching markets

– François Maniquet, CORE, UCL, Belgium
Strategic voting under proportional representation

– Massimo Morelli, Columbia University, New York (NY), USA
Vertical inequality and horizontal coalition structure

* *September 11, 2012*

· **Session 3: Incentives**

– Claude d'Aspremont, CORE, UCL, Belgium
Efficient Bayesian mechanisms with voluntary participation

– Enio Bilancini, Università degli Studi di Modena e Reggio Emilia, Italy
Persuasion with costs

– Giuseppe Coco, Università degli Studi di Firenze, Italy
Incentives effects on efficiency in education

· **Session 4: Equality of Opportunity**

– Francesco ANDREOLI, Université de Cergy-Pontoise, France
  Equalization of opportunity

– Paolo BRUNORI, Università degli Studi di Bari, Italy
  Economic growth and equality of opportunity

– Ernesto SAVAGLIO, Università di Pescara, Italy
  Freedom of choice and monotone extensive operators

· **Session 5: Methods in Inequality and Poverty**

– Flaviana PALMISANO, Università degli Studi di Bari, Italy
  Pro-poor growth

– Eugenio PELUSO, Università degli Studi di Verona, Italy
  A counting approach for measuring multidimensional deprivation

· **Session 6: Political Economy and Electoral Competition**

– Micael CASTANHEIRA, Université Libre de Bruxelles, Brussels, Belgium
  Divided majority and information aggregation: theory and experiment

– Giovanna IANNANTUONI, Università degli Studi di Milano-Bicocca
  Moderating government

– Antonio NICOLÒ, Università degli Studi di Padova, Italy
  On the efficiency of partial information in elections

* *September 12, 2012*

· **Session 7: Fairness**

– Lucia MILONE, Libera Università Internazionale degli Studi Sociali Guido Carli, Roma, Italy
  In search of Pareto optimal envy-free allocations

– Paolo PIACQUADIO, GREQAM/AMSE, Université Aix-Marseille, France
  Intergenerational orderings in risky environments

– Giacomo VALLETTA, Universiteit Maastricht, The Netherlands
  Fair optimal income tax with endogenous productivities

· **Session 8: Electoral Campaigns**

– Elena MANZONI, Università degli Studi di Milano-Bicocca, Italy
  Discretion in electoral campaigns

– Filippo PAVESI, Università degli Studi di Verona, Italy
  Deep pockets, extreme preferences

● **International Workshop on Economic Development, Natural Resources, Energy, an the Environment**

The Department of Economics of the European University at St Petersburg, Russia and the research centers CORE (UCL, Belgium) and EQUIPPE (Université Lille 1 des Sciences et Technologies, France) organized a two-day international workshop at the European University at St Petersburg. The workshop was organized by Kirill BORISSOV (European University at St Petersburg), Thierry BRÉCHET (CORE, UCL, Belgium), Lucas BRETSCHGER (Eidgenössische Technische Hochschule Zurich, Zwitterland), Stéphane LAMBRECHT (EQUIPPE, Université Lille 1 and Université de Valencienne, France) and Katheline SCHUBERT (Paris School of Economics, Université Paris 1). The conference was sponsored by the European University at St Petersburg, ExxonMobil, and CORE, Université catholique de Louvain.

* *October 4, 2012*

· **Keynote Lecture**

  Cees WITHAGEN, Vrije Universiteit Amsterdam, The Netherlands
  Growth and green paradoxes

· **Session 1**
  Chair: Stéphane LAMBRECHT, EQUIPPE, Université Lille 1 and Université de Valencienne, France

– Pierre M. PICARD, CORE, UCL, Belgium and Université du Luxembourg, Luxembourg
  The clean development mechanism in a globalized carbon market

– Chiara RAVETTI, Institut des Hautes Etudes Internationales et du Développement, Genève, Switzerland
  The resource curse, aid and instability : why development aid can reduce growth

· **Session 2**

Chair: Kirill Borissov, European University at St Petersburg, Russia

– David Desmarchelier, EQUIPPE, Université Lille 1, France
Ecotax and local uniqueness of a Ramsey equilibrium: the green paradox revisited

– Antoine d'Autume, Paris School of Economics, Université Paris 1, France
The behavior of a competitive extraction firm: avoiding the most rapid approach

· **Session 3**

Chair: Alain Ayong Le Kama, EconomiX, Université Paris Ouest - Nanterre La Défense, France

– Mireille Chiroleu-Assouline, Paris School of Economics, Université Paris 1, France
From regressive pollution taxes to progressive environmental policies

– Karen Pittel, Ifo Center for Energy, Climate and Exhaustible Resources, München and Universität München, Germany
Local and global externalities, environmental policies and growth

* *October 5, 2012*

· **Session 4**

Chair: Katheline Schubert, Paris School of Economics, Université Paris 1, France

– Lucas Bretschger, Eidgenössische Technische Hochschule Zurich, Zwitzerland
Use less, pay more: can climate policy address the unfortunate event for being poor?

· **Session 5**

Chair: Lucas Bretschger, Eidgenössische Technische Hochschule Zürich, Zwitzerland

– Olga Kiulia, Center for Social and Economic Research, Warsaw, Poland
Integrating abatement technologies into economic modelling

– Maty Konte, GREQAM, Université d'Aix-Marseille, France
A curse or a blessing? Natural resources in a multiple growth regimes analysis

· **Session 6**

Chair: Mireille Chiroleu-Assouline, Paris School of Economics, Université Paris 1, France

– Esther Regnier, Paris School of Economics, Université Paris 1, France
Modeling interactions between aquaculture and capture fisheries

– Hendrik Ritter, Universität Magdeburg, Germany
Water scarcity and conflict – a reciprocal problem?

· **Session 7**

Chair: Antoine d'Autume, Paris School of Economics, Université Paris 1, France

– Aude Pommeret, Université de Savoie, Annecy-le-Vieux, France and HEC, Université de Lausanne, Switzerland
Intertemporal emissions permits trading under uncertainty and irreversibility

– Alexandra Vinogradova, Eidgenössische Technische Hochschule Zurich, Zwitzerland
Investment in an uncertain backstop: optimal strategy for an open economy

● **13ᵗʰ Workshop on Logistics and Supply Chain Management**

Workshop organized by Per Agrell, CORE and LSM, UCL, Belgium, at Univeristé Saint-Louis, Brussels, Belgium.

* *October 22, 2012*

· Clint Pennings, Rotterdam School of Management, The Netherlands
New approaches in demand forecasting for inventory management

· Mehdi Madani, LSM, UCL, Belgium
On the European day-ahead market coupling problem

· Li Dong, Rotterdam School of Management, The Netherlands
Contracting for initial acquisition and after-sales service in the presence of lifetime buy planning

· Constantin Blome, LSM, UCL, Belgium
New research in strategic sourcing and procurement

● **2012 PoRESP Workshop: Well-being Measurement and Policy Design when Agents' Preferences are Other-regarding**

Workshop jointly organized by François Maniquet, CORE, UCL, Belgium and Georg Kirchsteiger, Université Libre de Bruxelles, Belgium

* *December 14, 2012*

· Claudia Hupkau, CORE, UCL, Belgium
Affirmative action and reputation

· Georg Kirchsteiger, Université Libre de Bruxelles, Brussels, Belgium
Assignment procedure biases in randomized policy experiments

· Benoît DECERF and Martin VAN DER LINDEN, CORE, UCL, Belgium
Equal treatment of equals and efficiency with other-regarding preferences : in ities and ways out

· Rafael TREIBICH, Ecole Polytechnique, Paris, France
Fair social orderings and externalities

· Olivier BODY, Université Libre de Bruxelles, Brussels, Belgium
To win or not to lose, that is the question about communication

· Ester MANNA, Université Libre de Bruxelles, Brussels, Belgium
Hiring motivated agents in for-profit organizations: desire or necessity?

· François MANIQUET, CORE, UCL, Belgium
Fair division among other-regarding agents

● **2013 ECORE Summer School**

The 2013 ECORE Summer School of Governance and Economic Behavior was Katholieke Universiteit Leuven. It was organized by Jean HINDRIKS and F MANIQUET (CORE, UCL, Belgium), Georg KIRCHSTEIGER (ECARES, Université Bruxelles, Belgium) and Jo VAN BIESEBROECK (CES, KU Leuven). It was spons Belfius, Fonds National de la Recherche Scientifique, KU Leuven, Université catho Louvain, Université Libre de Bruxelles and Vlaanderen in Actie Pact 2020.

* *May 27, 2013*

· **Plenary Session 1**

– Matthew RABIN, University of California (CA), Berkeley, USA
Principle of incorporating psychology into economics

– Alessandro LIZZERI, New York University (NY), USA
Redistributive politics and comparative politics

· **Parallel Session A1: Industrial Organization**

– Elias CARRONI, Université de Namur, Belgium
Behavior based price discrimination with cross group externalities

– Irina KIRYSHEVA, European University Institute, Firenze, Italy
Informed middleman and asymmetric information

– Wing Man Wynne LAM, Università di Bologna, Italy
Switching costs in two-sided markets

· **Parallel Session B1: Experimental Economics**

– Armenak ANTINYAN, Università Ca' Foscari, Venezia, Italy
Public good provision, punishment and endowment origin: experimental evidence

– Gert PÖNITZSCH, Institut für Weltwirtschaft, Kiel, Germany
Bundling public with private goods

– Huojun SUN, Università di Bologna, Italy
Who is more naive? High or low trustors?

· **Parallel Session A2: Industrial Organization**

– Henry DUNCANSON, University of Bristol, United Kingdom
Middle management in a knowledge hierarchy

– Xingyi LIU, Toulouse School of Economics, France
Afraid of being discriminated: net neutrality and product design

– Ester MANNA, Université Libre de Bruxelles, Brussels, Belgium
Intrinsically motivated agents: blessing or curse for-profit maximizing firms?

