

TABLE OF CONTENTS

Presentation -----	1
1. Personnel -----	7
2. Research Activities -----	31
3. Publications -----	73
4. CORE Lecture Series -----	101
5. IMMAQ Lecture Series -----	105
6. Seminars & Workshops-----	109
7. Doctoral Training -----	121
8. Meetings held at CORE or co-organized by CORE Members -----	135
9. Invited Seminars by CORE Members -----	153
10. Academic Visits of CORE Members-----	163
11. Conferences attended by CORE Members -----	167
Statistical Appendix-----	179

PRESENTATION

Founded in 1966, the **Center for Operations Research and Econometrics (CORE)** is an interdisciplinary and interfaculty research center of the Université catholique de Louvain. In 2010 CORE became one of the poles of IMMAQ, a multisectorial 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). These three poles develop and use in their various fields of expertise a coherent set of tools and methods for quantitative modelling and analysis. Within IMMAQ, CORE has kept its own identity, with its own research policy, affiliated researchers and administrative staff.

CORE's main objectives are the development of scientific research in the fields of economic theory, game theory, operations research and econometrics; the training of young researchers at the doctoral and postdoctoral stages of their career; and the promotion of inter-university and international scientific exchanges and collaborations. This report gives an overview of these activities for the period (mid)2010 – (mid)2011. 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>) and on the CORE-website (<http://www.uclouvain.be/en-core.html>).

RESEARCH

CORE's activities integrate fundamental and applied research; they are oriented towards theoretical and methodological research that aims at providing frameworks for the analysis of a wide range of decision problems arising from economic policy and the management of private and public firms; developments in the theory of optimization and statistics contributing to the solution of design and decision problems; the development of computational tools (algorithms and software) and their use in empirical studies. The emphasis is on interactive work with a solid theoretical basis and unified by mathematical modeling and reasoning.

Section 2 describes the recent research output, as it has been published in the CORE Discussion Papers. To stimulate intellectual exchange within CORE, these Discussion Papers are subject to a soft internal refereeing process. CORE's research covers a wide variety of topics and is classified according to the following research domains: econometric theory, econometrics of financial markets, energy economics, environmental economics, game theory, industrial organization, macroeconomic policies, mathematical finance, microeconomic theory, optimization methods and operations research, public and welfare economics, supply chain management, trade and economic geography. In 2010-2011, 166 papers have been published in scientific journals, of which 125 have been included in the CORE Reprints Series (see Section 3). These activities are supported by CORE's participation in a long list of research projects and joint contracts, financed by different institutions (the University, the Belgian Federal Government and the Belgian French Community, the European Commission and private partners).

Weekly research seminars in the fields of Econometrics, Economic Theory, Mathematical Programming, Trade and Economic Geography allow CORE members and visitors to present their work and share ideas. In addition, there are regular workshops on Welfare Economics and on Game Theory and a reading seminar in Operations Research. To foster the scientific collaboration within ECORE, a joint CORE-ECARES seminar is organized where researchers from CORE present their work at ECARES and vice versa. More information on all these seminars for the period 2010-2011 is given in Section 6. Finally, within the context of IMMAQ a Lecture Series is organized on a theme that is of common interest to the three research entities involved. Last year that common theme was "Health" (Section 5).

In addition to these regular activities, CORE has organized again a series of workshops and conferences. Two of these workshops deserve special attention, as they have been organized in honour of CORE-members that have retired this year: Claude D'ASPREMONT, Jean-François MERTENS and Etienne LOUTE. It is a real pleasure to thank them for their important contributions to CORE in the past. Fortunately, we are sure that they will remain scientifically very active in the years to come. Moreover, while some CORE-members are retiring, there are also newcomers. This year we could welcome Pierre PICARD and Sebastien VAN BELLEGEM as new Faculty Members.

TRAINING

Training of young researchers is an important facet of CORE's activities. About 25 students are completing their doctoral studies under the supervision of CORE members (see section 7). During the academic year 2009-2010, eight students have defended their PhD theses. CORE serves as a host institution for the European Doctoral Program in Quantitative Economics and participates in the European Doctorate in Economics Erasmus Mundus (EDEEM), coordinated by University of Paris Panthéon-Sorbonne.

A noteworthy feature of the doctoral training at CORE is the organization (together with ECARES) of the ECORE Summer School. The topic for 2011 was "Market failure and market design" and the invited lecturers were Douglas BERNHEIM (Stanford), Vincent CRAWFORD (Oxford) and Parag PATHAK (MIT). More than 130 doctoral students from all over the world attended this Summer School and many of them could present their own work in smaller parallel sessions.

Since 1989, CORE organizes regularly the CORE Lecture Series. These lectures are given by young internationally renowned scientists in one of the research areas of interest to the members of the Centre. In 2010-2011 Jan EECKHOUT (University of Pennsylvania and Universitat Pompeu Fabra, Barcelona) has lectured on "Matching, sorting and screening".

SCIENTIFIC EXCHANGES

One of the main features of CORE since its very foundation has been its focus on developing interuniversity 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. The list of visitors is included in section 1 of this report.

CORE could never have become the lively, stimulating and hospitable research environment it is today without its efficient and friendly administrative 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.

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

Erik SCHOKKAERT

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 2011-2012
- OTHER ITEMS

■ MANAGEMENT

Officers for the period covered by this report:

President	Luc BAUWENS
Research Director	Erik SCHOKKAERT
Co-directors	Philippe CHEVALIER Vincent VANNETELBOSCH
Executive Director	Francisco SANTANA FERRA

■ THE FACULTY

During the academic year 2010-2011, the permanent staff of CORE consisted of **FACULTY MEMBERS** of the Université catholique de Louvain (UCL), Katholieke Universiteit Leuven (KUL), the Université Libre de Bruxelles, Brussels (ULB), the Facultés Universitaires Saint-Louis, Brussels (FUSL), the Université de Liège (ULG), and the Facultés Universitaires Notre-Dame de la Paix, Namur (FUNDP).

PER AGRELL

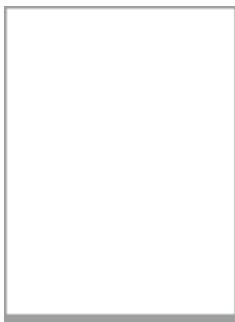
Professor, Université catholique de Louvain (Louvain School of Management, Louvain-la-Neuve campus), Belgium; senior researcher, Fondazione Eni Enrico Mattei (FEEM).

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 Autònoma de Barcelona, Spain, 2008; president, Louvain School of Management Research Institute (ILSM), UCL, 2010-present.

Operations management (supply chain management, network regulation).

Associate editor, *International Journal of Production Economics*.





ANTON BARTEN

Professor emeritus, Katholieke Universiteit Leuven and Université catholique de Louvain, Belgium.

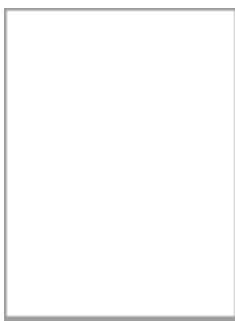
Ph.D. (economische wetenschappen), Nederlandse Economische School, Rotterdam, The Netherlands, 1966.

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

(IL), USA, 1969-1970.

Econometrics and macroeconomic models.

Fellow of the Econometric Society, 1980; member of the International Statistical Institute, 1977; 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 et politiques, Ecole des sciences économiques), Belgium.

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

World Bank, Washington (DC), USA, 1983-1984; senior researcher at Facultés Catholiques de Mons, Belgium, 1984-1987; senior lecturer at Ecole des Hautes Etudes en Sciences Sociales (EHESS), Marseille, France, 1987-1991.

Econometrics and statistics.

Leonard J. Savage Thesis Award, 1984; chairman, Département des sciences économiques, Université catholique de Louvain, Belgium, 2000-2003; Francqui Chair, Facultés Universitaires Notre-Dame de la Paix, Namur, Belgium, 2005-2006; research director, CORE, Université catholique de Louvain, Belgium, 2006-2009; president, CORE, Université catholique de Louvain, Belgium, 2010 – to date.

Associate editor, *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), Munich, Germany; member of the board of AIDE (Association Internationale de Droit Economique).

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.

Microeconomics (industrial organization, game theory).

Associate editor, *E-conomics*.



RAOUF BOUCEKKINE

Professor, Université catholique de Louvain (Faculté des sciences économiques, sociales et politiques, Ecole des sciences économiques), Belgium and GREQAM, Université d'Aix-Marseille II, France.

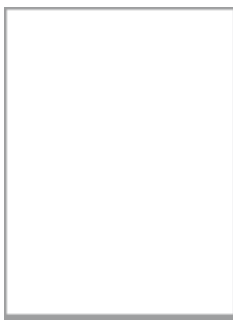
Docteur en sciences économiques, Université Paris Panthéon-Sorbonne, France, 1993.

Assistant and Associate professor, Universidad Carlos III de Madrid, Spain, 1993-1998; visiting professor, Université Louis Pasteur, Strasbourg, France, 2000-2003; Katholieke Universiteit Leuven, Belgium, 2001-2005; HEC-Paris, France, 2003-2007; GREQAM, Université d'Aix-Marseille, France, 2010.

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

Associate editor, *Annales d'Economie et Statistique*, *Journal of Public Economic Theory*, *Macroeconomic Dynamics*, *Mathematical Population Studies*, and *Mathematical Social Sciences*.



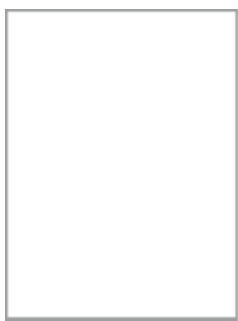


THIERRY BRÉCHET

Professor, Université catholique de Louvain (Louvain School of Management, Louvain-la-Neuve campus), Belgium; holder of the Chair Lhoist Berghmans in Environmental Economics and Management.

Docteur en sciences économiques, Université Paris Panthéon-Sorbonne, France, 2000.

Environmental economics.



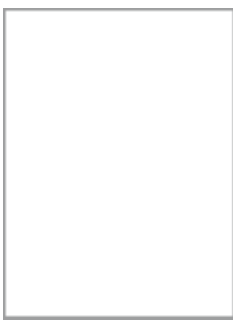
PHILIPPE CHEVALIER

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

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

Associate Professor, Universidad de Chile, 1992-1994; co-director, CORE, Université catholique de Louvain, Belgium, 2009-present.

Operations research: stochastic models, supply chain and management.



CLAUDE D'ASPREMONT

Professor, Université catholique de Louvain (Faculté des sciences économiques, sociales et politiques, Ecole des sciences économiques), Belgium and Facultés universitaires Saint-Louis, Brussels, Belgium.

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; visiting scholar, Graduate School of Business, Stanford (CA), USA, Summer 1987 and Spring 1995.

Mathematical economics, social choice theory, industrial organization.

Chairman, Département des Sciences Economiques, Université catholique de Louvain, Belgium, 1991-1994; research director, CORE, Université catholique de Louvain, Belgium, 1995-1998; fellow of the Econometric Society, 1984; Francqui Prize 1995; Doctor Honoris Causa, Université Louis Pasteur, Strasbourg, France, 2002; president, CORE, Université catholique de Louvain, Belgium, 2006-2010; president IMMAQ, Université catholique de Louvain, Belgium, 2009-2010.

Associate editor, *Games and Economic Behavior*, *Journal of Mathematical Economics*, *Journal of Public Economic Theory*, *Revue de Philosophie Economique* and *Social Choice and Welfare*.

JULIO DAVILA

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

Docteur en sciences économiques, Ecole des Hautes Etudes en Sciences Sociales (EHESS), Paris, France, 1994.

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

Economic theory and game theory.

PIERRE DEHEZ

Professor, University of Louvain (School of Economics), Belgium.

Doctoral degree in Economics, University of Louvain, 1980 (European Doctoral Program in Quantitative Economics-EDP).

Professor: European University Institute, Florence, Italy, 1983-1990 and Erasmus Universiteit Rotterdam, The Netherlands, 1991-1992.

Visiting professor: University of Mannheim, University of Illinois, University of Namur, University of Bonn, University of Cergy-Pontoise, University of Strasbourg, University of Nancy, University of Pisa.

Cooperative game theory.

Chairman, Department of Economics, University of Louvain, 1994-2000; European University Institute (Florence), 1985-1987 and 1989; prorektor in charge of the sector of human and social sciences, University of Louvain, 2001-2004.



DAVID DE LA CROIX

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

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

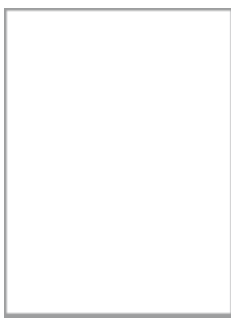
Research fellow, Universiteit Maastricht, The Netherlands, 1992; visiting professor, University of California, Los Angeles (CA), USA,

2000-2001.

Growth theory, human capital and demography, overlapping generations.

Franqui Chair, Gent Universiteit, Belgium, 2004; chercheur qualifié honoraire, Fonds National de la Recherche Scientifique (FNRS), Belgium.

Associate editor of *Journal of Public Economic Theory* and *Journal of Economic Dynamics and Control*.



JACQUES DRÈZE

Professor emeritus, Université catholique de Louvain, Belgium.

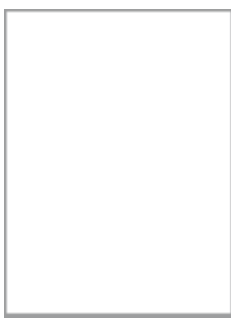
Ph.D. (economics), Columbia University, New York (NY), USA, 1958.

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

Economic theory and econometrics.

Fellow, 1964 and president, 1970 of the Econometric Society;

Franqui Chair, Université Libre de Bruxelles, Brussels, Belgium, 1970-1971 and Katholieke Universiteit 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.



LOUIS EECKHOUDT

Professor emeritus, Facultés Universitaires Catholiques de Mons, Belgium.

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

Decisions under risk and health economics.

Associate editor *Geneva Risk and Insurance Review*, *Journal of Risk and Insurance*, and *Revue Economique*.

JEAN J. GABSZEWICZ

Professor emeritus, Université catholique de Louvain, Belgium.

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, Warsaw, Poland, 1973; University of Tel-Aviv, Israël, 1973; Université de Paris Dauphine, France, 1973; Université d'Aix-Marseille II, 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 de Paris Panthéon-Sorbonne, France, 1999-2000; Université de Paris Panthéon-Assas, France, 1999-2001.

Economic theory.

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.

Past associate editor *Journal of Economics*, *Ricerche Economiche*, *Journal of Economic Theory*, and *European Economic Review*.

VICTOR GINSBURGH

Professor emeritus, Université Libre de Bruxelles, Brussels, Belgium.

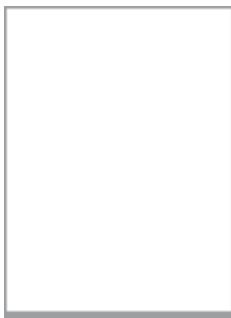
Docteur en sciences économiques, Université Libre de Bruxelles, Brussels, Belgium, 1972.

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 (VA), USA, 1979; Université Paris 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.

Economic theory, cultural economics, economics of languages.

Franqui 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.

Co-editor, *Journal of Wine Economics*; associate editor, *Recherches Economiques de Louvain - Louvain Economic Review*; past associate editor, *Annales d'Economie et de Statistique*, *European Economic Review*, and *Journal of Cultural Economics*.



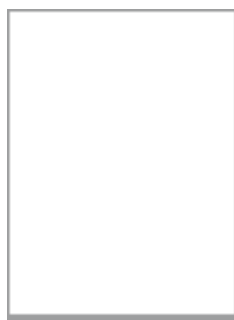
PIERRE GIOT

Professor, Facultés Universitaires Notre-Dame de la Paix, Namur, Belgium.

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 Panthéon-Sorbonne, France, 2002.

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

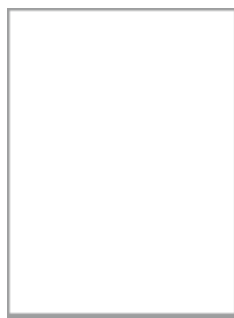


FRANÇOIS GLINEUR

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

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

Optimization (algorithms and modeling, in particular convex optimization, conic optimization, duality and interior-point methods).



CHRISTIAN HAFNER

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

Ph.D. in Economics, Humboldt-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 Sciences, UCL, 2010 – to date.

Econometrics and statistics.

Associate editor, *Banking and Finance Review*, *Computational Statistics*, and *Studies in Nonlinear Dynamics and Econometrics*.

JEAN HINDRIKS

Professor, Université catholique de Louvain (Faculté des sciences économiques, sociales et politiques, Ecole des sciences économiques), Belgium; Senior fellow, Itinera Institute, Brussels, Belgium.

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

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.

Public economics and political economy.

Associate editor, *Journal of Public Economic Theory* and *Fiscal Studies*.

SÉBASTIEN LAURENT

Associate Professor in econometrics, Maastricht University, The Netherlands.

Ph.D. in Financial Econometrics, Maastricht University, The Netherlands, 2002.

Visiting professor at Université catholique de Louvain, Belgium, 2001 – to date.

Financial econometrics, modeling volatility and risk, computational econometrics.

ETIENNE LOUTE

Professor, Facultés Universitaires Saint-Louis, Brussels, (Louvain School of Management, Brussels campus), Belgium.

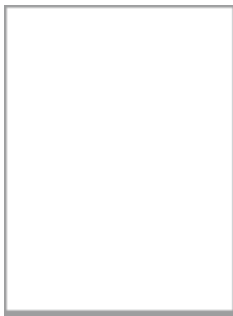
Docteur en sciences appliquées, Université catholique de Louvain, Belgium, 1976.

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.

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

Dean, Faculté des sciences économiques et politiques, Facultés Universitaires Saint-Louis, Brussels, Belgium, 1993-1996; President of SOGESCI (2004-2006), Director of Louvain School of

Management, Brussels campus, Belgium, 2007—to date, member of INFORMS, SIAM, SOGESCI, and Mathematical Programming Society.



FRANÇOIS MANIQUET

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

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

Microeconomic theory (social choice theory, public economics).

Chercheur qualifié honoraire, Fonds National de la Recherche Scientifique (FNRS), Belgium.

Chair Francqui 2009-2010 at Facultés Universitaires Saint-Louis, Brussels, Belgium; Francqui Prize, 2010.

Editor, *Economics and Philosophy*; co-editor, *Mathematical Social Sciences and Social Choice and Welfare*.



ANA MAULEON

Chercheur qualifié, Fonds de la Recherche Scientifique (FNRS), Belgium, and associate professor at the Facultés Universitaires Saint-Louis (Faculté des sciences économiques, sociales et politiques), Brussels, Belgium.

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

Co-director of the Center for Research in Economics (CEREC), 2008-to date, Facultés Universitaires Saint-Louis, Brussels, Belgium.

Game theory and industrial organization.



JEAN-FRANÇOIS MERTENS

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

Docteur en sciences, Université catholique de Louvain, Belgium, 1970.

Visiting professor, Universität Heidelberg, Germany, 1970; Hebrew University of Jerusalem, Israël, 1970 and 2001; University of California, Berkeley (CA), USA, 1971 and 1972-1975, Universität

Bielefeld, Germany, 1972; Harvard Business School, Boston (MA), USA, 1981; leading professor of economics and of applied mathematics, S.U.N.Y. at Stony Brook (NY), USA, 1989-1992.

Economic theory and game theory.

Fellow of the Econometric Society, 1981.

Past editor, *Journal of Mathematical Economics*, *International Journal of Game Theory*, and *Economic Theory*.

MICHEL MOUCHART

Professor emeritus, Université catholique de Louvain, Belgium.

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

International professor CIENES, Santiago, Chili, 1966-1967; visiting professor, University of 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), USA, 1985; Université des Sciences Sociales de Toulouse, France, 1991-1993; Université de Paris Panthéon-Sorbonne, France, 1993-1994.

Statistics and econometrics.

Member of the International Statistical Institute, Bernouilli Society, Société Belge de Statistique.

YURII NESTEROV

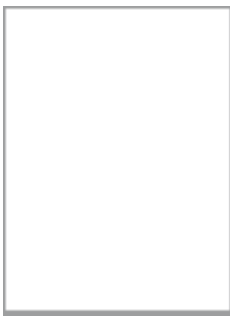
Professor, Université catholique de Louvain (Ecole Polytechnique de Louvain, Pôle en ingénierie mathématique), Belgium.

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, 1977-1992; visiting professor, Université de Genève, Switzerland, 1992-1993; invited professor, CORE, Université catholique de Louvain, Belgium, 1993-2000.

Dantzig Prize, 2000; John Von Neumann Theory Prize, 2009; Best Paper Award, Optimization Methods and Software, 2010; EUROPT fellow, 2010.

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



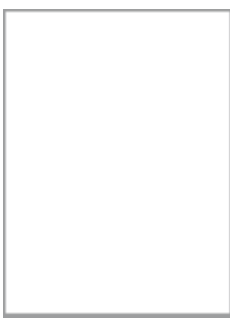
DOMINIQUE PEETERS

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

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

Post-doctoral fellow, McMaster University, Hamilton, Ontario, Canada, 1982; visiting professor, Université du Québec, Montréal, Canada, 1986; Université de Bourgogne, France, 1991; University of Tsukuba, Japan, 1996-1997; Université Louis Pasteur, Strasbourg, France, 2006.

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



PIERRE PESTIEAU

Professor emeritus, Université de Liège, Belgium.

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

Assistant professor, Cornell University, Ithaca (NY), USA, 1971-1976.

Population economics and public economics.

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, University of Luxembourg.

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

Research Fellow, Facultés Universitaires Notre-Dame de la Paix, Namur, Belgium, 1999; Lecturer and Senior Lecturer in Economics, School of Economic Studies, University of Manchester, 1999-2003, 2003-2008. CEPR Junior Fellow, 2001-2003; CORE Associate Fellow,

2002-2011; member of the European Economic Association, Research affiliate, Institute for the Study of Labor.

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

ERIK SCHOKKAERT

Professor, Katholieke Universiteit Leuven, Belgium.

Ph.D. (economics), Katholieke Universiteit 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; research director, CORE, Université catholique de Louvain, Belgium, 2009-2011.

Public economics, health economics, social choice.

Francois chair 2005-2006, Universiteit Antwerpen, Belgium.

Associate editor, *Social Choice and Welfare, Economics & Philosophy*, and *Health Policy*.

LÉOPOLD SIMAR

Professor emeritus, Université catholique de Louvain and Facultés Universitaires Saint-Louis, Brussels, Belgium.

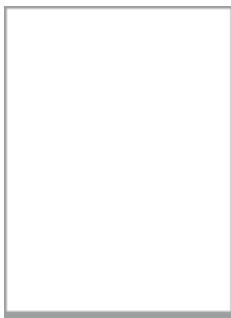
Docteur en sciences appliquées (mathématiques appliquées), Université catholique de Louvain, Belgium, 1974.

Visiting professor, Cornell University, Ithaca (NY), USA, 1974; IDEI, Université des Sciences Sociales, Toulouse, France, 1991-2009; Humboldt Universität, Berlin, Germany, 1993-2003; Texas University, Austin (TX), USA, 1995-2005; Rice University, Houston (TX), USA, 1996, 1998; 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, 2006; ENSAE, Paris, France, 2001-2009; Institut Français du Pétrole, Rueil, France, 1991-2009; Clemson University (SC), USA, 2007-2008; 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, Région Midi-Pyrénées, Toulouse School of Economics, France; Universität Karlsruhe (TH), Germany, 2008-2009.

Mathematical statistics, nonparametric statistics, resampling methods, production frontier.

Elected member of the International Statistical Institute; dean, Faculté 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; past president of the Belgian Statistical Society, 1991-2001; honorary member of the Belgian Statistical Society.

Associate editor of the *Journal of Productivity Analysis*.



YVES SMEERS

Professor emeritus, Université catholique de Louvain, Belgium.

Master of Science (industrial administration) and Ph.D. (operations research), Carnegie-Mellon University, Pittsburgh (PA), USA, 1972.

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

European editor, *Energy Journal*; associate editor, *Energy Economics*.



FRANS SPINNEWYN

Professor emeritus, Katholieke Universiteit Leuven, Belgium.

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

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

Microeconomics.

B.A.C. prize, 1976.



JACQUES-FRANÇOIS THISSE

Professor emeritus, Université catholique de Louvain, Belgium.

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

Visiting professor, McMaster University, Hamilton, Canada, 1981; University of Pennsylvania, Philadelphia (PA), USA, 1985; INSEAD, Fontainebleau, France, 1987; Virginia Polytechnic Institute, Blacksburg (VA), USA, 1990; Université de Paris I (Panthéon-

Sorbonne), France, 1991-1996; Institut National de Recherche Agronomique, Dijon, France, 2003; Kyoto University, Japan, 2006.

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 and Ecole Normale Supérieure de Cachan, France, 2010.

Economic theory, industrial organization, economic geography.

Associate editor, *International Journal of Economic Theory*, *International Journal of Industrial Organization*, *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.

Docteur en sciences (géographiques), Université catholique de Louvain, Belgium, 1984.

Presently member of the board of ERSR, ASRDLF, BIVIC/GIBET.

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

Prix Philippe Aydalot in Regional Science, 1989 ; BMW Scientific Award, 2001.

Member of the editorial board of *Belgéo*, *Cybergéo*, *L'Espace Géographique*, *International Regional Science Review*, and *Revue d'Economie Régionale et Urbaine*.

HENRY TULKENS

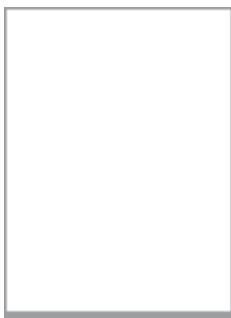
Professor emeritus, Université catholique de Louvain, Belgium.

Dr. jur., Katholieke Universiteit Leuven, Belgium, 1960; Docteur en sciences économiques, Université catholique de Louvain, Belgium, 1968.

Visiting positions (teaching and/or research) held at: University of Chicago 1963-64; University of California, Berkeley (CA), USA, 1964-65; Université d'Aix-Marseille II, France 1971; Université Libre de Bruxelles, Brussels, Belgium, 1971-72 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 I (Panthéon-Sorbonne), France, 2003; University of the South Pacific, Suva, Fiji, 2004, National University of Singapore, Singapore 2002, 2007 and 2008.

Economic theory and public finance.

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

Invited professor, CORE, Université catholique de Louvain, Belgium.

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, Université des Sciences Sociales de Toulouse, 2008-2010; invited professor, CORE, Université catholique de Louvain, Belgium, 2010-2011;

Pontificia Universidad Catolica de Chile, 2011.

Econometric theory and statistics



HYLKE VANDENBUSSCHE

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

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, 1999-2005; professor in applied economics, Katholieke Universiteit Leuven, Belgium, 1999; visiting professor, Dartmouth College, Hanover (SH), USA, 2001 and 2003.

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

Vereniging voor Economie Vlaanderen (VEV-Award), 1999; panel member of the journal *Economic Policy*, 2000-2002.

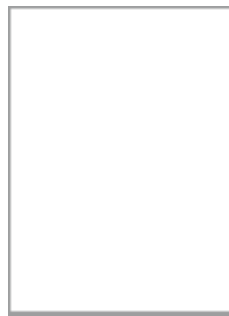
VINCENT VANNETELBOSCH

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

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.

Game theory and industrial organization.



MATHIEU VAN VYVE

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

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

Discrete optimization, computational economics, operations research.



XAVIER WAUTHY

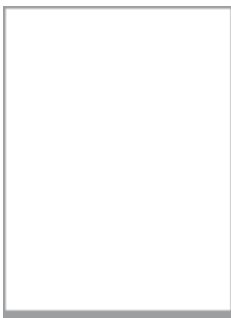
Professor, Facultés Universitaires Saint-Louis, Brussels, Belgium; visiting professor, Université catholique de Louvain, Belgium.

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.

Industrial organization, microeconomic theory.





LAURENCE WOLSEY

Professor emeritus, Université catholique de Louvain, Belgium.

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;

Donders professor, Department of Computer Science, University of Utrecht, The Netherlands, Spring 1998.

Discrete optimization, operations research, applied mathematics.

Associate editor, *Mathematical Programming A*.

■ ADMINISTRATIVE STAFF

Maristella ANGOTZI ■ Micheline DELIZE ■ Séverine DINJAR ■ Caroline DUTRY ■ Catherine GERMAIN
 ■ Alain GILLIS ■ Fabienne HENRY ■ Richard KELLY ■ Sylvie MAUROY ■ Anne-Marie PESSLEUX ■
 Francisco SANTANA FERRA

■ DOCTORAL STUDENTS AND RESEARCH ASSISTANTS

Rytis BAGDZIUNAS ■ Carlotta BALESTRA ■ Mikel BEDAYO ■ Quentin BOTTON ■ Stéphane BOUCHE ■ Humberto BREA ■ Jean-François CARPENTIER ■ Nguyen Thang DAO ■ Gauthier DE MAERE D'AERTRYCKE ■ Karen DECANCQ ■ Rafael DE MELO ■ Donatienne DENOISEUX ■ Olivier DEVOLDER ■ Arnaud DUFAYS ■ Olivier DURAND-LASSERVE ■ Emanuele FORLANI ■ Joachim GAHUNGU ■ Nicolas GILLIS ■ Gilles GRANDJEAN ■ Salome GVETADZE ■ Adel HATAMI-MARBINI ■ Claudia HUPKAU ■ Tanguy ISAAC ■ Jonathan JONES ■ Alejandro LAMAS ■ Jean-Charles LANGE ■ Mathias LORENZ ■ Sylvette LY ■ Tanja MLINAR ■ Margherita NEGRI ■ Vladislav NORA ■ Paolo Giovanni PIACQUADIO ■ Joël RAUCQ ■ Fatimeh SHAMSAEI ■ Géraldine STRACK ■ Laurent VANMALDEREN ■ Grégory VANDENBULCKE ■ Francesco VIOLANTE

■ 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

Thomas BAUDIN, Paris School of Economics, France

Chiara CANTA, Toulouse School of Economics, France

Kwanghun CHUNG, University of Florida, Gainesville (FL), USA

Claire DUJARDIN, Fonds National de la Recherche Scientifique, Belgium

Koen JOCHMANS, Katholieke Universiteit Leuven, Belgium
 Dimitris KOROBILIS, University of Strathclyde, Glasgow, United Kingdom
 Marie-Louise LEROUX, Toulouse School of Economics, France
 Chantal MARLATS, Paris School of Economics, France
 Alain PHOLO BALA, Université catholique de Louvain, Belgium
 Eve RAMAEKERS, Facultés Universitaires Notre-Dame de la Paix, Namur, Belgium
 Paschalis TSIAFLAKIS, Katholieke Universiteit Leuven, Belgium
 Hiroshi UNO, Osaka University, Japan
 Jean-Christophe VAN DEN SCHRIECK, Louvain School of Management, UCL, Belgium
 Vincent VANDERNOOT, Louvain School of Management, UCL, Belgium
 Adrien VIGIER, Queen's College, Cambridge, United Kingdom
 Stéphane ZUBER, Toulouse School of Economics, France

■ 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.

Geoffrey CARUSO, Université du Luxembourg, Luxembourg
 Jean-Charles DELVENNE, Ecole Polytechnique de Louvain, UCL, Belgium
 Bernard FORTZ, Université Libre de Bruxelles, Brussels, Belgium
 Axel GAUTIER, Université de Liège, Belgium
 Leonidas KOUTSOGERAS, University of Manchester, United Kingdom
 Stéphane LAMBRECHT, Université de Lille I, France
 Florian MAYNERIS, IRES, UCL, Belgium
 Joe THARAKAN, Université de Liège, Belgium
 Eric TOULEMONDE, Facultés Universitaires Notre-Dame de la Paix, Namur, Belgium
 Dirk VAN DE GAER, Universiteit Gent, Belgium
 Wouter VERGOTE, Facultés Universitaires Saint-Louis, Brussels, Belgium

■ RESEARCH ASSOCIATES

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

Francis BLOCH, Ecole Polytechnique, Paris, France
 Parkash CHANDER, University of Singapore, Republic of Singapore
 Jan ECKHOUT, University of Pennsylvania (PA), USA, University College London, United Kingdom and Universitat Pompeu Fabra, Spain
 Marc FLEURBAEY, Université Paris Descartes, France
 Johanna GOERTZ, University of Guelph, Canada
 Jean-Jacques HERINGS, Universiteit Maastricht, The Netherlands
 Dunia LOPEZ PINTANDO, Universidad Pablo de Olavide, Sevilla, Spain
 Roland LUTTENS, Fund for Scientific Research, Universiteit Gent, Belgium
 Juan MORENO TERNERO, Universidad de Malaga, Spain
 Susana PERALTA, Universidade Nova de Lisboa, Portugal

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

Jeroen ROMBOUTS, HEC Montréal, Canada

Jose J. SEMPERE MONERRIS, Universitat de Valencia, Spain

Huasheng SONG, Zhejiang University, People's Republic of China

■ 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

Achilleas ACHILLEOS, University of Bristol, United Kingdom

Jorge AMAYA, Universidad de Chile, Chile

Alaitz ARTABE, Universidad del Pais Vasco, Bilbao, Spain

Oleg BURDAKOV, Linköping University, Sweden

Aitor CALO BLANCO, Universidad Pablo de Olavide, Sevilla, Spain

Andres CARVAJAL, University of Warwick, United Kingdom

Arritokieta CHAMORRO, Universidad del Pais Vasco, Bilbao, Spain

Koen DECANQ, Katholieke Universiteit Leuven, Belgium

Aurore DELAIGLE, University of Melbourne, Australia

Arnaud DELLIS, Université Laval, Québec, Canada

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

Pierre FRANKHAUSER, Université de Franche-Comté, Besançon, France

Toshitaka GOKAN, Institute of Developing Economies, Chiba-shi, Japan

Jonathan HAMILTON, University of Florida, Gainesville (FL), USA

Richard HOWARTH, Dartmouth College, Hanover (NH), USA

Massoud JENABI, Amirkabir University of Technology, Iran

Sergey KOKOVIN, Novosibirsk State University, Russia

Morimitsu KURINO, Universiteit Maastricht, The Netherlands

Christelle LECOURT, Facultés Universitaires Notre-Dame de la Paix, Namur, Belgium

Sebastian MARTIN RIVAS, Universidad de Malaga, Spain

Alexander MEISTER, Universität Rostock, Germany

Guy MEUNIER, Ecole Polytechnique, Paris, France

Melania MICHETTI, Fondazione Eni Enrico Mattei, Milano, Italy

Enrico MINELLI, Università di Brescia, Italy

Saptarshi MUKHERJEE, Jawaharlal Nehru University, New Delhi, India

Fred MURPHY, Temple University, Philadelphia (PA), USA

Ion NECOARA, Universitatea Politehnica din Bucuresti, Romania

Giorgia OGGIONI, Università degli Studi di Bergamo, Italy

Yoshiaki OHASAWA, University of Tsukuba, Japan

Toshihiro OKUBO, Keio University, Tokyo, Japan

Dimitri PAOLINI, Università degli Studi di Sassari, Italy

Mathieu PARENTI, Université Paris Panthéon Sorbonne, France

Filippo POMPILI, Università degli Studi di Perugia, Italy

Giuseppe PULINA, Università di Sassari, Italy

Vladimir PROTASOV, Moscow State University, Russia
 Maria RACIONERO, Australian National University, Canberra, Australia
 Dany RALPH, Judge Business School, Cambridge, United Kingdom
 Peter RICHTARIK, University of Edinburg, Scotland
 Nicolas ROBLEDO BOTTCHER, Università Bocconi, Italy
 Cornelis ROOS, Technische Universiteit Delft, The Netherlands
 Anna RUBINCHIK, University of Minnesota, Minneapolis (MN), USA
 Carlos RUIZ MORA, Universidad Castilla La Mancha, Spain
 Aldo RUSTICHINI, Haifa University, Israël
 Margarita SAMARTIN, Universidad Carlos III de Madrid, Spain
 Fred SCHROYEN, Norges Handelshøyskole, Bergen, Norway
 Alexander SHAPIRO, Georgia Institute of Technology, Atlanta (GA), USA
 Anders SKAJAA, Denmark Tekniske Universitet, Lyngby, Denmark
 Francesco SOBBRIO, Institutions Markets Technologies, Lucca, Italy
 Giuseppe STORTI, Università degli Studi di Salerno, Italy
 Cécile TANNIER, Université de Franche-Comté, Besançon, France
 Ornella TAROLA, Università degli Studi di Roma "La Sapienza", Italy
 Chung-Piaw TEO, National University of Singapore, Singapore
 Olivier TERCIEUX, Paris School of Economics, France
 Dirk Olivier THEIS, Otto-von-Guericke and Magdeburg Universität, Germany
 Marius THERIAULT, Université Laval, Québec, Canada
 Tom TRUYTS, Katholieke Universiteit Leuven, Belgium
 Allard VAN DER MADE, Facultés Universitaires Saint-Louis, Brussels, Belgium
 Cecilia VERGARI, Università di Bologna, Italy
 Jean-Philippe VIAL, Ordecys, Chêne-Bougeries, Switzerland
 Francesco VIOLANTE, Universiteit Maastricht, The Netherlands
 Jingyi XUE, Rice University, Houston (TX), USA
 Ouidad YOUSFI, Université Paris-Nanterre, France
 Golbon ZAKERI, University of Auckland, New Zealand
 Evgeny ZHELOBODKO, Novosibirsk State University, Russia
 Xiwei ZHU, Zhejiang University, People's Republic of China

■ RESEARCH FELLOWS AND VISITING FACULTY MEMBERS FOR 2011-2012

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

Ignace ADANT, EdF and Ecole Polytechnique Palaiseau, France
 Constantin BLOMME, European Business School, Wiesbaden, Germany
 Volker BRITZ, Universiteit Maastricht, The Netherlands
 Aitor CALO-BLANCO, Universidad Pablo de Olavide, Sevilla, Spain
 Chiara CANTA, Toulouse School of Economics, France
 Koen DECANCO, Katholieke Universiteit Leuven, Belgium
 Claire DUJARDIN, Fonds National de la Recherche Scientifique, Belgium

Marion LETURCQ, Paris School of Economics, France

Liang LU, Hong Kong University of Science and Technology, Kowloon, Hong Kong

Eve RAMAEKERS, Facultés Universitaires Notre-Dame de la Paix, Namur, Belgium

Tom TRUYTS, Katholieke Universiteit Leuven, Belgium

Hande Yaman PATERNOTTE, Bilkent University, Turkey

■ OTHER ITEMS

PRIZES AND AWARDS

Claude D'ASPREMONT has been elected Economic Theory Fellow of the Society for the Advancement of Economic Theory (SAET).