· **Parallel Session B2: Experimental Economics**

– Isabel MARCIN BRANGEWITZ, Max Planck Institute for Research on Collective Goods, Bonn, Germany
Testing the endowment effect for default rules

– Felix EBELING, Universität zu Köln, Germany
Why do defaults work? Evidence from a field experiment

· **Plenary Session 2**

– Alessandro LIZZERI, New York University (NY), USA
Government policy with time inconsistent voters

– Matthew RABIN, University of California (CA), Berkeley, USA
New models of belief-based preferences

· **Parallel Session A3: Industrial Organization**

– Sabyasachi DAS, Vienna Graduate School of Economics, Austria
Certification under oligopolistic competition

– Jana FRIEDRICHSEN, Universität Mannheim, Germany
The economics of kitsch – Platform competition by investment in network externalities

– Hinnerk GNUTZMANN, European University Institute, Firenze, Italy
Paying consumers to stay: retention pricing and market competition

· **Parallel Session B3: Game Theory and Experiment**

  – Marco MANTOVANI, Università degli Studi di Milano, Italy
    Limited backward induction

  – Roel VAN VELDHUIZEN, Wissenschaftszentrum Berlin für Sozialforschung, Germany
    Bribery: greed versus reciprocity

  – Vladyslav NORA, CORE, UCL, Belgium
    Incentive in networks

· **Parallel Session A4: Industrial Organization**

  – Christine GUTEKUNST, Universiteit Maastricht, The Netherlands
    Agreement formation in international public goods provision with heterogeneous agents

  – Julien JACQMIN, Université Saint-Louis, Brussels, Belgium
    The emergence of for-profit higher education institutions

· **Parallel Session B4: Experimental Economics**

  – Aidas MASILIUNAS, Universiteit Maastricht, The Netherlands
    Strategic uncertainty and the explanatory power of Nash equilibrium in Tullock contests

  – Peter SCHWARZMANN, Toulouse School of Economics, France
    Cooperating over losses and competing over gains

  – Boris VAN LEEUWEN, Universiteit van Amsterdam, The Netherlands
    Stars need benefits: an experiment on network formation

* *May 29, 2013*

  · **Plenary Session 3**

    – Matthew RABIN, University of California (CA), Berkeley, USA
      Incorporating limited rationality into economic theory

    – Thomas PALFREY, California Institute of Technology, Pasadena (CA), USA
      Theory of political economy

  · **Plenary Session 4**

    – Alessandro LIZZERI, New York University (NY), USA
      Collective self control

· **Parallel Session A5: Industrial Organization**

  – Simon MIEGIELSEN, KU Leuven, Belgium
    Sharing what you know: price competition with consumer information networks

  – Simone RIGHI, Hungarian Academy of Science, Budapest, Hungary
    Eliciting social networks through price discrimination

  – Chunan WANG, Toulouse School of Economics, France
    Air traffic delays, safety, and regulator's objectives: a monopoly case

· **Parallel Session B5: Political Economics**

  – Andreas BERNECKER, Universität Mannheim, Germany
    Divided we reform? Evidence from US welfare policies

  – Thomas LAMBERT, LSM, UCL, Belgium
    Suffrage institutions and financial development: does the middle class have a say?

  – Maja ADENS, Wissenschaftszentrum Berlin für Sozialforschung, Germany
    Radio and the rise of Nazi in pre-war Germany

* *May 30, 2013*

  · **Plenary Session 5**

    – Thomas PALFREY, California Institute of Technology, Pasadena (CA), USA
      Experiments in political economy

  · **Parallel Session A6: Political Economics**

    – Vardan BAGHDASARYAN, Università Cattolica del Sacro Cuore, Milano, Italy
      Electoral fraud and voter turnout

    – Antonin MACE, Ecole Polytechnique, Paris, France
      An axiomatization of range voting

    – Margherita NEGRI, CORE, UCL, Belgium
      Electoral systems and vote buying

  · **Parallel Session B6: Public Economics**

    – Nicolas BOUCKAERT, KU Leuven, Belgium
      Differing types of medical prevention appeal to different individuals

    – Benoît DECERF, CORE, UCL, Belgium
      Combining efficiency and equality objectives when distributing resources among other-regarding agents

· **Parallel Session A7: Political Economics**

- Aaron KAMM, Universiteit van Amsterdam, The Netherlands
  A simultaneous analysis of turnout and voting under proportional representation: theory and experiments

- Hannes KAMMERER, Universität Mannheim, Germany
  Lobbying for subsidies with heterogeneous firms

- Pedro ROBALO, Universiteit van Amsterdam, The Netherlands
  Group identity, mobilization and political participation: experimental evidence

· **Parallel Session B7: Miscellaneous**

- Timothy YEUNG, Toulouse School of Economics, France
  A cheap talk with multiple free-riding audiences: an application to environment lobbying

- Guilhem LECOUTEUX, Ecole Polytechnique, Paris, France
  Reconciling behavioural and normative economics: how to evaluate the emplementation of tuition fees in higher education

• **Games and Collective Decisions in Memory of Jean-François Mertens**

The Center for the Study of Rationality, at the Hebrew University of Jerusalem, and CORE, co-organized a conference in memory of Jean-François MERTENS. This conference was hosted by the Hebrew University of Jerusalem.

* *June 6, 2013*
  · Robert J. AUMANN, The Hebrew University of Jerusalem, Israël
    My Jean-François

  · Françoise FORGES, Université Paris-Dauphine, France
    Bayesian repeated games

  · Pierre DEHEZ, CORE, UCL, Belgium
    How to share joint liability: a cooperative game approach

  · Hari GOVINDAN, University of Rochester (NY), USA
    Toward a theory of stability in repeated games

  · Shmuel ZAMIR, The Hebrew University of Jerusalem, Israël
    The MZ formula: origins and recent application

  · Anna RUBINCHIK, Haifa University, Israël
    Regularity and stability of equilibria in an overlapping generations model with exogenous growth

· Sergiu HART, The Hebrew University of Jerusalem, Israël
  Correlated equilibria: markets, dynamics, and computation

* *June 7, 2013*
  · Alvin ROTH, Harvard University, Cambridge (MA), USA
    Deceased organ donation and solicitation in Israël and the U.S

  · Geoffroy de CLIPPEL, Brown University, Providence (RI), USA
    Egalitarianism under incomplete information

  · François MANIQUET, CORE, UCL, Belgium
    Strategic voting under proportional representation

  · Yair TAUMANN, State University of New York (NY), USA
    Voting power and proportional representation of voters

  · Elon KOHLBERG, Harvard University, Cambridge (MA), USA
    The Shapley value of stochastic games

* *June 9, 2013*
  · Eric MASKIN, Harvard University, Cambridge (MA), USA
    Markov equilibrium

  · Bernard de MEYER, Université Paris 1, France
    Risk aversion and price dynamics on the stock market

  · Jacques DRÈZE, CORE, UCL, Belgium
    Subjective expected utility with state-dependent utility and action-dependent probabilities

  · Claude d'ASPREMONT, CORE, UCL, Belgium
    Some remarks on Bayesian incentive compatibility and the core in the absence of wealth effects

  · Abraham NEYMAN, The Hebrew University of Jerusalem, Israël
    Continous-time stochastic games

  · Olivier GOSSNER, London School of Economics, United Kingdom and Université Paris 1, France
    The value of information in zero-sum games

  · Roger MYERSON, University of Chicago (IL), USA
    Settled equilibria

● **Francqui Conference: The Design of Economic and Political Institutions**

Having been awarded the 2010 Francqui Prize, François Maniquet, CORE, UCL, Belgium, has invited some of the most prominent researchers in his field of interest to present their current works during this conference held in Brussels.

* *June 24, 2013*

· **Session 1: Incentives in Allocations Problems**
Chair: Pierre Dehez, CORE, UCL, Belgium

– William Thomson, University of Rochester (NY), USA
On the extension of the uniform rule to more than one commodity: existence and maximality results

– Anna Bogomolnaia, University of Glasgow, United Kingdom
Random assignment: redefining the serial rule

– James Schummer, Northwestern University, Evanston (IL), USA
Incentives in landing slot problems

· **Session 2: Strategic Voting**
Chair: Bhaskar Dutta, University of Warwick, United Kingdom

– Eric Maskin, Harvard University, Cambridge (MA), USA
Elections and strategic voting: Condorcet and Borda

– Arunava Sen, Indian Statistical Institute, New Delhi, India
Randomization in mechanism design for voting environments: some recent results

· **Session 3: Morality and Social Choice**
Chair: Bernard Cornet, Université Paris 1, France

– Peter Hammond, University of Warwick, United Kingdom
Extending the original position: revisiting the Pattanaik critique of Vickrey/Harsanyi utilitarianism

– John Weymark, Vanderbilt University, Nashville (TN), USA
Conundrums for nonconsequentialists

– John Roemer, Yale University, New Haven (CT), USA
Kantian optimization: an approach to cooperative behavior

· **Session 4: Power and conflict**
Chair: Patrick Legros, Université Libre de Bruxelles, Brussels, Belgium

– Hans Peters, Universiteit Maastricht, The Netherlands
Indirect control and power in mutual control structures

– Massimo Morelli, Columbia University, New York (NY), USA
Dispute resolution mechanisms and strategic militarization

* *June 25, 2013*

· **Session 5: Risk and Social Choice**
Chair: Julio Davila, CORE, UCL, Belgium

– Marc Fleurbaey, Princeton University (NJ), USA
Risk and equity in economic environments

– Philippe Mongin, CNRS and HEC, Paris, France
Ranking multidimensional alternatives and uncertain prospects

– Maurice Salles, Université de Caen, France
Equality in microeconomic theory and beyond

· **Session 6: Implementation and rationalizability**
Chair: Françoise Forges, Université Paris-Dauphine, France

– Eve Ramaekers, CORE, UCL, Belgium
Implementation in undominated strategies by bounded and covered mechanisms

– Yves Sprumont, Université de Montréal, Canada
Every choice function is backwards-induction rationalizable

· **Session 7: Poverty**
Chair: Johanna Goertz, University of Guelph, Canada

– François Maniquet, CORE, UCL, Belgium
Multidimensional poverty measurement: shouldn't we take preferences into account?

– Serge Kolm, Ecole des Hautes Etudes en Sciences Sociales, Paris, France
Veritas in caritate. The public good of fighting property and the paradoxes of solidarity

· **Session 8: Fair Allocation**
Chair: Paolo Piacquadio, CORE, UCL, Belgium and GREQAM/AMSE, Université Aix-Marseille, France

– Hervé Moulin, University of Glasgow, United Kingdom
Capacitated proportional assignment

– Juan Moreno-Ternero, Universidad Pablo de Olavide, Spain
Efficient and fair allocation of disputed properties

● **IWLS 2013: IVth International Workshop on Lot Sizing**

The fourth edition of the International Workshop on Lot-Sizing took place at the Fondation Universitaire in Brussels, Belgium.

As in the previous year, the goal of the workshop was to cover recent advances in lot sizing: new approaches for classical problems, new relevant problems, integration of lot sizing with other problems such as scheduling, distribution or vehicle routing, presentation of case studies, etc. The workshop also aimed at favoring exchanges between researchers and enhancing fruitful collaboration.

∗ *August 26, 2013*

· **Models 1**

– Christian ALDEMER, Europa-Universität Viadrina Frankfurt, Germany
  Integrated supply and production planning

– Karina COPIL, Universität zu Köln, Germany
  Simultaneous lot sizing and scheduling with common setup operators and multiple production steps

– Nil Nurlu DENIZ and Meltem DENIZEL, Özyeğin University, Turkey
  Lot sizing for spare parts and refurbished cores in a remanufacturing environment

· **Formulations and Polyhedra 1**

– Agra AGOSTINHO, Universidade de Aveiro, Portugal
  Valid inequalities for an inventory routing relaxation set

– Céline GICQUEL, Université Paris Sud, France
  Multi-product valid inequalities for the DLSP with sequence-dependent changeover costs

– Hamish WATERER, Newcastle University, Australia
  A bucket indexed formulation for nonpreemptive single machine scheduling problems

· **Models 2**

– Martin GEHAN, Ecole des Mines de Nantes, France, Nabil ABSI, Ecoles des Mines de Saint-Etienne, France, and Stéphane DAUZÈRE-PÉRÈS, Ecoles des Mines de Saint-Etienne, France
  Tactical production planning under system availability constraint

– Houcem GHRIBI, Université de Lorraine, Nancy, France
  Uncapacitated single-item lot sizing problem with capacity reservation contract

– Tanguy KEGELART, CORE, UCL, Belgium and Mathieu VAN VYVE, CORE, UCL, Belgium
  A conic optimization approach for SKU rationalization

· **Complexity/Approximability 1**

– Dong LI and Dolores Romero MORALES, University of Oxford, United Kingdom
  Polynomial time algorithms for cardinality constrained robust lot sizing models

– Mehmet ONAL, Isik University, Turkey
  The economic lot sizing problem with by-products and inventory bounds

– Haldun SÜRAL, Middle East Technical University, Ankara, Turkey
  Location on a line with demand and supply selection

∗ *August 27, 2013*

· **Stochastic Models and Risk 1**

– Esra KOCA, Bilkent University, Turkey
  The stochastic lot sizing problem with controllable processing times

– Pedro AMORIM and Bernardo ALMADA-LOBO, Universidade do Porto, Portugal
  Incorporating risk management on the production planning of food goods

– Florian SAHLING, Leibniz Universität, Hannover, Germany
  First results on stochastic capacitated lot sizing in closed-loop supply chains

· **Formulations and Polyhedra 2**

– Laurence A. WOLSEY, CORE, UCL, Belgium
  Single-item reformulations for a vendor managed inventory routing problem

– Luis GUIMARÃES, Universidade do Porto, Portugal
  Rolling horizon formulations for short-medium term production planning

· **Complexity/Approximability 2**

– Mathieu VAN VYVE and Claudio TELHA CORNEJA, CORE, UCL, Belgium
  A 1.58-competitive algorithm for on-line economic lot-sizing

– Wilco VAN DEN HEUVEL, Erasmus Universiteit Rotterdam, Hark-Chin HWANG, Chosun University, Korea, and Stéphane DAUZÈRE-PÉRÈS, Ecole des Mines Saint-Etienne, France
  Solving a multi-level lot-sizing problem with inventory bounds

– Claudio TELHA CORNEJA and Mathieu VAN VYVE, CORE, UCL, Belgium
  Efficient approximation algorithms for economic lot-sizing in continuous-time

- **Algorithms/Heuristics 1**

  – Edwin Gomez and Stéphane Dauzère-Pérès, Ecole des Mines Saint-Etienne, France
  Smoothing procedures for an integrated approach for multi-level lot sizing and detailed scheduling

  – Raf Jans, HEC Montréal, Canada
  Reoptimization capabilities of benders decomposition for production routing

* *August 28, 2013*

- **Contracting & Collaboration**

  – Alejandro Lamas, CORE, UCL, Belgium
  Jumping the hurdles for collaboration: fairness in lot sizing problem with capacity pooling

  – Zahra Mobini Dehkordi and Wilco van den Heuvel, Erasmus Universiteit Rotterdam, The Netherlands
  Designing supply contracts in a two-echelon supply chain with information asymmetry

  – Hark-Chin Hwang, Chosun University, Korea
  Capacity, subcontracting and lot-sizing with demand time windows

- **Algorithms/Heuristics 2**

  – Xue Lu, London Business School, United Kingdom
  Decomposition algorithm for multi-level lot sizing problem

  – Fahimeh Shamsaei and Mathieu Van Vyve, CORE, UCL, Belgium
  Solving combined maintenance scheduling & lot-sizing via a fix-and-optimize heuristic

- **Models 3**

  – Socorro Rangel, Universidade Estadual Paulista, Brazil
  Tight scheduling constraints for the integrated lot sizing and scheduling problem

  – Martin Wörbelauer, Universität Hohenheim, Germany
  Simultaneous lot sizing and scheduling considering scarse resources

■ Participation of CORE Members in the Organization of Conferences

- **UECE Lisbon Meetings 2012: Game Theory and Applications**
  Universidade Nova de Lisboa, Portugal, October 2012
  CORE member of the program committee: Ana Mauleon

- **Equality of Opportunity: From Principles to Policy**
  Universiteit van Antwerpen, Belgium, November 2012
  CORE organizer: Koen Decancq

- **7th Workshop on Economic Design and Institutions**
  Université Saint-Louis, Brussels, Belgium, November 2012
  CORE organizers: Ana Mauleon and Vincent Vannetelbosch

- **IMMAQ Lecture Series – Eric Maurin**
  Université catholique de Louvain, Belgium, December 2012
  CORE organizer: François Maniquet

- **8th Workshop on Social Decisions**
  Universidad de Malaga, Spain, January 2013
  CORE organizer: Juan D. Moreno-Ternero

- **14th CESCM-CEMS Workshop on Logistics and Supply Chain Management**
  Université Saint-Louis, Brussels, Belgium, March 2013
  CORE organizer: Per Agrell

- **8th Workshop on Economic Design and Institutions**
  Université Saint-Louis, Brussels, Belgium, May 2013
  CORE organizers: Ana Mauleon and Vincent Vannetelbosch

- **10th International Conference on the European Energy Market, EEM 13**
  KTH Royal Institute of Technology, Stockholm, Sweden, May 2013
  CORE member of the organizing committee: Per Agrell

- **4th Workshop on "Institutions, Individual Behavior and Economic Outcomes"**
  Porto Conte Ricerche, Alghero, Sardinia, June–July 2013
  CORE Organizer: Dimitri Paolini

· **11th International Conference on Data Envelopment Analysis, DEA 2013**
  Samsun, Turkey, June 2013
  CORE member of the organizing committee: Per AGRELL

· **13th SAET Conference on Current Trends in Economics**
  MINES Paris Tech, July 2013
  CORE member of the program committee: Claude d'ASPREMONT
  CORE sessions organizers: Claude d'ASPREMONT and Julio DAVILA

· **New Directions in Welfare III – 2013 OECD-Universities Joint Conference:**
  "Economics for a Better World"
  OECD Headquarters Paris, France, July 2013
  CORE organizer: Erik SCHOKKAERT
  CORE session organizer: Koen DECANCQ

· **ICCOPT 2013, Fourth International Conference on Continuous**
  Optimization
  Universidade Nova de Lisboa, Portugal, July–August, 2013
  CORE chair of cluster: François GLINEUR

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CORE MEMBERS INVITED AT CONFERENCES, SCIENTIFIC STAYS and SEMINARS

Per AGRELL

· *Network regulation in 2050: smart grids, thin walls and high gambles*
  * EnergiNorge Workshop Network Regulation in 2050, Oslo, Norway, October 2012

· *Network regulation towards 2030: drivers, challenges and hopes*
  * Norwegian Annual Network Conference (Nettkonferansen 2012), Oslo, Norway, December 2012

· *Compliance, robustness and efficiency in regulatory benchmarking*
  * Universitad de Gran Canaria de Las Palmas, Spain, March 2013

· *Frontier analysis for supply chain management: models, challenges and perspectives*
  * Workshop on Frontier Analysis to the Honor of Know Lovell, Université de Liège, Belgium, March 2013

· *Wearing out the regulator: industry response to non-credible high-powered regulatory regimes*
  * EEM13, 10th International Conference on the European Energy Market, Royal Institute of Technology, KTH, Stockholm, Sweden, May 2013

· *International benchmarking of electricity transmission system operations*
  * 13th European Workshop on Productivity and Efficiency Analysis EWEPA 13), Aalto (University, Helsinki, Finland, June 2013

· *Ex-ante and ex-post merger analysis in infrastructure regulation: evidence from the electricity distribution in Norway*
  * 13th European Workshop on Productivity and Efficiency Analysis (EWEPA 13), Aalto University, Helsinki, Finland, June 2013

· *Beyond inventive regulations: successes, errors and insights in energy networks regulation*
  * CIRED, Royal Institute of Technology KTH, Stockholm, Sweden, June 2013

Abdelrahaman ALY

· *Shortest path algorithms and secure multiparty computation*
  * INFORMS Annual Meeting, Phoenix (AZ), USA, October 2012
  * 19th Belgian Workshop on Mathematical Optimization, La Roche-en-Ardenne, Belgium, March 2013
  * 12th Workshop on Logistics and Supply Chain Management, Université Saint-Louis, Brussels, Belgium, March 2013

· *Graph theory problems with secure multiparty computation*
  * PhD Day in Management, UCL/LSM, UCL, Belgium, December 2012

Luc Bauwens

· *Dynamic conditional correlation models for realized covariance matrices*
  * Econometrics Workshop, University of Pittsburgh (PA), USA, September 2012
  * University of Pennsylvania (PA), USA, September 2012
  * Montreal Econometrics Seminar, Montréal, Canada, September 2012
  * GREQAM, Université d'Aix-Marseille, France, October 2012
  * University of Bath, United Kingdom, January 2013
  * CREST, Paris, France, February 2013
  * Erasmus Universiteit Rotterdam, The Netherlands, April 2013

· *Incorporating structural breaks in GARCH models*
  * International Conference on Computational and Financial Econometrics (CFE'12), Conference Centre, Oviedo, Spain, December 2012

· *Modeling the dependence of conditional correlations on volatility*
  * Humboldt-Copenhagen Conference 2013: Recent Developments in Financial Econometrics, Humboldt-Universität zu Berlin, Germany, March 2013
  * 6th Annual SoFiE Conference, National University of Singapore, Singapore, June 2013

Paul Belleflamme

· *Crowdfunding: tapping the right crowd*
  * 7th Workshop on Economic Design and Institutions, Université Saint-Louis, Brussels, Belgium, November 2012
  * Thema, Université de Cergy-Pontoise, France, February 2013
  * Hong-Kong University of Science and Technology (HKUST) Business School, Hong-Kong, March 2013

· *TIC, transparence et concurrence. Les consommateurs sont-ils gagnants?*
  * Interfaculty course "Regards croisés sur la société de l'information", Université de Namur, Belgium, February and April 2013

· *Microeconomics 2.0: Understanding internet and digital economy*
  * Université de Liège 2013 Francqui Chair, Belgium, from March to April 2013

· *Intellection property and competition policy*
  * Advanced Master (L.LM) Competition Law and Economics, Brussels School of Competition, Belgium, from April to May 2013

· *Crowfunding: untagging its potential, reducing the risks*
  * European Commission, Brussels, Belgium, May 2013

Constantin Blome

· *The cost/innovation trade-off in sourcing: the interplay of culture, governance and ambidexterity*
  * Decision Sciences Institute Annual Meeting 2012, San Francisco (CA), USA, November 2012

· *When does customer integration make sense? The impact of organizational structure and context*
  * Decision Sciences Institute Annual Meeting 2012, San Francisco (CA), USA, November 2012

· *Antecedents of supplier innovation: the impact of descriptive capacity*
  * Decision Sciences Institute Annual Meeting 2012, San Francisco (CA), USA, November 2012

· *Managing indirect supplier relations: the implementation of sustainability in extended supply chains*
  * OPERA/GEM Seminar, Rijksuniversiteit Groningen, The Netherlands, February 2013
  * 2013 Annual Meeting of the Academy of Management: Capitalism in Question, Orlando (FL), USA, August 2013

Stéphane Bouché

· *Habits in consumption, pollution accumulation and intergenerational inequalities*
  * 14th Annual Conference of the Association for Public Economic Theory (PET 2013), Católica Lisbon School of Economics, Portugal, July 2013

Thierry Bréchet

· *Energy transition and land planning*
  * Université de Valenciennes et du Hainaut-Cambrésis, Valenciennes, France, June 2013

Chiara Canta

· *Efficiency access and the mixed delivery of health care services*
  * Boston University (MA), USA, October 2012
  * Toulouse School of Economics, France, November 2012
  * 37th Simposio de la Asociación Española de Economia, CEMFI e Universidad Internacional Menéndez Pelayo, Santander, Spain, December 2013