In 2010, Stéphane LAMBRECHT obtained a new position of full professor at the Université de Valenciennes and Hainaut-Cambrésis.

A European Research Council Advanced Grant was awarded to Francois MANIQUET in 2010. Advanced Grants are aimed at promoting ground-breaking, high-risk projects that open new directions in their respective research fields, targeting researchers who have already established themselves as independent research leaders.

In December 2010, Florian MAYNERIS received the Louis Forest Prize for the best PhD dissertation awarded by the Chancellerie des Universités de Paris. Title of his thesis: "Économie géographique, commerce et performances des entreprises".

On January 27th, 2011, Pierre PESTIEAU obtained an Honorary Degree at Uppsala Universiteit, Sweden.

Guillaume ROELS was awarded the 2010 Management Science Meritorious Award and the 2011 Manufacturing and Service Operations Management Meritorious Award.

At the North-American Meeting of the Regional Science Association International held in Denver (CO) on October 11-13, 2010, Jacques THISSE received the Walter Isard Award in recognition of his distinguished scholarly achievement in the field of regional science.

RESEARCH ACTIVITIES

- SURVEY OF RESEARCH TOPICS

- Econometric theory

- Econometrics of financial markets

- Energy economics

- Environmental economics

- Game theory

- Industrial organization

- Macroeconomic policies

- Mathematical finance

- Microeconomic theory

- Optimization methods and operations research

- Public and welfare economics

- Supply chain management

- Trade and economic geography

- CHAIRS AND RESEARCH PROJECTS UNDER CONTRACTS

SURVEY OF RESEARCH TOPICS

This section, organized by major areas of research, gives abstracts of the discussion papers that appeared in the period covered by this report.

ECONOMETRIC THEORY

2010/55 *Iterative regularization in nonparametric instrumental regression*

Jan JOHANNES, Sébastien VAN BELLEGEM and Anne VANHEMS

We consider the nonparametric regression model with an additive error that is correlated with the explanatory variables. We suppose the existence of instrumental variables that are considered in this model for the identification and the estimation of the regression function. The nonparametric estimation by instrumental variables is an ill-posed linear inverse problem with an unknown but estimable operator. We provide a new estimator of the regression function using an iterative regularization method (the Landweber-Fridman method). The optimal number of iterations and the convergence of the mean square error of the resulting estimator are derived under both mild and severe degrees of ill-posedness. A Monte-Carlo exercise shows the impact of some parameters on the estimator and concludes on the reasonable finite sample performance of the new estimator.

2011/3 *A comparison of forecasting procedures for macroeconomic series: the contribution of structural break models*

Luc BAUWENS, Gary KOOP, Dimitris KOROBILIS and Jeroen V.K. ROMBOUTS

This paper compares the forecasting performance of different models which have been proposed for forecasting in the presence of structural breaks. These models differ in their treatment of the break process, the parameters defining the model which applies in each regime and the out-of-sample probability of a break occurring. In an extensive empirical evaluation involving many important macroeconomic time series, we demonstrate the presence of structural breaks and their importance for forecasting in the vast majority of cases. However, we find no single forecasting model consistently works best in the presence of structural breaks. In many cases, the formal modeling of the break process is important in achieving good forecast performance. However, there are also many cases where simple, rolling OLS forecasts perform well.

2011/4 *Nonparametric Beta kernel estimator for long memory time series*

Taoufik BOUEZMARNI and Sébastien VAN BELLEGEM

The paper introduces a new nonparametric estimator of the spectral density that is given in smoothing the periodogram by the probability density of Beta random variable (Beta kernel). The estimator is proved to be bounded for short memory data, and diverges at the origin for long memory data. The convergence improbability of the relative error and Monte Carlo simulations suggest that the estimator automatically adapts to the long- or the short-range dependency of the process. A cross-validation procedure is also studied in order to select the nuisance parameter of the estimator. Illustrations on historical as well as most recent returns

and absolute returns of the S&P500 index show the reasonable performance of the estimation, and show that the data-driven estimator is a valuable tool for the detection of long-memory as well as hidden periodicities in stock returns.

2011/13 *Marginal likelihood for Markov-switching and change point GARCH models*
Luc BAUWENS, Arnaud DUFAYS and Jeroen V.K. ROMBOUTS

GARCH models with fixed parameters are too restrictive for long time series due to breaks in the volatility process. Flexible alternatives are Markov-switching GARCH and change-point GARCH models. They require estimation by MCMC methods due to the path dependence problem. An unsolved difficult issue is the computation of their marginal likelihood by Chib's method, which is essential for determining the number of regimes or change-points. We solve the problem by using particle MCMC, a technique proposed by Andrieu, Doucet and Holenstein (2010). We examine the performance of this new method by a simulation study, and we illustrate its use on long series of index returns.

2011/21 *Hierarchical shrinkage priors for dynamic regressions with many predictors*
Dimitris KOROBILIS

This paper builds on a simple unified representation of shrinkage Bayes estimators based on hierarchical Normal-Gamma priors. Various popular penalized least squares estimators for shrinkage and selection in regression models can be recovered using this single hierarchical Bayes formulation. Using 129 U.S. macroeconomic quarterly variables for the period 1959–2010 I exhaustively evaluate the forecasting properties of Bayesian shrinkage in regressions with many predictors. Results show that for particular data series hierarchical shrinkage dominates factor model forecasts, and hence is a valuable addition to existing methods for handling large dimensional data.

2011/22 *VAR forecasting using Bayesian variable selection*
Dimitris KOROBILIS

This paper develops methods for automatic selection of variables in Bayesian vector autoregressions (VARs) using the Gibbs sampler. In particular, I provide computationally efficient algorithms for stochastic variable selection in generic linear and nonlinear models, as well as models of large dimensions. The performance of the proposed variable selection method is assessed in forecasting three major macroeconomic time series of the UK economy. Databased restrictions of VAR coefficients can help improve upon their unrestricted counterparts in forecasting, and in many cases they compare favorably to shrinkage estimators.

2011/36 *Hierarchical shrinkage in time-varying parameter models*
Miguel A.G. BELMONTE, Gary KOOP and Dimitris KOROBILIS

In this paper, we forecast EU-area inflation with many predictors using time varying parameter models. The facts that time-varying parameter models are parameter-rich and the time span of our data is relatively short motivate a desire for shrinkage. In constant coefficient regression models, the Bayesian Lasso is gaining increasing popularity as an effective tool for achieving

such shrinkage. In this paper, we develop econometric methods for using the Bayesian Lasso with time-varying parameter models. Our approach allows for the coefficient on each predictor to be: i) time varying, ii) constant over time or iii) shrunk to zero. The econometric methodology decides automatically which category each coefficient belongs in. Our empirical results indicate the benefits of such an approach.

2011/41 *Locally stationary volatility modelling*
Sébastien VAN BELLEGEM

The increasing works on parameter instability, structural changes and regime switches lead to the natural research question whether the assumption of stationarity is appropriate to model volatility processes. Early econometric studies have provided testing procedures of covariance stationarity and have shown empirical evidence for the unconditional time-variation of the dependence structure of many financial time series. After a review of several econometric tests of covariance stationarity, this survey paper focuses on several attempts in the literature to model the time-varying second-order dependence of volatility time series. The approaches that are summarized in this discussion paper propose various specifications for this time-varying dynamics. In some of them an explicit variation over time is suggested, such as in the spline GARCH model. Larger classes of nonstationary models have also been proposed, in which the variation of the parameters may be more general such as in the so-called locally stationary models. In another approach that is called "adaptive", no explicit global model is assumed and local parametric model are adaptively fitted at each point over time. Multivariate extensions are also visited. A comparison of these approaches is proposed in this paper and some illustrations are provided on the two last decades of data of the Dow Jones Industrial Average index.

ECONOMETRICS OF FINANCIAL MARKETS

2011/11 *Multivariate volatility modeling of electricity futures*
Luc BAUWENS, Christian HAFNER and Diane PIERRET

The deregulation of European electricity markets has led to an increasing need in understanding the volatility and correlation structure of electricity prices. We model a multivariate futures series of the European Energy Exchange (EEX) index, using an asymmetric GARCH model for volatilities and augmented dynamic conditional correlation (DCC) models for correlations. In particular, we allow for smooth changes in the unconditional volatilities and correlations through a multiplicative component that we estimate non-parametrically. We also introduce exogenous variables in our new multiplicative DCC model to account for congestion in short-term conditional volatilities. We find different correlation dynamics for long- and short-term contracts and the new model achieves higher forecasting performance compared to a standard DCC model.

ENERGY ECONOMICS

2010/52 *Generalized Nash Equilibrium and market coupling in the European power system*

Yves SMEERS, Giorgia OGGIONI, Elisabetta ALLEVI and Siegfried SCHAIBLE

"Market Coupling" is currently seen as the most advanced market design in the restructuring of the European electricity market. Market coupling, by construction, introduces what is generally referred to as an incomplete market: it leaves several constraints out of the market and hence avoids pricing them. This may or may not have important consequences in practice depending on the case on hand. Quasi-Variational Inequality problems and the associated Generalized Nash Equilibrium can be used for representing incomplete markets. Recent papers propose methods for finding a set of solutions of Quasi-Variational Inequality problems. We apply one of these methods to a subproblem of market coupling namely the coordination of counter-trading. This problem is an illustration of a more general question encountered for instance in hierarchical planning in production management. We first discuss the economic interpretation of the Quasi-Variational Inequality problem. We then apply the algorithmic approach to a set of stylized case studies in order to illustrate the impact of different organizations of counter-trading. The paper emphasises the structuring of the problem. A companion paper considers the full problem of market coupling and counter-trading and presents a more extensive numerical analysis.

2010/53 *Market coupling and the organization of counter-trading: separating energy and transmission again?*

Giorgia OGGIONI and Yves SMEERS

The horizontal integration of the energy market and the organization of transmission services remain two open issues in the restructured European electricity sector. The coupling of the French, Belgian and Dutch electricity markets (the trilateral market) in November 2006 was a real success that the inclusion of Germany to the trilateral market should soon prolong. But the extension of market coupling whether in Central Western Europe or in other European regions encounters several difficulties and the future remains far from clear. The highly meshed grid of continental Europe complicates things and it is now sometimes recognized that the penetration of wind will further exacerbate these difficulties. The nodal system could go a long way towards solving these problems, but its implementation is not yet foreseen in the EU. This paper analyzes versions of market coupling that differ by the organization of counter-trading. While underplayed in current discussions, counter-trading will become a key element of market coupling as its geographic coverage expands and wind penetration develops. We consider a stylized six node example found in the literature and simulate market coupling for different assumptions of zonal decomposition and coordination of TSOs. We show that these assumptions matter: market coupling can be quite vulnerable to the particular situation on hand; countertrading can work well or completely fail depending on the case and it is not clear beforehand what will prevail. Our analysis relies on standard economic notions such as social welfare, Nash and Generalized Nash equilibrium. But the use of these notions is probably novel. We also simplify matters by assuming away strategic behaviour. The nodal organization is the reference first best scenario: different zonal decompositions and degrees of coordinations are then studied with respect to this first best solution.

2011/28 *Effects of the uncertainty about global economic recovery on energy transition and CO₂ price*

Olivier DURAND-LASSERVE, Axel PIERRU and Yves SMEERS

This paper examines the impact that uncertainty over economic growth may have on global energy transition and CO₂ prices. We use a general-equilibrium model derived from MERGE, and define several stochastic scenarios for economic growth. Each scenario is characterized by the likelihood of a rapid global economic recovery. More precisely, during each decade, the global economy may - with a given probability - shift from the EIA's (2010) low-economic-growth path to the EIA's (2010) high-economic-growth path. The climate policy considered corresponds in the medium term to the commitments announced after the Copenhagen conference, and in the long term to a reduction of 25% in global energy-related CO₂ emissions (with respect to 2005). For the prices of CO₂ and electricity, as well as for the implementation of CCS, the branches of the resulting stochastic trajectories appear to be heavily influenced by agents' initial expectations of future economic growth and by the economic growth actually realized. Thus, in 2040, the global price of CO₂ may range from \$21 (when an initially-anticipated economic recovery never occurs) to \$128 (in case of non-anticipated rapid economic recovery). In addition, we show that within each region, the model internalizes the constraints limiting the expansion of each power-generation technology through the price paid by the power utility for the acquisition of new production capacity. As a result, in China, the curves of endogenous investment costs for onshore and offshore wind are all bubble-shaped centered on 2025, a date which corresponds to the establishment of a global CO₂ cap-and-trade market in the model.

ENVIRONMENTAL ECONOMICS

2010/56 *Tradable pollution permits in dynamic general equilibrium: can optimality and acceptability be reconciled?*

Thierry BRÉCHET, Pierre-André JOUVET and Gilles ROTILLON

In this paper we study the optimal growth path and its decentralization in a two sector overlapping-generations model with pollution. One sector (power generation) is polluting and the other (final good) is not. Pollution is regulated by tradable emission permits. The issue is whether the optimal growth path can be replicated in equilibrium with pollution permits, given that some permits must be issued free of charge for the sake of political acceptability. We provide a policy rule that allows optimality and acceptability to be reconciled.

2010/62 *The benefits of cooperation under uncertainty: the case of climate change*

Thierry BRÉCHET, Julien THENIE, Thibaut ZEIMES and Stéphane ZUBER

This article presents an analysis of the behavior of countries defining their climate policies in an uncertain context. The analysis is made using the S-CWS model, a stochastic version of an integrated assessment growth model. The model includes a stochastic definition of the climate sensitivity parameter. We show that the impact of uncertainty on policy design critically depends on the shape of the damage function. We also examine the benefits of

cooperation in the context of uncertainty: we highlight the existence of an additional benefit of cooperation, namely risk reduction.

2010/65 *Adaptation and mitigation in long-term climate policies*

Thierry BRÉCHET, Natali HRITONENKO and Yuri YATSENKO

The paper analytically explores the optimal policy mix between mitigation and environmental adaptation against climate change at a macroeconomic level. The constructed economic-environmental model is formulated as a social planner problem with the adaptation and abatement investments as separate decision variables. The authors prove the existence of a unique steady state and provide a comparative static analysis of the optimal investment. It leads to essential implications for associated long-term environmental policies. In particular, the dependence of the optimal ratio between abatement and adaptation investments on economic efficiency appears to have an inverted U-shape. Data calibration and numerical simulation are provided to illustrate theoretical outcomes.

2010/71 *Property rights with biological spillovers: when Hardin meets Meade*

Carlotta BALESTRA, Thierry BRÉCHET and Stéphane LAMBRECHT

In an overlapping generations setup we address the issue of the optimal number of property rights to allocate over a natural resource when the goal is to maximize the stock of the natural resource at the steady state. We assume that the effect of the property rights regime on the evolution of the resource is twofold: through biological spillovers and through monitoring costs. Property rights are assigned to local communities, which can decide whether to cooperate or not. The outcome in the strategic setting is hence compared to the one in the cooperative setup. A fiscal policy able to decentralize the cooperative outcome is studied.

2010/86 *The economics of airport noise: how to manage markets for noise licenses*

Thierry BRÉCHET and Pierre PICARD

Noise-induced pollution constitutes a hot and topical societal problem for all major airports. This paper discusses various issues in the implementation of a market for noise licenses as a solution to solve the noise externality between the residents located around airports and the aircrafts moving in and to airports.

2011/25 *Sustainable growth and modernization under environmental hazard and adaptation*

Natali HRITONENKO and Yuri YATSENKO

We develop an aggregated model to study rational environmental adaptation policies that compensate negative consequences of certain environmental hazards and changes. The model distinguishes three categories of adaptation measures that (a) compensate the decrease of the environmental amenity value, (b) compensate the decrease of total productivity, (c) develop and introduce new hazard-protected capital and technology. We analyze the optimal balance among investment, consumption, and different categories of adaptation investments. It appears that the environmental hazard and subsequent adaptation do not lead in the long run to a higher level of capital modernization compared to the benchmark case with no hazard. A synergism between productivity-related and amenity-

related adaptation activities arises because the productivity-related adaptation positively impacts the economy and creates better possibilities for the amenity adaptation.

2011/27 *The natalist bias of pollution control*
David de la CROIX and Stéphane GOSSERIES

For a given technology, two ways are available to achieve low polluting emissions: reducing production per capita or reducing population size. This paper insists on the tension between the former and the latter. Controlling pollution either through Pigovian taxes or through tradable quotas schemes encourages agents to shift away from production to tax free activities such as procreation and leisure. This natalist bias will deteriorate the environment further, entailing the need to impose ever more stringent pollution rights per person. However, this will in turn gradually impoverish the successive generations: population will tend to increase further and production per capita to decrease as the generations pass. One possible solution consists in capping population too.

2011/31 *Implementing steady state efficiency in overlapping generations economies with environmental externalities*
Nguyen Thang DAO and Julio DAVILA

We consider in this paper overlapping generations economies with pollution resulting from both consumption and production. The competitive equilibrium steady state is compared to the optimal steady state from the social planner's viewpoint. We show that the dynamical inefficiency of competitive equilibrium steady state with capital-labor ratio exceeding the golden rule ratio still holds. Moreover, the range of dynamically efficient steady state capital ratios increases with the effectiveness of the environment maintenance technology, and decreases for more polluting production technologies. We characterize some tax and transfer policies that decentralize as a competitive equilibrium outcome the transition to the social planner's steady state.

GAME THEORY

2010/79 *Stability and fairness in models with a multiple membership*
Michel LE BRETON, Juan D. MORENO-TERNERO, Alexei SAVVATEEV and Shlomo WEBER

This article studies a model of coalition formation for the joint production (and finance) of public projects, in which agents may belong to multiple coalitions. We show that, if projects are divisible, there always exists a stable (secession-proof) structure, i.e., a structure in which no coalition would reject a proposed arrangement. When projects are indivisible, stable allocations may fail to exist and, for those cases, we resort to the least core in order to estimate the degree of instability. We also examine the compatibility of stability and fairness on metric environments with indivisible projects. To do so, we explore, among other things, the performance of several well-known solutions (such as the Shapley value, the nucleolus, or the Dutta-Ray value) in these environments.

2011/7 *Myopic or farsighted? An experiment on network formation*

Georg KIRCHSTEIGER, Marco MANTOVANI, Ana MAULEON and Vincent J. VANNETELBOSCH

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 farsighted, related stability concepts have been proposed. We design a simple network formation experiment to test these theories. Our results provide support for farsighted stability and strongly reject the idea of myopic behavior.

2011/9 *Nested potentials and robust equilibria*

Hiroshi UNO

This paper introduces the notion of nested best-response potentials for complete information games. It is shown that a unique maximizer of such a potential is a Nash equilibrium that is robust to incomplete information in the sense of Kajii and Morris (1997, mimeo).

2011/14 *Risk-sharing networks and farsighted stability*

Gilles GRANDJEAN

Evidence suggests that in developing countries, agents rely on mutual insurance agreements to deal with income or expenditure shocks. This paper analyzes which risk-sharing networks can be sustained in the long run when individuals are farsighted, in the sense that they are able to forecast how other agents would react to their choice of insurance partners. In particular, we study whether the farsightedness of the agents leads to a reduction of the tension between stability and efficiency that arises when individuals are myopic. We find that for extreme values of the cost of establishing a mutual insurance agreement, myopic and farsighted agents form the same risk-sharing networks. For intermediate costs, farsighted agents form efficient networks while myopic agents don't.

2011/29 *Absolutely stable roommate problems*

Ana MAULEON, Elena MOLIS, Vincent J. VANNETELBOSCH and Wouter VERGOTE

Different solution concepts (core, stable sets, largest consistent set, ...) can be defined using either a direct or an indirect dominance relation. Direct dominance implies indirect dominance, but not the reverse. Hence, the predicted outcomes when assuming myopic (direct) or farsighted (indirect) agents could be very different. In this paper, we characterize absolutely stable roommate problems when preferences are strict. That is, we obtain the conditions on preference profiles such that indirect dominance implies direct dominance in roommate problems. Furthermore, we characterize absolutely stable roommate problems having a nonempty core. Finally, we show that, if the core of an absolutely stable roommate problem is not empty, it contains a unique matching in which all agents who mutually top rank each other are matched to one another and all other agents remain unmatched.

INDUSTRIAL ORGANIZATION

2010/60 *Digital piracy: theory*

Paul BELLEFLAMME and Martin PEITZ

This article reviews recent theoretical contributions on digital piracy. It starts by elaborating on the reasons for intellectual property protection, by reporting a few facts about copyright protection, and by examining reasons to become a digital pirate. Next, it provides an exploration of the consequences of digital piracy, using a base model and several extensions (with consumer sampling, network effects, and indirect appropriation). A closer look at market-structure implications of end-user piracy is then taken. After a brief review of commercial piracy, additional legal and private responses to end-user piracy are considered. Finally, a quick look at emerging new business models is taken.

2010/61 *Competitively neutral universal service obligations*

Axel GAUTIER and Xavier WAUTHY

Universal service obligations impose specific costs on the universal service provider. The measure of these costs and their financing have been studied along two complementary lines of reasoning: is the universal service obligation sustainable? Who should bear its costs? Most often, a two-step procedure is put forward. In a first step the cost of USO must be assessed; in a second step the USP must be compensated for this cost. In this paper we argue that this procedure is most often problematic because the implementation of the compensation scheme directly affects the effective cost of USO. We therefore put forward an alternative approach to this problem which does not rely on this two-step procedure and fully acknowledges the distortions that result from the compensation mechanism.

2010/72 *Success: talent, intelligence or beauty?*

Olivier GERGAUD and Victor GINSBURGH

We analyze the Celebrity 100 annual list of the world's most "powerful celebrities" compiled and published by Forbes Magazine. The lists provide an interesting collection of people, that includes their earnings, and the perception of citizens concerning the attributes that made them become celebrities. We analyze the relationship between their earnings and the perceptions on their intelligence, talent, beauty and other attributes, and show that though beauty plays a role, intelligence and talent are more important.

2010/73 *Foreign languages' acquisition: self learning and linguistic schools*

Jean GABSZEWICZ, Victor GINSBURGH, Didier LAUSSEL and Shlomo WEBER

We examine patterns of acquiring non-native languages in a model with two linguistic communities with heterogeneous learning skills, where every individual faces the choice of self-learning the foreign language or acquiring it at a profitmaximizing linguistic school. We consider a one-school model with divisions in both communities and various two-school settings with a school in each community. We compare the number of learners and welfare implications under self-learning with those obtained under various schooling contexts. In particular, we show that for communities with similar size, introducing language schools always increases the number of learners with respect to the exclusive self-learning option.

2010/74 *Rock and roll bands, (in)complete contracts and creativity*

Cédric CEULEMANS, Victor GINSBURGH and Patrick LEGROS

Members of a rock and roll band are endowed with different creativity. They match and eventually obtain credit for song writing as well as a share of the returns from sales. More creative members increase the probability of success but may also claim a larger share of the pie. In our theoretical model, the nature of matching (positive or negative assortative) as well as the covariation between the probability of having a "hit" and the dispersion of credits given to individual members are a function of the completeness of contracting. When members adopt a "gentleman's agreement" to share credits equally, the covariation between the probability of a hit and the dispersion of credits is negative, which is the consequence of positive assortative matching in creativity. The data show that the relation between dispersion and success is significantly negative, and that rock bands are thus likely to sign incomplete contracts.

2010/76 *Unions' relative concerns and strikes in wage bargaining*

Ana MAULEON, Vincent J. VANNETELBOSCH and Cecilia VERGARI

We consider a model of wage determination with private information in a duopoly. We investigate the effects of unions having relative concerns on the negotiated wage and the strike activity. We show that an increase of unions' relative concerns has an ambiguous effect on the strike activity.

2010/77 *Bargaining and delay in patent licensing*

Ana MAULEON, Vincent J. VANNETELBOSCH and Cecilia VERGARI

We consider a model of licensing of a non-drastic innovation in which the patent holder (an outside innovator) negotiates either up-front fixed fees or per-unit royalties with two firms producing horizontally differentiated brands and competing à la Cournot. We investigate how licensing schemes (fixed fee or per-unit royalty) and the number of licenses sold (exclusive licensing or complete technology diffusion) affect price agreements and delays in reaching an agreement. We show that the patent holder prefers to license by means of up-front fixed fees except if market competition is mild and the innovation size is small. Once there is private information about the relative bargaining power of the parties, the patent holder may prefer licensing by means of per-unit royalties even if market competition is strong. Moreover, the delay in reaching an agreement is greater whenever the patent holder chooses to negotiate up-front fixed fees instead of per-unit royalties.

2010/78 *Product innovation and market acquisition of firms*

Jean GABSZEWICZ and Ornella TAROLLA

The paper explores the incentives for an incumbent firm to acquire an entrant willing to sell a product innovation, rather than openly compete with this entrant and, in case of acquisition, the incentives to sell simultaneously both the existing products and the new one, rather than specializing on a single variant. We prove that, in some circumstances, an incumbent firm can find it profitable to make an acquisition proposal to the entrant in order to deter entry. Nevertheless, in this acquisition scenario, a product proliferation strategy is never observed at

equilibrium. Rather, the incumbent restricts itself to offer either its own variant or the product innovation produced by the entrant, depending on the quality differential existing between them. It follows that, while being available for sale, sometimes the innovation simply remains unexploited.

2011/5 *The complementarity foundations of industrial organization*
Filippo L. CALCIANO

In this paper we review the state of the art of Games with Strategic Complementarities (GSC), which are fundamental tools in modern Industrial Organization. The originality of the paper lies in the way the material is presented. Indeed, the mathematical aspects of GSC are complex and scattered in a literature which spans a long time period and a variety of research fields such as economics, applied mathematics and operations research. We organize a large amount of material in a unified and self-contained way, and concentrate on the intuitions and conceptual points that lie in the background of the mathematical modeling, with special emphasis on the modeling of complementarity. On the technical side, we investigate in details the choice and content of the assumptions. The scope of the paper is to allow the applied researcher to understand the theory, so that she may rapidly develop her own ability to deal with concrete problems.

2011/10 *Monopolistic competition in general equilibrium: beyond the CES*
Evgeny ZHELOBODKO, Sergey KOKOVIN, Mathieu PARENTI and Jacques-François
THISSE

We propose a general model of monopolistic competition and derive a complete characterization of the market equilibrium using the concept of Relative Love for Variety. When the RLV increases with individual consumption, the market generates pro-competitive effects. When it decreases, the market mimics anticompetitive behavior. The CES is a borderline case. We extend our setting to heterogeneous firms and show that the cutoff cost decreases (increases) when the RLV increases (decreases). Last, we study how combining vertical, horizontal and cost heterogeneity affects our results.

2011/15 *Vertical integration and exclusivities in maritime freight transport*
Pedro CANTOS-SANCHEZ, Rafael MONER-COLONQUES, José J. SEMPERE-MONERIS and
Oscar ALVAREZ-SANJAIME

A key recent theme in maritime freight transport is the involvement of shipping lines in terminal management. Such investments are costly but allow liners to provide better service. Most of these new terminals are dedicated terminals but some are non-exclusive and let rivals access them for a fee. In this paper, we show that a shipping line that builds its own terminal finds it strategically profitable i) to continue routing part of its cargo through the open port facilities, and ii) to keep its terminal non-exclusive. In this way, the liner investor pushes part of the rival's freight from the open to the new terminal. Besides, under non-exclusivities, the shipping lines offer a wider variety of services, total freight increases and the resulting equilibrium fares are higher than with a dedicated terminal.

2011/17 *Price differentials among brands in retail distribution: product quality and service quality*

Juan A. MANEZ, Rafael MONER-COLONQUES, José J. SEMPERE-MONERIS and Amparo URBANO

We develop a theoretical model of retail competition that includes two sources of quality, one inherently linked to brand characteristics and the other linked to the retailer level of service. We then measure their contribution in explaining the observed price differentials for a sample of U.K. grocery retailer prices in the south of Coventry during the period November 1995 to March 1997. We find that retailers that offer a higher quality service sell same quality brands at higher prices. These price premia are explained solely by differences in service quality levels. We find econometric evidence that they amount to 6 percent for national brands and to a range between 9 percent and 15 percent for low-quality store brands. Besides, at a given store, the price premia paid for the national brand is positive. These differentials are very large: around 150 percent between national brands and low-quality store brands, around 40 percent between national brands and high-quality store brands. Also, the price differential between the national brand and the low-quality store brand does not increase with its service quality. Besides, the price of the high-quality store brand approaches the price of the national brand when service quality increases. Thus suggests that stores that offer high quality service use the level of service as a strategic tool to target the leading national brand consumers.

2011/18 *Patent office governance and patent system quality*

Pierre M. PICARD and Bruno VAN POTTELSBERGHE DE LA POTTERIE

The present paper discusses the role of quality in patent systems from the perspective of patent offices' behavior and organization. After documenting original stylized facts, the paper presents a model in which patent offices set patent fees and the quality level of their examination processes. Various objectives of patent offices' governors are considered. We show that the quality of the patent system is maximal for the patent offices that maximise either the social welfare or their own profit. Quality is lower for the self-funded patent office maximizing the number of patent applications and even smaller for the self-funded patent office maximizing the number of granted patents. A labor union improves examination quality and may compensate for the potentially inappropriate objectives of patent office management.

2011/19 *A theory of BOT concession contracts*

Emmanuelle AURIOL and Pierre M. PICARD

In this paper, we discuss the choice for build-operate-and-transfer (BOT) concessions when governments and firm managers do not share the same information regarding the operation characteristics of a facility. We show that larger shadow costs of public funds and larger information asymmetries entice governments to choose BOT concessions. This result stems from a trade-off between the government's shadow costs of financing the construction and the operation of the facility and the excessive usage price that the consumer may face during the concession period. The incentives to choose BOT concessions increase as a function of informational asymmetries between governments and potential BOT concession holders and

with the possibility of transferring the concession project characteristics to the public authority at the termination of the concession.

2011/32 *Crowdfunding: tapping the right crowd*

Paul BELLEFLAMME, Thomas LAMBERT and Armin SCHWIENBACHER

The basic idea of crowdfunding is to raise external finance from a large audience (the "crowd"), where each individual provides a very small amount, instead of soliciting a small group of sophisticated investors. The paper develops a model that associates crowdfunding with pre-ordering and price discrimination, and studies the conditions under which crowdfunding is preferred to traditional forms of external funding. Compared to traditional funding, crowdfunding has the advantage of offering an enhanced experience to some consumers and, thereby, of allowing the entrepreneur to practice menu pricing and extract a larger share of the consumer surplus; the disadvantage is that the entrepreneur is constrained in his/her choice of prices by the amount of capital that he/she needs to raise: the larger this amount, the more prices have to be twisted so as to attract a large number of "crowdfunders" who pre-order, and the less profitable the menu pricing scheme.

MACROECONOMIC POLICIES

2011/6 *Real exchanges rates in commodity producing countries: a reappraisal*

Vincent BODART, Bertrand CANDELON and Jean-François CARPENTIER

Commodity currency literature recently stressed the importance of commodity prices as a determinant of real exchange rates in developing countries (Cashin, Cespedes and Sahay 2004). We provide new empirical evidence on this issue by focusing on countries which are specialized in the export of one leading commodity. For those countries, we investigate to which extent their real exchange rate is sensitive to price fluctuations of their dominant commodity. By using non-stationary panel techniques robust to cross-sectional-dependence, we find that the price of the dominant commodity has a significant long-run impact on the real exchange rate when the exports of the leading commodity have a share of at least 20 percent in the country's total exports of merchandises. Our results also show that the larger the share, the larger the size of the impact.