Philippe Chevalier

· *Introducing mixed loss and queueing systems: a new kind of multi-skill model*
  * INFORMS Annual Meeting, Phoenix (AZ), USA, October 2012

· *Managing the unreliable client*
  * POMS 2013: 24th Annual POMS Conference, Denver (CO), USA, May 2013

· *Group buying platforms: leveraging the crowd effect in the virtual world*
  * EURO/INFORMS 26th European Conference on Operational Research, Roma, Italy, July 2013

Nguyen Thang Dao

· *Can geographical factors lock a society in stagnation*
  * Warwick Economics PhD Conference 2013, University of Warwick, United Kingdom, March 2013

· *Technology, gender inequality, and fertility*
  * 22nd European Workshop on General Equilibrium Theory, Universität Wien, Austria, May-June 2013
  * 14th Annual Conference of the Association for Public Economic Theory (PET 2013), Católica Lisbon School of Business & Economics, Portugal, July 2013

· *From agriculture to manufacture: how does geography matter?*
  * 13th SAET Conference on Current Trends in Economics, Mines ParisTech, France, July 2013

Claude d'Aspremont

· *Hawks and doves in segmented markets: a formal approach to competitive aggressiveness*
  * Université du Luxembourg, Luxembourg, January 2013

· *On some welfare criteria for justice within and between generations*
  * Université de Strasbourg, France, January 2013

Julio Davila

· *Optimal productivity*
  * 22nd European Workshop on General Equilibrium Theory, Universität Wien, Austria, May-June 2013

· *Optimal population and education*
  * China Meeting of the Econometric Society, Beijing University, Beijing, China, June 2013

  * 14th Annual Conference of the Association for Public Economic Theory (PET 2013), Católica Lisbon School of Business & Economics, Universidade Católica Portuguesa, Lisboa, Portugal, July 2013

Koen Decancq

· *Assortative mating and long-term trends in US households earnings inequality*
  * ECSR/EQUALSOC Conference: "Economic change, Quality of Life and Social Cohesion", Stockholm Universitetet, Sweden, September 2012

· *What do normative indices of multidimensional inequality really measure?*
  * AMSE Workshop: "The Multiple Dimensions of Inequality", Aix-Marseille School of Economics, January 2013

· *Inequality, income and well-being*
  * Workshop HID2, Paris School of Economics, Paris, April 2013

· *Multidimensional poverty measurement: shouldn't we take preferences into account?*
  * CAGE (Competitive Advantage in the Global Economy) Interim Conference 2013, University of Warwick, United Kingdom, May 2013
  * FMSH-CEM Workshop: "On welfare and preferences", Maison des Sciences de l'Homme, Paris, France, June 2013
  * 5th meeting of the Society for the Study of Economic Inequality (ECINEQ), Università degli Studi di Bari Aldo Moro, Italy, June 2013

· *Beyond GDP: Measuring social progress in Europe*
  * Worskhop on "Measuring Human Development", United Nations Development Programme, Deutsche Gesellschaft für Internationale Zusammenarbeit, Frankfurt, Germany, June 2013

Benoît Decerf

· *Combining efficiency and equality objectives when distributing resources among other-regarding agents*
  * CEREC Seminar, Université Saint-Louis, Brussels, June 2013
  * New Directions in Welfare III – 2013 OECD-Universities Joint Conference: "Economics for a Better World", July 2013
  * 5th meeting of the Society for the Study of Economic Inequality (ECINEQ), Università degli Studi di Bari Aldo Moro, Italy, July 2013

Pierre Dehez

· *How to share joint liability: a cooperative game approach*
  * EQUIPPE, Universités de Lille, France, October 2012

· *The Shapley value as a guide to FRAND licensing agreements*
  * Università degli Studi di Pisa, Italy, December 2012
  * SING 9, Universidade de Vigo, Spain, July 2013

David DE LA CROIX

· *The longevity of famous people from Hammurabi to Einstein*
  * Pontifical University Rio de Janeiro, Brazil, September 2012
  * Universidade de São Paulo, Brazil, September 2012
  * 2012 Cologne Workshop on Macroeconomics, Universität zu Köln, October 2012
  * Allied Social Science Associations (ASSA) Annual Meeting, San Diego (CA), USA, January 2013
  * Growth conference "Deep Determinants of International Comparative Development", Brown University, Providence (RI), USA , May 2013

· *Dinks, dewks and co. marriage, fertility and childness in the US*
  * Universidade de São Paulo, Brazil, September 2012
  * International Food Policy Research Institute, Washington (DC), USA, May 2013

· *From polygamy to serial monogamy: a unified theory of marriage institutions*
  * Universität zu Köln, Germany, October 2012
  * Brown University, Providence (RI), USA, April 2013
  * Overlapping Generations Days, Ecole d'Economie, Université d'Auvergne, Clermont-Ferrand, France, April 2013

· *Apprenticeship and technological progress in the Malthusian world*
  * Barcelona GSE Summer Forum, Graduate School of Economics, Barcelona, June 2013
  * 2013 Annual Meeting of the Society of Economic Dynamics, Yonsei University, Seoul, Korea, June 2013

· *Does fertility respond to incentives and does it matter?*
  * 9th Meeting of the Working Group on Macroeconomic Aspects of Intergenerational Transfers, Universitat de Barcelona, Spain, June 2013

Jean-Charles DELVENNE

· *Entropy rank and free-energy rank: centrality measures for large networks*
  * European Conference on Complex Systems (ECCS'12), Université Libre de Bruxelles, Brussels, Belgium, September 2012

· *Consensus, communities and centralities for large networks*
  * University of California at Santa Barbara (CA), USA, April 2013
  * University of California at San Diego (CA), USA, April 2013

  * California Institute of Technology, Pasadena (CA), USA, April 2013
  * Massachusetts Institute of Technology, Boston (MA), USA, May 2013

Jacques DRÈZE

· *Fiscal integration and growth stimulation in Europe: three policy proposals*
  * Barcelona GSE Lecture Series, Graduate School of Economics, Barcelona, Spain, March 2013

· *Existence and multiplicity of temporary equilibria under nominal price rigidities*
  * International Conference: "Instability and Public Policies in a Globalized World: Conference in honor of Jean-Michel Grandmont", GREQAM, Université d'Aix-Marseille, May 2013

Arnaud DUFAYS

· *Infinite-state Markov-switching for dynamic volatility and correlation models*
  * 38th Simposio de la Asociación Española de Economia, CEMFI e Universidad Internacional Menéndez Pelayo, Santander, Spain, December 2013
  * 5th International Conference of the ERCIM WG on Computing and Statistics (ERCIM'12), Conference Centre, Oviedo, Spain, December 2012

Mery FERRANDO

· *Cash transfers and school outcomes: the case of Uruguay*
  * 5th meeting of the Society for the Study of Economic Inequality (ECINEQ), Università degli Studi di Bari Aldo Moro, Italy, June 2013
  * Internal IMMAQ Workshop on Endogeneity, ISBA, UCL, Belgium, June 2013

Manuel FÖRSTER

· *Ordered weighted averaging in social networks*
  * CEREC Seminar, Université Saint-Louis, Brussels, Belgium, December 2012

· *Anonymous social influence*
  * Université Paris 1, France, January 2013
  * 18th Coalition Theory Network Workshop, University of Warwick, United Kingdom, February 2013
  * 4th International Workshop on "Models of Influence and Network Theory" and Tinbergen Workshop on Economic Theory and Game Theory (MINT4), Tinbergen Institute, Amsterdam, The Netherlands

· *Trust and manipulation in social networks*
  * 8th Workshop on Economic Design and Institutions, Université Saint-Louis, Brussels, Belgium, May 2013

* 14th Annual Conference of the Association for Public Economic Theory (PET 2013), Católica Lisbon School of Business & Economics, Universidade Católica Portuguesa, Lisboa, Portugal, July 2013

Jean GABSZEWICZ

· *Nesting horizontal and vertical product differentiation*
  * Università degli Studi di Firenze, Italy, October 2012
  * UECE Lisbon Meetings 2012: Game Theory and Applications, Universidade Técnica de Lisboa, October 2012

· *Platform competition in a market where cross network externalities induce vertical differentiation*
  * 11th International Industrial Organization Conference, Boston (MA), USA, May 2012

· *Nesting horizontal and vertical product differentiation*
  * 3rd GAEL Conference "Product differentiation and Innovation on Related Markets", Université Pierre-Mendès-France, Grenoble, France, June 2013

Axel GAUTIER

· *Strategic bypass deterrence*
  * 10th Annual International Industrial Organization Conference, Georges Mason University, Washington (DC), USA, March 2012

· *Reforming the postal universal service*
  * 7th Postal Conference on the Economics of the Postal Sector in a Digital World, Toulouse School of Economics, France, March 2012

Victor GINSBURGH

· *Competing for prizes and awards*
  * University of Kyoto, Japan, December 2012
  * University of Tokyo, Japan, December 2012
  * Université Libre de Bruxelles, Brussels, Belgium, January 2013
  * Telecom ParisTech, France, June 2013

· *The economics of literary translations*
  * Ural Federal University, Ekaterinburgh, Russia, January 2013

· *Some economics of music festivals*
  * Ars Musica, Brussels, Belgium, March 2013

· *Shapley ranking of wines*
  * University of Adelaide, Australia, March 2013
  * McQuarie University, Sydney, Australia, March 2013

· *Peut-on mesurer la qualité esthétique d'une oeuvre d'art?*
  * Université d'Angers, France, May 2013

François GLINEUR

· *Towards an optimal method for convex optimization using an inexact first-order oracle*
  * Massachusetts Institute of Technology, Cambridge (MA), USA, November 2012
  * One-day Conference on Selected Topics in Optimization, Faculté Polytechnique de Mons, Belgium, April 2013

· *A geometric lower bound for the nonnegative rank*
  * Dagstuhl Seminar 13082 "Communication Complexity, Linear Optimization, and Lower Bounds for the Nonnegative Rank of Matrices, Leibniz-Zentrum für Informatik, Waden, Germany, February 2013

· *Second-order cone representations of positive semidefinite cones*
  * 4th SDP (semidefinite programming) Days, Centrum voor Wiskunde en Informatica, Amsterdam, The Netherlands, March 2013
  * Massachusetts Institute of Technology, Cambridge (MA), USA, June 2013

· *Convergence of First-order Methods with Inexact Information*
  * 11th Europt Workshop on Advances in Continuous Optimization (EUROPT 2013), Universita' degli Studi di Firenze, Italy, June 2013

Christian HAFNER

· *Volatility of price indices for heterogeneous goods*
  * Luxembourg School of Finance, Luxembourg, September 2012
  * Universität Mannheim, Germany, December 2012

· *An almost closed form estimator for the EGARCH Model*
  * Econometric Institute, Erasmus Universiteit Rotterdam, The Netherlands, May 2013

Adel HATAMI-MARBINI

· *Consistent and robust ranking in imprecise DEA*
  * Workshop in honor of C.A. Knox Lovell-Honorary doctorate, Université de Liège, Liège, March 2013

· *Determination of weak efficiency frontiers in fuzzy data envelopment analysis*
  * 6th International Conference of Iranian Operations Research Society, Iranian Operations Research Society, Teheran, Iran, May 2013

· *Measuring modeling productivity in education: state-of-the-art and research frontiers*
  * 11th International Conference on Data Envelopment Analysis, DEA 2013, Samsun, Turkey, June 2013

· *Centralized resource reduction and target setting under DEA control*
  * 11th International Conference on Data Envelopment Analysis, DEA 2013, Samsun, Turkey, June 2013

Jean HINDRIKS

· *Optimal terms limits*
  * Conference on "The End of Federalism?", Freie Universität Berlin, Germany, October 2012

Claudia HUPKAU

· *Affirmative action and reputation*
  * CRED (Centre de Recherche en Economie du Développement) Workshop, Université de Namur, Belgium, December 2012

Jonathan JONES

· *Does size matter? LUTI models, policy evaluations and the scale effect*
  * 5th Belgian Geographical Day "Geography as an Interdisciplinary Science", GEOG, UCL, Belgium, May 2013

· *Scale effect biases in policy evaluation by LUTI models*
  * 2013 BIVEC-GIBET Transport Research Day, Walferdange, Luxembourg, May 2013

· Influence des effets d'échelles sur l'évaluation des projets par modèles LUTI
  * 50eme Colloque de l'Association des Sciences Régionales de Langue Française (ASRDLF), UCL-Mons, July 2013

Stéphane LAMBRECHT

· *L'apport des modèles de croissance à générations à l'analyse des inégalités éducatives*
  * Chaire Transitions Démographiques, Transitions Economiques, Caisse des Dépôts et Consignations, Université Paris Dauphine et Fondation du Risque, Paris, France, 2013

Marion LETURCQ

· *Do bankers prefer married couples? Marital status and credit constraints in France*
  * ESPE (European Society for Population Economics) Conference 2013, Aarhus Universitet, Denmark, June 2013

· *Marital status and mortgage in France: do unmarried couples pay a risk premium?*
  * 5th Meeting of the Society for the Study of Economic Inequality (ECINEQ), Università degli Studi di Bari Aldo Moro, Italy, June 2013

François MANIQUET

· *Multidimensional poverty measurement: shouldn't we take preferences int account?*
  * University of Sussex, Brighton, United Kingdom, February 2013
  * New Directions in Welfare III – 2013 OECD-Universities Joint Conference: "Economics for a Better World", July 2013

Ana MAULEON

· *Dominance invariant roommate problems*
  * UECE Lisbon Meetings 2012: Game Theory and Applications, Universidade Técnica de Lisboa, October 2012
  * Bordeaux Economic Theory Workshop on Interactions, Institutions and Design, Université Montesquieu Bordeaux IV, France, May 2013

· *Contractually stable alliances*
  * Conference on Networks and Externalities, Louisiana State University, Baton Rouge (LA), USA, February 2013
  * 14th Annual Conference of the Association for Public Economic Theory (PET 2013), Católica Lisbon School of Business & Economics, Universidade Católica Portuguesa, Lisboa, Portugal, July 2013

Florian MAYNERIS

· *Trade in quality and income distribution*
  * Higher School of Economics, St-Petersburg, Russia, September 2012

· *High-end variety exporters defying distance: micro facts and macro implications*
  * Higher School of Economics, St-Petersburg, Russia, September 2012
  * European Trade Study Group Conference 2012, KU Leuven, Belgium, September 2012
  * Erasmus Universiteit Rotterdam, The Netherlands, October 2012
  * Université de Lausanne, Switzerland, November 2012
  * IRES, UCL, Belgium, January 2013
  * International Monetary Fund, Washington (DC), USA, April 2013
  * Midwest International Economics Conference, Aast Lansing (MA), USA, April 2013
  * 9th Danish International Economics Workshop, Aarhus Universitet, Denmark, May 2013
  * Belgian Trade Economics Workshop, Antwerp, Belgium, May 2013

Tanja MLINAR

· *Capacity sharing among firms facing price and time sensitive demand*
  * POMS 2013: 24th Annual POMS Conference, Denver (CO), USA, May 2013

· *Acceptance policies for multiple demand classes with heterogeneous lead times*
  * POMS 2013: 24th Annual POMS Conference, Denver (CO), USA, May 2013

Juan D. MORENO-TERNERO

· *Fair allocation of disputed properties*
  * 9th Meeting of the Spanish Network for Social Choice, Salamanca, Spain, November 2012
  * Universidad de Sevilla, Spain, January 2013
  * Universidad de Valencia, Spain, April 2013

· *A new axiomatic approach for the evaluation of population health*
  * Nova School of Business and Economics, Lisboa, Portugal, December 2012
  * 37 Simposio de Analisis Economico, Vigo, Spain, December 2012
  * 8th Workshop on Social Decisions, Malaga, Spain, January 2013

· *On the measurement of the (multidimensional) inequality of health distributions*
  * Public Economic Theory Meeting, Lisboa, Portugal, July 2013
  * Society of Economic Design Meeting, Lund, Sweden, July 2013

Pascal MOSSAY

· *Existence and uniqueness of equilibrium for a spatial model of social interactions*
  * Tokyo Workshop on Spatial Economics, Research Institute of Economy, Trade & Industry, Tokyo, Japan, March 2013

Michel MOUCHART

· *On an overview of the work developed in Louvain-la-Neuve on the statistical aspects of causality*
  * Universitetet i Oslo, Norway, October 2012

· *A structural modeling approach to mediators, moderators and confounders, a counterfactual-free approach*
  * Università di Bologna, Italy, May 2013

Margherita NEGRI

· *An axiomatic approach to the measurement of ethnic voting*
  * 2nd Workshop on "Institutions, Individual Behavior and Economic Outcomes", Alghero, Italy, June 2013

Yurii NESTEROV

· *Finding the stationary states of Markov chains by iterative methods*
  * International Workshop on Statistics and Optimization, Les Houches, France, January 2013

· *Subgradient methods for huge-scale optimization problems*
  * International Workshop on Advances in Regularization, Optimization, Kernel Methods and Support Vector Machines: Theory and Applications (ROKS 2013), Leuven, Belgium, July 2013
  * The Fourth International Conference on Continuous Optimization (ICCOPT 2013), Universidade Nova de Lisboa, August 2013

Vladyslav NORA

· *Saddle functions and robust sets of equilibria*
  * International Conference on Game Theory, Stony Brook University (NY), USA, July 2013

Dimitri PAOLINI

· *Education race, supply of skills and the wage skill premium*
  * Università della Basilicata, Matera, Italy, October 2012

· *Tax treaties and the allocation of taxing rights with developing countries*
  * Católica Lisbon School of Business & Economics, Universidade Católica Portuguesa, Lisboa, Portugal, July 2013

Anthony PAPAVASILIOU

· *Applying high performance computing to multi-area stochastic unit commitment for renewable integration*
  * Future Energy Markets project Kikchoff Meeting, Danmarks Tekniske Universitet, Copenhagen, Denmark, May 2013
  * National Technical University of Athens, Greece, June 2013
  * 26th European Conference on Operational Research, Università degli Studi di Roma "La Sapienza", Italy, July 2013

· *A Comparative Study of Stochastic Unit Commitment and Security-Constrained Unit Commitment Using High Performance Computing*
  * European Control Conference 2013 (ECC13), Eidgenössische Technische Hochschule Zürich, Zwitzerland, July 2013

· *Managing uncertainty in power system and market operations, comparison between stochastic and robust optimization*
  * 2013 Power & Energy Society General Meeting, Vancouver, Canada, July 2013

· *An application of high performance computing to transmission switching*
  * IREP 2013 Symposium: Bulk Power System Dynamics and Control Symposium, Rethymnon, Greece, August, 2013

Mathieu PARENTI

· *International trade: David and Goliath*
  * Mannheim Universität, Germany, October 2012
  * University of Oxford, United Kingdom, February 2013
  * Université Libre de Bruxelles, Brussels, Belgium, March 2013
  * 9th International Economics Danish Workshop, Aahrus Universitet, Denmark, May 2013
  * Université de Namur, Belgium, June 2013
· *Monopolistic competition when atoms are not "too" big*
  * Higher School of Economics, St Petersburg, Russia, June 2013
  * 62nd Annual Meeting of the French Economic Association, Aix-Marseille School of Economics, France, June 2013

Pierre PESTIEAU

· *The economics of long term care. A survey*
  * Grande Conférence CIRPÉE 2012: "Perspectives internationales sur l'économie du vieillissement/International Perspectives on the Economics of Aging", Université du Québec à Montréal, Canada, October 2012
  * Second Toulouse-SCOR Conference on Long Term Care, Toulouse School of Economics, France, November 2012
· *Long term care and uncertain altruism*
  * Università di Lugano, Italy, December 2012
  * Universidad de Los Andes, Bogota, Colombia, January 2013
  * Paris School of Economics, France, February 2013
  * Université du Québec à Montréal, Canada, May 2013
· *The policy implications of changing longevity*
  * Concordia University CEPEG meeting, Montréal, Canada, November 2012
  * Universidad del Rosario, Bogota, Colombia, January 2013
· *Harsh occupation, longevity and social security*
  * CESifo Public Economics Workshop, Münich, Germany, April 2013
· *Means-tested LTC and family transfers*
  * 14th Annual Conference of the Association for Public Economic Theory (PET 2013), Católica Lisbon School of Business & Economics, Universidade Católica Portuguesa, Lisboa, Portugal, July 2013

Paolo PIACQUADIO

· *On ranking intergenerational allocations in risky environments*
  * European Winter Meeting of the Econometric Society, Universität Konstanz, Germany, November 2012
  * 38 Simposio de la Asociación Española de Economia, Santander, Spain, December 2012
  * Royal Economic Society (RES) PhD Presentation Meeting, Queen Mary, University of London, January 2013
  * Université Laval, Canada, January 2013
  * Universitetet i Oslo, Norway, January 2013
  * University of St Andrews, United Kingdom, January 2013
  * AFSE Job Market Meeting, Université de Strasbourg, France, January 2013
  * Santa Clara University (CA), USA, February 2013
  * 12eme Journées Louis-André Gérard-Varet, Aix-Marseille School of Economics, France, June 2013

Pierre PICARD

· *Trade, geography and the choice of product quality*
  * 14th ETSG (European Trade Study Group) Conference, KU Leuven, Belgium, September 2012
  * 2nd International Conference "Industrial Organization and Spatial Economics, St Petersburg, Russia, June 2013
· *On the quality of patent systems and patent offices*
  * 7th Annual Conference of the EPIP (European Policy for Intellectual Property) Association, KU Leuven, Belgium, September 2012
· *State owned firms: private debt, cost revelation and welfare*
  * University of California at Irvine (CA), USA, November 2012
· *Spatial segregation and urban structure*
  * 2012 North American Meetings of the Regional Science Association International, Ottawa, Canada, November 2012
  * Tokyo Workshop on Spatial Economics, Research Institute of Economy, Trade & Industry, Tokyo, Japan, March 2013
· *Sustainable migration policies*
  * Universidad Carlos III de Madrid, Spain, December 2012
  * Université de Cergy-Pontoise, France, January 2013

· *Social interactions, social capital and urban structure*
  * 14th Annual Conference of the Association for Public Economic Theory (PET 2013), Católica Lisbon School of Business & Economics, Universidade Católica Portuguesa, Lisboa, Portugal, July 2013

Andrew Pua

· *Applying projected scores to panel data models*
  * Tinbergen Institute, Amsterdam, The Netherlands, November 2012
  * 6th CSDA International Conference on Computational and Financial Econometrics (CFE 2012), Oviedo, Spain, December 2012