2011/33 *Optimal fertility along the lifecycle*

Pierre PESTIEAU and Guy PONTIÈRE

We explore the optimal fertility age-pattern in a four-period OLG economy with physical capital accumulation. For that purpose, we firstly compare the dynamics of two closed economies, Early and Late Islands, which differ only in the timing of births. On Early Island, children are born from parents in young adulthood, whereas, on Late Island, children are born from parents in older adulthood. We show that, unlike on Early Island, there exists no stable stationary equilibrium on Late Island, which exhibits cyclical dynamics. We also characterize the social optimum in each economy, and show that Samuelson's Serendipity Theorem still holds. Finally, we study the dynamics and social optimum of an economy with interior fertility rates during the reproduction period. It is shown that various fertility age-patterns are

compatible with the social optimum, as long as these yield the optimal cohort growth rate. The Serendipity Theorem remains valid in that broader demographic environment.

MATHEMATICAL FINANCE

- 2011/34 *Optimal time to invest when the price processes are geometric Brownian motions. A tentative based on smooth fit*
Joachim GAHUNGU and Yves SMEERS

This paper considers the problem of the optimal timing of the exchange of the sum of n geometric Brownian motions for the sum of m others. We propose a closed form determinable stopping time based on the heuristic principle of smooth fit. We cannot prove that this stopping time is optimal. However, we show numerically on examples that it is a potentially useful candidate: letting S^\diamond denote the stopping region induced by our stopping time we show that (i) $S^- \subset S^\diamond \subset S^+$ where S^- and S^+ are well-known subset and superset of the optimal stopping region; (ii) stopping at the first entry time of S^\diamond offers a better payoff than stopping at the first entry time of S^- or S^+ , especially when assets are correlated.

- 2011/35 *Sufficient and necessary conditions for perpetual multi-assets exchange options*
Joachim GAHUNGU and Yves SMEERS

This paper considers the general problem of optimal timing of the exchange of the sum of n Ito-diffusions for the sum of m others (e.g., the optimal time to exchange a geometric Brownian motion for a geometric mean reverting process). We first contribute to the literature by providing analytical sufficient conditions and necessary conditions for optimal stopping (i.e. sub- and super- sets of the stopping region) for some sub-cases of the general problem. We then exhibit a connection between the problem of finding sufficient conditions for optimal stopping and linear programming. This connection provides a unified approach, which does not only allow to recover previous analytically determinable subsets of the stopping region, but also allows to characterize (more complex) subsets of the stopping region that do not have an analytical expression. In the particular case where all assets are geometric Brownian motions, this connection gives us new insights. In particular, it simplifies the expression of the subset of the stopping region identified by Nishide and Rogers (2011). Our numerical examples finally confirm the good behavior of the candidate investment rule introduced by Gahungu and Smeers (2011) for this particular case, which seems to comfort a conjecture that their rule might be optimal.

MICROECONOMIC THEORY

- 2010/69 *Lower bounds rule!*
Roland I. LUTTENS

We propose two axioms that introduce lower bounds into resource monotonicity requirements for rules for the problem of adjudicating conflicting claims. Suppose the amount to divide increases. The first axiom requires that two claimants whose lower bound changes equally experience an equal change in awards. The second axiom requires that extra resources

are divided only among those claimants who experience a strictly positive change in their lower bound. We show that, in the two-claimant case, Concede-and-Divide is the only rule that satisfies both axioms when the axioms are defined over a large set of lower bounds that include the minimal rights lower bound and the secured lower bound. We also show that, in the n -claimant case where at least one claimant claims the total amount, the Minimal Overlap rule is the only rule that satisfies both axioms when the axioms are defined over the secured lower bound.

2010/83 *Influence networks*
Dunia LOPEZ-PINTADO

Some behaviors, ideas or technologies spread and become persistent in society, whereas others vanish. This paper analyzes the role of social influence in determining such distinct collective outcomes. Agents are assumed to acquire information from others through a certain sampling process that generates an influence network, and they use simple rules to decide whether to adopt or not depending on the observed sample. We characterize, as a function of the primitives of the model, the diffusion threshold (i.e., the spreading rate above which the adoption of the new behavior becomes persistent in the population) and the endemic state (i.e., the fraction of adopters in the stationary state of the dynamics). We find that the new behavior will easily spread in the population if there is a high correlation between how influential (visible) and how easily influenced an agent is, which is determined by the sampling process and the adoption rule. We also analyze how the density and variance of the out-degree distribution affect the diffusion threshold and the endemic state.

2010/87 *Fair allocation of indivisible goods among two agents*
Eve RAMAEKERS

One must allocate a finite set of indivisible goods among two agents without monetary compensation. We impose Pareto-efficiency, anonymity, a weak notion of no-envy, a welfare lower bound based on each agent's ranking of the sets of goods, and a monotonicity property relative to changes in agents' preferences. We prove that there is a rule satisfying these axioms. If there are three goods, it is the only rule, with one of its sub-correspondences, satisfying each fairness axiom and not discriminating between goods. Further, we confirm the clear gap between these economies and those with more than two agents.

2011/20 *Attitudes towards income risk in the presence of quantity constraints*
Fred SCHROYEN

Considering a consumer with standard preferences, I trace out the consequences for risk aversion and prudence of quantity constraints on markets. I first show how the effect can be decomposed into a price risk effect and an endogenously changing risk aversion/prudence effect. Next, I calibrate locally both effects on relative risk aversion and prudence, using estimates on household demand for durables and labour supply. Finally, I perform a global numerical analysis of these effects. I conclude that quantity constraints have counter-intuitive and pronounced nonlinear effects on risk attitudes.

2011/39 *Stable and efficient coalitional networks*

Jean-François CAULIER, Ana MAULEON, Jose J. SEMPERE-MONERIS and Vincent J. VANNETELBOSCH

We develop a theoretical framework that allows us to study which bilateral links and coalition structures are going to emerge at equilibrium. We define the notion of coalitional network to represent a network and a coalition structure, where the network specifies the nature of the relationship each individual has with her coalition members and with individuals outside her coalition. To predict the coalitional networks that are going to emerge at equilibrium we propose the concepts of strong stability and of contractual stability. Contractual stability imposes that any change made to the coalitional network needs the consent of both the deviating players and their original coalition partners. Requiring the consent of coalition members under the simple majority or unanimity decision rule may help to reconcile stability and efficiency. Moreover, this new framework can provide insights that one cannot obtain if coalition formation and network formation are tackled separately and independently.

2011/43 *Behavioral fair social choice*

Marc FLEURBAEY and Erik SCHOKKAERT

Behavioral economics has shaken the view that individuals have well-defined, consistent and stable preferences. This raises a challenge for welfare economics, which takes as a key postulate that individual preferences should be respected. We agree with Bernheim (2009) and Bernheim and Rangel (2009) that behavioral economics is compatible with consistency of partial preferences and that subjective welfare measures do not offer an attractive way out of the impasse. However, their analysis which rests on traditional concepts like Pareto optimality and compensation tests, is not adequate to introduce distributional considerations. We explore how partial preferences can be introduced in the recent theory of welfare that has developed from the theory of fair allocation. We revisit the key results of that theory in a framework with partial preferences and show how one can derive partial orderings of individual and social situations.

OPTIMIZATION METHODS AND OPERATIONS RESEARCH

2010/51 *On the geometric interpretation of the nonnegative rank*

Nicolas GILLIS and François GLINEUR

The nonnegative rank of a nonnegative matrix is the minimum number of nonnegative rank-one factors needed to reconstruct it exactly. The problem of determining this rank and computing the corresponding nonnegative factors is difficult; however it has many potential applications, e.g., in data mining, graph theory and computational geometry. In particular, it can be used to characterize the minimal size of any extended reformulation of a given combinatorial optimization program. In this paper, we introduce and study a related quantity, called the restricted nonnegative rank. We show that computing this quantity is equivalent to a problem in polyhedral combinatorics, and fully characterize its computational complexity. This in turn sheds new light on the nonnegative rank problem, and in particular allows us to provide new improved lower bounds based on its geometric interpretation. We apply these

results to slack matrices and linear Euclidean distance matrices and obtain counter-examples to two conjectures of Beasley and Laffey, namely we show that the nonnegative rank of linear Euclidean distance matrices is not necessarily equal to their dimension, and that the rank of a matrix is not always greater than the nonnegative rank of its square.

2010/59 *Nonnegative factorization and the maximum edge biclique problem*
Nicolas GILLIS and François GLINEUR

Nonnegative matrix factorization (NMF) is a data analysis technique based on the approximation of a nonnegative matrix with a product of two nonnegative factors, which allows compression and interpretation of nonnegative data. In this paper, we study the case of rank-one factorization and show that when the matrix to be factored is not required to be nonnegative, the corresponding problem (R1NF) becomes NP-hard. This sheds new light on the complexity of NMF since any algorithm for fixed-rank NMF must be able to solve at least implicitly such rank-one subproblems. Our proof relies on a reduction of the maximum edge biclique problem to R1NF. We also link stationary points of R1NF to feasible solutions of the biclique problem, which allows us to design a new type of biclique finding algorithm based on the application of a block-coordinate descent scheme to R1NF. We show that this algorithm, whose algorithmic complexity per iteration is proportional to the number of edges in the graph, is guaranteed to converge to a biclique and that it performs competitively with existing methods on random graphs and text mining datasets.

2010/63 *Mixing sets linked by bidirected paths*
Marco DI SUMMA and Laurence WOLSEY

Recently there has been considerable research on simple mixed-integer sets, called mixing sets, and closely related sets arising in uncapacitated and constant capacity lot-sizing. This in turn has led to study of more general sets, called network-dual sets, for which it is possible to derive extended formulations whose projection gives the convex hull of the network-dual set. Unfortunately this formulation cannot be used (in general) to optimize in polynomial time. Furthermore the inequalities defining the convex hull of a network-dual set in the original space of variables are known only for some special cases. Here we study two new cases, in which the continuous variables of the networkdual set are linked by a bi-directed path. In the first case, which is motivated by lot-sizing problems with (lost) sales, we provide a description of the convex hull as the intersection of the convex hulls of $2n$ mixing sets, where n is the number of continuous variables of the set. However optimization is polynomial as only $n + 1$ of the sets are required for any given objective function. In the second case, generalizing single arc flow sets, we describe again the convex hull as an intersection of an exponential number of mixing sets and also give a combinatorial polynomial-time separation algorithm.

2010/67 *Measuring the variability in supply chains with the peakedness*
Philippe CHEVALIER, Jean-Christophe VAN DEN SCHRIECK and Ying WEI

This paper introduces a novel way to measure the variability of order flows in supply chains, the peakedness. The peakedness can be used to measure the variability assuming the order flow is a general point process. We show basic properties of the peakedness, and demonstrate its computation from real-time continuous demand processes, and cumulative demand

collected at fixed time intervals as well. We also show that the peakedness can be used to characterize demand, forecast, and inventory variables, to effectively manage the variability. Our results hold for both single stage and multistage inventory systems, and can further be extended to a tree-structured supply chain with a single supplier and multiple retailers. Furthermore, the peakedness can be applied to study traditional inventory problems such as quantifying bullwhip effects and determining safety stock levels. Finally, a numerical study based on real life Belgian supermarket data verifies the effectiveness of the peakedness for measuring the order flow variability, as well as estimating the bullwhip effects.

2010/68 *Fixed charge transportation on a path: optimization, LP formulations and separation*

Mathieu VAN VYVE

The fixed-charge transportation problem is an interesting problem in its own right. This paper further motivates its study by showing that it is both a special case and a strong relaxation of the big-bucket multi-item lot-sizing problem. We then provide a polyhedral analysis of the polynomially solvable special case in which the associated bipartite graph is a path. We give a $O(n^3)$ -time optimization algorithm and two $O(n^2)$ -size linear programming extended formulations. We describe a new class of inequalities that we call "path-modular" inequalities. We give two distinct proofs of their validity. The first one is direct and crucially relies on sub- and super-modularity of an associated set function. The second proof is by showing that the projection of one of the extended linear programming formulations onto the original variable space yields exactly the polyhedron described by the path-modular inequalities. Thus we also show that these inequalities suffice to describe the convex hull of the set of feasible solutions. We finally report on computational experiments comparing extended LP formulation, valid inequalities separation and a standard MIP solver.

2010/75 *Low-rank matrix approximation with weights or missing data is NP-hard*

Nicolas GILLIS and François GLINEUR

Weighted low-rank approximation (WLRA), a dimensionality reduction technique for data analysis, has been successfully used in several applications, such as in collaborative filtering to design recommender systems or in computer vision to recover structure from motion. In this paper, we study the computational complexity of WLRA and prove that it is NP-hard to find an approximate solution, even when a rank-one approximation is sought. Our proofs are based on a reduction from the maximum-edge biclique problem, and apply to strictly positive weights as well as binary weights (the latter corresponding to low-rank matrix approximation with missing data).

2011/1 *Random gradient-free minimization of convex functions*

Yurii NESTEROV

In this paper, we prove the complexity bounds for methods of Convex Optimization based only on computation of the function value. The search directions of our schemes are normally distributed random Gaussian vectors. It appears that such methods usually need at most n times more iterations than the standard gradient methods, where n is the dimension of the space of variables. This conclusion is true both for nonsmooth and smooth problems. For the

later class, we present also an accelerated scheme with the expected rate of convergence $O(n^2/k^2)$, where k is the iteration counter. For Stochastic Optimization, we propose a zero-order scheme and justify its expected rate of convergence $O(n/k^{1/2})$. We give also some bounds for the rate of convergence of the random gradient-free methods to stationary points of nonconvex functions, both for smooth and nonsmooth cases. Our theoretical results are supported by preliminary computational experiments.

2011/2 *First-order methods of smooth convex optimization with inexact oracle*
Olivier DEVOLDER, François GLINEUR and Yurii NESTEROV

In this paper, we analyze different first-order methods of smooth convex optimization employing inexact first-order information. We introduce the notion of an approximate first-order oracle. The list of examples of such an oracle includes smoothing technique, Moreau-Yosida regularization, Modified Lagrangians, and many others. For different methods, we derive complexity estimates and study the dependence of the desired accuracy in the objective function and the accuracy of the oracle. It appears that in the inexact case, the superiority of the fast gradient methods over the classical ones is not anymore absolute. Contrary to the simple gradient schemes, fast gradient methods necessarily suffer from accumulation of errors. Thus, the choice of the method depends both on desired accuracy and accuracy of the oracle. We present applications of our results to smooth convex-concave saddle point problems, to the analysis of Modified Lagrangians, to the prox-method, and some others.

2011/30 *Accelerated multiplicative updates and hierarchical ALS algorithms for nonnegative matrix factorization*
Nicolas GILLIS and François GLINEUR

Nonnegative matrix factorization (NMF) is a data analysis technique used in a great variety of applications such as text mining, image processing, hyperspectral data analysis, computational biology, and clustering. In this paper, we consider two well-known algorithms designed to solve NMF problems, namely the multiplicative updates of Lee and Seung and the hierarchical alternating least squares of Cichocki et al. We propose a simple way to significantly accelerate their convergence, based on a careful analysis of the computational cost needed at each iteration. This acceleration technique can also be applied to other algorithms, which we illustrate on the projected gradient method of Lin. The efficiency of the accelerated algorithms is empirically demonstrated on image and text datasets, and compares favorably with a state-of-the-art alternating nonnegative least squares algorithm. Finally, we provide a theoretical argument based on the properties of NMF and its solutions that explains in particular the very good performance of HALS and its accelerated version observed in our numerical experiments.

2011/37 *Benders decomposition for the hop-constrained survivable network design problem*
Quentin BOTTON, Bernard FORTZ, Luis GOUVEIA and Michael POSS

Given a graph with nonnegative edge weights and node pairs Q , we study the problem of constructing a minimum weight set of edges so that the induced subgraph contains at least K edge-disjoint paths containing at most L edges between each pair in Q . Using the layered

representation introduced by Gouveia (1998), we present a formulation for the problem valid for any $K, L \geq 1$. We use a Benders decomposition method to efficiently handle the big number of variables and constraints. We show that our Benders cuts contain the constraints used by Huygens et al. to formulate the problem for $L = 2,3,4$, as well as new inequalities when $L \geq 5$. While some recent works on Benders decomposition study the impact of the normalization constraint in the dual subproblem, we focus here on when to generate the Benders cuts. We present a thorough computational study of various branch-and-cut algorithms on a large set of instances including the real based instances from *SNDlib*. Our best branch-and-cut algorithm combined with an efficient heuristic is able to solve the instances significantly faster than CPLEX 12 on the extended formulation.

2011/44 *A real options model for electricity capacity expansion*
Joachim GAHUNGU and Yves SMEERS

This paper proposes a real option capacity expansion model for power generation with several technologies that differ in operation and investment costs. The economy is assumed perfectly competitive and the instantaneous payoff accruing from the generation system is the instantaneous welfare defined as the usual sum of consumer and producer surplus. The computation of this welfare requires the solution of a multi-technology optimization problem and the obtained optimal function value is not additively separable in generation capacities, contrary to what is generally assumed in multi asset real option models to prove the optimality of a myopic behavior. Using the geometric Brownian motion as uncertainty driver we propose two regression models to approximate the instantaneous welfare. A first, additively separable approximation implies the optimality of myopia. The second approximation is non separable and hence forces to take myopic behavior as an assumption. Using myopia as an assumption, we propose a semi-analytic method which combines Monte Carlo simulations (used to compute the value of the marginal capacity) and analytical treatment (to solve an optimal stopping problem on a regression scheme).

PUBLIC AND WELFARE ECONOMICS

2010/54 *Fertility, human capital accumulation, and the pension system*
Helmuth CREMER, Firouz GAHVARI and Pierre PESTIEAU

This paper provides a unified treatment of externalities associated with fertility and human capital accumulation within pay-as-you-go pension systems. It considers an overlapping generations model in which every generation consists of high earners and low earners with the proportion of types being determined endogenously. The number of children is deterministically chosen but the children's future ability is in part stochastic, in part determined by the family background, and in part through education. In addition to the customary externality source associated with a change in average fertility rate, this setup highlights another externality source. This is due to the effect of a parent's choice of number and educational attainment of his children on the proportion of high-ability individuals in the steady state. Our other results include: (i) Investments in education of high- and low-ability parents must be subsidized; (ii) direct child subsidies to one or both parent types can be negative; i.e., they can be taxes; (iii) net subsidies to children (direct child subsidies plus

education subsidies) to at least one type of parents must be positive; (iv) parents who have a higher number of children should invest less in their education.

2010/57 *The optimal trade-off between quality and quantity with uncertain child survival*

Thomas BAUDIN

The present paper investigates a standard model of endogenous fertility when child survival to adulthood is uncertain. In this framework, I first show that facing the risk their children die before reaching adulthood, parents don't always formulate a precautionary demand for children. Indeed, there exists a non-empty set of utility functions for which parents undershoot their number of children rather than overshooting it. Second, the properties of the optimal economic policy will crucially depend on the manner the Social Welfare Function takes uncertainty into account. More precisely, if Social Welfare is evaluated after the resolution of uncertainty, the parental response to uncertainty is a source of social inefficiency. Then, individual decisions have to be corrected through tax or transfer on both births and education. This property becomes crucial to determine the optimal public response to a mortality crisis in presence of positive externalities on education.

2010/58 *Family policies: what does the standard endogenous fertility model tell us?*

Thomas BAUDIN

Very few studies have explored the optimality properties of the "standard model" of fertility where parents must determine their optimal trade-off between quality and quantity. The present paper works to fill that gap and finds three main results. First, when there exist positive externalities in the accumulation of human capital, it is optimal to subsidize education and to tax births. Second, when the Social Welfare Function does not consist of the average utility, the social returns on educational investments can be weaker than the private returns when the optimal population growth rate is negative. In this case, the optimal economic policy consists in subsidizing births and taxing education. Finally, when the health expenditure is introduced as another source of positive externalities, it can be optimal to tax the parental health expenditure to decentralize the first-best path even if this expenditure is always too low at the laissez-faire equilibrium.

2010/66 *Compensating the dead? Yes we can!*

Marc FLEURBAEY, Marie-Louise LEROUX and Grégory PONTIÈRE

An early death is, undoubtedly, a serious disadvantage. However, the compensation of short-lived individuals has remained so far largely unexplored, probably because it appears infeasible. Indeed, short-lived agents can hardly be identified ex ante, and cannot be compensated ex post. We argue that, despite the above difficulties, a compensation can be carried out by encouraging early consumption in the life cycle. In a model with heterogeneous preferences and longevities, we show how a specific social criterion can be derived from intuitive principles, and we study the corresponding optimal policy under various informational assumptions. We also study the robustness of our solution to alternative types of preferences and savings policies.

2010/70 *Optimal pricing and capacity choice for a public service under risk of interruption*
Fred SCHROYEN and Adekola OYENUGA

We develop rules for pricing and capacity choice for an interruptible service that recognise the interdependence between consumers' perceptions of system reliability and their market behaviour. Consumers post ex ante demands, based on their expectations on aggregate demand. Posted demands are met if ex post supply capacity is sufficient. However, if supply is inadequate all ex ante demands are proportionally interrupted. Consumers' expectations of aggregate demand are assumed to be rational. Under reasonable values for the consumer's degrees of relative risk aversion and prudence, demand is decreasing in supply reliability. We derive operational expressions for the optimal pricing rule and the capacity expansion rule. We show that the optimal price under uncertainty consists of the optimal price under certainty plus a markup that positively depends on the degrees of relative risk aversion, relative prudence and system reliability. We also show that any reliability enhancing investment - though lowering the operating surplus of the public utility - is socially desirable as long as it covers the cost of investment.

2010/80 *Voting over piece-wise linear tax methods*
Juan MORENO-TERNERO

We analyze the problem of choosing the most appropriate method for apportioning taxes in a democracy. We consider a simple theoretical model of taxation and restrict our attention to piece-wise linear tax methods, which are almost ubiquitous in advanced democracies worldwide. We show that if we allow agents to vote for any method within a rich domain of piece-wise linear methods, then a majority voting equilibrium exists. Furthermore, if most voters have income below mean income then each method within the domain can be supported in equilibrium.

2010/81 *School tracking, social segregation and educational opportunity: evidence from Belgium*
Jean HINDRIKS, Marijn VERSCHELDE, Glenn RAYP and Koen SCHOORS

Educational tracking is a very controversial issue in education. The tracking debate is about the virtues of uniformity and vertical differentiation in the curriculum and teaching. The pro-tracking group claims that curriculum and teaching better aimed at children's varied interest and skills will foster learning efficacy. The antitracking group claims that tracking systems are inefficient and unfair because they hinder learning and distribute learning inequitably. In this paper we provide a detailed within-country analysis of a specific educational system with a long history of early educational tracking between schools, namely the Flemish secondary school system in Belgium. This is an interesting place to look because it provides a remarkable mix of excellence and inequality. Indeed the Flemish school system is repeatedly one of the best performers in the international harmonized PISA tests in math, science and reading; whereas it produces some of the most unequal distributions of learning between schools and students. Combining evidence from the PISA 2006 data set at the student and school level with recent statistical methods, we show first the dramatic impact of tracking on social segregation; and then, the impact of social segregation on equality of educational opportunity (adequately measured). It is shown that tracking, via social segregation, has a major effect on

inequality of opportunity. Children of different economic classes will have different access to knowledge.

2010/82 *School autonomy and educational performance: within-country evidence*

Jean HINDRIKS, Marijn VERSCHELDE, Glenn RAYP and Koen SCHOORS

This paper shows the value of school autonomy for educational performance. To fully capture the informational advantage of local actors, we define school autonomy as the operational empowerment of the principals and teachers. The Flemish secondary school system in Belgium is analyzed as it has a long history of educational school autonomy, but considerable variation between schools in school staff empowerment. Combining detailed school level and pupil level data from the PISA 2006 study with a semiparametric hierarchical model, we find strong indications that operational school autonomy is associated with high educational performance if appropriate accountability systems are active. Sensitivity tests show that both low and high-performers benefit from this kind of school autonomy.

2011/23 *Inequality aversion and separability in social risk evaluation*

Marc FLEURBAEY and Stéphane ZUBER

This paper examines how to satisfy a separability condition related to "independence of the utilities of the dead" (Blackorby et al., 1995; Bommier and Zuber, 2008) in the class of "expected equally distributed equivalent" social orderings (Fleurbaey, 2010). It also inquires into the possibility to keep some aversion to inequality in this context. It is shown that the social welfare function must either be utilitarian or take a special multiplicative form. The multiplicative form is compatible with any degree of inequality aversion, but only under some constraints on the range of individual utilities.

2011/24 *Social long term care insurance and redistribution*

Helmuth CREMER and Pierre PESTIEAU

We study the role of social long term care (LTC) insurance when income taxation and private insurance markets are imperfect. Policy instruments include public provision of LTC as well as a subsidy on private insurance. The subsidy scheme may be linear or nonlinear. For the linear part we consider a continuous distribution of types, characterized by earnings and survival probabilities. In the nonlinear part, society consists of three types: poor, middle class and rich. The first type is too poor to provide for dependence; the middle class type purchases private insurance and the high income type is self-insured. The main questions are at what level LTC should be provided to the poor and whether it is desirable to subsidize private LTC for the middle class. Interestingly, the results are similar under both linear and nonlinear schemes. First, in both cases, a (marginal) subsidy of private LTC insurance is not desirable. As a matter of fact, private insurance purchases should typically be taxed (at least at the margin). Second, the desirability of public provision of LTC services depends on the way the income tax is restricted. In the linear case, it may be desirable only if no demogrant (uniform lump-sum transfer) is available. In the nonlinear case, public provision is desirable when the income tax is sufficiently restricted. Specifically, this is the case when the income is subject only to a proportional payroll tax while the LTC reimbursement policy can be nonlinear.

2011/26 *Equity in health and health care*
Marc FLEURBAEY and Erik SCHOKKAERT

We discuss the conceptual foundations of measuring (in)equity in health and health care. After an overview of the recent developments in the measurement of socio-economic inequalities and in racial disparities, we show how these partial approaches can be seen as special cases of the more general social choice approach to fair allocation and equality of opportunity. We suggest that this latter framework offers many new analytical possibilities and is sufficiently rich to accommodate various ethical views. We emphasize that horizontal and vertical equity are intricately linked to each other. We then argue that a focus on overall well-being is necessary to put the partial results on health (care) inequity into a broader perspective and we discuss the pros and cons of various methods to evaluate the joint distribution of health and income: multidimensional inequality indices, dominance approaches, the use of happiness measures and finally the concept of equivalent income. Throughout the chapter the theoretical analysis is complemented with an overview of recent empirical results.

2011/42 *Tax treaties and the allocation of taxing rights with developing countries*
Quentin BOTTON, Bernard FORTZ, Luis GOUVEIA and Michael POSS

Global income taxation in the country of residence is a legal dogma of international taxation. We question this dogma from the perspective of relations with developing countries from a legal and economic perspective, and make a modern and fair proposal for tax treaties. We will show under which conditions a developing and a developed country will voluntarily sign a tax treaty where information is exchanged truthfully and whether they should share revenues. Moreover, we will demonstrate how the conclusion of a tax treaty can assist in the implementation of a tax audit system.

SUPPLY CHAIN MANAGEMENT

2010/84 *A theory of soft capture*
Per AGRELL and Axel GAUTIER

In this paper, we propose a model for regulatory capture that is based on information transmission and asymmetric information. In a three-tier model, a regulator is charged by a political principal to provide a signal for the type of a regulated firm. Only the firm can observe his type and the production of a correlated signal with a given accuracy is costly for the regulator. The firm can costlessly provide an alternative signal of lower accuracy that is presented to the regulator. In a self-enforcing equilibrium, the regulator transmits the firm-produced signal, internalizes its own savings in information cost and the firm enjoys higher information rents. The main feature of soft capture is that it is not based on a reciprocity of favors but on a congruence of interests between the firm and the regulator.

2010/85 *Dynamic joint investments in supply chains under information asymmetry*
Per AGRELL and Roman KASPERZEC

Supply chain management involves the selection, coordination and motivation of independently operated suppliers. However the central planner's perspective in operations management translates poorly to vertically separated chains, where suppliers may have

rational myopic reasons to object to full information sharing and centralized decision rights. Particular problems occur when a downstream coordinator demands relation-specific investments (equipment, cost improvements in processes, adaptation of components to downstream processes, allocation of future capacity etc.) from upstream suppliers without being able to commit to long-term contracts. In practice and theory, this leads often to a phenomenon of either underinvestment in the chain or costly vertical integration to solve the commitment problem. A two-stage supply chain under stochastic demand and information asymmetry is modelled. A repeated investment-production game with coordinator commitment in supplier's investment addresses the information sharing and asset-specific investment problem. We provide a mitigation of the hold-up problem on the investment cost observed by the supplier and an instrument for truthful revelation of private information by using an investment sharing device. We show that there is an interior solution for the investment sharing parameter and discuss some extensions to the work.

2011/16 *Comparison of heuristic procedures for an integrated model for production and distribution planning in an environment of shared resources*
Géraldine STRACK, Bernard FORTZ, Foud RIANE and Mathieu VAN VYVE

In this paper, we present a mathematical model which integrates tactical-operational production and distribution decisions in a shared resources environment. More precisely, we integrate lot sizing production and distribution decisions with vehicle routing decisions. We obtain a global multi-period multi-item multi-vehicle model where a capacity constraint models the link between production and distribution decisions. Three heuristics are presented in order to solve this global model. The first two ones are based on a decomposition approach of the global model in production and distribution submodels. The third heuristic offers a higher level of integration by taking into account transportation decisions in the production planning problem. Computational tests show that the performance of the heuristic depends on the amount of shared resources in the system, the type of customer demand but not on the weight of the production cost against the distribution cost. The three heuristics allow to tackle problems of larger size than an optimal solution approach.

TRADE AND ECONOMIC GEOGRAPHY

2010/64 *Innovation, antidumping and retaliation*
Kaz MIYAGIWA, Huasheng SONG and Hylke VANDENBUSSCHE

We study the effect of contingency trade policy in a multi-country oligopoly model with and without R&D opportunities. We show that firms benefit from unilateral protection but initiate antidumping (AD) only against the targets domiciled in substantially smaller countries. Also, AD filings are more likely when firms face R&D opportunities. These results are consistent with recent empirical findings, namely, (1) actions are mostly between industrial and developing countries, (2) developing countries use AD to retaliate against industrial countries, and (3) AD is concentrated in R&D-intensive industries. Interestingly, intellectual property rights violations in developing countries have no connection to AD filings.

2011/8 *Export performance of Chinese domestic firms: the role of foreign export spillovers*
Florian MAYNERIS and Sandra PONCET

We investigate how the proximity to multinational exporters influences the creation of new export linkages (extensive margin of trade) by domestic firms in China. Using panel data from Chinese customs for 1997-2007, we show that domestic firms' capacity to start exporting new varieties to new markets positively responds to the export activity of neighboring foreign firms for that same product-country pair. We find that foreign export spillovers are limited to ordinary trade activities. No foreign export spillovers are found for processing trade. More, export spillovers are stronger for sophisticated products indicating that proximity to foreign exporters may help domestic exporters to upgrade their exports. However we observe that foreign export spillovers are weaker when the technology gap between foreign and domestic firms is large, suggesting that upgrading may not occur when foreign firms have already a strong edge.

2011/12 *Geographical economics: a historical perspective*
Jacques THISSE

This paper provides a bird-eye overview of the history of spatial economic theory. It is organized around three main ideas (and authors): (i) land use and urban economics (Thünen), (ii) the nature of competition across space (Hotelling), and (iii) new economic geography and the emergence of economic agglomerations (Krugman).

2011/38 *International trade with endogenous mode of competition in general equilibrium*
J. Peter NEARY and Joe THARAKAN

This paper endogenizes the extent of intra-sectoral competition in a multi-sectoral general-equilibrium model of oligopoly and trade. Firms choose capacity followed by prices. If the benefits of capacity investment in a given sector are below a threshold level, the sector exhibits Bertrand behaviour, otherwise it exhibits Cournot behaviour. By endogenizing the threshold parameter in general equilibrium, we show how exogenous shocks such as globalization and technological change alter the mix of sectors between "more" and "less" competitive, or Bertrand and Cournot, and affect the relative wages of skilled and unskilled workers, even in a "North-North" model with identical countries.

2011/40 *Sustainable migration policies*
Pierre M. PICARD and Tim WORRALL

This paper considers whether countries might mutually agree a policy of open borders, allowing free movement of workers across countries. For the countries to agree, the short run costs must be outweighed by the long term benefits that result from better labor market flexibility and income smoothing. We show that such policies are less likely to be adopted when workers are less risk averse and when countries trade more. More surprisingly, we find that some congestion costs can help. This reverses the conventional wisdom that congestion costs tend to inhibit free migration policies.

CHAIRS AND RESEARCH PROJECTS UNDER CONTRACTS

This section discusses ongoing research projects at CORE. They are listed by sponsor: chairs, the University, the Belgian Federal Government, the Belgian French-speaking Community, the European Commission or industry.

GdF-SUEZ CHAIR: ENERGY ECONOMICS AND RISK MANAGEMENT

In order to develop formal and quantitative analysis in energy economics and in the management of risks associated to energy markets, GdF-Suez funds a Chair. Research is done at CORE and in ISBA (as partners within IMMAQ). Claude D'ASPREMONT and Pierre DEVOLDER are in charge of the implementation. Planned research topics include: computational models of the natural gas and electricity markets, quantitative analysis of investment in the energy sector, energy risk management with physical and financial assets, pricing models for natural gas and electricity.

LHOIST BERGHMANS CHAIR

A teaching and research chair, the Chair Lhoist Berghmans in Environmental Economics and Management aimed at fostering research likely to improve our knowledge from three points of view: (i) evaluating the costs for industry of applying clean technologies, (ii) evaluating the benefits for our society of applying these technologies, (iii) evaluating the global impact of industrial activities on the environment and on the improvement of living conditions through the use of their products. An interdisciplinary approach to these problems was needed in order to integrate environmental, economic, technological, and institutional factors into a coherent process and to quantify the effects of new environmental policy instruments on the competitiveness of industries and countries and on their overall wealth. Improving decision-making tools, both on individual firms and on society as a whole, was the main theme of this research.

Carlotta BALESTRA, Thomas BAUDIN, Sylvette LY and Vincent VANDERNOOT were working under the scope of this project coordinated by Thierry BRÉCHET. The project came to an end on January 31, 2011. The chair was also responsible for four courses in environmental economics and management, which were offered in many departments in the university.

DEVELOPMENT AND IMPLEMENTATION OF TOPOLOGY OPTIMIZATION METHODS FOR THE DESIGN OF ELECTROMAGNETIC DEVICES WITH MULTI-PHYSICS COUPLING

The project features three steps:

- Study and improvement of existing topology optimization tools, using a simple test case with the following two features: similarity with a real-world application and fast and accurate simulation to allow extensive numerical testing.

- Application of these tools to real-world cases such as a variable reluctance linear actuator or a ferrofluid micropump, with the objective of validating results obtained at the previous step.
- Application to two industrial test cases arising from a collaboration with two industrial partners.

This FRIA project (Fonds pour la Formation à la Recherche dans l'Industrie et dans l'Agriculture) is coordinated by Bruno DEHEZ, François GLINEUR, and Hamid BEN AHMED.

EXPECTATIONS AND VOLATILITY, EFFICIENT CAPITAL ACCUMULATION IMPLEMENTATION, BARGAINING, AND AUCTIONS (MIS ULYSSE)

The project focuses on:

- How to reduce the impact of expectations in the generation of excess volatility, and what are the consequences of imposing rationality conditions on the agents' expectations formation process?
- The inefficiencies created, in an overlapping generations setup, in the absence of financial instruments in which to save other than capital, or when only unbacked risky assets are available for savings. Next the identification of the policies able to implement the first-best steady state under such conditions is addressed.
- The identification of policies able to make the agents internalize the impact through consumption and production of pollution so that the social planner's steady state is decentralized.
- The impact of the individuals' health choices on life-expectancy and the return on savings, the inability of private annuities to price completely the moral hazard created by the incentives to extend one's life expectancy once insured, and the tax policy required to implement the first-best as a competitive equilibrium.

Stéphane BOUCHE, Nguyen Thang DAO, Vladislav NORA, and Hiroshi UNO are working under the scope of this project coordinated by Julio DAVILA and sponsored by the Fonds National de la Recherche Scientifique.

INFINITE-DIMENSIONAL STRUCTURED CONVEX OPTIMIZATION

The main objective of this project consists in trying to generalize finite-dimensional algorithms of convex optimization to structured infinite-dimensional convex problems, i.e. problems involving an infinite number of variables and/or an infinite number of constraints. The following themes are considered:

- Dual approach for problems with a finite number of equality constraints
- Polynomial approximation for optimization problems on functional spaces .

In both cases, the objective is to obtain a structured finite-dimensional convex problem.

- Generalization of classical methods and concepts to infinite-dimensional problems, in particular study of duality theory and introduction of a notion of barrier function for a positive function.

Olivier DEVOLDER is working under the scope of this project coordinated by François GLINEUR and Yurii NESTEROV and sponsored by the Fonds National de la Recherche Scientifique.

HEALTH GEOGRAPHY. DO THE CHARACTERISTICS OF RESIDENTIAL LOCATIONS INFLUENCE HEALTH STATUS AMONG THE BELGIAN POPULATION? A SPATIAL AND ECONOMETRIC APPROACH

The general goal of this project is to describe and explain spatial variations in Belgians' health status in function of the characteristics of residential locations. Two health indicators are studied (subjective health and mortality) and various aspects of residential locations are tackled (notably, physical characteristics, housing conditions, access to local resources, sociocultural composition, and perception of the neighbourhood). Different methodological problems put forward by the literature are dealt with, notably, the influence of the chosen spatial unit, the difficult distinction between contextual effects and compositional effects, and the problems of statistical biases arising from the endogeneity of residential locations.

Claire DUJARDIN is working under the scope of this project financed by the Belgian Fonds National de la Recherche Scientifique (FNRS).

STUDY OF FAIR AND STRATEGICALLY DECENTRALIZABLE SOLUTIONS TO ALLOCATION PROBLEMS OF GOODS IN ECONOMIC ENVIRONMENTS WITH INDIVISIBILITIES, HETEROGENEITIES OR EXTERNALITIES

One studies allocation problems of goods in economic environments with indivisibilities, heterogeneities, or externalities. The objective is to define rules that allow one selecting, whatever the problem one encounters, allocations considered as optimal. Therefore, rules should be efficient and fair and immune to manipulations of information by strategic agents. In each model one develops, one first follows an axiomatic approach to specify rules that satisfy efficiency and fairness criteria, then one applies implementation theory to determine if one can decentralize such rules. The motivation is hence normative and has, as its ultimate goal, enlightening political decision-makers about the compromises to make to solve such allocation problems.

Eve RAMAEKERS is working under the scope of this project financed by the Belgian Fonds National de la Recherche Scientifique (FNRS).

NONNEGATIVE MATRIX FACTORIZATION AND RELATED PROBLEMS: ALGORITHMS, COMPLEXITY AND APPLICATIONS

Nonnegative Matrix Factorization (NMF) is the problem of expressing a nonnegative matrix as the product of two low-rank nonnegative matrices. It is a new way of interpreting nonnegative data with applications in text mining, image processing, computational biology, ... One would like to study the complexity of NMF and related problems, design efficient algorithms and finally use the results for some applications.

Nicolas GILLIS, under the supervision of François GLINEUR, is working under the scope of this project financed by the Belgian Fonds National de la Recherche Scientifique (FNRS).

COOPERATION AND COMPETITION IN THE KNOWLEDGE ECONOMY

The goal of this project was to combine the general methods of industrial organization with the theories pertaining to coalition formation and to network structures in order to shed a new light on the issue of cooperation versus competition among firms. One focused the analysis on the industries producing "ideas" (i.e., R&D, information, networks, etc). The basic questions were the following: How does the formation of networks affect the process and the intensity of innovation? How does the formation of networks modify the institutional framework in these industries?

This Fonds de la Recherche Fondamentale Collective (FRFC) project was coordinated by Ana MAULEON, Paul BELLEFLAMME, Vincent VANNETELBOSCH, and Xavier WAUTHY and financed by the Fonds National de la Recherche Scientifique (FNRS). Chantal MARLATS was working under the scope of this project.

DEVELOPMENT OF MODELS AND EXACT APPROXIMATE SOLUTIONS METHODS FOR LINEAR AND NON-LINEAR, CONTINUOUS, MIXED AND INTEGER OPTIMIZATION PROBLEMS

This project studies the structure of difficult problems of optimization, of the identification of polynomial particular cases and the development of heuristic and exact methods of resolution.

This project financed by the Belgian Fonds National de la Recherche Scientifique (FNRS) gathers the Department of Computer Science of the Université Libre de Bruxelles, Brussels (coordinator: Bernard FORTZ), the Management School of the Université de Liège (coordinator: Yves CRAMA), the Numerical Analysis Research Unit of the Facultés Universitaires Notre-Dame de la Paix, Namur (coordinator: Philippe TOINT) and CORE, Université catholique de Louvain (coordinator: Laurence WOLSEY).

VIRTUAL MARKETPLACE FOR PATENT LICENSES (PATLICINFO)

Coordinated by Paul BELLEFLAMME (together with Bernard REMICHE, Faculty of Law), this multidisciplinary project aims at providing the scientific community and public authorities

with a better understanding of the actual functioning of the markets for patents, the way they (self) organize, their growth potential and how public policies could help to coordinate their development. Articulating primary data collection on patent licensing with case studies, law with econometrics and formal treatments, this project has received the financial support of the Federal Public Service, Economy, SME's, Self-Employed and Energy. Beyond a thorough examination of factors that impede technology transfers through arm's length market transactions on the Belgian territory, this research will help to appraise the role to impart to virtual platforms, either as informational intermediaries ('infomediaries') or as two-sided markets for technologies.

Ignace ADANT is working under the scope of this project.

ALGORITHMIC CHALLENGES IN LARGE NETWORKS

We look at some of the most recent and fundamental computational challenges raised by large networks. Our research activity is concentrated on questions related to the classification, equilibria calculation, visualization, and stochastic analysis of large networks. We address both theoretical and practical aspects of topics such as data-mining of text documents, web-searching, analysis of telephone, traffic and electricity networks, hierarchical reduction of large scale networks, and analysis of dynamical properties of large networks.

Vincent BLONDEL, Paul VAN DOOREN, Yurii NESTEROV, and Pierre-Antoine ABSIL are the co-promoters of this contract.

ECONOMETRIC MODELLING OF MULTIVARIATE FINANCIAL TIME SERIES

When developing multivariate time series models, a balance between sufficient flexibility and rapidly growing dimensionality (number of relations, of parameters) is necessary in order to incorporate the potentially time-varying dynamics of financial data in large dimensions. These issues are addressed by a range of complementary approaches (non-linear models, latent factor models, finite mixture models, locally stationary models).

Rainer VON SACHS, Luc BAUWENS, Christian HAFNER, and Johan SEGERS are coordinating this Actions de Recherche Concertées (ARC) project financed by the Communauté Française de Belgique. Arnaud DUFAYS is working under the scope of this project.

GEOGRAPHICAL MOBILITY OF FIRMS AND WORKERS

Recent increases in trade and capital flows, foreign direct investments and labor mobility have intensified the integration of national and regional economies, and strengthened the competition between them for both better and worse. At the international or intra-national levels, economies with high skill endowments keep on attracting scarce factors, generating generous return rates and increasing their supremacy. The polarization of economic activities and the concentration of scarce factors (such as knowledge and skills) are shaping both the world and the internal evolution of countries. Through five connected axes, the purpose of this project is to enhance the understanding of the determinants of factor mobility and the

interdependencies between factor mobility, public policies and economic performance. Axes 1 and 2 belong to the literature on the determinants of international factor mobility. The novelty of our approach is that it is based on new and unique databases on workers' and firms' mobility. In axes 3 to 5, we build bridges between different strands of literature to characterize the joint determination of factor mobility, economic performances and institutions (including public policies, norms, social capital, etc.).

Frédéric DOCQUIER (coordinator), Henri SNEESSENS, Jacques THISSE, Hylke VANDENBUSSCHE, and Bruno VAN DER LINDEN are working on this Actions de Recherche Concertées (ARC) project financed by the Communauté Française de Belgique.

MANAGING SHARED RESOURCES IN SUPPLY CHAINS

Supply Chain Management (SCM) is widely recognized as the largest source of potential gains in efficiency for the operations of organisations. It has also been the subject of many articles in the scientific literature, in the field of Operations Management, Operations Research, and Economy. The main lesson from SCM is that it is no longer enough for organisations to 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 et d'Etudes en Gestion Industrielle (CREGI) from the Facultés Universitaires Catholiques de Mons (FUCAM) is taking part in this Actions de Recherche Concertées (ARC) project financed by the Communauté Française de Belgique. The research is coordinated by Per AGRELL, Philippe CHEVALIER, Mathieu VAN VYVE and Laurence WOLSEY at CORE and Fouad RIANE at FUCAM. Adel HATAMI-MARBINI, Kwanghun CHUNG, Tanja MLINAR and Fatimeh SHAMSAEI are working under the scope of this project.

ECONOMIC POLICY AND FINANCE IN THE GLOBAL ECONOMY, EQUILIBRIUM ANALYSIS AND SOCIAL EVALUATION

The Belgian Science Policy administration has renewed this important research contract for a period of five years (2007-2011). CORE, Université catholique de Louvain, is the "Attraction Pole" and the promotor is Claude D'ASPREMONT.

The Belgian partners are ECON-IRES, Université catholique de Louvain (Promotor: Hylke VANDENBUSSCHE), Centrum voor Economische Studien, Katholieke Universiteit Leuven (Promotor: Erik SCHOKKAERT), Groupe d'Economie Quantitative et Optimisation, Facultés Universitaires Notre-Dame de la Paix, Namur (Promotor: Gani ALDASHEV), Fakulteit Economie

en Bedrijfskunde, Universiteit Gent (Promotor: Dirk VAN DE GAER), and European Center for Advanced Research in Economics and Statistics (ECARES), Université Libre de Bruxelles, Brussels (Promotor: Philippe WEIL). The European partners are Groupement de Recherche en Economie Quantitative d'Aix-Marseille, Universités d'Aix-Marseille II and III (Promotor: Jean-Benoît ZIMMERMANN), the London School of Economics (Promotor: Frank COWELL), Institut d'Economie Industrielle, Université de Toulouse 1 Capitole (Promotor: Helmuth CREMER), and Universiteit Maastricht (Promotor: Franz PALM).

The objective of the project is to simultaneously develop analytical tools for economic equilibrium analysis and use these tools in the fields of public policy and regulation. The strategic and mechanism design approaches to equilibrium theory in economics, as well as the normative dimension of the analysis and the possible use of optimization methods have to be developed. Various aspects of public decision, both at the micro and the macro level, and the regulation of both social and industrial organizations are examined. Econometric models should support the theoretical analysis.

Rafael DE MELO and Adrien VIGIER are working within the scope of this project.

ASSESSING AND DEVELOPING INITIATIVES OF COMPANIES TO CONTROL AND REDUCE COMMUTER TRAFFIC (ADICCT)

To achieve the objective of the project, the efficiency of existing mobility policies are evaluated considering various criteria: time and distance savings, potential of modal shifts, contribution to a fair division of costs, and level of employers and employees acceptance. The assessment of the level of success is analysed in models including both spatial and economic variables. Finally, the expected result is a guideline improving the decision process of companies in their investments for a sustainable mobility.

The partners of this project are the Universiteit Gent (coordinator : Frank WITLOX), the Facultés Universitaires Catholiques de Mons (promotor : Bart JOURQUIN), CORE, Université catholique de Louvain (promotor : Isabelle THOMAS), and the Universiteit Antwerpen (promotor: Ann VERHETSEL).

Laurent VAN MALDEREN is working within the scope of this project coordinated by Isabelle THOMAS and financed by the Belgian Science Policy.

SYSTEMATIC ANALYSIS OF HEALTH RISKS AND PHYSICAL ACTIVITY ASSOCIATED WITH CYCLING POLICIES (SHAPES)

The main objective of this project was to analyze the risks and benefits of a modal shift from passenger cars to cycling. In this way SHAPES enables policy makers to make clear and science-based choices related to commuter cycling and transport model shift in cities.

This project was coordinated by Isabelle THOMAS and financed by the Belgian Science Policy. It came to an end in July 2011. The partners were the Vlaamse Instelling voor Technologisch Onderzoek Integrale Milieu Studies (coordinator : Luc INT PANIS), the Faculty of Physical Education of the Vrije Universiteit Brussel (promotor : Romain MEEUSEN), and CORE, Université

catholique de Louvain (promotor: Isabelle THOMAS). Gregory VANDENBULCKE is working within the scope of this research.

MOBILITY IN A SUSTAINABLE DEVELOPMENT PERSPECTIVE

INTERACT is a cluster project in the domain of transport and mobility, within the framework of "Science for Sustainable Development" (SSD). The research has to bridge research domains to be able to respond to common and complex problems. The purpose of the cluster project is to compare and deepen previously acquired knowledge and translate it to a new vision that involves an integrated approach to policy proposals by cooperation in an interdisciplinary context. It is expected that a clustering project tries to take into account in a balanced way, the social, economic and environmental aspects in order to support a policy aimed at sustainable development.

This project is coordinated at CORE by Isabelle THOMAS and financed by the Belgian Science Policy. The partners are the Katholieke Universiteit Leuven (coordinator : Thérèse STEENBERGHEN) and the Universiteit Antwerpen (promotor : Ann VERHETSEL) and the Institut de Recherche santé et société, UCL (promotor: Vincent LORANT).

SOCIAL SECURITY AND DIFFERENTIAL LONGEVITY

This project focuses on the issue of the optimal design of Social Security when individuals have different life expectancies and tries to answer the following questions: how should differential mortality be included in pension systems? How should contributions and benefits be linked to life duration? The answers are likely to depend on the modeling of the survival function (whether individuals or public policies can influence it or not). This project lies at the frontier of public economics, health economics, behavioral economics, and the economics of ageing.

Marie-Louise LEROUX was working within the scope of this project financed by the Marie Curie (IEF) FP7 European Commission Programme.

RISK AND EQUITY IN CLIMATE CHANGE PROBLEMS

The issue of climate change is becoming more and more prominent in the public debate. It raises several ethical issues in terms of intergenerational equity and global justice. Standard cost-benefit analysis neglects inequalities, assuming that appropriate redistributions are possible, but such redistributions are unlikely at the large temporal and regional scales involved in climate change issues. Hence it is of particular importance to develop evaluation methods to assess the distributional impact of climate policies. There are several challenges that must be met to develop such methods. A first problem is the question of discounting. Standard discounting methods violate intergenerational equity. Deriving an index of intergenerational equity that accounts for discounting is therefore a theoretical challenge. A second issue is that the policies under consideration have uncertain consequences, because the exact value of the parameters in the climate model are not known for sure. Hence inequalities between regions are uncertain and uncertainties are unevenly distributed among regions. These phenomena, which have largely been overlooked so far, seem particularly

relevant for policy-making. One aim of the proposed research project is to develop new evaluation methods to assess intergenerational and risk inequalities. To do so, we can rely on recent developments in decision and welfare theories. At the same time, the project aims at showing the relevance of the proposed methods. For this purpose, we will rely on the CWS climate-economy integrated assessment model, that will have to be adapted to take into account risks and adaptation policies. This would be the occasion to deepen our knowledge of the relative merits of alternative policies aiming at reducing or mitigating the effects of greenhouse gas emissions, especially in terms of inequality. The wider long-term objective will be to improve policy evaluation and to help decision-making.

Stéphane ZUBER was working within the scope of this project financed by the Marie Curie (IEF) FP7 European Commission Programme.

POVERTY, RESOURCE EQUALITY AND SOCIAL POLICIES

This project aims at revisiting the economics of poverty by using recent advances in welfare economics and behavioural economics. First, poverty measurement theory will be enriched by taking account of individual preferences over the several dimensions of poverty. New poverty indices will be defined. They will be 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 will be added to theories of social welfare based on equality of opportunities. New evaluation criteria of taxation policies will be derived. These criteria will be applied to the design of fiscal reforms. Third, extreme poverty will be 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 will be 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 Commission and coordinated by François MANIQUET.

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 (LUTI). 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.

Claire DUJARDIN, Alain PHOLO BALA and Grégory VANDENBULCKE are working under the scope of this project financed by the European Commission and coordinated at CORE by Isabelle THOMAS.

SECURED 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 financed by the Walloon Region. The coordinator is the Crypto Group at UCL (promotor: Olivier PEREIRA). The partners are CORE (promotor: Mathieu VAN VYVE) and the Scientific and Public Involvement in Risk Allocations Laboratory of Université of Liège (promotor: Sébastien BRUNET). Abdelrahman ALY is working under the scope of this project.

ANTICIPATION OF THE OIL PEAK EFFECTS ON THE WALLON TERRITORY

The objective of this dedicated research is to analyze the potential impacts of peak oil on the Walloon territory and, most important, to analyze how landuse planning may be helpful to alleviate potential adverse impacts. Two key issues were scrutinized: households' vulnerability to peak oil and the interplay between mobility and location. The project developed a simple linear programming model, MILES, to evaluate the magnitude of the so-called "wasteful commuting". This model is used in combination with other data bases to elaborate interdisciplinary prospective analyzes at the horizon 2050.

The project financed by the Wallon Region is coordinated by Thierry BRÉCHET. CORE, CREAT (UCL) and GUIDe (Université Libre de Bruxelles) are the partners of the project.

LEGAL AND ECONOMIC ANALYSIS OF THE INTERNATIONAL TRANSFERS OF ENVIRONMENTALLY FRIENDLY TECHNOLOGIES

The research project financed by the "Prix GdF-Suez" and coordinated by Paul BELLEFLAMME (together with Bernard REMICHE, Faculty of Law) concerns the analysis of international transfers of environmentally friendly technologies, from both a legal and an economic point of view. In particular, the project aims at understanding better the mechanisms through which so-called "green technologies" are diffused, and to assess what regulatory tools are the most suitable to promote such diffusion.

LONG TERM ENERGY PRICES

The objective of this project is to construct long term equilibrium models of interacting energy forms under uncertainty with the view of constructing consistent long term energy prices.

Olivier DURAND-LASSERVE is working under the scope of this project coordinated by Yves SMEERS and financed by GdF Suez Belgium.

REAL OPTIONS, SYSTEMS DYNAMICS AND BOOM AND BUST IN INVESTMENTS

The objective of this project is to construct stylized (real options, system dynamics) equilibrium models of investment in competitive electricity markets with the view of analyzing the possible emergence of investment cycles.

Joachim GAHUNGU is working under the scope of this project coordinated by Yves SMEERS and financed by GdF Suez Belgium.

SHORT TERM ENERGY PRICES

The objective of this project is to construct multifactor risk models of short term electricity markets with the view of understanding forward electricity markets.

Gauthier DE MAERE D'AETRYCKE is working within the scope of this project coordinated by Yves SMEERS and financed by GdF Suez Belgium.

DEVELOPMENT OF A METHOD TO COMPUTE TOTAL PATHOLOGY COST

The purpose of the project is to develop a computation method for the complete treatment of a pathology. We analyze simultaneously the different services and the accounting books of the clinic. The aim is to match the patient flow with the accounting data in order to identify cost drivers. The analysis is based on the Process Mapping method, which consists in analyzing all operations by following the patient from admission until the end of treatment. Each operation is categorized and analyzed in terms of the resources it uses. The next step is to use principles of Activity Based Costing in order to associate the operations with accounting data. We follow a top-down approach where we start with large entities and divide the costs into smaller and smaller items. To do this we rely on planning information rather than on time-measures. This makes more apparent how planning is actually a major driver of cost and enables us to quickly refine our analysis. The final goal is to derive a method to compute the costs of a pathology objectively and transparently.

Jean-Christophe VAN DEN SCHRIECK is working within the scope of this project coordinated by Philippe CHEVALIER and financed by the Cliniques Universitaires Saint-Luc, Brussels, Belgium.

BEHAVIORAL ECONOMICS, NETWORKS AND COMPETITION

We will study equilibrium concepts in coalition and network formation. We will try to answer the following questions: Which coalitional networks are likely to be stable? Which coalitional networks are efficient? Will efficient coalitional networks be formed? This analysis will be conducted theoretically and the predictions tested in the laboratory. In addition, we will also analyze social networks. Social preferences and network structures necessarily interplay and we will provide theoretical results and experimental evidence on this relationship.

This project financed by the Spanish Ministry of Sciences and Innovation, is coordinated by Ana MAULEON and Vincent VANNETELBOSCH.

EVALUATION, CHOICE AND DECISION IN URBAN AND PERIURBAN LAND USE. AN INTERDISCIPLINARY APPROACH OF RESIDENTIAL AND DAILY MOBILITIES

The project ECDESUP is funded by the Agence Nationale de Recherche (ANR, France). It is led by ThéMA at the University of Besançon (coordinator: Pierre FRANKHAUSER). It involves researchers from the Université of Strasbourg (promotor: Dominique ANSEL), from the Centre d'Economie et Sociologie Appliquées à l'Agriculture et aux Espaces Ruraux (CESAER) in Dijon (promotor: Mohamed HILAL) and CORE, Université catholique de Louvain (promotor: Dominique PEETERS). It addresses questions related to residential choice and the daily mobility of households, which represent key issues for the sustainable management of urban territories particularly in growing urban fringes or in deprived neighbourhoods.

Geoffrey CARUSO, Dominique PEETERS, and Isabelle THOMAS are working on this project at CORE.

MEASURING PRODUCTIVE EFFICIENCY IN ELECTRICITY DISTRIBUTION: AN APPLICATION TO INCENTIVE REGULATION OF SWISS UTILITIES

The project investigates and develops firm-level cost-efficiency measures for use in incentive regulation schemes aiming at methods for latent heterogeneity among operators. The project looks both at parametric and non-parametric methods and uses both data from Norwegian electricity distribution and Swiss distribution operators.

The project is financed by the Swiss Federal Energy Office and done in collaboration with the Eidgenössische Technische Hochschule Zürich, Switzerland (Prof. FILIPPINI) and the Institute for Microeconomics and Public Economics, Mecop, Swiss Italian University of Lugano (USI), Italy. The coordinator at CORE is Per AGRELL.

ACCESS TO JOBS IN FRENCH ENTERPRISE ZONES: A MATCHING BETWEEN EMPLOYMENTS AND RESIDENTS

The aim of this project is to evaluate the impact of French enterprise zones ('Zones Urbaines Sensibles', 'Zones Franches Urbaines') on employment of inhabitants while taking into account their impact on the social composition of targeted areas. The project relies on identification

methods based on discontinuity frontier designs, using various sources of geolocalised data implemented in a Geographical Information System. A first axis of the project aims at evaluating the evolution of employment before and after the implementation of the policy, while a second axis focuses on the evolution of the social composition and tries to evaluate whether the observed evolution results from changes in the social characteristics of inhabitants or from selective migrations between targeted and non-targeted areas. Finally, a third axis aims at estimating an equilibrium search model between individuals and firms located in targeted areas.

The project is financed by DARES, French Ministry of Labor. The promoters are Florence GOFFETTE-NAGOT (CNRS, GATE, Lyon), S. CHARLOT (UMR-GAEI, Grenoble) and Claire DUJARDIN (CORE, UCL).

THE ANALYSIS OF ECONOMIC PERFORMANCE

The project aims at developing consolidated non-parametric efficiency 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 and professor GRIFELL-TATJE (Universitat Autònoma Barcelona) coordinate this project.

PUBLICATIONS

- CORE REPRINTS
- OTHER PUBLISHED PAPERS
- BOOKS
- EDITED BOOKS AND REPORTS
- ARTICLES IN NEWSPAPERS
- CORE DISCUSSION PAPERS
- OTHER DISCUSSION PAPERS AND MANUSCRIPTS
- EDITORIAL ACTIVITIES

■ CORE REPRINTS

2235. Rafael A. MELO and Laurence A. WOLSEY. Uncapacitated two-level lot-sizing. *Operations Research Letters*, 38(4), 241-245, 2010.
2236. Nicola ACOCELLA, Giovanni DI BARTOLOMEO and Paolo G. PIACQUADIO. Conflict of interests, (implicit) coalitions and Nash policy games. *Economics Letters*, 105(3), 303-305, 2009.
2237. Thérèse STEENBERGHEN, Koen AERTS and Isabelle THOMAS. Spatial clustering of events on a network. *Journal of Transport Geography*, 18(3), 411-418, 2010.
2238. Claude D'ASPREMONT and Rodolphe DOS SANTOS FERREIRA. Oligopolistic competition as a common agency game. *Games and Economic Behavior*, 70(1), 21-33, 2010.
2239. Geir B. ASHEIM, Claude D'ASPREMONT and Kuntal BANERJEE. Generalized time-invariant overtaking. *Journal of Mathematical Economics*, 46(4), 519-533, 2010.
2240. Claude D'ASPREMONT, Rodolphe DOS SANTOS FERREIRA and Louis-André GÉRARD-VARET. Strategic R&D investment, competitive toughness and growth. *International Journal of Economic Theory*, 6(3), 273-295, 2010.
2241. Olivier DEVOLDER, François GLINEUR and Yurii NESTEROV. Solving infinite-dimensional optimization problems by polynomial approximation. In M. Diehl, F. Glineur, E. Jarlebring and W. Michiels (eds.), *Recent Advances in Optimization and its Applications in Engineering*, Heidelberg, Springer, 37-46, 2010.
2242. Jonathan DENIES, Bruno DEHEZ, François GLINEUR and Hamid BEN AHMED. Impact of the material distribution formalism on the efficiency of evolutionary methods for topology optimization. In M. Diehl, F. Glineur, E. Jarlebring and W. Michiels (eds.), *Recent Advances in Optimization and its Applications in Engineering*, Heidelberg, Springer, 489-498, 2010.
2243. Géraldine BOUS, Philippe FORTEMPS, François GLINEUR and Marc PIRLOT. ACUTA: a novel method for eliciting additive value functions on the basis of holistic preference statements. *European Journal of Operational Research*, 206(2), 435-444, 2010.
2244. Helmuth CREMER, Philippe DE DONDER, Dario MALDONADO and Pierre PESTIEAU. Commodity taxation under habit formation and myopia. *The B.E. Journal of Economic Analysis & Policy*, 10(1) (Contributions), Article 89, 2010.
2245. Ying WEI, Frank Y. CHEN, Mark LEE, Houmin YAN, Kenneth KONG and Chi Ho NG. Divide and conquer: from MTO to ATO/MTO. A case study of an electronics manufacturer. In T.C. Edwin Cheng and T.-M. Choi (eds.), *Innovative Quick Response Programs in Logistics and Supply Chain Management*, International Handbooks on Information Systems, Heidelberg, Springer, 331-354, 2010.
2246. Nicolas BOCCARD and Xavier Y. WAUTHY. Equilibrium vertical differentiation in a Bertrand model with capacity precommitment. *International Journal of Industrial Organization*, 28(3), 288-297, 2010.

2247. Jean HINDRIKS et Marijn VERSCHELDE. L'école de la chance. *Regards Economiques*, 77, février 2010.
2248. Helmuth CREMER, Philippe DE DONDER and Pierre PESTIEAU. Education and social mobility. *International Tax and Public Finance*, 17(4), 357-377, 2010.
2249. Gilles GRANDJEAN, Ana MAULEON and Vincent VANNETELBOSCH. A characterization of farsightedly stable networks. *Games*, 1(3), 226-241, 2010.
2250. P. Jean-Jacques HERINGS, Ana MAULEON and Vincent VANNETELBOSCH. Coalition formation among farsighted agents. *Games*, 1(3), 286-298, 2010.
2251. Isabelle THOMAS, Pierre FRANKHAUSER, Benoît FRENAY and Michel VERLEYSEN. Clustering patterns of urban-built-up areas with curves of fractal scaling behaviour. *Environment and Planning B: Planning and Design*, 37(5), 942-954, 2010.
2252. Thomas BAUDIN. A role for cultural transmission in fertility transitions. *Macroeconomic Dynamics*, 14(4), 454-481, 2010.
2253. Victor GINSBURGH, Patrick LEGROS and Nicolas SAHUGUET. On the incidence of commissions in auction markets. *International Journal of Industrial Organization*, 28(6), 639-644, 2010.
2254. Santanu S.DEY and Laurence A.WOLSEY. Two row mixed-integer cuts via lifting. *Mathematical Programming Series B*, 124(1-2), 143-174, 2010.
2255. Marco DI SUMMA and Laurence A.WOLSEY. Lot-sizing with stock upper bounds and fixed charges. *SIAM Journal on Discrete Mathematics*, 24(3), 853-875, 2010.
2256. Michele CONFORTI, Laurence A.WOLSEY and Giacomo ZAMBELLI. Projecting an extended formulation for mixed-integer covers on bipartite graphs. *Mathematics of Operations Research*, 35(3), 603-623, 2010.
2257. Toshihiro OKUBO, Pierre M. PICARD and Jacques-François THISSE. The spatial selection of heterogeneous firms. *Journal of International Economics*, 82(2), 230-237, 2010.
2258. Adel HATAMI-MARBINI and Madjid TAVANA. An extension of the linear programming method with fuzzy parameters. *International Journal of Mathematics in Operational Research*, 3(1), 44-55, 2011.
2259. Nicolas BOCCARD and Xavier Y. WAUTHY. Ensuring quality provision through capacity regulation under price competition. *The B.E. Journal of Theoretical Economics*, 10(1) (Topics), Article 47, 2010.
2260. Gautier DE MAERE D'AERTRYCKE and Yves SMEERS. The valuation of power futures based on optimal dispatch. *The Journal of Energy Markets*, 3(3), 27-50, 2010.
2261. Jacques-François THISSE. How transport costs shape the spatial pattern of economic activity. *The Future for Interurban Passenger Transport. Bringer Citizens Closer Together*. 18th International Symposium on Transport Economics and Policy, 16-18 November 2009, Madrid. OECD Publishing, Paris, 25-51, 2010.

2262. Claire DUJARDIN and Florence GOFFETTE-NAGOT. Neighborhood effects on unemployment? A test à la Altonji. *Regional Science and Urban Economics*, 40(4), 380-396, 2010.
2263. Saber SAATI, Adel HATAMI-MARBINI and Madjid TAVANA. Data envelopment analysis: an efficient duo linear programming approach. *International Journal of Productivity and Quality Management*, 7(1), 90-103, 2011.
2264. Carmen HERRERO, Juan D. MORENO-TERNERO and Giovanni PONTI. On the adjudication of conflicting claims: an experimental study. *Social Choice and Welfare*, 34(1), 145-179, 2010.
2265. Maarten VAN DIJCK and Tom TRUYTS. Ideas, interests, and politics in the case of Belgian corn law repeal, 1834-1873. *The Journal of Economic History*, 7(1), 173-198, 2011.
2266. Jean CAVAILHES, Pierre FRANKHAUSER, Dominique PEETERS and Isabelle THOMAS. Residential equilibrium in a multifractal metropolitan area. *The Annals of Regional Science*, 681-704, 45(3), 2010.
2267. Takatoshi TABUCHI and Jacques-François THISSE. A new economic geography model of central places. *Journal of Urban Economics*, 69, 240-252, 2011.
2268. Marie-Louise LEROUX, Pierre PESTIEAU and Grégory PONTIÈRE. Optimal linear taxation under endogenous longevity. *Journal of Population Economics*, 24(1), 213-237, 2011.
2269. Helmuth CREMER and Pierre PESTIEAU. Myopia, redistribution and pensions. *European Economic Review*, 55(2), 165-175, 2011.
2270. Thierry BRÉCHET and Pierre M. PICARD. The price of silence: markets for noise licenses and airports. *International Economic Review*, 51(4), 1097-1125, 2010.
2271. David DE LA CROIX and Michel LUBRANO. The tradeoff between growth and redistribution: ELIE in an overlapping generations model. Chapter 11 in C. Gamel and M. Lubrano (eds.), *Macrojustice. A Pluridisciplinary Appraisal of Kolm's Theory*, Heidelberg, Springer, 307-339, 2010.
2272. Michel M. DENUIT, Louis ECKHOUDT and Mario MENEGATTI. Correlated risks, bivariate utility and optimal choices. *Economic Theory*, 46(1), 39-54, 2011.
2273. Philippe MARTIN, Thierry MAYER and Florian MAYNERIS. Spatial concentration and plant-level productivity in France. *Journal of Urban Economics*, 69(2), 182-195, 2011.
2274. Nicolas GILLIS and Robert J. PLEMMONS. Dimensionality reduction, classification, and spectral mixture analysis using non-negative underapproximation. *Optical Engineering*, article 027001, 50(2), 2011.
2275. Olivier DURAND-LASSERVE, Axel PIERRU and Yves SMEERS. Uncertain long-run emission targets, CO₂ price and global energy transition: a general equilibrium approach. *Energy Policy*, 38(9), 5108-5122, 2010.