· *Responses to the incidental parameter problem*
  * Workshop on Panel Data and Incidental Parameters, KU Leuven, Belgium, April 2013

· *The projected score approach to bias reduction in panel data models*
  * Panel Data Workshop, Universiteit van Amsterdam, The Netherlands, June 2013

Erik Schokkaert

· *Choisir dans le système de soins de santé. L'apport de la justice sociale*
  * Séminaire Parlementaire Haute Autorité de la Santé, Paris, November 2012

· *Choice, preferences and responsibility for lifestyle: can health inequalities ever be just?*
  * 34e Journées des Economistes de la Santé Français, Université de Reims Champagne-Ardennes, France, December 2012

· *Support for solidarity and social structure*
  * Workshop "Equality of Opportunity" Universidad Autonoma de Barcelona, Spain, December 2012

· *Empirical social choice: why and how*
  * Université d'Aix-Marseille, France, January 2013

· *Behavioral welfare economics and redistribution*
  * Université de Montpellier, France, January 2013
  * London School of Economics, United Kingdom, May 2013

· *Health inequalities and responsibility for lifestyle*
  * CEPS-INSTEAD Research Seminar. Interlabs II–Doctoral Day: Challenges and Opportunities for the Welfare State in the face of Population Ageing, Esch-sur-Alzette, Luxembourg, March 2013

· *Solidarity and innovation in health care: the consequences of taboos*
  * London School of Economics, United Kingdom, March 2013

· *Beyond GDP. Measuring Social Progress in Europe*
  * Workshop on "Well-being and Preferences", Paris, France, June 2013
  * Workshop on "Measuring Well-Being in The UK, Europe and OECD Countries", London School of Economics, United Kingdom, June 2013

Fahimeh Shamsaei

· *Integrated production planning and preventive maintenance for a single machine*
  * INFORMS Annual Meeting, Phoenix (AZ), USA, October 2012

Vladimir Shikhman

· *On jet-convex functions and their tensor products*
  * ORBEL 27, Conference of the Belgian Operational Research Society, Kortrijk, Belgium, February 2013

· *On structure and computation of generalized Nash equilibria*
  * Symposium on Variational Inequalities and PDE-constrained Optimization, Berlin, Germany, February 2013
  * 11th Europt Workshop on Advances in Continuous Optimization (EUROPT 2013), Universita' degli Studi di Firenze, Italy, June 2013

· *On intrinsic complexity of bilevel optimization*
  * 4th International Conference on Continuous Optimization (ICCOPT 2013), Universidade Nova de Lisboa, Portugal

Yves Smeers

· *Equilibrium based two stage stochastic analysis of imperfect wind forecast*
  * EURO/INFORMS 26th European Conference on Operational Research, Roma, Italy, July 2013

Jacques Thisse

· *New theories of imperfect competition*
  * 2nd CARIPLO Annual Lecture, Università degli Studi di Milano, Italy, October 2012

· *Competition among the big and the small*
  * Banca d'Italia, Roma, Italy, April 2013

· *How to make the metropolitan area work: neither big government, nor laissez-faire*
  * CRETA Seminar, University of Warwick, United Kingdom, May 2013

Isabelle THOMAS

- *Predicting cycling accident risk in Brussels: a spatial case-control approach*
  * 25th ICTCT (International Co-operation on Theories and Concepts in Traffic Safety) Workshop, Universiteit Hasselt, Belgium, November 2012

- *Does space matter? Some Belgian examples*
  * ECRU, UCL, Belgium, November 2012

- *Ville amie des aînés? Un espace de dialogue scientifique? Le point de vue du géographe*
  * CRIV, UCL, Belgium, December 2012

- *Est du Brabant Wallon une preuve par cartes*
  * La ruralité en Région Branbançonne se Questionne, GAL Culturalité en Hesbaye brabançonne asbl, Jodoigne, May 2013

- *On the optimal delineation of urban agglomerations: a fractal solution and its application to the largest Belgian cities*
  * 5th Belgian Geographical Day "Geography as an Interdisciplinary Science", GEOG, UCL, Belgium, May 2013

- *Spatial biases in LUTI models estimations and their consequences. Some illustrations with Brussels*
  * 2013 BIVEC-GIBET Transport Research Day, Walferdange, Luxembourg, May 2013

- *Géographie(s) d'un mode lent: usages et risques en Belgique*
  * Plateforme Belge en Matière de Sécurité Routière, Louvain-la-Neuve, May 2013

- *Are LUTI models results geographically robust? Some illustrations with Brussels*
  * Nectar 2012 International Conference "Dynamics of Global and Local Networks", São Miguel Island, Azores, Portugal, June 2013

Henry TULKENS

- *Climate dynamics, economic dynamics, negotiations dynamics*
  * Workshop on the Economics of Climate Change, Collège de France, Paris, France, October 2012

- *Comparing coalitional stability properties of four environmental integrated assessment models*
  * International Workshop "Numerical Climate Coalition Models: A Modelling Comparison Exercise", Fondazione ENI Enrico Mattei, Venezia, Italy, January 2013

- *Evolution of coalitions in a game theoretic interpretation of the UNFCCC process*
  * Fondazione ENI Enrico Mattei, Venezia, Italy, June 2013

Sébastien VAN BELLEGEM

- *Instrumental variable estimation in high dimensional models*
  * EEA-ESEM 2013: Congress Programme, Göteborgs Universitet, Sweden, August 2013

Dirk VAN DE GAER

- *Principles and concepts*
  * Doctoral Workshop on "Equality of Opportunity: From Principles to Policy", Universiteit van Antwerpen, Belgium, December 2012

- *Empirical approaches to inequality of opportunity: principles, measures and evidence*
  * New Directions for Welfare Economics Conference "Economics for a Better World", OECD, Paris, France, July 2013

- *History dependent growth incidence: a characterization and an application to the economic crisis in Italy*
  * 5th meeting of the Society for the Study of Economic Inequality (ECINEQ), Università degli Studi di Bari Aldo Moro, Italy, June 2013

Vincent VANNETELBOSCH

- *Bargaining and delay in trading networks*
  * UECE Lisbon Meetings 2012: Game Theory and Applications, Universidade Técnica de Lisboa, October 2012
  * 11th Workshop on Networks in Economics and Sociology, Universiteit Utrecht, The Netherlands, June 2013

- *Contractually stable alliances*
  * Bordeaux Economic Theory Workshop on Interactions, Institutions and Design, Université Montesquieu Bordeaux IV, France, May 2013

- *Stable networks and limited farsightedness*
  * 14th Annual Conference of the Association for Public Economic Theory (PET 2013), Católica Lisbon School of Business & Economics, Universidade Católica Portuguesa, Lisboa, Portugal, July 2013

Mathieu VAN VYVE

- *Linear prices in non-convex electricity markets: formulations and algorithms*
  * KU Leuven, Belgium, October 2012
  * INFORMS Annual Meeting, Phoenix (AZ), USA, October 2012

- *Network models and their influence on market prices in power markets*
  * Electrabel Seminar, Brussels, Belgium, March 2013

· *A new formulation of the European day-ahead electricity market model*

  * 2013 Mixed Integer Programming Workshop, University of Wisconsin, Madison (WI), USA, July 2013

· *Online economic lot-sizing*

  * 4th International Workshop on Lot-Sizing (IWLS 2013), Brussels, Belgium, August 2013

Xavier WAUTHY

· *Is vertical differentiation robust to Bertrand-Edgeworth competition?*

  * Universitá degli Studi di Firenze, Italy, May 2013

Laurence WOLSEY

· *On general cutting planes for IP and MIP*

  * 1st Workshop on the Paths of Combinatorial Optimization in Portugal, Sabrosa, Portugal, September 2012

· *Improving the formulation and solution of mixed integer optimization models: some examples*

  * Universidade de Coimbra, Portugal, November 2012

· *Aspect of inventory routing*

  * Tepper School of Business, Carnegie Mellon University, Pittsburgh (PA), USA, February 2013

  * Ecole Polytechnique Fédérale de Lausanne, Switzerland, June 2013

· *Covering linear programs with violations*

  * ORBEL 27, Conference of the Belgian Operational Research Society, Kortrijk, Belgium, February 2013

· *On the facets of continuous Knapsack constraints*

  * Eidgenössische Technische Hochschule Zürich, Zwitzerland, May 2013

  * 2013 Mixed Integer Programming Workshop, University of Wisconsin, Madison (WI), USA, July 2013

Yukai YANG

· *Testing constancy of the error covariance matrix using a spectral decomposition and a parametric alternative in vector models*

  * NBER-NSF Time Series Conference, Texas A&M University (TX),USA, October 2012

  * 23rd (EC)^2-Conference, Universiteit Maastricht, The Netherlands, December 2012

7

RESEARCH PROJECTS UNDER CONTRACTS

GDF-Suez Chair: Energy Economics and Management of Energy Risk

The purpose of this grant is to support research on the management of risk in energy markets. Potential topics of research include methodical approaches to short-term scheduling (stochastic/robust/reliability constrained unit commitment), generation expansion planning, modeling risk aversion, optimal operation of combined cycle units, optimal positioning in gas forward markets, as well as optimal topology control and investment planning in transmission networks. GdF-Suez funds the Chair. Research is done at CORE and in ISBA (as partners within IMMAQ). Claude D'ASPREMONT (CORE, UCL), Francis DELANNAY (EPL, UCL), Pierre DEVOLDER (ISBA, UCL) and Anthony PAPAVASILIOU (CORE, UCL) are in charge of the implementation.

George BABAJAN (ISBA, UCL) is working under the scope of this project.

GSK BIOLOGICALS CHAIR IN STRATEGIC SOURCING AND PROCUREMENT

The chair covers research, applied research, teaching and outreach in the field dedicated to sourcing and procurement. Furthermore, the chair aims to establish an internationally visible center for researchers in the field.

Per AGRELL (CORE, UCL), Constantin BLOME (CORE, UCL) and Philippe CHEVALIER (CORE, UCL) coordinate this project sponsored by GSK Vaccine, Belgium.

ONLINE COMBINATORIAL OPTIMIZATION

The overall objective of our proposal is to make a significant contribution to the theory and practice of online combinatorial optimization. We consider two major directions:

- Algorithmic. The design and analysis of efficient algorithms for online combinatorial optimization problems that arise in real-world applications.

- Complexity. The study of the limits in the efficiency of certain problems.

For both objectives, we need to define measures of efficiency. In analysis of algorithms, an important measure of performance is running time. Fortunately, prohibitive running times are not very frequent with online algorithms, as they are typically defined through a simple and fast update operation that is executed whenever a new element of the input arrives. At the same time, it is often easy to analyze the asymptotic running time of online algorithms using the standard Turing machine model of computation. Online algorithms usually have running times that are comparable to those obtained with an offline algorithm, if we ignore the time between arrivals. Sometimes, they are even faster because they do not require reporting the optimal solution.

However, the most important metric in online algorithms is not related to running time, but to the uncertainty in the (not yet revealed) input. We are interested in online algorithms

whose output is close (in objective value) to the one achievable with full access to the input. The way to measure the impact of this uncertainty depends on the assumptions about the input.

Claudio Telha Corneja (CORE, UCL) is working under the scope of this FSR project supervised by Mathieu Van Vyve (CORE, UCL).