2276. Thierry BRÉCHET, François GÉRARD and Henry TULKENS. Efficiency vs. stability in climate coalitions: a conceptual and computational appraisal. *The Energy Journal*, 32(1), 49-75, 2011.
2277. Eric DRUENNE, Andreas EHRENMANN, Gauthier DE MAERE D'AERTRYCKE and Yves SMEERS. Good-deal investment valuation in stochastic generation capacity expansion problems. *Proceedings of the 44th Hawaii International Conference on System Sciences (HICSS-44)*, IEEE Computer Society, 2011.
2278. Adel HATAMI-MARBINI and Madjid TAVANA. An extension of the Electre I method for group decision-making under a fuzzy environment. *Omega*, 39(4), 373-386, 2011.
2279. Juan D. MORENO-TERNERO. A coalitional procedure leading to a family of bankruptcy rules. *Operations Research Letters*, 39(1), 1-3, 2011.
2280. Biung-Ghi JU and Juan D. MORENO-TERNERO. Progressive and merging-proof taxation. *International Journal of Game Theory*, 40(1), 43-62, 2011.
2281. François MANIQUET. An axiomatic study of the ELIE allocation rule. Chapter 6 in C. Gamel and M. Lubrano (eds.), *On Kolm's Theory of Macrojustice. A Pluridisciplinary Forum of Exchange*. Heidelberg, Springer, 189-206, 2010.
2282. Erwin OOGHE and Erik SCHOKKAERT. Is ELIE a wasteful minimum income scheme? Chapter 8 in C. Gamel and M. Lubrano (eds.), *On Kolm's Theory of Macrojustice. A Pluridisciplinary Forum of Exchange*. Heidelberg, Springer, 235-255, 2010.
2283. Jean-François LASLIER and François MANIQUET. Classical electoral competition under approval voting. Chapter 17 in J.-F. Laslier and M.R. Sanver (eds.), *Handbook on Approval Voting*, Studies in Choice and Welfare, Heidelberg, Springer, 415-429, 2010.
2284. Marc FLEURBAEY and François MANIQUET. Compensation and responsibility. Chapter 22 in K.J. Arrow, A. Sen and K. Suzumura (eds.), *Handbook of Social Choice and Welfare, Vol. 2*, Amsterdam, North-Holland, 507-604, 2011.
2285. Antoine BOMMIER, Marie-Louise LEROUX and Jean-Marie LOZACHMEUR. Differential mortality and social security. *Canadian Journal of Economics/Revue Canadienne d'Economie*, 44(1), 273-289, 2011.
2286. Marie-Louise LEROUX. Endogenous differential mortality, non-contractible effort and non-linear taxation. *International Tax and Public Finance*, 18(1), 56-73, 2011.
2287. Philippe MARTIN, Thierry MAYER and Florian MAYNERIS. Public support to clusters. A firm level study of French "Local Productive Systems". *Regional Science and Urban Economics*, 41(2), 108-123, 2011.
2288. Pamina KOENING, Florian MAYNERIS et Sandra PONCET. Economies d'agglomération à l'exportation et difficulté d'accès aux marchés. *Economie et Statistique*, 435-436, 85-103, 2010.

-
2289. Marc FLEURBAEY. Assessing risky social situations. *Journal of Political Economy*, 118(4), 649-680, 2010.
2290. David de la CROIX and Marie VANDER DONCKT. Would empowering women initiate the demographic transition in least developed countries? *Journal of Human Capital*, 4(2), 85-129, 2010.
2291. Ana MAULEON, Jose J. SEMPERE MONERRIS and Vincent J. VANNETELBOSCH. Networks of manufacturers and retailers. *Journal of Economic Behavior & Organization*, 77(3), 351-367, 2011.
2292. Arne SCHOLLAERT and Dirk VAN DE GAER. Natural resources and internal conflict. *Environmental and Resource Economics*, 44(2), 145-165, 2009.
2293. Christian SCHLUTER and Dirk VAN DE GAER. Upward structural mobility, exchange mobility, and subgroup consistent mobility measurement: U.S.-German mobility rankings revisited. *Review of Income and Wealth*, 57(1), 1-22, 2011.
2294. Wouter VERGOTE. Collusion in repeated auctions: a simple dynamic mechanism. *Economics Bulletin*, 31(1), 714-721, 2011.
2295. Arastou KHATIBI and Wouter VERGOTE. Trade policy in the face of price and non-price strategies. *Portuguese Economic Journal*, 10(1), 3-21, 2011.
2296. Roland Iwan LUTTENS. Minimal rights based solidarity. *Social Choice and Welfare*, 34(1), 47-64, 2010.
2297. Cécile TANNIER, Isabelle THOMAS, Gilles VUIDEL and Pierre FRANKHAUSER. A fractal approach to identifying urban boundaries. *Geographical Analysis*, 43(2), 211-227, 2011.
2298. Juan D. MORENO-TERNERO. Voting over piece-wise linear tax methods. *Journal of Mathematical Economics*, 47(1), 29-36, 2011.
2299. Jeroen V.K. ROMBOUTS and Marno VERBEEK. Evaluating portfolio value-at-risk using semi-parametric GARCH models. *Quantitative Finance*, 9(6), 737-745, 2009.
2300. Taoufik BOUEZMARNI and Jeroen V.K. ROMBOUTS. Semiparametric multivariate density estimation for positive data using copulas. *Computational Statistics and Data Analysis*, 53(6), 2040-2054, 2009.
2301. Taoufik BOUEZMARNI and Jeroen V.K. ROMBOUTS. Nonparametric density estimation for multivariate bounded data. *Journal of Statistical Planning and Inference*, 140(1), 139-152, 2010.
2302. Taoufik BOUEZMARNI, Jeroen V.K. ROMBOUTS and Abderrahim TAAMOUTI. Asymptotic properties of the Bernstein density copula estimator for alpha-maxing data. *Journal of Multivariate Analysis*, 101(1), 1-10, 2010.
2303. Luc BAUWENS, Arie PREMINGER and Jeroen V.K. ROMBOUTS. Theory and inference for a Markov switching Garch model. *Econometrics Journal*, 13(2), 218-244, 2010.

2304. Fred SCHROYEN and Adekola OYENUGA. Optimal pricing and capacity choice for a public service under risk of interruption. *Journal of Regulatory Economics*, 39(3), 252-282, 2011.
2305. Joe THARAKAN and Jacques-François THISSE. Market integration: trade versus economic geography. In M.N. Jovanovic (ed.), *International Handbook on the Economics of Integration, Volume II. Competition, Spatial Location of Economic Activity and Financial Issues*. Cheltenham, Edward Elgar, 119-147, 2011.
2306. Pierre-Philippe COMBES, Miren LAFOURCADE, Jacques-François THISSE and Jean-Claude TOUTAIN. The rise and fall of spatial inequalities in France: A long-run perspective. *Explorations in Economic History*, 48(2), 243-271, 2011.
2307. Jean J. GABSZEWICZ and Skerdilajda ZANAJ. Free entry in successive oligopolies. *International Journal of Economic Theory*, 7(2), 179-188, 2011.
2308. Marie-Louise LEROUX, Pierre PESTIEAU and Maria RACIONERO. Voting on pensions: sex and marriage. *European Journal of Political Economy*, 27(2), 281-296, 2011.
2309. Marie-Louise LEROUX, Pierre PESTIEAU and Grégory PONTIÈRE. Longevity, genes and efforts: an optimal taxation approach to prevention. *Journal of Health Economics*, 30, 62-76, 2011.
2310. Cédric BAZET-SIMONI, Thierry BRÉCHET, Pierre OBSOMER, Fiorella QUADU et Véronique ROUSSEAU. Face à l'épuisement du pétrole, quel rôle pour l'aménagement du territoire en Wallonie? *Regards Economiques* (<http://www.uclouvain.be/285518.html>), 87, avril 2011.
2311. Marc FLEURBAEY and François MANIQUET. Kolm's tax, tax credit, and the flat tax. In M. Fleurbaey, M. Salles and J.A. Weymark (eds.), *Social Ethics and Normative Economics. Essays in Honour of Serge-Cristophe KOLM*, Studies in Choice and Welfare, Heidelberg, Springer, 217-239, 2011.
2312. Saber SAATI, Adel HATAMI-MARBINI and Madjid TAVANA. A data envelopment analysis model with discretionary and non-discretionary factor in fuzzy environments. *International Journal of Productivity and Quality Management*, 8(1), 45-63, 2011.
2313. Grégory VANDENBULCKE, Claire DUJARDIN, Isabelle THOMAS, Bas DE GEUS, Bart DEGRAEUWE, Romain MEEUSEN and Luc INT PANIS. Cycle commuting in Belgium: spatial determinants and 're-cycling' strategies. *Transportation Research Part A*, 45(2), 118-137, 2011.
2314. Santanu S. DEY and Laurence A. WOLSEY. Constrained infinite group relaxations of MIPS. *SIAM Journal on Optimization*, 20(6), 2890-2912, 2010.
2315. Santanu S. DEY and Laurence A. WOLSEY. Composite lifting of group inequalities and an application to two-row mixing inequalities. *Discrete Optimization*, 7(4), 256-268, 2010.
2316. Victor A. GINSBURGH and Juan PRIETO-RODRIGUEZ. Returns to foreign languages of native workers in the European Union. *Industrial and Labor Relations Review*, 64(3), 599-618, 2011.

2317. Cédric CEULEMANS, Victor GINSBURGH and Patrick LEGROS. Rock and roll bands, (in)complete contracts, and creativity. *American Economic Review: Papers & Proceedings*, 101(3), 217-221, 2011.
2318. Jean J. GABSZEWICZ, Victor A. GINSBURGH, Didier LAUSSEL and Shlomo WEBER. Foreign languages acquisition: self-learning and language schools. *Review of Network Economics*, 10(1), Article 1, 2011.
2319. Victor A. GINSBURGH, Shlomo WEBER and Sheila WEYERS. The economics of literary translation: some theory and evidence. *Poetics*, 39(3), 228-246, 2011.
2320. Jean-Pierre FLORENS, Jan JOHANNES and Sébastien VAN BELLEGEM. Identification and estimation by penalization in nonparametric instrumental regression. *Econometric Theory*, 27(3), 472-496, 2011.
2321. Olivier BOS. How lotteries outperform auctions. *Economics Letters*, 110(3), 262-264, 2011.
2322. Adel HATAMI-MARBINI, Madjid TAVANA and Alireza EBRAHIMI. A full fuzzified data envelopment analysis model. *International Journal of Information and Decision Sciences*, 3(3), 252-264, 2011.
2323. David CRAINICH, Hervé LELEU and Ana MAULEON. Hospital's activity-based financing system and manager – physician interaction. *The European Journal of Health Economics*, 12(5), 417-427, 2011.
2324. Helmuth CREMER, Firouz GAHVARI and Pierre PESTIEAU. Stochastic fertility, moral hazard, and the design of pay-as-you-go pension plans. *CESifo Economic Studies*, 57(2), 332-348, 2011.
2325. Paul BELLEFLAMME and Cecilia VERGARI. Incentive to innovate in oligopolies. *The Manchester School*, 79(1), 6-28, 2011.
2326. Johanna M.M. GOERTZ and François MANIQUET. On the informational efficiency of simple scoring rules. *Journal of Economic Theory*, 146(4), 1464-1480, 2011.
2327. Pierre GIOT and Mikael PETITJEAN. On the statistical and economic performance of stock return predictive regression models: an international perspective. *Quantitative Finance*, 11(2), 175-193, 2011.
2328. Renaud BEAUPAIN, Pierre GIOT and Mikael PETITJEAN. Volatility regimes and liquidity co-movements in cap-based portfolios. *Finance*, 31(1), 55-79, 2010.
2329. Adel HATAMI-MARBINI, Saber SAATI and Madjid TAVANA. Data envelopment analysis with fuzzy parameters: an interactive approach. *International Journal of Operations Research and Information Systems*, 2(3), 39-53, 2011.
2330. Jan JOHANNES, Sébastien VAN BELLEGEM and Anne VANHEMS. Convergence rates for ill-posed inverse problems with an unknown operator. *Econometric Theory*, 27(3), 522-545, 2011.

2331. Jorge ALCADE-UNZU and Elena MOLIS. Exchange of indivisible goods and indifferences: the top trading absorbing set mechanisms. *Games and Economic Behavior*, 73(1), 1-16, 2011.
2332. Raouf BOUCEKKINE, Jacek B. KRAWCZYK and Thomas VALLÉE. Towards an understanding of tradeoffs between regional wealth, tightness of a common environmental constraint and the sharing rules. *Journal of Economic Dynamics & Control*, 34(9), 1813-1835, 2010.
2333. Raouf BOUCEKKINE, Giorgio FABBRI and Fausto GOZZI. Maintenance and investment complements or substitutes? A reappraisal. *Journal of Economic Dynamics & Control*, 34(12), 2420-2439, 2010.
2334. Raouf BOUCEKKINE, Natali HRITONENKO and Yuri YATSENKO. Scarcity, regulation and endogenous technical progress. *Journal of Mathematical Economics*, 47(2), 186-199, 2011.
2335. Raouf BOUCEKKINE, Jacek B. KRAWCZYK and Thomas VALLÉE. Environmental quality versus economic performance: a dynamic approach. *Optimal Control Applications and Methods*, 32(1), 29-46, 2011.
2336. Axel GAUTIER and Dimitri PAOLINI. Universal service financing in competitive postal markets: one size does not fill all. *Review of Network Economics*, 10(3), Article 6, 2011.
2337. Ana MAULEON, Vincent J. VANNETELBOSCH and Wouter VERGOTE. Von Neumann-Morgenstern farsightedly stable sets in two-sided matching. *Theoretical Economics*, 6(3), 499-521, 2011.
2338. Huasheng SONG, Jacques-François THISSE and Xiwei ZHU. Urbanization and/or rural industrialization in China. *Regional Science and Urban Economics*, 42(1-2), 126-134, 2011.
2339. Paul BELLEFLAMME and Martin PEITZ. Platform competition and seller investment incentives. *European Economic Review*, 54(8), 1059-1076, 2010.
2340. Gianmarco I.P. OTTAVIANO and Jacques-François THISSE. Monopolistic competition, multiproduct firms and product diversity. *The Manchester School*, 79(5), 938-951, 2011.
2341. Thomas BAUDIN. Family policies: what does the standard endogenous fertility model tell us? *Journal of Public Economic Theory*, 13(4), 555-593, 2011.
2342. Daisuke OYAMA, Yasuhiro SATO, Takatoshi TABUCHI and Jacques-François THISSE. On the impact of trade on the industrial structures of nations. *International Journal of Economic Theory*, 7(1), 93-109, 2011.
2343. Pierre M. PICARD and Patrice PIERETTI. Bank secrecy, illicit money and offshore financial centers. *Journal of Public Economics*, 95(7-8), 942-955, 2011.
2344. Tanguy ISAAC. A new equilibrium in the one-sided asymmetric information market with pairwise meetings. *Mathematical Social Sciences*, 61(3), 152-156, 2011.
2345. Stéphane ZUBER. The aggregation of preferences: can we ignore the past? *Theory and Decision*, 70(1), 367-384, 2011.

2346. Jean J. GABSZEWICZ, Didier LAUSSEL and Nathalie SONNAC. The TV news scheduling game: when the face of the newscaster matters. *Journal of Media Economics*, 23(1), 17-23, 2010.
2347. David DE LA CROIX and Clara DELAVALLADE. Democracy, rule of law, corruption incentives, and growth. *Journal of Public Economic Theory*, 13(2), 155-187, 2011.
2348. Louis EECKHOUDT and Béatrice REY. Risk vulnerability: a graphical interpretation. *Theory and Decision*, 71(2), 227-234, 2011.
2349. Geoffrey CARUSO, Gilles VUIDEL, Jean CAVAILHÈS, Pierre FRANKHAUSER, Dominique PEETERS and Isabelle THOMAS. Morphological similarities between DBM and a microeconomic model of sprawl. *Journal of Geographical Analysis*, 13(1), 31-48, 2011.
2350. Sandra PONCET, Walter STEINGRESS and Hylke VANDENBUSSCHE. Financial constraints in China: firm-level evidence. *China Economic Review*, 21(3), 411-422, 2010.
2351. Jacques-François THISSE. Geographical economics: a historical perspective. *Recherches Economiques de Louvain*, 77(2-3), 141-168, 2011.
2352. Koen DECANQ and Erwin OOGHE. Has the world moved forward? *Economics Letters*, 107(2), 266-269, 2010.
2353. Michel DENUIT and Louis EECKHOUDT. Stronger measures of higher-order risk attitudes. *Journal of Economic Theory*, 145(5), 2027-2036 2010
2354. Pierre M. PICARD and David WILDASIN. Outsourcing, labor market pooling, and labor contracts. *Journal of Urban Economics*, 70(1), 47-60, 2011.
2355. Hylke VANDENBUSSCHE and Maurizio ZANARDI. The chilling trade effects of antidumping proliferation. *European Economic Review*, 54(6), 760-777, 2010.
2356. Jean GABSZEWICZ, Ornella TAROLA and Skerdilajda ZANAJ. On uncertainty when it affects successive markets. *Economics Letters*, 106(2), 133-136, 2010.
2357. Yurii NESTEROV and Laura SCRINALI. Solving strongly monotone variational and quasi-variational inequalities. *Discrete and Continuous Dynamical Systems*, 31(4), 1383-1396, 2011.
2358. Louis EECKHOUDT, Alban THOMAS and Nicolas TREICH. Correlated risks and the value of information. *Journal of Economics*, 102(1), 77-87, 2011.
2359. Yurii NESTEROV. Barrier subgradient method. *Mathematical Programming B*, 127(1), 31-56, 2011.
2360. Jacqueline BOUCHER and Yves SMEERS. Energy security and long-term arrangements. In J.-M. Glachant, D. Finon and A. de Hautecloque (eds.), *Competition, Contracts and Electricity Markets. A New Perspective*. Cheltenham, Edward Elgar, 13-37, 2011.
2361. Michel DENUIT and Louis EECKHOUDT. Bivariate stochastic dominance and substitute risk-(in)dependent utilities. *Decision Analysis*, 7(3), 302-312, 2010.

■ OTHER PUBLISHED PAPERS

- Per J. AGRELL and Peter BOGETOFT. Investment incentives and coordination for supply chain shared resources under asymmetric information. *Preprints of the CEMS 8th Research Seminar on Supply Chain Management and Logistics*, Riezlern, Austria, January 26-30, 8-9, 2011.
- Per J. AGRELL and Axel GAUTIER. Theory of soft capture. *Proceedings of CRESSE International Conference on Regulation and Competition*, Rhodes, Greece, July 1-3, 2011 (CD).
- Per AGRELL and Johan LUNDIN. Comparing organizational forms in the trucking industry. *Preprints of the CEMS 8th Research Seminar on Supply Chain Management and Logistics*, Riezlern, Austria, January 26-30, 10-11, 2011.
- Luiza BADIN, Cinzia DARIO and Léopold SIMAR. Optimal bandwidth selection for conditional efficiency measures: a data-driven approach. *European Journal of Operational Research*, 201, 633-640, 2010.
- Vincent BLONDEL, Gautier KRINGS et Isabelle THOMAS. Régions et frontières de téléphonie mobile en Belgique et dans l'aire métropolitaine. *Brussels Studies*, 42, 2010.
- Geoffrey CARUSO et Jean CAVAILHÈS. Formes paysagères dans les modèles théoriques d'économie et de géographie urbaine. In W. Queslati (ed.), *Economie du Paysage*, Versailles, Editions QUAE, 63-85, 2011.
- Geoffrey CARUSO, Jean CAVAILHÈS, Pierre FRANKHAUSER, Dominique PEETERS, Isabelle THOMAS et Gilles VUIDEL. S-Ghost: un modèle d'auto-organisation de l'étalement urbain et du réseau de transport. In J.-P. Antoni (ed.), *La Modélisation Urbanisation-transport*, Paris, Economica, 365-391, 2011.
- David CRAINICH, Louis ECKHOUDT et Béatrice REY. A propos de la tempérance. *Revue Economique*, 62(4), 751-764, 2011.
- Helmuth CREMER and Pierre PESTIEAU. Riqueza e imposicion sobre la transmision de riqueza: una revision. *Papeles de Economia Espanola*, 125, 188-210, 2010.
- Helmuth CREMER and Pierre PESTIEAU. Securing long-term care in the EU: some key issues. *CESifo DICE Report*, 7(4), 8-11, 2010.
- Abdelaati DAOUIA, Jean-Pierre FLORENS and Léopold SIMAR. Frontier estimation and extreme value theory. *Bernoulli*, 16(4), 1039-1063, 2010.
- Alexandra DASKOVSKA, Léopold SIMAR and Sébastien VAN BELLEGEM. Forecasting the Malmquist productivity index. *Journal of Productivity Analysis*, 33, 97-107, 2010.
- Claude D'ASPREMONT. Interpersonal comparisons with or without formal welfarism. Chapter 13 in R. Ege and H. Igersheim (eds.), *Freedom and Happiness in Economic Thought and Philosophy*. Routledge Frontiers of Political Economy, London, Routledge, 2011.

-
- David DE LA CROIX et Frédéric DOCQUIER. Migration des travailleurs pauvres: une vision mondiale. *Regards Croisés sur l'Economie*, 8, 170-179, 2010.
 - Santanu DEY, Andrea LODI, Andrea TRAMONTANI and Laurence A. WOLSEY. Experiments with two row tableau cuts. *Integer Programming and Combinatorial Optimization, Lecture Notes in Computer Science*, 6080, 424-437, 2010.
 - Vojtech EKSLEK, Sylvain LASSARE et Isabelle THOMAS. Géographie de la mortalité routière en Europe. *Revue Internationale de Géomatique*, 20(4), 481-498, 2010.
 - Axel GAUTIER and Keizo MIZUNO. Gradual network expansion and universal service obligations. *Annals of Public and Cooperative Economics*, 82(2), 97-113, 2011.
 - Gery GEENENS and Léopold SIMAR. Nonparametric test for conditional independence in two-way contingency tables. *Journal of Multivariate Analysis*, 101, 765-788, 2010.
 - Victor GINSBURGH. Où il est question d'Italo Calvino, de tulipes, de mariages et de quelques autres. *Revue Economique*, 62, 765-772, 2011.
 - Christian HAFNER and Olga REZNIKOVA. Efficient estimation of a semiparametric dynamic copula model. *Computational Statistics and Data Analysis*, 54, 2609-2627, 2010.
 - Christian HAFNER and Oliver LINTON. Efficient estimation of a multivariate multiplicative volatility model. *Journal of Econometrics*, 159, 55-73, 2010.
 - Christian HAFNER, Dick VAN DIJK and Haris MUNANDAR. The Euro-introduction and non-Euro currencies. *Applied Financial Economics*, 21, 95-116, 2011.
 - Luc INT PANIS, Romain MEEUSEN, Isabelle THOMAS, Nico BLEUX, Bart DEGRAEUWE, Ina DE VLIEGER, Rudi TORFS, Jean VANKERKOM, Bas DE GEUS and Grégory VANDENBULCKE-PLASSCHAERT. Systematic analysis of health risks and physical activity associated with cycling policies. Final Report, 2011. SHAPES project, Final Report (SD/HE/03A), Belgian Science Policy, Brussels, Belgium.
 - Seok-Oh JEONG, Byeong U. PARK and Léopold SIMAR. Nonparametric conditional efficiency measures: asymptotic properties. *Annals of Operations Research*, 173, 105-122, 2010.
 - Alain JOUSTEN, Mathieu LEFÈBVRE, Sergio PERELMAN and Pierre PESTIEAU. The effects of early retirement on youth unemployment. The case of Belgium. In J. Gruber and D.A. Wise (eds.), *Social Security Programs and Retirement around the World: The Relationship to Youth Employment*. Chicago, University of Chicago Press, 47-118, 2010.
 - Victor MARTINEZ-DE-ALBENIZ and Guillaume ROELS. Competing for shelf space. *Production and Operations Management*, 20(1), 32-46, 2011.
 - Florian MAYNERIS. Evaluation des politiques de clusters: sélection, autosélection et impact. *Reflets et Perspectives de la Vie Economique*, 1-2, 109-115, 2011.
 - Byeong U. PARK, Seok-Oh JEONG, and Léopold SIMAR. Asymptotic distribution of conical-hull estimators of directional edges. *Annals of Statistics*, 38(6), 1320-1340, 2010.

- Pierre PESTIEAU. The base for direct taxation. A commentary in dimensions of tax design. *The Mirrlees Review*, Institute for Fiscal Studies, Oxford, 664-674, 2010.
- Pierre M. PICARD. Regional and spatial economics. *The Manchester School*, 79(5), 933-937, 2011.
- Pierre M. PICARD and Dao-Zhi ZENG. A harmonization of first and second natures. *Journal of Regional Science*, 50(5), 973-994, 2010.
- Erik SCHOKKAERT and Carine VAN DE VOORDE. User charges. In S. Glied and P. Smith (eds.), *Oxford Handbook of Health Economics*. Oxford, Oxford University Press, 329-353, 2011.
- Fred SCHROYEN. Decentralization and coordination of health care provision in Norway: which lessons for Belgium? In E. Schokkaert and Carine Van de Voorde (ed.), *Belgium's Health Care System. Should the Communities/Regions Take it Over? Or the Sickness Funds*. Re-Bel e-book, September 2011.
- Léopold SIMAR and Paul W. WILSON. Inference from cross-selectional stochastic frontier models. *Econometric Review*, 29(1), 62-98, 2010.
- Jacques-François THISSE and Isabelle THOMAS. Brussels within the Belgian economy: a geo-economic approach. *Re-Bel, E-book 7*, November 2010.
- Isabelle THOMAS. Road accident location. In K. Button, H. Vega and P. Nijkamp (eds.), *A Dictionary of Transport Analysis*. Cheltenham, Edward Elgar, 332-335.
- Marie-Hélène VANDERSMISSEN, Isabelle THOMAS and Ann VERHETSEL. Commuting and gender: two cities, one reality? In M. Thériault and F. Des Rosiers (eds.), *Modeling Urban Dynamics*. London, Wiley GIS Series, 27-56, 2011.
- Jasper WAUTERS and Hylke VANDENBUSSCHE. China - Measures affecting imports of automobile parts. *World Trade Review*, 9(1), 201-238, 2010.
- Laurence WOLSEY. Mixing sets. In J.J. Cochran, L.A. Cox, Jr., P. Keskinocak, J.P. Kharoufeh and J. C. Smith, *Wiley Encyclopedia of Operations Research and Management Science, 8 Volume Set*. West Sussex, John Wiley and Sons, February 2011.

▪ BOOKS

- Gilles DURANTON, Philippe MARTIN, Thierry MAYER and Florian MAYNERIS. *The Economics of Clusters. Lessons from the French Experience*. Oxford, Oxford University Press, 2010.
- Marc FLEURBAEY and François MANIQUET. *A Theory of Fairness and Social Welfare*. Econometric Society Monograph, Cambridge (UK), Cambridge University Press, 2011.
- Victor GINSBURGH and Shlomo WEBER. *How Many Languages Do we Need? The Economics of Linguistic Diversity*. Princeton (NJ), Princeton University Press, 2011.
- Jean HINDRIKS et Ivan VAN DE CLOOT. *Notre pension en héritage*. Brussels, Roularta, 2011.

■ EDITED BOOKS AND REPORTS

- Cédric BAZET-SIMONI, Thierry BRÉCHET, Fiorella QUADU, Véronique ROUSSEAUX, Marc SERVAIS et Thibaut ZEIMES. Anticipation des effets du pic pétrolier sur le territoire de la Région Wallonne. Rapport pour la conférence permanente du développement territorial, Région Wallonne, 2010.
- Raouf BOUCEKKINE, Natali HRITONENKO and Yuri YATSENKO (eds.). *Optimal Control of Age-structured Populations in Economy, Demography, and the Environment*. Routledge Explorations in Environmental Economics, London, Routledge, 2010.
- Thierry BRÉCHET. Bilan d'activité synthétique de la Chaire Lhoist Berghmans "Entreprise, Economie, Environnement" 2002-2010. Université catholique de Louvain, Belgium, 2011.
- Nuno MADEIRA and Geoffrey CARUSO. Thematic structuring of the ESPON Database 2013. In C. Grasland and J. Gensel (dir.). Final Report of the ESPON Database 2013 to the European Spatial Observatory Network, 2011.
- Luc INT PANIS, Romain MEEUSEN, Isabelle THOMAS, Joris AERTSENS, Bas DE GEUS, Bart DEGRAEUWE, Julie FRÈRE, Rudi TORFS, Grégory VANDENBULCKE-PLOSSCHAERT, Hanny WILLEMS, Lotte JACOBS and Tim NAWROT. Systematic analysis of health risks and physical activity associated with cycling policies. SHAPES Project, Final report (SD/HE/03A), Belgian Science Policy, Brussels.
- Erik SCHOKKAERT and Carine VAN DE VOORDE (eds.). *Belgium's Health Care System. Should the Communities/Regions Take it Over? Or the Sickness Funds*. Re-bel e-book 10, September 2011.
- Frank WITLOX, Ann VERHETSEL, Bart JOURQUIN, Isabelle THOMAS and al. Assessing and developing initiatives of companies to control or reduce commuter traffic. ADICCT, Final Report, 2011.

■ ARTICLES IN NEWSPAPERS

- Paul BELLEFLAMME et Laurent SLITS. Chantage aux brevets. Les patent trolls: valorisation légitime ou extorsion illégitime. *La Libre Belgique*, 7 mai 2011.
- Paul BELLEFLAMME et Laurent SLITS. Le développement du marché des brevets et la problématique des patent trolls. *Regards Economiques*, 83, 2010.
- Vincent BODART, Jean-François CARPANTIER, Guy LEGROS, Vincent SCOURNEAU, Catherine SMITH et Géraldine THIRY. Perspectives économiques 2011. *Regards Economiques*, 84, 2011.
- Vincent BODART, Jean-François CARPANTIER, Guy LEGROS, Vanessa LUTGEN, Joël MACHADO, Vincent SCOURNEAU, Catherine SMITH et Géraldine THIRY. Perspectives économiques 2011-2012. *Regards Economiques*, 89, 2011.

- Vincent BODART, Jean-François CARPANTIER et Vincent SCOURNEAU. Des prix ou des salaires, qui mène la danse en Belgique? *Regards Economiques*, 82, 2010.
- Axel GAUTIER. La gratuité en débat. *La Libre Entreprise*, 18 septembre 2010.

■ CORE DISCUSSION PAPERS

- 2010/51 On the geometric interpretation of the nonnegative rank
Nicolas GILLIS and François GLINEUR
- 2010/52 Generalized Nash Equilibrium and market coupling in the European power system
Yves SMEERS, Giorgia OGGIONI, Elisabetta ALLEVI and Siegfried SCHAIBLE
- 2010/53 Market coupling and the organization of counter-trading: separating energy and transmission again?
Giorgia OGGIONI and Yves SMEERS
- 2010/54 Fertility, human capital accumulation, and the pension system
Helmuth CREMER, Firouz GAHVARI and Pierre PESTIEAU
- 2010/55 Iterative regularization in nonparametric instrumental regression
Jan JOHANNES, Sébastien VAN BELLEGEM and Anne VANHEMS
- 2010/56 Tradable pollution permits in dynamic general equilibrium: can optimality and acceptability be reconciled?
Thierry BRÉCHET, Pierre-André JOUVET and Gilles ROTILLON
- 2010/57 The optimal trade-off between quality and quantity with uncertain child survival
Thomas BAUDIN
- 2010/58 Family policies: what does the standard fertility model tell us?
Thomas BAUDIN
- 2010/59 Nonnegative factorization and the maximum edge biclique problem
Nicolas GILLIS and François GLINEUR
- 2010/60 Digital piracy: theory
Paul BELLEFLAMME and Martin PEITZ
- 2010/61 Competitive neutral universal service obligations
Axel GAUTIER and Xavier WAUTHY
- 2010/62 The benefits of cooperation under uncertainty: the case of climate change
Thierry BRÉCHET, Julien THENIE, Thibaut ZEIMES and Stéphane ZUBER
- 2010/63 Mixing sets linked by bidirected paths
Marco DI SUMMA and Laurence WOLSEY
- 2010/64 Innovation, antidumping and retaliation
Kaz MIYAGIWA, Huasheng SONG and Hylke VANDENBUSSCHE
- 2010/65 Adaptation and mitigation in long-term climate policies
Thierry BRÉCHET, Natali HRITONENKO and Yuri YATSENKO

-
- 2010/66 Compensating the dead? Yes we can!
Marc FLEURBAEY, Marie-Louise LEROUX and Grégory PONTIÈRE
- 2010/67 Measuring the variability in supply chains with the peakedness
Philippe CHEVALIER, Jean-Christophe VAN DEN SCHRIECK and Ying WEI
- 2010/68 Fixed-charge transportation on a path: optimization, LP formulation and separation
MATHIEU VAN VYVE
- 2010/69 Lower bounds rule!
Roland Iwan LUTTENS
- 2010/70 Optimal pricing and capacity choice for a public service under risk of interruption
Fred SCHROYEN and Adekola OYENUGA
- 2010/71 Property rights with biological spillovers: when Hardin meets Meade
Carlotta BALESTRA, Thierry BRÉCHET and Stéphane LAMBRECHT
- 2010/72 Success: talent, intelligence or beauty?
Olivier GERGAUD and Victor GINSBURGH
- 2010/73 Foreign languages' acquisition: self learning and linguistic schools
Jean GABSZEWICZ, Victor GINSBURGH, Didier LAUSSEL and Shlomo WEBER
- 2010/74 Rock and roll bands, (in)complete contracts and creativity
Cédric CEULEMANS, Victor GINSBURGH and Patrick LEGROS
- 2010/75 Low-rank matrix approximation with weights or missing data is NP-hard
Nicolas GILLIS and François GLINEUR
- 2010/76 Unions' relative concerns and strikes in wage bargaining
Ana MAULEON, Vincent J. VANNETELBOSCH and Cecilia VERGARI
- 2010/77 Bargaining and delay in patent licensing
Ana MAULEON, Vincent J. VANNETELBOSCH and Cecilia VERGARI
- 2010/78 Product innovation and market acquisition of firms
Jean J. GABSZEWICZ and Ornella TAROLA
- 2010/79 Stability and fairness in models with a multiple membership
Michel LE BRETON, Juan D. MORENO-TERNERO, Alexei SAVVATEEV and Shlomo WEBER
- 2010/80 Voting over piece-wise linear tax methods
Juan D. MORENO-TERNERO
- 2010/81 School tracking, social segregation and educational opportunity: evidence from Belgium
Jean HINDRIKS, Marijn VERSCHELDE, Glenn RAYP and Koen SCHOORS
- 2010/82 School autonomy and educational performance: within-country evidence
Jean HINDRIKS, Marijn VERSCHELDE, Glenn RAYP and Koen SCHOORS
- 2010/83 Influence networks
Dunia LOPEZ-PINTADO
- 2010/84 A theory of soft capture
Per AGRELL and Axel GAUTIER

- 2010/85 Dynamic joint investments in supply chains under information asymmetry
Per AGRELL and Roman KASPERZEC
- 2010/86 The economics of airport noise: how to manage markets for noise licences
Thierry BRÉCHET and Pierre M. PICARD
- 2010/87 Fair allocation of indivisible goods among two agents
Eve RAMAEKERS
- 2011/1 Random gradient-free minimization of convex functions
Yurii NESTEROV
- 2011/2 First-order methods of smooth convex optimization with inexact oracle
Olivier DEVOLDER, François GLINEUR and Yurii NESTEROV
- 2011/3 A comparison of forecasting procedures for macroeconomic series: the
contribution of structural break models
Luc BAUWENS, Gary KOOP, Dimitris KOROBILIS and Jeroen V.K. ROMBOUTS
- 2011/4 Nonparametric Beta kernel estimator for long memory time series
Taoufik BOUEZMARNI and Sébastien VAN BELLEGEM
- 2011/5 The complementarity foundations of industrial organization
Filippo L. CALCIANO
- 2011/6 Real exchanges rates in commodity producing countries: a reappraisal
Vincent BODART, Bertrand CANDELON and Jean-François CARPANTIER
- 2011/7 Myopic or farsighted? An experiment on network formation
Georg KIRCHSTEIGER, Marco MANTOVANI, Ana MAULEON and Vincent J.
VANNETELBOSCH
- 2011/8 Export performance of Chinese domestic firms: the role of foreign export spillovers
Florian MAYNERIS and Sandra PONCET
- 2011/9 Nested potentials and robust equilibria
Hiroshi UNO
- 2011/10 Monopolistic competition in general equilibrium: beyond the CES
Evgeny ZHELOBODKO, Sergey KOKOVIN, Mathieu PARENTI and Jacques-François
THISSE
- 2011/11 Multivariate volatility modeling of electricity futures
Luc BAUWENS, Christian HAFNER and Dianne PIERRET
- 2011/12 Geographical economics: a historical perspective
Jacques-François THISSE
- 2011/13 Marginal likelihood for Markov-switching and change-point GARCH models
Luc BAUWENS, Arnaud DUFAYS and Jeroen V.K. ROMBOUTS
- 2011/14 Risk-sharing networks and farsighted stability
Gilles GRANDJEAN

-
- 2011/15 Vertical integration and exclusivities in maritime freight transport
Pedro CANTOS-SANCHEZ, Rafael MONER-COLONQUES, José J. SEMPERE-MONERRIS and Oscar ALVAREZ-SANJAIME
- 2011/16 Comparison of heuristic procedures for an integrated model for production and distribution planning in an environment of shared resources
Géraldine STRACK, Bernard FORTZ, Fouad RIANE and Mathieu VAN VYVE
- 2011/17 Price differentials among brands in retail distribution: product quality and service quality
Juan A. MANEZ, Rafael MONER-COLONQUES, José J. SEMPERE-MONERRIS and Amparo URBANO
- 2011/18 Patent office governance and patent system quality
Pierre M. PICARD and Bruno VAN POTTELSBERGHE DE LA POTTERIE
- 2011/19 A theory of BOT concession contracts
Emmanuelle AURIOL and Pierre M. PICARD
- 2011/20 Attitudes towards income risk in the presence of quantity constraints
Fred SCHROYEN
- 2011/21 Hierarchical shrinkage priors for dynamic regressions with many predictors
Dimitris KOROBILOS
- 2011/22 VAR forecasting using Bayesian variable selection
Dimitris KOROBILOS
- 2011/23 Inequality aversion and separability in social risk evaluation
Marc FLEURBAEY and Stéphane ZUBER
- 2011/24 Social long term care insurance and redistribution
Helmuth CREMER and Pierre PESTIEAU
- 2011/25 Sustainable growth and modernization under environmental hazard and adaptation
Natali HRITONENKO and Yuri YATSENKO
- 2011/26 Equity in health and health care
Marc FLEURBAEY and Erik SCHOKKAERT
- 2011/27 The natalist bias of pollution control
David DE LA CROIX and Axel GOSSERIES
- 2011/28 Effects of the uncertainty about global economic recovery on energy transition and CO₂ price
Olivier DURAND-LASSERVE, Axel PIERRU and Yves SMEERS
- 2011/29 Absolutely stable roommate problems
Ana MAULEON, Elena MOLIS, Vincent VANNETELBOSCH and Wouter VERGOTE
- 2011/30 Accelerated multiplicative updates and hierarchical als algorithms for nonnegative matrix factorization
Nicolas GILLIS and François GLINEUR

- 2011/31 Implementing steady state efficiency in overlapping generations economies with environmental externalities
Nguyen Thang DAO and Julio DAVILA
- 2011/32 Crowdfunding: tapping the right crowd
Paul BELLEFLAMME, Thomas LAMBERT and Armin SCHWIENBACHER
- 2011/33 Optimal fertility along the lifecycle
Pierre PESTIEAU and Grégory PONTIÈRE
- 2011/34 Optimal time to invest when the price processes are geometric Brownian motions. A tentative based on smooth fit
Joachim GAHUNGU and Yves SMEERS
- 2011/35 Sufficient and necessary conditions for perpetual multi-assets exchange options
Joachim GAHUNGU and Yves SMEERS
- 2011/36 Hierarchical shrinkage in time-varying parameter models
Miguel A.G. BELMONTE, Gary KOOP and Dimitris KOROBILIS
- 2011/37 Benders decomposition for the hop-constrained survivable network design problem
Quentin BOTTON, Bernard FORTZ, Luis GOUVEIA and Michael POSS
- 2011/38 International trade with endogenous mode of competition in general equilibrium
J. Peter NEARY and Joe THARAKAN
- 2011/39 Stable and efficient coalitional networks
Jean-François CAULIER, Ana MAULEON, Jose J. SEMPERE-MONERRIS and Vincent J. VANNETELBOSCH
- 2011/40 Sustainable migration policies
Pierre M. PICARD and Tim WORRALL
- 2011/41 Locally stationary volatility modelling
Sébastien VAN BELLEGEM
- 2011/42 Tax treaties and the allocation of taxing rights with developing countries
Dimitri PAOLINI, Pasquale PISTONE, Giuseppe PULINA and Martin ZAGLER
- 2011/43 Behavioral fair social choice
Marc FLEURBAEY and Erik SCHOKKAERT
- 2011/44 A real options model for electricity capacity expansion
Joachim GAHUNGU and Yves SMEERS

■ OTHER DISCUSSION PAPERS AND MANUSCRIPTS

- Agostinho AGRA, Henrik ANDERSSON, Marielle CHRISTIANSEN and Laurence WOLSEY. Discrete time model for an inventory ship routing problem. Mimeo, 2011.
- Per J. AGRELL and Peter BOGETOFT. Endogenous generalized weights under DEA control. LSM Working Paper 2010/02, Louvain School of Management, UCL, 2010.

- Per J. AGRELL and Peter BOGETOFT. Network regulation under climate policy review. EUI Working Paper RSCAS 2010/67, Robert Schuman Center for Advanced Studies, European University Institute, 2010.
- Luiza BADIN, Cinzia DARIO and Léopold SIMAR. How to measure the impact of environmental factors in a nonparametric production model? Discussion Paper 1050, Institut de Statistique, Biostatistique et Sciences Actuarielles, UCL, 2010.
- Andrew B. BERNARD, Ilke VAN BEVEREN and Hylke VANDENBUSSCHE. Multi-product exporters, carry-along trade and the margins of trade. National Bank of Belgium Working Paper 2011-91, 2011.
- Robin BOADWAY and Pierre PESTIEAU. The use of indirect taxes for redistribution. Mimeo, 2011.
- Kristof BOSMANS, Koen DECANCO and André DECOSTER. The evolution of global inequality: absolute, relative and intermediate views. CES Discussion Paper 11.03, Katholieke Universiteit Leuven, Belgium, 2011.
- Xavier BRUSSET and Per J. AGRELL. Dynamic supply chain coordination games with repeated bargaining. LSM Working Paper 2010/03, Louvain School of Management, UCL, 2010.
- Xavier BRUSSET and Per J. AGRELL. Supply chain rent distribution under Bayesian belief when the buyer invests in specific assets. LSM Working Paper 2010/04, Louvain School of Management, UCL, 2010.
- Jean-François CAULIER, Ana MAULEON and Vincent J. VANNETELBOSCH. Contractually stable networks. Mimeo, 2011.
- Cinzia DARIO, Léopold SIMAR and Paul W. WILSON. Testing whether two-stage estimation is meaningful in non-parametric models of production. Discussion Paper 1031, Institut de Statistique, Biostatistique et Sciences Actuarielles, UCL, 2010.
- Claude D'ASPREMONT, Rodolphe DOS SANTOS FERREIRA and Jacques THEPOT. Hawks and doves in segmented markets: a formal approach to competitive aggressiveness. Mimeo, February 2011.
- Claude D'ASPREMONT and Rodolphe DOS SANTOS FERREIRA. Household behavior and individual autonomy: a Lindahl approach. Mimeo, March 2011.
- Koen DECANCO. Global inequality: a multidimensional perspective. CES Discussion Paper 11.09, Katholieke Universiteit Leuven, Belgium, 2011.
- David DE LA CROIX, Olivier PIERRARD and Henri SNEESSENS. Aging and pension in general equilibrium: labor market imperfections matter. IZA Discussion Paper 5276, Institute for the Study of Labor, Bonn, 2010.
- Rafael DE MELO and Laurence WOLSEY. MIP formulations and heuristics for two-level production-transportation problems. Mimeo, 2011.

- Jean-Jacques DETHIER, Pierre PESTIEAU and Ali RABIA. Universal minimum old age pensions: impact on poverty and fiscal cost in 18 Latin American countries. Policy Research Working Paper 5292, The World Bank, May 2010.
- Geert DHAENE and Koen JOCHMANS. An adjusted profile likelihood for non-stationary panel data models with fixed effects. Mimeo, 2011.
- Geert DHAENE and Koen JOCHMANS. Profile-score adjustments for nonlinear fixed-effect models. Mimeo, 2011.
- Nicolas GILLIS and Robert J. PLEMMONS. Sparse nonnegative matrix underapproximation and its application to hyperspectral image analysis. Third Workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing (WHISPERS), Lisbon, June 2011.
- Gilles GRANDJEAN, Ana MAULEON and Vincent J. VANNETELBOSCH. Strongly rational sets for normal-form games. Mimeo, 2011.
- James C. HARTIGAN and Hylke VANDENBUSSCHE. Why does the WTO have an antidumping agreement? LICOS Discussion Paper 253, 2010.
- Koen JOCHMANS. Identification in bivariate binary-choice models with elliptical innovations. Mimeo, June 2011.
- Koen JOCHMANS. Inference from kernel-weighted U-processes. Mimeo, 2011.
- Koen JOCHMANS. Pariwise-comparison estimation with nonparametric controls. Mimeo, 2011.
- Koen JOCHMANS. First-differencing in panel-data models with incidental functions. Mimeo, 2011.
- Koen JOCHMANS. The variance of a rank estimator of transformation models. Mimeo, 2011.
- Mathieu LEFÈBVRE, Pierre PESTIEAU and Grégory PONTIÈRE. Measuring poverty without the mortality paradox. Mimeo, 2011.
- Mathieu LEFÈBVRE, Pierre PESTIEAU, Arno RIEDL and Marie-Claire VILLEVAL. Tax evasion versus welfare fraud. Mimeo, 2011.
- Patrick LEGROS and Victor GINSBURGH. The economics of copyright levies on hardware. ECARES Working Paper 2011-008, Université Libre de Bruxelles, Brussels, 2011.
- Giordano MION, Hylke VANDENBUSSCHE and Linke ZHU. Trade with China and skill-upgrading. Evidence from Belgian firm-level data. National Bank of Belgium Working Paper 2010-94, 2010.
- Byeong U. PARK, Léopold SIMAR and Valentin VELENYUK. Local maximum likelihood methods with categorical variables. Discussion Paper 1052, Institut de Statistique, Biostatistique et Sciences Actuarielles, UCL, 2010.
- Pierre PESTIEAU and Grégory PONTIÈRE. Optimal fertility along the lifecycle. Mimeo, 2011.
- Guillaume ROELS, Philippe CHEVALIER and Ying WEI. Coordinating risk pooling capacity investments in joint ventures. Mimeo, 2011.

-
- Laura ROVEGNO and Hylke VANDENBUSSCHE. A comparative analysis of EU antidumping rules and Application. SSRN Working Paper and IRES Discussion Paper 2011-023, 2011.
 - Léopold SIMAR and Anne VANHEMS. Probabilist characterization of directional distances and their robust versions. Discussion Paper 1040, Institut de Statistique, Biostatistique et Sciences Actuarielles, UCL, 2010.
 - Léopold SIMAR and Ingrid VAN KEILEGOM. Boundary estimation in the presence of measurement errors. Discussion Paper 1046, Institut de Statistique, Biostatistique et Sciences Actuarielles, UCL, 2010.
 - Grégory VANDENBULCKE-PLASSCHAERT and Isabelle THOMAS. Modelling the risk of having a bicycle accident in Brussels: a Bayesian approach. Proceedings of the BIVIC-GIBET Transport Research Day 2011, Namur, Belgium, 2011.
 - Hylke VANDENBUSSCHE and Christian VIEGELAHN. No protectionist surprises/ EU antidumping policy before and during the great recession. SSRN Working Paper and IRES Discussion Paper 2011-021, 2011.

▪ EDITORIAL ACTIVITIES

PER AGRELL

- associate editor
International Journal of Production Economics

LUC BAUWENS

- associate editor
Empirical Economics
International Econometric Review
Journal of Financial Econometrics
Risk Letters
- member of the editorial board
Economics Research International
Journal of Applied Econometrics

PAUL BELLEFLAMME

- co-editor
E-economics, the Open-Access, Open-Assessment E-Journal
- member of the editorial board
Regards Economiques

RAOUF BOUCEKKINE

- associate editor
Annales d'Economie et Statistique
Journal of Public Economic Theory
Macroeconomic Dynamics
Mathematical Population Studies
Mathematical Social Sciences

THIERRY BRÉCHET

- member of the editorial board
Regards Economiques

CLAUDE D'ASPREMONT

- associate editor
Games and Economic Behavior
Journal of Mathematical Economics
Journal of Public Economic Theory
Revue de Philosophie Economique
Social Choice and Welfare

DAVID DE LA CROIX

- associate editor
Journal of Economic Dynamics and Control
Journal of Public Economic Theory
- member of the editorial board
Clometrica
Fiscal Studies
Recherches Economiques de Louvain – Louvain Economic Review

LOUIS ECKHOUDT

- associate editor
Geneva Risk and Insurance Review
Journal of Risk and Insurance
Revue Economique

MARC FLEURBAEY

- managing editor
Social Choice and Welfare

BERNARD FORTZ

- associate editor
INFORMS Journal on Computing

VICTOR GINSBURGH

- associate editor
Journal of Wine Economics
Recherches Economiques de Louvain – Louvain Economic Review

CHRISTIAN HAFNER

- associate editor
Banking and Finance Review
Computational Statistics
International Econometric Review
Studies in Nonlinear Dynamics and Econometrics

P. JEAN-JACQUES HERINGS

- associate editor
Decisions in Economics and Finance
European Economic Review
International Journal of Game Theory
Journal of Mathematical Economics

JEAN HINDRIKS

- member of the Editorial Board
Fiscal Studies
Reflets et Perspectives de la Vie Economique
Regards Economiques

FRANÇOIS MANIQUET

- editor
Economics and Philosophy
- associate editor
Annals of Economics and Statistics
Mathematical Social Sciences
Social Choice and Welfare
Revue d'Economie Politique

PUBLICATIONS

YURII NESTEROV

- associate editor
Foundations of Computational Mathematics
Optimization and Engineering
Optimization Methods and Software

PIERRE PESTIEAU

- co-editor
Journal of Public Economics
- associate editor
CESifo Economic Studies
Economica
Finanzarchiv
Journal of Public Economic Theory

PIERRE PICARD

- co-editor
The Manchester School

GUILLAUME ROELS

- associate editor
Journal of Revenue and Pricing Management

ERIK SCHOKKAERT

- member of the editorial board
Economics and Philosophy
Health Policy
Recherches Economiques de Louvain – Louvain Economic Review
Social Choice and Welfare

YVES SMEERS

- associate editor
Energy Economics

JACQUES-FRANÇOIS THISSE

- associate editor
International Journal of Economic Theory
International Journal of Industrial Organization
Japanese Economic Review
Journal of Economic Geography
Journal of Economics and Management Strategy
Regional Science and Urban Economics

ISABELLE THOMAS

- associate editor
Revue d'Economie Régionale et Urbaine
- member of the editorial board
Cahiers Scientifiques du Transport
Cybergeog (European Journal of Geography on the Internet)
L'Espace Géographique
International Regional Science Review

XAVIER WAUTHY

- member of the editorial board
Recherches Economiques de Louvain – Louvain Economic Review

LAURENCE WOLSEY

- associate editor
Mathematical Programming A

4

CORE LECTURE SERIES

The CORE Foundation was set up with the goal of taking new initiatives and stimulating research activities at CORE. One of these initiatives was the creation of a CORE Lecture Series. Regularly, a young internationally renowned scientist is invited to give a set of lectures in one of the research areas of CORE.

During the period covered by this report, Jan ECKHOUT presented a series of lectures.

- **DECEMBER 8-10, 2010, JAN ECKHOUT, UNIVERSITY OF PENNSYLVANIA, PHILADELPHIA (PA), USA AND UNIVERSITAT POMPEU FABRA, SPAIN**

Matching, sorting and screening

PROGRAMME

- December 8, 2010
 - Lecture 1.** Introduction: issues, relevance, implications
Matching and sorting: centralized matching, supermodularity
- December 9, 2010
 - Lecture 2.** Sorting and decentralized matching
Random matching, directed matching, on-the-job search
 - Lecture 3.** Matching and competing mechanisms
Sorting versus screening
- December 10, 2010
 - Lecture 4.** Identifying sorting
 - Lecture 5.** Assortative learning and human capital accumulation

5

IMMAQ LECTURE SERIES

IMMAQ is a multisectorial institute associating researchers from three different research entities: CORE, IRES, ISBA and one consulting entity: SMCS. They develop and use in their various fields of expertise a coherent set of tools and methods for quantitative modelling and analysis.

The theme chosen this year was health. Two international experts have agreed to give a lecture.

- April 8, 2011
Adrian BOWMAN, University of Glasgow, Scotland

Statistics with a human face

Three-dimensional surface imaging, through laser-scanning or stereo-photogrammetry, provides high-resolution data defining the shape of objects. In an anatomical setting this can provide invaluable quantitative information, for example on the success of surgery. Two particular applications are in the success of breast reconstruction and in facial surgery following conditions such as cleft lip and palate. An initial challenge is to extract suitable information from these images, to characterise the surface shape in an informative manner. Landmarks are traditionally used to good effect but these clearly do not adequately represent the very much richer information present in each digitised image. Curves with clear anatomical meaning provide a good compromise between informative representations of shape and simplicity of structure, as well as providing guiding information for full surface representations. Some of the issues involved in analysing data of this type will be discussed and illustrated. Modelling issues include the measurement of asymmetry and longitudinal patterns of growth.

- May 11, 2011
Andrew JONES, University of York, United Kingdom

Equality of opportunity in health

Members of the National Child Development Study (NCDS) cohort attended very different types of secondary school, as their schooling lay within the transition period of the comprehensive education reform in England and Wales. This provides a natural setting to explore the impact of educational attainment and of school quality on health and health-related behaviour later in life and the role of quality of schooling as a source of inequality of opportunity in health. The analysis provides evidence of a statistically significant and economically sizable association between some dimensions of quality of education and a range of health and health-related outcomes. A normative framework is used to model the complementarity between education policy and health, grounded on John Roemer's model of equality of opportunity. The transition period of the comprehensive education reform provides a natural experiment that is used in two ways. First, to evaluate the health outcomes of different educational policies under different normative principles. Second, to simulate the counterfactual distributions of health outcomes induced by the neutralisation of the different channels through which early life circumstances influence health.

SEMINARS & WORKSHOPS

- ECONOMETRICS SEMINAR
- ECONOMIC THEORY SEMINAR
- MATHEMATICAL PROGRAMMING SEMINAR
- TRADE AND ECONOMIC GEOGRAPHY SEMINAR
- ECORE, joint CORE-ECARES SEMINAR
- WORKSHOP IN WELFARE ECONOMICS
- WORKSHOP ON GAME THEORY AND ECONOMIC BEHAVIOR
- READING SEMINAR IN OPERATIONS RESEARCH

The three regular weekly seminars in econometrics, economic theory, and mathematical programming were held from September through June. Other seminars series were also organized on more specific topics or within the framework of outside research contracts.

■ ECONOMETRICS SEMINAR

- September 22, 2010. Lars STENTOFT, HEC Montréal, Canada
Option pricing with asymmetric heteroskedastic normal mixture models
(joint CORE-ISBA and LSM Finance seminar in the frame of the ARC project on time series)
- October 6, 2010. Carlo ROSA, University of Essex, United Kingdom
The high-frequency response of exchange rates to monetary policy actions and statements
- October 11, 2010. Frederic VERMEULEN, Tilburg Universiteit, The Netherlands
Married with children: a collective labor supply model with detailed time use and intrahousehold expenditure
(joint with Economic Theory seminar)
- October 13, 2010. Bart LAMBRECHT, Lancaster University, United Kingdom
A Lintner model of dividends and managerial rents
(joint with LSM Finance seminar)
- November 3, 2010. Marine CARRASCO, Université de Montréal, Canada
Optimal portfolio selection using regularization
- November 10, 2010. Ian COOPER, London Business School, United Kingdom
International propagation of the credit crisis
(joint with LSM Finance seminar)
- November 17, 2010. Andrew CHESHER, Centre for Microdata Methods and Practice and University College London, United Kingdom
Generalized instrumental variable models
(joint ECORE-KUL seminar)
- November 22, 2010. Sébastien VAN BELLEGEM, CORE, UCL, Belgium & Toulouse School of Economics, France
School system evaluation by value-added analysis
(joint with Economic Theory seminar)
- November 24, 2010. Suleyman BASAK, London Business School, United Kingdom and CEPR
Strategic asset allocation in money management
(joint with LSM Finance seminar)
- December 1, 2010. Michel LUBRANO, GREQAM, Aix-Marseille, France
Using hierarchical linear models for explaining the publishing performance of European economists

- December 8, 2010. Anthony G. BELLOTTI, Imperial College London, United Kingdom
Support vector machines in finance: application to the prediction of bank ratings
(joint CORE-ISBA and LSM Finance seminar in the frame of the ARC project on time series)
- December 15, 2010. Karim ABADIR, Imperial College London, United Kingdom
Lies, damned lies, and statistics? Examples from finance and economics
(joint CORE-ISBA and LSM Finance seminar in the frame of the ARC project on time series)
- February 9, 2011. Frédéric VRINS, ING Commercial Banking
Analytical pricing of basket default swaps: a dynamic model with automatic calibration to CDS curves
(joint with LSM Finance seminar)
- February 16, 2011. Dimitris KOROILIS, CORE, UCL, Belgium
On adaptive shrinkage priors for forecasting with many predictors
- February 23, 2011. Frederiek SCHOUBBEN, Katholieke Universiteit Leuven, Belgium
Conflicting motives in the relationship between market power and cash holdings: the role of predation risk
(joint with LSM Finance seminar)
- March 2, 2011. Arthur LEWBEL, Boston College, Chestnut Hill (MA), USA
Nonparametric Euler equation identification and estimation
(joint with LSM Finance seminar)
- March 3, 2011. Eric GHYSELS, University of North Carolina, Chapel Hill (NC), USA
The class of Hybrid-GARCH models
(joint with ECORE-KUL seminar)
- March 9, 2011. Timothy J. VOGELANG, Michigan State University, East Lansing (MI), USA
Integrated modified OLS estimation and fixed-b inference for cointegrating regressions
(joint CORE-ISBA & LSM Finance seminar)
- March 16, 2011. Pascal LAVERGNE, Toulouse School of Economics, France
Model equivalence tests in a parametric framework
- March 23, 2011. Eric DE BODT, Université de Lille 2, France
Do repetitive acquirers develop learning gains? Evidence from the time between deals
(joint with LSM Finance seminar)
- March 30, 2011. Roxana HALBLEIB, ECARES, Université Libre de Bruxelles, Brussels, Belgium
Forecasting covariance matrices: a mixed frequency approach
- April 6, 2011. Kris BOUDT, Katholieke Universiteit Leuven, Belgium
Intraday jump detection and the dynamics of liquidity around price jumps
(joint with LSM Finance seminar)
- April 27, 2011. Erich BATTISTIN, Università degli Studi di Padova, Italy
The effects of remedial exams on student achievement: evidence from upper secondary schools in Italy

- May 3, 2011. Sébastien VAN BELLEGEM, CORE, UCL, Belgium & Toulouse School of Economics, France
On some optimization problems in econometrics
(joint with Mathematical Programming seminar)
- May 4, 2011. Alexis CELLIER, Université Paris-Est, France
The impact of corporate social responsibility rating announcements on European stock prices
(joint with LSM Finance seminar)
- May 11, 2011. Alain MONTFORT, Centre de Recherche en Économie et Statistique, Paris, France
Default, liquidity and crises: an econometric framework

▪ ECONOMIC THEORY SEMINAR

- September 20, 2010. Geir ASHEIM, Universitetet i Oslo, Norway
A complete and strongly anonymous leximin relation on infinite streams
- October 11, 2010. Frederic VERMEULEN, Tilburg Universiteit, The Netherlands
Married with children: a collective labor supply model with detailed time use and intrahousehold expenditure information
(joint with Econometrics seminar)
- October 25, 2010. Laurent CALVET, HEC, Paris, France
Efficient estimation of learning models
- November 8, 2010. Jean-Jacques HERINGS, Universiteit Maastricht, The Netherlands
The Condorcet paradox revisited
- November 22, 2010. Sébastien VAN BELLEGEM, CORE, UCL, Belgium & Toulouse School of Economics, France
School system evaluation by value-added analysis
(joint with Econometrics seminar)
- November 29, 2010. Lucie MENAGER, Université de Lille 1, France
Intimidation strategies in competitive bidding
- December 13, 2010. Egbert DIERKER, Universität Wien, Austria
Ownership structure and control in incomplete market economies with transferable utility
- December 20, 2010. Andrés CARVAJAL, University of Warwick, United Kingdom
Revealed preference tests of the Cournot model
- January 10, 2011. Bram DRIESSEN, Universiteit Maastricht, The Netherlands
The Kalai-Smorodinsky bargaining solution with loss aversion
- January 10, 2011. Volker BRITZ, Universiteit Maastricht, The Netherlands
Optimal value commitment in bilateral bargaining
- January 24, 2011. Marta SERRA GARCIA, Universiteit Tilburg, The Netherlands
Moral hazard in credit markets: the incentive effect of collateral

- January 24, 2011. Antoine LOEPER, Northwestern University, Evanston (IL), USA
Dynamic collective choice with endogenous status quo
- January 25, 2011. Benoît SCHMUTZ, GREQAM, Aix-Marseille, France
The neighbor is king. Customer discrimination in the housing market
- January 25, 2011. Marion LETURCQ, Paris School of Economics, France
Would you civil union me? Civil unions and taxes in France: did the reform of income taxation raise the rate of civil unions?
- January 31, 2011. Timo HILLER, European University Institute, Firenze, Italy
Alliance formation and coercion in networks
- January 31, 2011. Bing YE, Toulouse School of Economics, France
Competitive contracts with productive information gathering
- February 7, 2011. Johannes HORNER, Yale University, New Haven (CT), USA
Recursive methods in discounted stochastic games
- February 8, 2011. Golbon ZAKERI, University of Auckland, New Zealand
Financial transmission rights auctions and their theoretical efficiency
(Joint with Mathematical Programming Seminar & Chair GDF-Suez)
- February 21, 2011. Ruben LOBEL, Massachusetts Institute of Technology, Cambridge (MA), USA
Consumer choice model for forecasting demand and designing incentives for solar technology
(Joint with Mathematical Programming Seminar & Chaire GDF-Suez)
- February 28, 2011. Bettina KLOSE, Universität Zürich, Zwitterland
The all-pay auction with complete information and identity-dependent externalities
- March 7, 2011. Jean-Marc BONNISSEAU, Université Paris 1, France
Discrete Walrasian exchange process
- March 14, 2011. Amine OUAZAD, INSEAD, Fontainebleau, France
Blockbusting: brokers and the dynamics of segregation
- March 21, 2011. Bertil TUNGODDEN, Norwegian School of Economics and Business Administration, Bergen, Norway
Just luck: an experimental study of risk taking and fairness
- March 28, 2011. Hippolyte D'ALBIS, Toulouse School of Economics, France
Welfare gains from illiquid annuities
- April 4, 2011. Ashley PIGGINS, National University of Ireland, Galway, Ireland
Aggregating partitions
- May 2, 2011. Olivier GOSSNER, Paris School of Economics, France
The robustness of incomplete codes in repeated games
- May 9, 2011. Humberto LLAVADOR, Universitat Pompeu Fabra, Barcelona, Spain
North-South convergence and the allocation of CO₂ emissions
- May 30, 2011. Peter NEARY, University of Oxford, United Kingdom
Selection effects with heterogeneous firms

■ MATHEMATICAL PROGRAMMING SEMINAR

- September 28, 2010. Emilio CARRIZOSA, Universidad de Sevilla, Spain
Globally minimizing the distance to a geometrical property of points
- October 5, 2010. Jean-Philippe VIAL, Ordecys, Chêne-Bougeries, Switzerland
A world model for coal with uncertain demands
- October 12, 2010. Mathieu VAN VYVE, CORE, UCL, Belgium
Fixed-charge transportation on a path: optimization, LP formulations and separation
- October 19, 2010. Christoph BUCCHEIM, Technische Universität Dortmund, Germany
Lower bounds for convex quadratic integer minimization
- November 2, 2010. Kwanghun CHUNG, CORE, UCL, Belgium
Lifted inequalities for 0-1 mixed-integer bilinear covering sets
- November 9, 2010. Gautier STAUFFER, Université de Bordeaux 1, France
A simple and fast 2-approximation for the one-warehouse multi-retailers problem
- November 22, 2010. Oleg BURDAKOV, Linköpings Universitet, Sweden
Optimal basis algorithm and its application to matrix scaling
- November 23, 2010. Serguei NETESSINE, INSEAD, Fontainebleau, France
Impact of performance-based contracting on product reliability: an empirical analysis
- November 30, 2010. Oguz SOLYALI, Middle East Technical University, Ankara, Turkey
Efficient formulations and a branch-and-cut algorithm for a production-routing problem
- December 7, 2010. Herbert MEYR, Technische Universität Darmstadt, Germany
The general lot-sizing and scheduling problem for parallel production lines and multiple production stages
- December 14, 2010. Quentin LOUVEAUX, Université de Liège, Belgium
An algorithm for the separation of two-row cuts
- January 11, 2011. Dirk Oliver THEIS, Otto-von-Guericke-Universität Magdeburg, Germany
Projections of polytopes, nonnegative rank of matrices, and nondeterministic communication complexity
- January 18, 2011. Didier HENRION, Université de Toulouse, France and Czech Technical University, Prague, Czech Republic
Semidefinite programming for optimizing convex bodies under width constraints
- January 25, 2011. Liang LU, Hong Kong University of Science and Technology, China
Simultaneous and sequential price quotation for uncertain order inquiries with production scheduling cost
- January 31, 2011. Necdet Serhat AYBAT, Columbia University, New York (NY), USA
Unified approach for minimizing composite norms
- February 8, 2011. Golbon ZAKERI, University of Auckland, New Zealand
Financial transmission rights auctions and their theoretical efficiency
(joint with Economic Theory & Chaire GDF-Suez)

- February 8, 2011. Fabrice TALLA NOBIBON, HEC, Liège, Belgium
Collective axiom of revealed preference: complexity result and heuristic tests
- February 15, 2011. Kalyan TALLURI, Universitat Pompeu Fabra, Barcelona, Spain
Approximating the network revenue management dynamic program
- February 21, 2011. Ruben LOBEL, Massachusetts Institute of Technology, Cambridge (MA), USA
Consumer choice model for forecasting demand and designing incentives for solar technology
(Joint with Economic Theory Seminar & Chaire GDF-Suez)
- March 4, 2011. Yoshiaki OSAWA, University of Tsukuba, Japan
Optimality gap of myopic location method
- March 8, 2011. Jorge AMAYA, Universidad de Chile, Santiago de Chile, Chile
Discrete and continuous mathematical formulations for the open pit mine planning problem
- March 15, 2011. Olivier DEVOLDER, CORE & INMA, UCL, Belgium
First-order methods for convex optimization with inexact oracle
- March 29, 2011. Raf JANS, HEC-Montréal, Canada
Binary clustering problems: symmetric, asymmetric and decomposition formulations
- April 5, 2011. Britta PEIS, Technische Universität Berlin, Germany
Integer linear programs with submodular structure
- April 26, 2011. Rene CALDENTEY, Stern School of Business, New York University (NY), USA
Insider trading with a random deadline
- May 3, 2011. Sébastien VAN BELLEGEM, CORE, UCL, Belgium & Toulouse School of Economics, France
On some optimization problems in econometrics
(joint with Econometrics seminar)
- May 10, 2011. Frédéric BONNANS, INRIA, Le Chesnay, France
Sensitivity analysis of energy contracts management problem by stochastic programming techniques
- May 17, 2011. Philippe CHEVALIER, CORE & LSM, UCL, Belgium
Coordinating risk pooling capacity investments in joint ventures
- May 24, 2011. Anders SKAJAA, Technical University of Denmark, Lyngby, Denmark
On implementing a homogeneous interior-point algorithm for non-symmetric conic optimization
- May 31, 2011. Sébastien SAGER, Universität Heidelberg, Germany
Nonlinear mixed-integer optimal control: applications and methods
- June 7, 2011. Peter RICHTARIK, University of Edinburgh, United Kingdom
From sparse principal component analysis to compressed sensing: computing sparse approximations to extreme eigenvectors

■ TRADE AND ECONOMIC GEOGRAPHY SEMINAR

- September 28, 2010. Jean CAVAILHES, INRA, Dijon, France
The S-Ghosts' city: self-generating housing, open space and transportation in a sprawling city
- November 9, 2010. Mathieu PARENTI, Paris School of Economics, France
Trade under oligopolistic competition in the presence of a competitive fringe
- November 25, 2010. Nicolas BERMAN, Graduate Institute of International and Development Studies, Geneva, Switzerland
Exporters and exchange rate changes
(Joint with IRES Research Seminar)
- December 2, 2010. Caroline FREUND, World Bank, Washington (DC), USA
Global patterns in exporter entry and exit
(joint with IRES Research Seminar)
- December 14, 2010. Ana FERNANDES, University of Sussex, United Kingdom
The determinants of vertical integration in export processing: theory and evidence from China
- January 17, 2011. Carlo MENON, Bank of Italy, Roma, Italy
Stars and comets: an exploration of the patent universe
- January 19, 2011. Cécile TANNIER, THéMa, Université de Franche-Comté, Besançon, France
Is the accessibility to various amenities better in fractal or non fractal urban patterns?
- February 8, 2011. Jacques-François THISSE, CORE, UCL, Belgium
Monopolistic competition: beyond the CES
- March 9, 2011. Léo LE MENER, Institut National de la Recherche Agronomique, Nantes, France
Does input trade liberalization boost downstream firms' exports? Theory and evidence
- March 22, 2011. Linke ZHU, Katholieke Universiteit Leuven, Belgium
Comparative advantage and multi-product firms
- April 5, 2011. Laura HERINGS, Erasmus School of Economics, Rotterdam, The Netherlands
How does market access shape internal migration?
- May 31, 2011. Marius THERIAULT, Université de Laval, Canada
Assessing the effect of accessibility to urban amenities in the location rent: searching for market segmentation of preferences
- June 1, 2011. Eric DELMELLE, University of North Carolina, Charlotte (NC), USA
Solving a multi-period school location problem with capacity constraints using tabu search
- June 14, 2011. Grégory VANDENBULCKE-PLOSSCHAERT, CORE, UCL, Belgium
A Bayesian approach to modeling the risk of having a bicycle accident. The case of Brussels (Belgium)

■ **ECORE, JOINT CORE-ECARES SEMINAR**

ECORE federates two research centers: CORE, Université catholique de Louvain and ECARES, Université Libre de Bruxelles, Brussels. This scientific association integrates the research activities and the doctoral programs of both institutions. It promotes their position on the international scene in the fields of economics, finance, operations research, econometrics, and statistics.