Beyond Incentive Regulation

The project focuses at the challenges faced by national regulatory authorities developing innovative solutions to ensure efficient operation and investment by firms while addressing service quality dimensions. The topic is especially relevant for both private and public stakeholders due to the integration of smart grid technology in the conventional electricity networks under environmental pressure and economic constraints.

Per Agrell (CORE, UCL), Axel Gautier (Université de Liège and CORE) and Sergio Perelman (Université de Liège) are the promoters of this project financed by the Fonds National de la Recherche Scientifique.

Control and Optimization of Networked Systems with Poorly Understood Couplings

The deployment of wind turbines has experienced a dramatic increase over the recent years, and wind power is expected to represent a significant part of the electricity production in the future. For practical and economical reasons, it is often advantageous to deploy several wind turbines in a same location, in a "wind farm". Certain of these farms contain up to 100 turbines.

The complex couplings and interactions between turbines in these farms create new challenges in control and optimization (and indeed in fluid dynamics): in order to produce electricity, a turbine takes energy from the wind, which may decrease the strength of the wind arriving at some of the other turbine, and create complex perturbations and turbulences. In this context, nothing guarantees that a selfish maximization of each turbine's production is globally optimal, and indeed current simulation results show that it is not. Similar problems arise when one is trying to stabilize the production of the wind farm under varying conditions, in order to avoid sharp variations on the electricity network. Understanding exactly how to control or optimize the production of these farms is challenging, as the coupling between the turbines involve very complex fluid dynamics phenomena, the accurate simulation of which is already an important research subject on its own. In particular, it appears that an accurate simulation of the interferences taking place in a large farm will be beyond reach for long, and would be extraordinarily costly from a computation point of view. On the other hand, a range of simplified models are available, but it is unclear

how their (in)accuracy may affect the performances of the control laws relying on them. On the one hand it would not make sense for the control law should not be able to take all dynamical effects into account (wind speed is a very fast-varying input, and pitch actuators have a very limited speed), and on the other hand, the model should be accurate enough to allow the controller to be robust to its prediction faults.

Our research goal is to develop control and optimization methods for such networked systems with unknown or poorly understood coupling, which is thus directly related to wind farms.

This research is financed by the FNRS under a FRIA project and is coordinated by Jean Hendrickx (INMA, UCL) and François Glineur (CORE and INMA, UCL). Adrien Taylor (INMA, UCL) works under the scope of this project.

High Dimensional Econometrics

High dimensional models arise today in a lot of economic studies. In a linear regression model, for instance, it corresponds to the situation where the number of covariates is large, i.e. close or larger than the sample size. In a multivariate time series setting, high dimensionality refers to the high number of time series that are studied jointly. Due to the ease of data collection today, the empirical researcher faces more frequently such large data sets. High dimensionality also appears in linear models when the covariate is not a random variable but a random function. Examples are given by the spot electricity prices that are observed continuously over time, or fertility curves used in development economics to measure the density of birth rate over mother's age.

The wide availability of large data sets has increased the hope to address empirically major substantive questions. In the two cited examples, they are, for instance, the impact of electricity spot price on future contracts or the impact of the shift in fertility curve on economic growth. However, these new promising directions of research are also hampered by several major methodological obstacles. Classical methods of modeling and inference (such as, e.g. estimation by GLS) are not robust to a large increase in the dimension of the econometric model.

The goal of the present research program is to address a number of those methodological obstacles, in view of providing workable and theoretically justified econometric methods and efficient inferential tools. In particular, the program is organized around three interlocking aspects : the failure of stationarity in time series collection, the modelling of large dimensional covariance matrices and the endogeneity of covariates in high dimensional regression.

This research is financed by the FNRS under a FRESH project and is coordinated by Sébastien Van Bellegem (CORE, UCL). Monalisa Sen (CORE, UCL) worked under the scope of this project.

GAME THEORETIC APPROACHES IN SUPPLY CHAIN MANAGEMENT

The project aims at developing modelling and experimental approaches for strat
haviour in supply chains using cooperative game theory. Relatively little positive v
been published in the area of game theory in supply chain coordination, in spite c
identified opportunities for applications (limited number of well-defined strategic
makers, observable decisions of durable character, repeated interaction, etc).

Felix SOMMER is working under the scope of this project at CORE coordinated
AGRELL (CORE, UCL) and Constantin BLOME (CORE, UCL) and financed by tl
National de la Recherche Scientifique (FNRS).

OPTIMAL FERTILITY, HEALTH AND EDUCATION IN MARKET ECONOMIES

The research program aims at identifying policies that allow improving the stea
efficiency and welfare upon the laissez-faire market outcome. This is achieved e:
the externalities existing between the households' decisions on savings, fertility, hea
education on their own incomes at the aggregate level. Such externalities are disreg:
households at the market equilibrium under laissez-faire, which creates room for impr
through policy intervention.

Julio DAVILA (CORE, UCL) is the promoter of this project financed by the Fonds
de la Recherche Scientifique.

STOCHASTIC MODELLING OF DEPENDENCE: SYSTEMS UNDER STRESS

The project concerns fundamental research on statistical and econometric models fo
dence. The aim of the project is to construct new ways of measuring and modell
in systems with intricate dependence structures. Particular attention is to be paid
systems upon the arrival of shocks, after structural breaks; or when comovements
risk factors are higher than usual.

Johan SEGERS (ISBA, UCL) is the promoter of this project also coordinated by Luc B
(CORE, UCL), Michel DENUIT, Christian HAFNER (ISBA, UCL), Sébastien VAN BF
(CORE, UCL) and Rainer VON SACHS (ISBA, UCL). This Actions de Recherche Cc
(ARC) project is financed by the Communauté française de Belgique.

MANAGEMENT OF SHARED RESOURCES IN SUPPLY CHAINS

Supply Chain Management (SCM) is widely recognized as the largest source of potent
in efficiency for the operations of organizations. It has also been the subject of many
in the scientific literature, in the field of Operations Management, Operations Resea
Economy. The main lesson from SCM is that it is no longer enough for organiza

think about their own operations, they should take into account all other organizations that participate in the same value creation chain.

The emphasis until now has been on sharing information and co-ordinating flows of goods between organizations. This has led to new ways of organizing operations and new contracts between organizations since companies have recognized that there is a direct link between the performance of supply chains and the availability and quality of timely information.

Thus shared resources in a supply chain are of very different natures. They range from the most mundane such as pallets or boxes to transport goods between different participants in the supply chain, to shared factories that entail large investments or shared intellectual property.

The Centre de Recherches d'Etudes en Gestion Industrielle (CREGI) from the Facultés universitaires catholiques de Mons (FUCAM) is taking part in this Actions de Recherches Concertées (ARC) project financed by the Communauté française de Belgique. The research is coordinated by Per AGRELL (CORE, UCL), Philippe CHEVALIER (CORE, UCL), Jean-Sébastien TANCREZ (LSM, UCL) and Mathieu VAN VYVE (CORE, UCL). Adel HATAMI-MARBINI, Tanguy KEGELART, Wenly PENG, Fahimeh SHAMSAEI and Vladimir SHIKHMAN are working under the scope of this project at CORE.

COMBINATORIAL OPTIMIZATION: METAHEURISTICS AND EXACT METHODS (COMEX)

The main objectives of this project are:

· Bring together the available Belgian expertise on combinatorial optimization problems, exploit synergies between the partner research groups, and create a network with a sufficient mass to attract young and experienced top-level scientists in Belgium, and further financing for research in the field.

· Train young researchers in the field of combinatorial optimization. These profiles are in high demand, both in academic research centers worldwide and in private organizations.

· Develop new models, algorithmic techniques and implementations for complex, large-scale combinatorial optimization problems.

· Develop new international collaborations with other large teams working in the field of combinatorial optimization. An active and recognized Belgian network would facilitate international collaborations, in particular in the framework of large scale international projects.

Successful achievement of these objectives will lead to (i) a number of important, fundamental research contributions, (ii) a significant impact on the different sectors where combinatorial optimization problems arise, and (iii) to a considerable added value for the Belgian economy.

This project is supported by the Belgian Science Policy under a Research project P7/36. Claudio TELHA CORNEJA worked under the scope of this project coordinated by Mathieu VAN VYVE (CORE, UCL).

POVERTY, RESOURCE EQUALITY, AND SOCIAL POLICIES (PORESP)

This project aims at revisiting the economics of poverty by using recent advances in welfare economics. First, poverty measurement theory is enriched by taking account of individual preferences over the several dimensions of poverty. New poverty indices are defined. They are applied using panel data of material standard of living and subjective satisfaction to study the recent evolution of poverty in developed societies. Second, the ethical value of poverty reduction is added to theories of social welfare based on equality of opportunities. New evaluation criteria of taxation policies are derived. Third, extreme poverty is redefined by introducing views of social identity and feelings of self-esteem or shame. That requires modeling poverty by taking account of the interactions between poor agents and the providers of social services aimed at benefiting the poor. These models are used to better understand why anti-poverty policies often fail to reach the poor, and, consequently, why poverty is so persistent in developed societies.

This project is financed by the European Research Council and coordinated by François MANIQUET (CORE, UCL). Mery FERRANDO, Claudia HUPKAU, Marion LETURCQ, Dirk NEUMANN and Eve RAMAEKERS are working under the scope of this project at CORE.

ACCESSIBILITY INSTRUMENTS FOR PLANNING PRACTICE IN EUROPE

Accessibility concepts are increasingly acknowledged as fundamental to understand the functioning of cities and urban regions. In particular, accessibility instruments are able to provide a framework for understanding the reciprocal relationships between land use and mobility. Such a framework has important potential advantages when transferred to the realm of urban planning. However, despite the large number of instruments available in literature, they are not widely used to support urban planning practices. Significant benefits are expected, both in terms of process – the establishment of bridges between scholars and practitioners from different approaches and different domains – and in terms of results – insights on how to improve the relevance of accessibility instruments for urban planning practices.

This project is supported by the EU RTD framework and coordinated at CORE by Isabelle THOMAS .

MICRO-SIMULATION FOR THE PROSPECTIVE OF SUSTAINABLE CITIES IN EUROPE (SUSTAINCITY)

The main goal of this project is to address the modelling and computational issues of integrating modern mobility simulations with the latest micro-simulation land use models. The project intends to advance the state-of-the-art in the field of the micro-simulation of prospective integrated models of Land-Use and Transport. On the modelling side, the main challenges are to integrate a demographic evolution module, to add an environmental module, to improve the overall consistency and, last, but not least, to deal with the multi-scale aspects of the problem: several time horizons and spatial resolutions are involved.

This project is financed by the European Commission and coordinated at CORE by Isabelle THOMAS. Camille COTTEELS is working under the scope of this project at CORE.

MIXED-INTEGER NONLINEAR OPTIMIZATION (MINO)

Complex decision making in enterprises should involve mathematical optimization methods, because a best choice has to be made out of a huge number of feasible options. A mathematical description of such decision processes typically involves both continuous and discrete decisions. If the latter are present, the customary modelling approach is to use integer variables, which are also used to represent all possible nonlinearities, so that the remaining part of the model is linear. This leads to Mixed-Integer Linear Optimization (MILO) problems, which can be handled nowadays by many packages, but are often very difficult to solve.