- October 4, 2010. Domenico GIANNONE, ECARES, Université Libre de Bruxelles, Brussels, Belgium
Prior selection for vector autoregressions
- November 15, 2010. Florian MAYNERIS, CORE & IRES, UCL, Belgium
Entry and export markets, credit constraints and firm-level performance growth
- December 13, 2010. Benoît CRUTZEN, ECARES, Université Libre de Bruxelles, Brussels, Belgium
Comparative politics with endogenous intra-party discipline
- February 21, 2011. Mathieu VAN VYVE, CORE & LSM, UCL, Belgium
Fixed-charge transportation: a polyhedral study of a polynomially solvable special case
- March 28, 2011. Philipp VERWIMP, ECARES, Université Libre de Bruxelles, Brussels, Belgium
Does conflict affect preferences? Evidence from field experiments in Burundi

■ **WORKSHOP IN WELFARE ECONOMICS**

- October 11, 2010. Chiara CANTA, CORE, UCL, Belgium
Price regulation of a private hospital engaging in dumping when a public hospital is last resort
- October 19, 2010. Stéphane ZUBER, CORE, UCL, Belgium
Ex-post intergenerational equity and discounting
- October 25, 2010. Fred SCHROYEN, Norwegian School of Economics, Bergen, Norway
Optimal pricing and capacity choice for a public service under a risk of interruptions
- November 8, 2010. Claudia HUPKAU, CORE, UCL, Belgium
Presentation of the paper "Economics and Identity" written by G.A. Akerlof and R.E. Kranton, Quarterly Journal of Economics, 115(3), 715-753, 2000.
- November 29, 2010. Tom TRUYTS, CORE, UCL and Katholieke Universiteit Leuven, Belgium
Location of multiple public goods
- December 20, 2010. Sidartha GORDON, Université de Montréal, Canada
Strategy-proof location of multiple public goods
- January 17, 2011. Aitor CALO-BLANCO, CORE, UCL, Belgium and Universidad Pablo de Olavide, Sevilla, Spain
Equality of opportunity and health

- February 21, 2011. Johanna GOERTZ, University of Guelph, Canada
Legislative bargaining
- March 21, 2011. Koen DECANCO, CORE, UCL and Katholieke Universiteit Leuven, Belgium
Multidimensional poverty measurement: should we take preferences into account?
- May 2, 2011. Christelle SAPATA, Universitat Pompeu Fabra, Barcelona, Spain
Who are the worst-off?
- May 30, 2011. Margherita NEGRI, CORE, UCL, Belgium
Why do good politicians take bad actions?

■ WORKSHOP ON GAME THEORY AND ECONOMIC BEHAVIOR

- October 8, 2010. Pierre DEHEZ, CORE, UCL, Belgium
Cooperative provision of indivisible public goods
- October 15, 2010. Vincent VANNETELBOSCH, CORE, UCL, Belgium
Coalition formation among farsighted agents
- October 22, 2010. Adrien VIGIER, CORE, UCL, Belgium and Queen's College, Cambridge, United Kingdom
Robust networks
- October 29, 2010. Morimitsu KURINO, Universiteit Maastricht, The Netherlands
The probabilistic serial assignment mechanism
- November 26, 2010. Chantal MARLATS, CORE, UCL, Belgium and Paris School of Economics, France
Strategic communication in the exponential bandit problem
- December 3, 2010. Pierre DEHEZ, CORE, UCL, Belgium
Data games: sharing public goods with exclusion
- December 17, 2010. Wouter VERGOTE, CORE, UCL and Facultés Universitaires Saint-Louis, Brussels, Belgium
Absolutely stable matching problems
- March 15, 2011. Hiroshi UNO, CORE, UCL, Belgium
Hierarchical adaptations
- March 15, 2011. Olivier TERCIEUX, Paris School of Economics, France
Robust equilibria in sequential games under almost common beliefs
- March 25, 2011. Andrés CARVAJAL, University of Warwick, United Kingdom and CORE
Competition in financial innovation
- March 25, 2011. Allard VAN DER MADE, Facultés Universitaires Saint-Louis, Brussels, Belgium
Graduated punishments in public good games

■ READING SEMINAR IN OPERATIONS RESEARCH

- October 21, 2010. Tanja MLINAR, CORE, UCL, Belgium
Presentation of the paper "Optimal flexibility configurations in newsvendor networks" written by A. Bassamboo, R.S. Randhawa and J.A. Van Mieghem, Management Science, 56(8), 1285-1303, 2010.
- October 28, 2010. Rafael DE MELO, CORE, UCL, Belgium
Presentation of the paper "Primal-dual algorithms for deterministic inventory problems" written by R. Levi, R. Roundy and S. Shmoys, Mathematics of Operations Research, 31, 267-284, 2006.
- November 8, 2010. Olivier DEVOLDER, CORE, UCL, Belgium
Presentation of the paper "A fast iterative shrinkage-thresholding algorithm for linear inverse problems" written by A. Beck and M. Teboulle, SIAM Journal on Imaging Sciences, 2(1), 183-202, 2009.
- November 18, 2010. Nicolas GILLIS, CORE, UCL, Belgium
Presentation of the paper "Decoding by linear programming" written by E.J. Candes and T. Tao, IEEE Transactions on Information Theory, 51, 4203-4215, 2005.
- November 29, 2010. Alejandro LAMAS, CORE, UCL, Belgium
Presentation of the paper "Does a manufacturer benefit from selling to a better-forecasting retailer?" written by T.A. Taylor and W. Xiao, Management Science, 56, 1584-1598, 2010.
- December 9, 2010. Gauthier DE MAERE D'AERTRYCKE, CORE, UCL, Belgium
Presentation of the paper "Optimal commodity trading with a capacitated storage asset." written by N. Secomandi, Management Science, 56(9), 449-467, 2010.
- March 17, 2011. Paschalis TSIAFLAKIS, CORE and Katholieke Universiteit Leuven, Belgium
Presentation of the paper "Duality gap estimation and polynomial time approximation for optimal spectrum management" written by Z.-Q. Luo and S. Zhang, IEEE Transactions on Signal Processing, 59(12), 2675-2689, 2011.
- April 4, 2011. Nicolas GILLIS, CORE, UCL, Belgium
Presentation of the paper "On low rank matrix approximations with applications to synthesis problem in compressed sensing" written by A. Juditsky, F.K. Karzan and A. Nemirovski, Cornell University Library.
- May 26, 2011. Fahimeh SHAMSAEI, CORE, UCL, Belgium
Presentation of the paper "A branch and price approach to the share-of-choice product line design problem" written by X. Wang, J.D. Camm and D.J. Curry, Management Science, 55(10), 1718-1728, 2009.
- May 2, 2011. Joachim GAHUNGU, CORE, UCL, Belgium
Presentation of the paper "A robust optimization approach to inventory theory", written by D. Bertsimas and A. Thiele, Operations Research, 54(1), 150-168, 2006.

DOCTORAL TRAINING

- COMPLETED Ph.D. DISSERTATIONS
- Ph.D. PROJECTS IN PROGRESS
- EUROPEAN DOCTORAL PROGRAM IN QUANTITATIVE ECONOMICS
- DOCTORAL WORKSHOPS

■ COMPLETED PH.D. DISSERTATIONS

Eight doctoral students at CORE successfully defended their Doctoral Dissertation:

- On September 2, 2010. Jean-Christophe VAN DEN SCHRIECK, *Multi-skill queuing models for call centers: approximations and performance optimization*. Docteur en Sciences Economiques et de Gestion, Université catholique de Louvain under the supervision of Philippe CHEVALIER.
Current job: Consultant, n-Side S.A., Louvain-la-Neuve, Belgium.
- On September 7, 2010. Quentin BOTTON, *Survival network design with quality of service constraints: extended formulation and benders decomposition*. Docteur en Sciences Economiques et de Gestion, Université catholique de Louvain under the supervision of Philippe CHEVALIER and Bernard FORTZ.
Current job: Facultés Universitaires Notre-Dame de la Paix, Namur, Belgium
- On September 21, 2010. Filippo Luca CALCIANO, *A theory of games with general complementaries*. Docteur en Sciences Economiques et de Gestion, Université catholique de Louvain under the supervision of Pierre DEHEZ and Jean-François MERTENS.
Current job: Università di Roma, Italy
- On September 30, 2010. Jean-Charles LANGE, *Design and management of networks with fixed transportation costs for the reverse flows of reusable packages*. Docteur en Sciences Economiques et de Gestion, Université catholique de Louvain under the supervision of Pierre SEMAL.
Current job: FedEx, Belgium
- On November 22, 2010. Carlotta BALESTRA, *Environmental externalities and overlapping generations*. Docteur en Sciences Economiques et de Gestion, Université catholique de Louvain under the supervision of Thierry BRÉCHET.
Current job: OECD-Directorate Statistics
- On November 25, 2010. Emanuele FORLANI, *Input markets and manufacturing firms performances*. Docteur en Sciences Economiques et de Gestion, Université catholique de Louvain under the supervision of Hylke VANDENBUSSCHE.
Current job: Post-doc fellowship at Lessius, Antwerpen, Belgium
- On December 14, 2010. Gilles GRANDJEAN, *Essays on social and economic networks*. Docteur en Sciences Economiques et de Gestion, Université catholique de Louvain under the supervision of Ana MAULEON and Vincent VANNETELBOSCH.
Current job: Facultés Universitaires Saint-Louis, Brussels, Belgium
- On February 18, 2011. Nicolas GILLIS, *Nonnegative matrix factorization: complexity, algorithms and applications*. Docteur en Sciences de l'Ingénieur, Université catholique de Louvain under the supervision of François GLINEUR.
Current job: Post-doc, University of Waterloo, Canada

■ PH.D. PROJECTS IN PROGRESS

Rytis BAGDZIUNAS

Title: Asset pricing in general equilibrium framework with incomplete markets

Supervisor: Pierre DEHEZ

Started: 2011

Doctoral School: Graduate School in Economics, UCL, Belgium

Mikel BEDAYO

Title: Essays on social and economic networks

Supervisor: Vincent VANNETELBOSCH

Started: 2010

Doctoral School : Graduate School in Economics, UCL, Belgium

Stéphane BOUCHÉ

Title: Growth and sustainable development

Supervisors: Julio DAVILA

Started: 2009

Doctoral School : Graduate School in Economics, UCL, Belgium

Jean-François CARPANTIER

Title: Applied Econometrics in commodities

Supervisor: Luc BAUWENS

Started: 2007

Doctoral School : Graduate School in Economics, UCL, Belgium (European Doctoral Program)

Nguyen Thang DAO

Title: On the environmental externalities in the overlapping generation framework

Supervisor: Julio DAVILA

Started: 2009

Doctoral School : Graduate School in Economics, UCL, Belgium

Karen DECANCO

Title: Equality of opportunity in an intergenerational mobility context

Supervisor: Erik SCHOKKAERT

Started: 2008

Doctoral School : Katholieke Universiteit Leuven, Belgium

Gauthier DE MAERE D'AERTRYCKE

Title: The formation of prices in restructured electricity market

Supervisor: Yves SMEERS

Started: 2007

Doctoral School : Graduate School in Systems, Optimization, Control, and Networks (SOCN), UCL, Belgium

Rafaël DE MELO

Title: Algorithms for production planning problems

Supervisor: Laurence WOLSEY

Started: 2007

Doctoral School : Graduate School in Systems, Optimization, Control, and Networks (SOCN),
UCL, Belgium

Olivier DEVOLDER

Title: Infinite-dimensional structured convex optimization

Supervisor: François GLINEUR and Yurii NESTEROV

Started: 2009

Doctoral School : Graduate School in Systems, Optimization, Control, and Networks (SOCN),
UCL, Belgium

Arnaud DUFAYS

Title: Time series econometrics: Markov switching GARCH modellings

Supervisor: Luc BAUWENS

Started: 2009

Doctoral School : Graduate School of Economics, UCL, Belgium

Olivier DURAND-LASSERVE

Title: Stochastic long-term scenarios for energy markets

Supervisor: Yves SMEERS

Started: 2007

Doctoral School : Graduate School of Economics, UCL, Belgium

Joachim GAHUNGU

Title: Real options and system dynamics: two approaches to explain boom and bust cycles

Supervisor: Yves SMEERS

Started: 2007

Doctoral School : Graduate School in Systems, Optimization, Control, and Networks (SOCN),
UCL, Belgium

Salome GVETADZE

Title: Public goods and migration

Supervisor: Jean JASKOLD GABSZEWICZ and Jacques-François THISSE

Started: 2008

Doctoral School : Graduate School of Economics, UCL, Belgium

Adel HATAMI-MARBINI

Title: Management of shared resources

Supervisor: Per AGRELL

Started: 2009

Doctoral School : Doctoral School of Management, UCL, Belgium

Claudia HUPKAU

Title: Essays on the economics of poverty

Supervisor: François MANIQUET

Started: 2010

Doctoral School : Graduate School of Economics, UCL, Belgium

Tanguy ISAAC

Title: Information revelation in markets with pairwise meetings. Intergenerational equity

Supervisor: Raouf BOUCEKKINE

Started: 2005

Doctoral School : Graduate School of Economics, UCL, Belgium

Jonathan JONES

Title: Scale problem in urban modelling

Supervisors: Dominique PEETERS and Isabelle THOMAS

Started: 2010

Doctoral School : School of Geography, UCL, Belgium

Tanja MLINAR

Title: Stochastic models to the shared resources in supply chains

Supervisor: Philippe CHEVALIER

Started: 2008

Doctoral School : Doctoral School of Management, UCL, Belgium

Alejandro LAMAS

Title: A robust optimization approach for joint production planning with uncertain demand

Supervisor: Philippe CHEVALIER

Started: 2009

Doctoral School : Doctoral School of Management, UCL, Belgium

Margherita NEGRI

Title: Party competition

Supervisor: François MANIQUET

Started: 2009

Doctoral School : Graduate School of Economics, UCL, Belgium

Vladislav NORA

Title: Refinements of correlated equilibrium

Supervisor: Julio DAVILA

Started: 2010

Doctoral School : Graduate School of Economics, UCL, Belgium

Paolo Giovanni PIACQUADIO

Title: Welfare economics in a dynamic context

Supervisors: Raouf BOUCEKKINE and François MANIQUET

Started: 2008

Doctoral School : Graduate School of Economics, UCL, Belgium

Fahimeh SHAMSAEI

Title: An improved formulation for dynamic productivity lot sizing problems

Supervisor: Mathieu VAN VYVE

Started: 2010

Doctoral School : Doctoral School of Management, UCL, Belgium

Grégory VANDENBULCKE

Title: Spatial analysis of computer cycling and accident risks for cyclists

Supervisor: Isabelle THOMAS

Started: 2008

Doctoral School of Geography, UCL, Belgium

■ EUROPEAN DOCTORAL PROGRAM IN QUANTITATIVE ECONOMICS

The EUROPEAN DOCTORAL PROGRAM IN QUANTITATIVE ECONOMICS is a joint project of CORE, Université catholique de Louvain, Belgium, with the Universitat Pompeu Fabra, Barcelona, Spain, the Rheinische Friedrich-Wilhelms-Universität Bonn, Germany, the London School of Economics, United Kingdom, the Ecole des Hautes Etudes en Sciences Sociales, France, the European University Institute in Florence, Italy, and as an associate member, the 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 2010-2011. Forty-nine students are currently enrolled.

The annual jamboree was organized by Universität Bonn, on March 18-19, 2011 and attended by sixty- two students and twelve academics from the partner universities.

PROGRAMME

MARCH 18, 2011

■ LECTURE 1

Armin FALK, Universität Bonn, Germany

Determinants and consequences of risk attitudes

■ SESSION IA: FINANCE – CHAIR : HENDRIK HAKENES, UNIVERSITÄT BONN, GERMANY

Toni AHNERT, London School of Economics, United Kingdom

Systemic interaction risk

Akin Ozlem, Universidad Pompeu Fabra, Barcelona, Spain

Lessons from times of crisis: anticipation and risk-taking

Michael HEWER, Bonn Graduate School of Economics, Germany

Information and priority rules

- **SESSION IB MACROECONOMICS – CHAIR : ALEXANDER KRIWOLUZKY, UNIVERSITÄT BONN, GERMANY**
Lena Mareen KOERBER, London School of Economics, United Kingdom
New Keynesian dynamics in a low interest rate environment

Philippe BRACKE, London School of Economics, United Kingdom
Housing cycles: a survival analysis

Marco Maria SORGE, Bonn Graduate School of Economics, Germany
On the solution of Markov-switching rational expectations models
- **SESSION IIA: EXPERIMENTS – CHAIR : SEBASTIAN KUBE, UNIVERSITÄT BONN, GERMANY**
Johannes MÜLLER-TRADE, Universitat Pompeu Fabra, Barcelona, Spain
Biases and imperfect utility forecasts

Gerrit FRACKENPOHL, Bonn Graduate School of Economics, Germany
The effect of bundling private and public goods on individuals' willingness to pay

Gert PÖNITZCH, Bonn Graduate School of Economics, Germany
First come, best served? Endogenous move order in threshold goods problems
- **SESSION IIB: INTERNATIONAL MACRO – CHAIR : GERNOT MÜLLER, UNIVERSITÄT BONN, GERMANY**
Friederike NIEPMAN, European University Institute, Firenze, Italy (currently in London)
Bank bailouts, international linkages and cooperation

Liliana Veronica VARELA, Paris School of Economics, France (currently in Barcelona)
Sector heterogeneity and credit market imperfections in emerging markets

Gregor SCHWERHOFF, Bonn Graduate School of Economics, Germany
The global dimension of the global disinflation
- **SESSION IIIA: MICROECONOMICS – CHAIR : FABRIZIO GERMANO, UNIVERSITÄT POMPEU FABRA, BARCELONA, SPAIN**
Sina LITTERSCHEID, Bonn Graduate School of Economics, Germany
On the value of customer information

Jean-Edouard COLLIARD, Paris School of Economics, France
Private information about positive feedback tarding
- **SESSION IIIB: HEALTH ECONOMICS – CHAIR : THOMAS GERGALLMANO, UNIVERSITÄT BONN, GERMANY**
Markus Peter FELS, Bonn Graduate School of Economics, Germany
The value of medical diagnosis: why people reject medical information

Hannes SCHWANDT, Universitat Pompeu Fabra, Barcelona, Spain
Is wealth causing health? Evidence from stock market induced wealth shocks
- **LECTURE 2**
Benny MOLDOVANU, Universität Bonn, Germany
Computer tomography and mechanism design

MARCH 19, 2011

■ LECTURE 3

Christian BAYER, Universität Bonn, Germany

Uncertainty driven business cycles?

■ SESSION IVA: PUBLIC ECONOMICS – CHAIR : PIERRE DEHEZ, CORE, UNIVERSITÉ CATHOLIQUE DE LOUVAIN, BELGIUM

Paolo Giovanni PIACQUADIO, Graduate School of Economics, UCL, Belgium

A multidimensional approach to intergenerational welfare

Emanuel HANSEN, Bonn Graduate School of Economics, Germany (currently in London)

Are close races best? The impact of electoral competition on the quality of candidate selection and policy choice

Renaud COULOMB, Paris School of Economics, France (currently in London)

Optimal carbon tax and carbon capture

Paolo MELINDI, Graduate School of Economics, UCL, Belgium

Fertility differentials and uncertainty: an economic theory of the minority status hypothesis

■ SESSION IVB: INTERNATIONAL TRADE AND LABOR – CHAIR : CHRISTIAN BAYER, UNIVERSITÄT BONN, GERMANY

Andrea ARIU, Graduate School of Economics, UCL, Belgium

The margins of trade in services

Edwin Antonio GONI-PACCHIONI, European University Institute, Firenze, Italy

Trade liberalization, labor reforms and formal-informal employment dynamics

Christian VIEGELHAN, Graduate School of Economics, UCL, Belgium

Temporary trade barriers in the European Union before and during the crisis

Aysegul KAYAOGLU, Graduate School of Economics, UCL, Belgium

Did citizenship institution lose its importance? Determinants of Turkish immigrants' affiliations and labour market integration in France and Germany

■ 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 Département and from partner institutions are invited to attend all sessions. The Doctoral students from Facultés Universitaires Catholiques de Mons, Facultés Universitaires Notre-Dame de la Paix, Namur, Facultés Universitaires Saint-Louis, Brussels, ECARES, Université Libre de Bruxelles, Université de Liège, Universiteit Gent and Katholieke Universiteit Leuven are kindly invited to attend the sessions and present their research.

PROGRAMME

JANUARY 27, 2011

- **FINANCE AND ECONOMETRICS - CHAIR : SÉBASTIEN VAN BELLEGEM, CORE, UCL, BELGIUM**
Maia GEJADZE, LSM, UCL, Belgium
Specialization versus diversification in private equity fundraising: are there time benefits?
Darwin UGARTE, Facultés Universitaires Notre-Dame de la Paix, Namur, Belgium
Outliers in semiparametric estimators of average treatment effects
- **MACROECONOMICS - CHAIR: CARMEN CAMACHO, BELGIUM'S NATIONAL FUND FOR SCIENTIFIC RESEARCH, UCL, BELGIUM**
Daria ONORI, IRES, UCL, Belgium
Transitional dynamics in an endogenous growth model of horizontal differentiation
Robert STELTER, Universität Rostock, Germany
Optimum age-structure in an OLG-model with endogenous fertility and mortality
- **TRADE - CHAIR: JACQUES DRÈZE, CORE, UCL, BELGIUM**
Laura ROVEGNO, IRES, UCL, Belgium
The impact of trade restrictions on exporters' markups: evidence from AD against South Korea
Andrea ARIU, IRES, UCL, Belgium
The margins of trade in services
Francesco DI COMITE, IRES, UCL, Belgium
Verti-zontal differentiation in monopolistic competition
- **GAME THEORY - CHAIR: ANDRÉS CARVAJAL, UNIVERSITY OF WARWICK, UNITED KINGDOM**
Dominique CHARIOT, Facultés Universitaires Saint-Louis, Brussels, Belgium
Generalized and limited morality in coordination games
Vladyslav NORA, CORE, UCL, Belgium
Robustness in implementation theory

JANUARY 28, 2011

- **DEVELOPMENT: THEORETICAL SESSION - CHAIR: KNUD MUNK, AGRO, UCL, BELGIUM**
Mélanie LEFÈVRE, Université de Liège, Belgium
Interlinked transactions and transport costs in developing countries
Diana LOUBAKI, Université Paris I, France
Sustainability and development
Ali SARZAEEM, Università di Milano, Italy
The choice of regime between technocracy and theocracy

- **DEVELOPMENT: EMPIRICAL SESSION - CHAIR: WILLIAM PARIENTÉ, IRES, UCL, BELGIUM**
Samuel STANDAERT, Universiteit Gent, Belgium
Rent seeking and regional trade agreements in Sub-Saharan Africa

Vincent SOMVILLE, Facultés Universitaires Notre-Dame de la Paix, Namur, Belgium
Protecting income from predatory relatives: theory and evidence from urban Benin

Olivier STERCK, IRES, UCL, Belgium
Expected transmission rate of HIV/AIDS and testing behavior
- **LABOR: EMPIRICAL SESSION - CHAIR: BART COCKX, IRES, UCL, BELGIUM**
Daan ISEBAERT, Universiteit Gent, Belgium
Houses and/or jobs: ownership and the labour market

Stijn BAERT, Universiteit Gent, Belgium
School results, school decisions and the transition from school to work: the role of ethnicity

Marijn VERSCHELDE, Universiteit Gent, Belgium
School autonomy and educational performance: within-country evidence
- **LABOR: THEORETICAL SESSION - CHAIR : BRUNO VAN DER LINDEN, IRES, UCL, BELGIUM**
Fodor Mate MIKLOS, Université Libre de Bruxelles, Belgium
On the existence of separating equilibria on job markets

Corinna GHIRELLI, Universiteit Gent, Belgium
Unemployment insurance with monitoring when unemployed are hyperbolic discounters

MAY 30, 2011

- **MACROECONOMICS I - CHAIR: DAVID DE LA CROIX, IRES & CORE, UCL, BELGIUM**
Pierre PECHER, IRES, UCL, Belgium
Conflict and redistribution

Paolo PIACQUADIO, CORE, UCL, Belgium
Equity and efficiency in dynamic models

Nguyen Thang DAO, CORE, UCL, Belgium
Implementing steady state efficiency in overlapping generations economies with environmental externalities
- **MACROECONOMICS II - CHAIR : FREDDY HEYLEN, UNIVERSITEIT GENT, BELGIUM**
Aysegul KAYAOGU, IRES, UCL, Belgium
Is national citizenship withering away? Determinants of Euro-Turks' affiliations and labor market integration

Joël MACHADO, IRES, UCL, Belgium
The economic effects of an immigration amnesty

Joaquin NAVAL, Universidad Autonoma Barcelona, Spain
Migrant selection and inequality evolution in labor-exporting countries

▪ **ECONOMETRICS I - CHAIR : CHRISTIAN HAFNER, CORE/ISBA, UCL, BELGIUM**

Adrien DES ENFANTS D'AVERNAS, University of California at Los Angeles (CA), USA
Bayesian estimation of GSGE models

Jean-François CARPANTIER, CORE, UCL, Belgium
Maturity transformation in the banking sector: still crucial?

Arnaud DUFAYS, CORE, UCL, Belgium
Change-point ARMA-GARCH models and marginal likelihood computation using discrete differential evolution

▪ **ECONOMETRICS II - CHAIR : CÉLINE POILLY, IRES, UCL, BELGIUM**

Paolo BUSSI, Facultés Universitaires Saint-Louis, Brussels, Belgium
Scientific collaborations in economics since 1989: trends and patterns

Samkharadze BESIK, CORE, UCL, Belgium
Global spillovers of the monetary policy news: a multivariate approach

Stefan ANDERSON, University of California at Santa Cruz (CA), USA
The sustainability and preservation of the EMU

▪ **ECONOMIC GEOGRAPHY - CHAIR: FLORIAN MAYNERIS, CORE & IRES, UCL, BELGIUM**

Amandine AUBRY, IRES, UCL, Belgium
Does the extensive margin explain differences in expenditure shares across countries?

Alexandre SIMONS, IRES, UCL, Belgium
Foreign investment, technology and home wages

Christian VIEGELAHN, IRES, UCL, Belgium
No protectionist surprises: EU antidumping policy before and during the great recession

▪ **LABOUR ECONOMICS - CHAIR : MURIEL DEJEMEPPE, IRES, UCL, BELGIUM**

Paola MONTERO, IRES, UCL, Belgium
Unemployment and spatial disparities in a densely populated economy

Marco PECORARO, Université de Neuchâtel, Switzerland
Estimating the returns to educational mismatch with panel data

▪ **POPULATION ECONOMICS - CHAIR: FABIO MARIANI, IRES, UCL, BELGIUM**

Paula GOBBI, IRES, UCL, Belgium
Dinks, Dewks & Co

Paolo MELINDI GHIDI, IRES, UCL, Belgium
Housing, quality of education and aggregate inequality

Chrysovalantis VASILAKIS, IRES, UCL, Belgium

Fighting poverty and child malnutrition: on the design of foreign aid policies discounters

MAY 31, 2011

- **INDUSTRIAL ORGANIZATION - CHAIR: PATRICK LEGROS, UNIVERSITÉ LIBRE DE BRUXELLES, BRUSSELS, BELGIUM**
 Julien JACQMIN, Facultés Universitaires Saint-Louis, Brussels, Belgium
The (forthcoming?) emergence of for-profit higher education institutions
 Daniala TELLONE, Facultés Universitaires Saint-Louis, Brussels, Belgium
Endogenous network formation in Tullock contests
 Aminata SISSOKO, IRES, UCL, Belgium
The duration of research joint ventures: theory and evidence from the Eureka program
- **MICROECONOMICS - CHAIR: JULIO DAVILA, CORE, UCL, BELGIUM**
 Mikel BEDAYO, CORE, UCL, Belgium
Bargaining and delay in trading networks
 Claudia HUPKAU, CORE, UCL, Belgium
Poverty, reflected appraisals and non take-up
 Margherita NEGRI, CORE, UCL, Belgium
Why do good politicians take bad actions?
- **DEVELOPMENT ECONOMICS - CHAIR: WILLIAM PARIENTE, IRES, UCL, BELGIUM**
 Pierre-Germain UMUHIRE, IRES, UCL, Belgium
Informal finance and formal microfinance: understanding the demand for financial services by micro-entrepreneurs in low-income countries
 Diana LOUBAKI, Université Paris I, France
Sustainability and development
- **MACROECONOMICS III - CHAIR: CARMEN CAMACHO, FNRS, UCL, BELGIUM**
 Fabien NGENDAKURIYO, IRES, UCL, Belgium
Technological change and subsistence farming: a two-stage optimal control approach
 Géraldine THIRY, IRES, UCL, Belgium
Beyond GDP: the conceptual grounds of a change in paradigm. The case of the index of economic well-being (IEWEB)
 Lucia GRANELLI, Facultés Universitaires Catholique de Mons, Belgium
Extending the EU savings directive
- **MACROECONOMICS IV - CHAIR: HÉLÈNE LATZER, IRES, UCL, BELGIUM**
 Anton BELYAKOV, Vienna University of Technology, Austria
Consumption of heterogeneous quality goods with increasing quality

Stéphane BOUCHÉ, CORE, UCL, Belgium

Endogenous discounting and economic development

Grégoire GARSOUS, ECARES, Université Libre de Bruxelles, Brussels, Belgium

The technology diffusion and the green growth

▪ **MICROECONOMICS**

CHAIR: PIERRE DEHEZ, CORE, UCL, BELGIUM

Christelle SAPATA, Universitat Autònoma de Barcelona, Spain

Direct versus indirect measure of effort

Vladyslav NORA, CORE, UCL, Belgium

Correlated equilibrium refinements

MEETINGS HELD AT CORE OR CO-ORGANIZED BY CORE MEMBERS

- XXXIST MIT GLOBAL CHANGE FORUM
- IAP-DAY "ECONOMIC POLICY AND FINANCE IN THE GLOBAL ECONOMY: EQUILIBRIUM ANALYSIS AND SOCIAL EVALUATION"
- PUBLIC ECONOMICS DAY
- GAPEM MEETING
- Vth CORE/MAASTRICHT WORKSHOP ON ADVANCES IN COLLECTIVE CHOICE
- BLACKBOARD WORKSHOP IN POLITICAL ECONOMICS
- EQUITY IN HEALTH
- SUSTAINABLE GROWTH, TECHNOLOGICAL PROGRESS AND THE ENVIRONMENT
- WORKSHOP IN HONOR OF WERNER HILDENBRAND
- 2011 ECORE SUMMER SCHOOL ON "MARKET FAILURE AND MARKET DESIGN"
- INTERDISCIPLINARY WORKSHOP ON "ECONOMETRIC AND STATISTICAL MODELLING OF MULTIVARIATE TIME SERIES"
- CHOICES, GAMES AND ECONOMIC ORGANIZATIONS

XXXIST MIT GLOBAL CHANGE FORUM: "CONFRONTING DOMESTIC AND GLOBAL CLIMATE STRATEGIES"

The Forum meetings provide a non-official, neutral setting for analysis and discussion of science and policy aspects of global change, and for independent assessment of studies and policy proposals. Each Forum brings together a group of about 100 representatives of industry, government, international bodies, and research groups for discussion of the evolving understanding of the science and policy aspects of the climate issue. In this way, the work of the Program is provided in an open way to industry and non-profit groups and to national and international policy-making bodies. The Forum includes participation by faculty and staff from MIT, and selected experts from other universities and government research laboratories. The Forums routinely involve high-level representatives from the ongoing IPCC efforts. It also involves input from a range of industries and industrial organizations that have an interest in the effects of climate and related issues on industrial economics and energy technology. The Massachusetts Institute of Technology organized the XXXIst Forum in Brussels in collaboration with CORE and Chair Lhoist Berghmans on October 20-22, 2010. The sessions were organized as follows:

PROGRAMME

OCTOBER 21, 2010

■ SESSION 1: LESSONS FROM PAST INTERGLACIAL CLIMATES

Chairpersons:

- Michel CRUCIFIX, George Lemaître Centre for Earth & Climate Research, UCL, Belgium
- Raymond S. BRADLEY, University of Massachusetts at Amherst (MA), USA
- John RELLY, Massachusetts Institute of Technology, Cambridge (MA), USA

■ SESSION 2: FORECASTING CLIMATE AT THE REGIONAL LEVEL

Chairpersons:

- C. Adam SCHLOSSER, Massachusetts Institute of Technology, Cambridge (MA), USA
- John MITCHELL, Met Office, Exeter, United Kingdom
- Ronald G. PRINN, Massachusetts Institute of Technology, Cambridge (MA), USA

■ SESSION 3: GLOBAL ECONOMICS, GLOBAL TRADE AND ITS CARBON CONTENT

Chairpersons:

- Christian EGENHOFER, Centre for European Policy Studies, Brussels, Belgium
- Niven WINCHESTER, University of Otago, New Zealand
- Thierry BRÉCHET, Chair Lhoist Berghmans and CORE, UCL, Belgium

SESSION 4: CONSEQUENCES OF DIVERSE DOMESTIC CARBON & ENERGY POLICIES

Chairpersons:

- Gilbert E. METCALF, Tufts University, Medford (MA), USA
- Henry TULKENS, CORE, UCL, Belgium
- John PARSON, Massachusetts Institute of Technology, Cambridge (MA), USA

OCTOBER 22, 2010

■ **SESSION 5: GOALS AND CHALLENGES IN ASSESSING THE STATE OF THE SCIENCE**

Chairpersons:

- Martin R. MANNING, Victoria University of Wellington, New Zealand
- Andreas FISCHLIN, Swiss Federal Institute of Technology, Zürich, Switzerland
- Brian FISHER, Pty Ltd (Proprietary Limited company), Australia
- Loren COX, Massachusetts Institute of Technology, Cambridge (MA), USA

■ **SESSION 6: THE ROAD TO AND FROM CANCUN**

Chairpersons:

- Adrian FERNANDEZ-BREMAUNTZ, National Institute of Ecology, Mexico
- Toshi H. ARIMURA, Sophia University, Tokyo, Japan
- Jos DELBEKE, European Commission, Brussels, Belgium
- Joseph ALDY, Harvard Kennedy School, Cambridge (MA), USA
- Richard SCHMALENSEE, Massachusetts Institute of Technology, Cambridge (MA), USA

■ **CLOSING REMARKS**

- John M. REILLY, Massachusetts Institute of Technology, Cambridge (MA), USA
- Thierry BRÉCHET, Chair Lhoist Berghmans and CORE, UCL, Belgium

■ **IAP-DAY "ECONOMIC POLICY AND FINANCE IN THE GLOBAL ECONOMY: EQUILIBRIUM ANALYSIS AND SOCIAL EVALUATION"**

Organized by CORE (Université catholique de Louvain), CES (Katholieke Universiteit Leuven), ECARES (Université Libre de Bruxelles), GEQO (Facultés Universitaires Notre-Dame de la Paix, Namur), IRES (Université catholique de Louvain) and SHERPPA (Universiteit Gent) in the scope of the IAP Contract P6/07. This workshop took place at Gent.