Difficulty of MILO problems is often due to the fact that objective functions or constraints that are structurally nonlinear (e.g., quadratic) are linearized by introducing new integer variables. In many cases, it was observed that this is not the best way to proceed, as facing the nonlinearity directly without the new variables leads to much better results. Algorithmic technology for the resulting Mixed-Integer Nonlinear Optimization (MINO) problems is still at its early stage.

The present situation is that enterprises facing a MINO problem generally give up due to the lack of efficient solvers, or try to convert it to a MILO one often too hard to be solved in practice. On the other hand, in the academia there is now an increasing expertise in MINO, which is however hardly exported outside due to the lack of interaction with the industrial world. It is the purpose of this project to help satisfy the increasing demand for highly qualified researchers receiving, at the same time, a state-of-the-art scientific training from the academia and hands-on experience with real-world applications from the industry.

The researchers formed within this project, once recruited by an enterprise at the end of their training, will have the potential to apply all the available knowledge to optimize complex decision making in the real-world.

This project is financed by the European Commission on the scope of an ITN (Networks for Initial Training). Andrea LODI (Università di Bologna) is the investigator of the project, coordinated at CORE by François GLINEUR, Yurii NESTEROV, Mathieu VAN VYVE and Laurence WOLSEY.

ENERGETIC TRANSITION

This project aims at shaping potential energy perspectives in Wallonia in the long run. The methodology is interdisciplinary, qualitative and quantitative. The objective is to scrutinize the impacts of such energy transitions on the society.

This project is financed by CLIMACT in collaboration with the Federal Planning Bureau, l'Institut de Conseil et d'Etudes en Développement Durable (ICEDD), l'Institut pour un Développement Durable (IDD) and the LENTIC (Université de Liège). At CORE this project is coordinated by Thierry BRÉCHET.

DYNAMIC RESPONSE AS PROVIDER OF ANCILLARY SERVICES

Electricity demand response has the potential of providing flexibility for enhanced reliability of power systems operations and improved efficiency of electricity markets. This project aims at studying the impact and integration of demand response into the Belgian electricity market and system, especially for the provision of ancillary services.

This project sponsored by the "Région bruxelloise" is coordinated by François GLINEUR (CORE, UCL) and Emmanuel DEJAEGER (ICTM, UCL). Arnaud LATIERS is working under the scope of this project at CORE.

CLIPPER: EUROSTAR PROJECT ON THE DEVELOPMENT OF A PRICING SOFTWARE TO OPTIMIZE CUSTOMER LIFETIME VALUE IN SECTORS SUCH AS TELECOMS AND BANKS

The project's goal is to develop a CLIPPER price optimization software with innovate targeted applications in telecom, banking, insurance and energy (gas, electricity, ...). In response to recent economic changes, the role of information and communication technologies (ICT) as an economic driver has become very important. ICT's provide the key to improve competitiveness. A critical aspect is the efficiency of decision making and, in particular, pricing.

The main objective of the project is the creation, analysis, deployment of an innovative software package to maximize the "Customer Lifetime Value" on each transaction, focusing on telecommunications and the mobile network operators (MNO) with retail banking applications for B2C and B2B segments. CLIPPER will be the first software on the market that consider the Customer Lifetime Value in pricing strategies, including a significant economic impact on the focused sectors.

This project sponsored by the European Commission and the Région Wallonne is coordinated by Sébastien VAN BELLEGEM (CORE, UCL) and Mathieu VAN VYVE (CORE, UCL). Yukai YANG is working under the scope of this project.

SECURE MULTIPARTY COMPUTATION

Camus intends to facilitate the collaboration between people/companies with diverging interests aiming to reach a common objective. In many contexts, competitors, or partners negotiating a commercial transaction, need to settle together a set of values: a selling price, a production volume, the use time of a common resource, ... Determining optimal values for these parameters often implies sharing a lot of information (actual production costs, preferred periods, ...), and the negotiating partners tend to be reluctant to reveal this information. In practice, this behaviour results in a suboptimal parametrization which may be harmful in particular for small or emerging actors.

It is the ambition of Camus to solve this problem through techniques emulating a "virtual trusted third party": the project will define communication protocols allowing a group of actors to behave as if a trusted third party were present: everybody would act as if he was providing this virtual trusted third party with all his confidential information. The third party would use it only to compute the desired result and then reveal the expected optimization result, and nothing more.

This project is sponsored by the Région Wallonne and coordinated by Sébastien BRUNET (IWEPS, Namur, Belgium), Olivier PEREIRA (EPL, UCL) and Mathieu VAN VYVE (CORE, UCL). Aly ABDELRAHAM is working under the scope of this project at CORE.

STRATEGIC TOOL OF THE MANAGEMENT OF THE MINING ACTIVITY IN WALLONIA

This project will develop a methodology to evaluate the socio-economic impact of mining operations in Wallonia. The goal is to help better understand the impact on employment, added value and CO_2 emissions through the upstream and downstream supply chain linked to mining.

This project sponsored by the "Région Wallonne" is coordinated by Philippe CHEVALIER (CORE, UCL). Ignace ADANT is working under the scope of this project at CORE.

TERRITORIAL PLANNING AND ENERGY TRANSITION 2050

The purpose of this project is to explore the interplay between territorial planning and energy transition in a long term perspective (2050) in the Walloon Region. The project is interdisciplinary as it combines methodological tools and concepts coming from geography, urban planning, economics, scenario analysis, and linear programming.

The project sponsored by the Région Wallonne is coordinated by Thierry BRÉCHET (CORE, UCL), Yves HANIN (LOCI, UCL), Dominique PEETERS (CORE, UCL), Fiorella QUADU (LOCI, UCL). Simon VERELST (CORE, UCL) and Véronique ROUSSEAUX (LOCI, UCL) are working under the scope of this project.

EUROPEAN DOCTORATE IN ECONOMICS ERASMUS MUNDUS (EDEEM)

EDEEM is a research-oriented programme and aims to produce top-quality researchers, who will gain international experience working within the research units with some of Europe's leading researchers in economics. Students are trained for positions in academia at the international level as well as for responsible positions in government, research organizations, and business enterprises. High focus is made on research work, publication and presentation, with dedicated Jamborees and Summer Schools being an integral part of the training. This programme gathers the following universities: Universiteit Amsterdam, Universität Bielefeld, Universidade Nova de Lisboa, Université catholique de Louvain, Université Paris 1, Ecole des Hautes Etudies en Sciences Sociales (Paris), Università Ca'Foscari Venezia.

François MANIQUET (CORE, UCL) coordinates this project. Benoît DECERF, Amrita DIMRI, Manuel FÖRSTER, Claudia HUPKAU and Andrew PUA are currently enrolled in this programme at CORE.

ADVANCES IN BEHAVIORAL ECONOMICS, GENDER AND GROWTH

The objective of this research is twofold. First, we plan to develop a theoretical framework that allows us to study which networks and coalitions will be formed when individual and collective incentives could be in conflict. In addition, it is crucial to understand which networks and coalitions are likely to emerge if agents do not have full information about the network and coalition structure and are neither myopic nor farsighted but have limited ability to forecast the future. Will limited information lead to persistence of networks and coalition structures that differ from those that would arise under full information? Does imperfect monitoring affect network and coalition formation differently than under incomplete information? We will test through different experiments alternative theories of behavior in situations where group and network effects play an important role. We will also run experiments in order to disentangle the role of imperfect monitoring and incomplete information in network and coalition formation problems. Second, we will study the efficiency of different forms of collaboration among heterogeneous agents in situations where agents are part of a network and belong to coalitions. We will also analyze the role of group and network effects in the design of optimal school choice mechanisms and of more effective policies to address persistent inequalities and mismatch in the labor market.

The project is financed by the Spanish Ministry of Economy and Computation. Ana MAULEON (Université Saint-Louis, Brussels and CORE) and Vincent VANNETELBOSCH (CORE, UCL) are working under this project.

THE ANALYSIS OF ECONOMIC PERFORMANCE

The project aims at developing consolidated non-parametric efficient and productivity measures for the analysis of economic performance, both under regulation and competition.

The project is financed by the Spanish Ministry of Science and Education. Per AGRELL (CORE, UCL) and professor GRIFELL-TATJE (Universitat Autonoma Barcelona) coordinate this project.

NONNEGATIVE, POSITIVE SEMIDEFINITE AND CONE RANKS: ALGEBRAIC, GEOMETRIC, AND COMPLEXITY ASPECTS

The goal of this MISTI proposal is for the PIs to collaborate on a project on algebraic, geometric and computational aspects of nonnegative rank and its generalizations. This is a subject of high importance in optimization and combinatorics, and on which both PIs have been working independently during the last few years. We plan to bring together our expertise in mathematical optimization, computational semi algebraic geometry, numerical methods, and engineering system theory.

Our main goals are

- to extend current formulations using the recently developed idea of "cone factorizations",
- to develop efficient techniques for providing bounds on cone ranks,
- to propose numerical methods for the computation of (approximate) factorizations, and
- to investigate the applicability of the methods in diverse domains such as image processing and machine learning.

François GLINEUR (CORE, UCL) and Pablo PARRILO (Massachusetts Institute of Technology) are the investigators of this "MIT-Belgium UCL" seed fund.

■ People

• Yearly average per 10 year period

Period	Professors	Assistants Ph.D. students Researchers	Long-and short- term visitors	Administration
1966–1975	14	15	26	4
1976–1985	20	29	45	6
1986–1995	26	40	56	8
1966–2005	32	43	84	10

• Recent yearly numbers

Period	Professors	Assistants Ph.D. students Researchers	Long-and short- term visitors	Administration
2005–2006	40	53	91	9
2006–2007	38	47	119	12
2007–2008	36	54	73	15
2008–2009	38	57	96	14
2009–2010	42	55	75	14
2010–2011	42	38	108	11
2011–2012	42	30	67	10
2012–2013	43	36	77	10

■ Publications

• Yearly average per 10 year period

Period	Discussion Papers	Books	Published papers	Theses
1966–1975	32	1	24	2
1976–1985	47	1	53	2
1986–1995	62	5	69	5
1996–2005	78	4	105	7

- **Recent yearly numbers**

Period	Discussion Papers	Books	Published papers	Theses
2005–2006	118	8	129	9
2006–2007	115	6	133	12
2007–2008	82	1	133	8
2008–2009	84	5	128	7
2009–2010	86	6	172	6
2010–2011	81	11	166	8
2011–2012	63	7	117	6
2012–2013	64	6	106	6
total of the 47 years	2805	154	4480	220

■ SEMINARS, CONFERENCES AND CONTRACTS

- **Yearly average per 10 year period**

Period	Seminars			Conferences	Yearly contracts
	Economics	Econometrics	Operations Research		
1996–1975	26	15	17	0	4
1976–1985	48	22	24	2	6
1986–1995	79	25	26	4	13
1996–2005	94	22	21	5	15

- **Recent yearly numbers**

Period	Seminars			Conferences	Yearly contracts
	Economics	Econometrics	Operations Research		
2005–2006	81	30	20	10	12
2006–2007	79	32	27	7	16
2007–2008	83	28	19	4	27
2008–2009	80	35	24	6	38
2009–2010	78	28	19	11	41
2010–2011	69	26	41	13	35
2011–2012	79	25	27	7	22
2012–2013	58	21	31	8	25
total of the 47 years	3052	1083	1071	177	580

All details can be found on the CORE webpage (http://www.uclouvain.be/en-core).

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