PROGRAMME

DECEMBER 6, 2010

- **SESSION 1: EQUILIBRIUM AND CONTRACTS**
 Chantal MARLATS, CORE, UCL, Belgium
Strategic communication in exponential bandits
 Francesco DI COMITE, IRES, UCL, Belgium
Verti-zontal differentiation in monopolistic competition
- **SESSION 2: INTERNATIONAL ECONOMICS AND FINANCE**
 Matteo LUCIANI, ECARES, Université Libre de Bruxelles, Belgium
Measuring euro area monetary policy transmission in a structural dynamic factor model
 Vincent SOMVILLE, GEQO, Facultés Universitaires Notre-Dame de la Paix, Namur, Belgium
Securing income from predatory relatives: theory and evidence from Benin
- **SESSION 3: SOCIAL EVALUATION AND PUBLIC GOVERNANCE**
 Javier OLIVERA, CES, Katholieke Universiteit Leuven, Belgium
Old-age support and demographic change in developing countries. A cultural transmission model
 Tim BUYSE, SHERPPA, Universiteit Gent, Belgium
Employment by age, long-run growth and the pension challenge in OECD countries: what policies?
- **SESSION 4: PUBLIC ECONOMICS SEMINARS**
 Emmanuelle TAUGOURDEAU, Paris School of Economics, France
When leadership may be optimal: an application to the fiscal competition game
 Tanguy VAN YPERSELE, GREQAM, Aix-Marseille II, France
Tax competition in imperfect labor markets

▪ PUBLIC ECONOMICS DAY

Organized by CORE (Université catholique de Louvain), CES (Katholieke Universiteit Leuven), ECARES (Université Libre de Bruxelles), GEQO (Facultés Universitaires Notre-Dame de la Paix, Namur), IRES (Université catholique de Louvain) and SHERPPA (Universiteit Gent) in the scope of the IAP Contract P6/07. This workshop took place at CORE.

PROGRAMME

FEBRUARY 14, 2011

- Marie-Louise LEROUX, CORE, UCL, Belgium
Longevity, genes and efforts: an optimal taxation approach to prevention
- Laurent SIMULA, Uppsala Universitet, Sweden
Marginal deadweight loss when the income tax is nonlinear
- Corinna GHIRELLI, SHERPPA, Universiteit Gent, Belgium
Unemployment insurance with monitoring when unemployed are hyperbolic discounters
- Felix BIERBRAUER, Max Planck Institute für Mathematics, Bonn, Germany
Optimal income taxation and public-goods provision with preference and productivity shocks
- Johannes SPINNEWYN, London School of Economics, United Kingdom
Capital income taxes with heterogenous discount rates

■ GAPEM MEETING

The Group for Analysis of Performance in Economics and Management organized a meeting under the supervision of Per AGRELL.

PROGRAMME

MARCH 11, 2011

- Humberto BREA, Universitat Autònoma de Barcelona, Spain
Expectations with unrealistic optimism
- Atel HATAMI-MARBINI, CORE, UCL, Belgium
Productivity growth and efficiency measurements in fuzzy environments
- Per AGRELL, CORE and LSM, UCL, Belgium
Endogenous weights under DEA control

■ VTH CORE/MAASTRICHT WORKSHOP ON "ADVANCES IN COLLECTIVE CHOICE"

The annual CORE/Maastricht workshop on collective choice was held in Maastricht, The Netherlands with the support of CORE (UCL) and of the Departments of Economics and Quantitative Economics of Maastricht Universiteit. The workshop intends to promote the exchange of new ideas in Collective Choice and to stimulate and strengthen the scientific cooperation between the two institutions hosting some leading experts in the field.

PROGRAMME

APRIL 15, 2011

- **SESSION 1 - CHAIR : HANS PETERS, UNIVERSITEIT MAASTRICHT, THE NETHERLANDS**
Irem BOZBAY, Universiteit Maastricht, The Netherlands
Judgment aggregation in search for the truth

Vincent CONITZER, Duke University, Durham (NC), USA
Solving complete information voting games by backward induction

Paolo PIACQUADIO, CORE, UCL, Belgium
A multidimensional approach to intergenerational justice
- **SESSION 2 - CHAIR: FRANÇOIS MANIQUET, CORE, UCL, BELGIUM**
Kristof BOSMANS, Universiteit Maastricht, The Netherlands
Distribution-sensitivity of rank-dependent poverty measures

Bertil TUNGODDEN, Norwegian School of Economics, Bergen, Norway
Entitlements vs needs: an international fairness experiment

Erik SCHOKKAERT, CORE, UCL and Katholieke Universiteit Leuven, Belgium
Behavioral fair social choice

▪ BLACKBOARD WORKSHOP IN POLITICAL ECONOMICS

The objective of the workshop organized by François MANIQUET (CORE) was to have Belgian researchers in political economics meet and exchange ideas with CORE's guests and make their visit more fruitful.

PROGRAMME

APRIL 28, 2011

- Micael CASTANHEIRA, ECARES, Université Libre de Bruxelles, Brussels, Belgium
Campaigning for electoral salience
- Arnaud DELLIS, Université Laval, Canada
Splitting, squeezing and diluting: policy moderation when candidacy is endogenous
- Margherita NEGRI, CORE, UCL, Belgium
Why do good politicians take bad actions ?
- Francesco SOBBRIO, Institutions Markets Technologies, Lucca, Italy
A citizen-editors model of news media
- Gani ALDASHEV, Facultés Universitaires Notre-Dame de la Paix, Namur, Belgium
Invalid ballots and electoral competition

■ EQUITY IN HEALTH

was organized by Marc FLEURBAEY (CORE, UCL, Belgium and CERSES, Paris, France), Erik SCHOKKAERT (CORE, UCL and Katholieke Universiteit Leuven, Belgium) and Dirk VAN DE GAER (SHERPPA, Universiteit Gent, Belgium) and sponsored by the contract PAI/IUAP P6/07 of the Belgian Science Policy.

PROGRAMME

MAY 12, 2011

- Marc FLEURBAEY, CORE, UCL, Belgium and CERSES, Paris, France
Equity in health and health care
- Tom VAN OURTI, Erasmus Universiteit, Rotterdam, The Netherlands
Inequity in the face of death
- Tom MCGUIRE, Harvard Medical School, Cambridge (MA), USA
Crowd-out and exposure effects of physical comorbidities on mental health care use: implications for racial-ethnic disparities in access
- Alain TRANNOY, GREQAM and Institut d'Economie Publique, Marseille, France
Inequality of opportunities in health over the life-cycle
- Dirk VAN DE GAER, SHERPPA, Universiteit Gent and CORE, UCL, Belgium
Children's health opportunities and project evaluation: Mexico's oportunidades program
- Pierre-Yves GEOFFARD, Paris School of Economics, France
Measuring multidimensional inequality
- Owen O'DONNELL, University of Macedonia, Thessaloniki, Greece, and Erasmus Universiteit, Rotterdam, The Netherlands
On the measurement of catastrophic health payments

MAY 13, 2011

- Marie-Louise LEROUX, CORE, UCL, Belgium
Compensating the dead? Yes, we can
- Giacomo VALLETTA, Universiteit Maastricht, The Netherlands
Health, fairness and taxation
- Pierre PESTIEAU, CORE, UCL and Université de Liège, Belgium
Long term care social insurance and redistribution
- Pedro ROSA DIAS, Centre for Health Economics, University of York, United Kingdom
Inequality and polarization in health systems' responsiveness: a cross-country analysis

- Eddy VAN DOORSLAER, Erasmus Universiteit Rotterdam, The Netherlands
Measurement of inequity in health care utilization in low-income settings
- Sandy TUBEUF, University of Leeds, United Kingdom
Mediating role of education and lifestyles in the relationship between childhood conditions and health: evidence from the 1958 British cohort
- Maarten LINDEBOOM, Vrije Universiteit Amsterdam, The Netherlands
The long-run effects of birth in the Dutch hunger winter on income and hospitalization

▪ SUSTAINABLE GROWTH, TECHNOLOGICAL PROGRESS AND ENVIRONMENT

This workshop was organized by Raouf BOUCEKKINE (CORE & IRES, UCL, Belgium) within the framework of the Actions de Recherche Concertées of the French-speaking community of Belgium on sustainability.

PROGRAMME

MAY 19, 2011

- **SESSION 1 – CHAIR: RAOUF BOUCEKKINE, CORE & IRES, UCL, BELGIUM AND GREQAM, UNIVERSITÉ D'AIX-MARSEILLE II, FRANCE**
Yacov TSUR, Hebrew University of Jerusalem, Israël
Resource management in a stochastic and fragile environment
Franz WIRL, Universität Wien, Austria
Global warming: prices versus quantities from a strategic point of view
- **SESSION 2 – CHAIR: ALAIN AYONG LE KAMA, UNIVERSITÉ DE LILLE, FRANCE**
Theodore PALIVOS, University of Macedonia, Thessaloniki, Greece
Pollution abatement as a source of stabilization and long-run growth
Cuong LE VAN, Centre d'Economie de la Sorbonne, Paris, France
New technology, TFP and growth process for developing and emerging countries

MAY 20, 2011

- **SESSION 3 – CHAIR: NATALI HRITONENKO, PRAIRIE VIEW A&M UNIVERSITY (TX), USA**
Vladimir VELIOV, Technische Universität Wien, Austria
Distributed control models of endogenous economic growth
Georges ZACCOUR, HEC Montréal, Canada
Sustainable forest management

Olli TAHVONEN, University of Helsinki, Finland

Structure and development of optimally harvested age-structured renewable resources

■ **SESSION 4 – CHAIR: RENAN GOETZ, UNIVERSITAT DE GIRONA, SPAIN**

Yuri YATSENKO, Houston Baptist University (TX), USA

Sustainable growth and modernization under environmental hazard and adaptation

Peter KORT, CentER, Universiteit Tilburg, The Netherlands

Dynamic strategic interaction between an innovating and a non-innovating incumbent

■ **SESSION 5 – CHAIR: KATHELINE SCHUBERT, UNIVERSITÉ PARIS I, FRANCE**

Sjaak SMULDERS, CentER, Universiteit Tilburg, The Netherlands

Intergenerational conflict and sustainable development

David de la CROIX, CORE and IRES, UCL, Belgium

The natalist bias of pollution control

■ **WORKSHOP IN HONOR OF WERNER HILDENBRAND**

Werner HILDENBRAND was professor at the Université catholique de Louvain from 1968 to 1976. As a member of CORE, he has had a deep and lasting influence on the development of research in economic theory.

The workshop consisted of two round table discussions on topics that have retained his attention over the years, *General Equilibrium* and *Aggregation*, two interrelated topics that are highly relevant for macroeconomic modeling. Two prominent economists were in charge of the animation of each round table.

Pierre DEHEZ, Jacques DRÈZE (CORE, UCL, Belgium) and Egbert and Hildegard DIERKER (Universität Wien, Austria) organized this workshop.

PROGRAMME

MAY 20, 2011

- 1st Round Table: Aggregation
introduced by Jean-Michel GRANDMONT and Alan KIRMAN and chaired by Pierre DEHEZ

MAY 21, 2011

- 2nd Round Table: General Equilibrium
introduced by Jacques DRÈZE and chaired by Hildegard DIERKER

▪ 2011 ECORE SUMMER SCHOOL

The 2011 ECORE Summer School on Market Failure and Market Design was held in Louvain-la-Neuve. It was organized by Jean HINDRIKS and François MANIQUET (CORE, UCL, Belgium) and Georg KIRCHSTEIGER (ECARES, Université Libre de Bruxelles, Belgium) and sponsored by the Belgian Science Policy, BNP Paris-Bas Fortis, CORE, UCL, Belgium, CORE Foundation, ECARES, Université Libre de Bruxelles, ECORE (UCL & ULB), Fonds National de la Recherche Scientifique, La Poste and McKinsey & Company.

PROGRAMME

MAY 23, 2011

▪ PLENARY SESSION 1

Vincent CRAWFORD, University of Oxford, United Kingdom

Lecture 1. Strategic thinking

Parag PATHAK, Massachusetts Institute of Technology, Cambridge (MA), USA

Lecture 1. Markets with indivisibilities

▪ PARALLEL SESSION A1: INDUSTRIAL ORGANIZATION 1

Jiangli DOU, Toulouse School of Economics, France

A model of piracy

Claudio KARL, ECARES, Université Libre de Bruxelles, Brussels, Belgium

The spillover effects of universal service obligations

Tim-Paul THOMES, Friedrich-Schiller-Universität Jena, Germany

An economic analysis of online streaming- the case of the music industry

▪ PARALLEL SESSION B1: FAIR ALLOCATION

Estelle MIDLER, LAMETA, Université de Montpellier 1, France

Avoiding deforestation efficiently and fairly: a mechanism design perspective

Paolo PIACQUADIO, CORE, UCL, Belgium

An egalitarian approach to dynamic resource allocation

Jingyi XUE, Rice University, Houston (TX), USA

Egalitarian division under Leontief preferences

▪ PARALLEL SESSION A2: INDUSTRIAL ORGANIZATION 2

Renaud FOUART, ECARES, Université Libre de Bruxelles, Brussels, Belgium

On goods and premises

André VEIGA, Toulouse School of Economics, France

Platforms with heterogeneous externalities

Alistair WILSON, New York University (NY), USA
Clearinghouses for two-sided matching: an experimental study

■ **PARALLEL SESSION B2: COOPERATIVE GAME THEORY & CONTRACTS**

Sonja BRANGEWITZ, Universität Bielefeld, Germany and Université Paris Panthéon-Sorbonne, France
Inner core, asymmetric Nash bargaining solution and competitive payoffs

Jean-Philip GAMP, Universität Bielefeld, Germany
Competitive outcomes and the inner core of NTU market games

Christoph SCHOTTMÜLLER, Universiteit Tilburg, The Netherlands
Adverse selection without single crossing

MAY 24, 2011

■ **PLENARY SESSION 2**

Douglas BERNHEIM, Stanford University (CA), USA
Lecture 1. Poverty and self-control

Vincent CRAWFORD, University of Oxford, United Kingdom
Lecture 2. Level k-auctions

■ **PARALLEL SESSION A3: AUCTIONS**

Alessandro DE CHIARA, ECARES, Université Libre de Bruxelles, Brussels, Belgium
Holding an auction for the wrong project

Hinnerk GNUTZMANN, European University Institute, Firenze, Italy
Pay-per-bid auctions

Sander RENES, Erasmus School of Economics/Tinbergen Institute, Rotterdam, The Netherlands
Balancing the bids, solutions for unit price auctions

■ **PARALLEL SESSION B3: BEHAVIORAL ECONOMICS**

Dominique CHARLOT, Facultés Universitaires Saint-Louis, Brussels, Belgium
Generalized and limited morality in coordination games

Claudia HUPKAU, CORE, UCL, Belgium
Poverty, reflected appraisals and non-take-up

Natalia SHESTAKOVA, Center for Economic Research & Graduate Education - Economics Institute, Prague, Czech Republic
Understanding consumers' choice of pricing schemes

■ **PARALLEL SESSION A4: INDUSTRIAL ORGANIZATION 3**

Hamideh ESFAHANI, Università di Bologna, Italy
Profitability of horizontal mergers in the presence of price stickiness

Anton Giulio MANGANELLI, Toulouse School of Economics, France
The slow rise of prices within a cartel: a behavioral explanation

Fabrizio SPARGOLI, Universitat Pompeu Fabra, Barcelona, Spain
Information disclosure and market discipline of banks

Christoph WAGNER, Bonn Graduate School of Economics, Germany
Versioning and entry

▪ **PARALLEL SESSION B4: NETWORKS/MATCHING**

Bing YE, Toulouse School of Economics France
Multi-homing, network effect and competition

Marco MANTOVANI, Università di Milano, Italy and ECARES, Université Libre de Bruxelles, Brussels, Belgium
Myopic or farsighted? An experiment on network formation

Alexandru NICHIFOR, Universiteit Maastricht, The Netherlands
Stability and competitive equilibrium in trading networks

MAY 25, 2011

▪ **PLENARY SESSION 3**

Parag PATHAK, Massachusetts Institute of Technology, Cambridge (MA), USA
Lecture 2. Student assignment problem

Douglas BERNHEIM, Stanford University (CA), USA
Lecture 2. Applied behavioral welfare economics: the good, the bad, and the ugly

Vincent CRAWFORD, University of Oxford, United Kingdom
Lecture 3. Efficient mechanisms for level-k bilateral trading

▪ **PARALLEL SESSION A5: MATCHING**

Philippos LOUIS, Universitat Autònoma de Barcelona, Spain
Matching markets, herding and the winner's curse

David POTHIER, European University Institute, Firenze, Italy
Competing recruitment mechanisms

Alfredo SALGADO-TORRES, Universidad Carlos III de Madrid, Spain
Many to one matching: externalities and stability

▪ **PARALLEL SESSION B5: POLITICAL ECONOMY**

Joseph Flavian GOMES, Universidad Carlos III de Madrid, Spain
The political economy of the maoist conflict in India: an empirical analysis

Konstantinos MATAKOS, Warwick University, United Kingdom
The politics of unemployment and electoral fractionalization: empirical evidence on the "hostage voter" effect from OECD economies

Margherita NEGRI, CORE, UCL, Belgium
Why do good politicians take bad actions?

Orestis TROUMPOUNIS, Universitat Autònoma de Barcelona, Spain
Participation quorum in meetings

MAY 26, 2011

■ PLENARY SESSION 4

Parag PATHAK, Massachusetts Institute of Technology, Cambridge (MA), USA
Lecture 3. Recent developments

Douglas BERNHEIM, Stanford University (CA), USA
Lecture 3. Revealed preference without choice

■ PARALLEL SESSION A6: INDUSTRIAL ORGANIZATION 4

Evangelia CHALITI, Athens University of Economics and Business, Greece and Yale University, New Haven (CT), USA
Incentive contracts under product market competition and R&D spillovers

Regine OEXL, Università degli Studi di Padova, Italy
Trilateral contract and the holdup problem

Sonali SEN GUPTA, University of Birmingham, United Kingdom
Simple weak correlation in duopoly

■ PARALLEL SESSION B6: ENVIRONMENTAL ECONOMICS

Mehdi FADAEI, Università di Bologna, Italy
Environment-damaging pollution and trade policy

Corina HAITA, Central European University, Budapest, Hungary
An emissions trading scheme with auctioning

Vahid MOJTAMED, Università Ca' Foscari di Venezia, Italy
Market design for tradable green certificates: an example of market-based governance

■ PARALLEL SESSION A7: COMMUNICATION AND SIGNALING

Paul BALART, Universitat Autònoma de Barcelona, Spain
The increase in college premium and the decline of college wages: a signaling story

Olivier BODY, ECARES, Université Libre de Bruxelles, Brussels Belgium
How do social preferences affect communication?

Felix KETELAAR, Bonn Graduate School of Economics, Germany
Noisy communication with homogeneous preferences

■ PARALLEL SESSION B7: MISCELLANEOUS (MONEY, FINANCE, ...)

Nikolaos KOKONAS, University of Warwick, United Kingdom
Unemployment equilibria in a monetary economy

Vincenzo PLATINO, Paris School of Economics, France

Private versus public consumption within groups: testing the nature of goods from aggregate data

Abhishek RANJAN, Université Paris I, France

Existence of financial quasi-equilibria with restricted participation

■ INTERDISCIPLINARY WORKSHOP ON "ECONOMETRIC AND STATISTICAL MODELLING OF MULTIVARIATE TIME SERIES"

This interdisciplinary workshop on multivariate time series addressed substantial questions of common interest in econometrics and statistics. It was organized by Luc BAUWENS (CORE, UCL), Christian HAFNER (CORE and ISBA, UCL), Rainer VON SACHS (ISBA, UCL), Johan SEGERS (ISBA, UCL), Sébastien VAN BELLEGEM (CORE, UCL) and David VEREDAS (ECARES, Université Libre de Bruxelles) and sponsored by the Projet d'Actions de Recherche Concertées 07/12/002 of the Communauté Française de Belgique.

PROGRAMME

MAY 25, 2011

- Timo TERÄSVRITA, Aarhus Universitet, Denmark
Nonlinear forecasting of macroeconomic variables using automated model selection techniques
- Luc BAUWENS, CORE, UCL, Belgium
CAW-DCC: a dynamic model for vast realized covariance matrices
- Poster Session 1
- Jun YU, Singapore Management University, Singapore
Bias in estimating multivariate and univariate diffusions
- Dennis KRISTENSEN, Columbia University, New York (NY), USA
Estimation of diffusion models with time-varying parameters

MAY 26, 2011

- Robert F. ENGLE, Stern School of Economics, New York University (NY), USA
Volatility, correlation and tails for systemic risk measurement
- Poster Session 2
- Qiwei YAO, London School of Economics, United Kingdom
Factor modeling for high-dimensional time series: a dimension-reduction approach

- Christian GOURIÉROUX, Centre de Recherche en Economie et Statistique, Malakoff, France and Université de Toronto, Canada
Correlated risks vs contagion in stochastic transition models
- Eric RENAULT, University of North Carolina, Chapel Hill (NC), USA
The dynamic mixed hitting-time model for multiple transaction prices and times
- Johan SEGERS, ISBA, UCL, Belgium
Modelling extremes of multivariate time series via the tail process

MAY 27, 2011

- Christian HAFNER, CORE and ISBA, Université catholique de Louvain, Belgium
Macroeconomic news surprises and volatility spillover in the foreign exchange
- Jeroen ROMBOUTS, HEC Montréal, Canada and CORE, UCL, Belgium
Marginal likelihood for Markov-switching and change-point Garch models
- Marc HALLIN, ECARES, Université Libre de Bruxelles, Brussels, Belgium
Quantiles, time series and spectral analysis
- Richard A. DAVIS, Columbia University, New York (NY), USA
Noncausal vector AR processes with application to financial time series

▪ CHOICES, GAMES AND ECONOMIC ORGANIZATIONS. A TRIBUTE IN HONOR OF CLAUDE D'ASPREMONT AND JEAN-FRANÇOIS MERTENS

Claude D'ASPREMONT and Jean-François MERTENS retired after this academic year. To celebrate two of its most prominent members, CORE organized a three-day conference. François MANIQUET (CORE, UCL, Belgium) and Erik SCHOKKAERT (CORE, UCL and CES, Katholieke Universiteit Leuven) were the organizers of this conference sponsored by the Communauté Française de Belgique, the Politique Scientifique Fédérale and the Université catholique de Louvain, IMMAQ.

PROGRAMME

JUNE 23, 2011

- **INDUSTRIAL ORGANIZATION AND RELATED TOPICS**
Jacques-François THISSE, CORE, UCL, Belgium and Mathieu PARENTI, Université Paris Panthéon-Sorbonne, France
Do firms exploit their market power in the presence of a monopolistically competitive fringe?

Jean-Pierre PONSSARD, Ecole Polytechnique de Paris, France
Short term entry barriers may be good for long term competition

Michel LE BRETON, Toulouse School of Economics, France and Shlomo WEBER, Southern Methodist University, Dallas (TX), USA

Gale-Nikaido and Milgrom-Shannon: Nash equilibria in locational models

Jacques CRÉMER, Toulouse School of Economics, France

The value of incumbency in heterogeneous networks

Hervé MOULIN, Rice University, Houston (TX), USA

The price of imperfect competition on a network

Rabah AMIR, University of Arizona, Tucson (AZ), USA and David ENCAOUA, Université Paris Panthéon-Sorbonne, France

Per-unit royalty vs fixed fee: the case of weak patents

Massimo MOTTA, Universitat Pompeu Fabra, Barcelona, Spain

A theory of predation

Bernard CORNET, Université Paris Panthéon-Sorbonne, France

Bid/ask spread markets representable by the core of a capacity

Bernard DE MEYER, Université Paris Panthéon-Sorbonne, France

Price dynamics on a stock market with asymmetric information

Peter HAMMOND, University of Warwick, United Kingdom

Remodelling financial markets: constrained efficiency with adverse selection

JUNE 24, 2011

▪ WELFARE THEORY, POLITICAL ECONOMY AND RELATED TOPICS

Jean TIROLE, Toulouse School of Economics, France

Laws and norms

John WEYMARK, Vanderbilt University, Nashville (TN), USA

Social choice theory and the measurement of group fitness in biological hierarchies

Philippe MONGIN, Ecole des Hautes Etudes Commerciales, Paris, France

The relevance of utilitarianism

Francesco DE SINOPOLI, Università degli Studi di Verona, Italy

Electing a parliament

Bezalel PELEG, Hebrew University of Jerusalem, Israël

Condorcet's jury theorem: the dependent case

Herakles POLEMARCHAKIS, University of Warwick, United Kingdom

Optimal debt

Anna RUBINCHICK, University of Haifa, Israël

Regularity and stability of equilibria in an overlapping generations growth model

Yair TAUMANN, State University of New York (NY), USA

Proper welfare weights for social optimization problems

Claude D'ASPREMONT, CORE, UCL, Belgium and Rodolphe DOS SANTOS FERREIRA,
Université de Strasbourg, France
Household behavior and individual autonomy: a Lindahl approach

JUNE 25, 2011

▪ **GAME THEORY AND RELATED TOPICS**

Geoffroy DE CLIPPEL, Brown University, Providence (RI), USA
On the strategic disclosure of feasible options in bargaining

Françoise FORGES, Université Paris-Dauphine, France
Implementation of communication equilibria by correlated cheap talk: the player case

Ehud KALAI, Northwestern University, Evanston (IL), USA
Stability in Bayesian games with many heterogeneous players

Sylvain SORIN, Université Pierre et Marie Curie, Paris, France
A continuous time approach for the asymptotic value in two-person zero-sum repeated games

Hari GOVINDAN, University of Iowa (IO), USA
Towards an axiomatic theory of equilibrium selection

Salvador BARBERA, Universitat Autònoma de Barcelona, Spain
Rules of k names

Pradeep DUBEY, State University of New York (NY), USA
The allocation of a prize

Abraham NEYMAN, Hebrew University of Jerusalem, Israël
Continuous-time stochastic games

John HILLAS, University of Auckland, New Zealand and Elon KOHLBERG, Harvard
Business School, Cambridge (MA), USA
Correlated equilibrium and Nash equilibrium as an observer's assessment of the game

Jean-François MERTENS, CORE, UCL, Belgium
Welfare analysis in overlapping generations models

9

INVITED SEMINARS

The following seminars were presented by CORE members during the academic year 2010-2011.

THOMAS BAUDIN

- *Family policies: what does the standard endogenous fertility model tell us?*
Séminaire SIUTE, Université de Lille, France (May 2011)
Séminaire Intégration, Paris School of Economics, France (May 2011)
- *The optimal trade-off between quality and quantity with unknown number of survivors*
Séminaire SIUTE, Université de Lille, France (May 2011)
Séminaire Intégration, Paris School of Economics, France (May 2011)

LUC BAUWENS

- *Multivariate GARCH models: a survey*
Università degli Studi di Sassari, Italy (October 2010)
- *CAW-DCC: a dynamic model for vast realized covariance matrices*
Università degli Studi di Sassari, Italy (April 2011)

PAUL BELLEFLAMME

- *Crowdfunding: tapping the right crowd*
Università di Bologna, Italy (February 2011)
Center for Economic Research & Graduate Education, Prague, Czech Republic (February 2011)
Télécom ParisTech, France (March 2011)
Universidade do Porto, Portugal (March 2011)
Copenhagen Business School, Denmark (May 2011)

THIERRY BRÉCHET

- *Épuisement du pétrole et aménagement du territoire*
Commission Aménagement du Territoire d'ECOLO, Belgium (March 2011)
Commission Pétrole-Gaz du Parlement Wallon, Belgium (April 2011)
- *Épuisement du pétrole, mobilité et aménagement du territoire*
Midis du Développement Durable, Service Public de Wallonie, Namur, Belgium (March 2011)
- *Analysing potential climate agreements with an integrated assessment model, and also with stochastic programming*
Institute of Management, Université de Savoie, Chambéry, France (April 2011)

- *Exploring potential climate agreements with an integrated assessment model*
Grantham Institute on Climate Change, Imperial College London, United Kingdom
(May 2011)

CHIARA CANTA

- *Efficiency, access and the mixed delivery of health care services*
Université de Liège, Belgium (January 2011)

PHILIPPE CHEVALIER

- *Coordinating risk-pooling capacity investment in joint ventures*
Chinese University of Hong Kong (March 2011)

KWANGHUN CHUNG

- *Strong valid inequalities for mixed-integer nonlinear programs via integer programming techniques*
Konkuk University, Industrial Engineering Seminar, Seoul, Korea (May 2011)
School of Techno Management Seminar, Ulsan National Institute of Science and Technology, Korea (July 2011)

NGUYEN THANG DAO

- *Toward a unified growth theory*
Foreign Trade University, Hanoi, Vietnam (August 2011)

JULIO DAVILA

- *Optimal population and education*
Kyoto Institute for Economic Research, University of Kyoto, Japan (April 2011)
School of Economics and Finance, University of Hong-Kong, China (April 2011)

KOEN DECANCO

- *The evolution of global inequality: absolute, relative and intermediate views*
CEPS/INSEAD, Differdange, Luxemburg (October 2010)
Center for Economic Studies, Katholieke Universiteit Leuven, Belgium (April 2011)

PIERRE DEHEZ

- *How to share sequential liability: a cooperative game approach*
Università di Pisa, Italy (May 2011)

DAVID DE LA CROIX

- *Do brain drain and poverty result from coordination failures?*
Université de Lausanne, Switzerland (October 2010)
Bilkent University, Ankara, Turkey (February 2011)
- *An incentive mechanism to break the low-skill immigration deadlock*
University of Southampton, United Kingdom (March 2011)
- *Fertility, education, growth and sustainability*
CICSE Lectures in Growth and Development, Università degli Studi di Napoli, Italy
(April 2011)

AXEL GAUTIER

- *Soft capture*
Universitat Autònoma de Barcelona, Spain (November 2010)

CHRISTIAN HAFNER

- *Macroeconomic news surprises and volatility spillover in the foreign exchange markets*
Université du Luxembourg, Luxembourg (November 2010)
Universität Göttingen, Germany (November 2010)
- *Modelling multivariate volatility of electricity futures*
CREATES, Aarhus Universitet, Denmark (March 2011)

KOEN JOCHMANS

- *An adjusted profile likelihood for non-stationary panel data models with fixed effects*
Brown University, Providence (RI), USA (September 2010)
Boston University (MA), USA (October 2010)
- *Inference from kernel-weighted U-processes*
Boston University (MA), USA (October 2010)
- *Estimating monotone index models with nonparametric controls*
Brown University, Providence (RI), USA (December 2010)
Sciences Po, Paris, France (January 2011)
University of Bristol, United Kingdom (January 2011)
Institutions Markets Technologies, Lucca, Italy (January 2011)
Institut für Höhere Studiene, Vienna, Austria (February 2011)
Centro de Estudios Monetarios y Financieros, Madrid, Spain (March 2011)

MARIE-LOUISE LEROUX

- *Longevity, genes and efforts: an optimal taxation approach to prevention*
Université du Québec, Montréal, Canada (January 2011)
Universidad Autonoma Barcelona, Spain (January 2011)
Universitat Rovira i Virgili, Tarrogon, Spain (January 2011)
Toulouse School of Economics, France (February 2011)
Institut d'Economia de Barcelona, Spain (February 2011)

ROLAND LUTTENS

- *Collective bargaining under non-binding contracts*
Vrije Universiteit Amsterdam, The Netherlands (October 2010)

FRANÇOIS MANIQUET

- *Strategic voting under proportional representation*
Katholieke Universiteit Leuven, Belgium (October 2010)
Universiteit Antwerpen, Belgium (March 2011)
University of York, United Kingdom (June 2011)

ANA MAULEON

- *Myopic or farsighted? An experiment on network formation*
Universidad del Pais Vasco, Bilbao, Spain (November 2010)
Cooperative Relations Seminar, Universiteit Utrecht, The Netherlands (February 2011)
GREThA, Université Montesquieu-Bordeaux IV, France (May 2011)

FLORIAN MAYNERIS

- *Heterogeneous credit constraints, firm-level investment and performance growth of domestic and exporting firms*
Facultés Universitaires Notre-Dame de la Paix, Namur, Belgium (September 2010)
Institut de Hautes Etudes Internationales et du Développement, Geneva, Switzerland (October 2010)
Università Degli Studi di Trento, Italy (December 2010)
- *Export performance of Chinese domestic firms: the role of foreign export spillovers*
Paris School of Economics, France (November 2010)
- *Clusters and clusters policies*
Universiteit Tilburg, The Netherlands (March 2011)
- *Are tax incentives sufficient to attract firms in deprived areas? Evidence from France*
Université de Saint-Etienne, France (March 2011)

JUAN D. MORENO-TERNERO

- *A common ground for resource and welfare egalitarianism*
Københavns Universitet, Denmark (January 2011)
- *Baseline rationing*
Universiteit Maastricht, The Netherlands (September 2010)
THEMA, Université de Cergy-Pontoise, France (October 2010)

PIERRE PESTIEAU

- *The economics of long term care*
World Bank, Washington (DC), USA (November 2010)
- *Should we subsidize longevity ?*
Universität Rostock, Germany (December 2010)
Uppsala Universitet, Sweden (January 2011)
Universidad de Los Andes, Bogota, Columbia (March 2011)
Universiteit Rotterdam, The Netherlands (March 2011)
- *Long term care social insurance and redistribution*
Uppsala Universitet, Sweden (May 2011)

PAOLO PIACQUADIO

- *Policy games in a dynamic framework*
Università degli Studi di Roma "La Sapienza", Italy (December 2010)
- *No-envy and efficiency in dynamic resource allocation*
European University Institute, Firenze, Italy (February 2011)
- *A general approach to dynamic policy games*
Università degli Studi di Roma "La Sapienza", Italy (June 2011)

GUILLAUME ROELS

- *Coordinating risk pooling capacity investments in joint ventures*
Olin School of Business, Washington University, St Louis (MO), USA (October 2010)
Wharton School, University of Pennsylvania (PA), USA (October 2010)
USC Marshall School of Business, Los Angeles (CA), USA (March 2011)

ERIK SCHOKKAERT

- *Behavioral fair social choice*
Center for Economic Studies, Katholieke Universiteit Leuven, Belgium (June 2011)

FRED SCHROYEN

- *Two-dimensional screening in monopolistic insurance*
Universiteit Antwerpen, Belgium (October 2010)
University of York, United Kingdom (December 2010)
LERN seminar, Toulouse School of Economics, France (May 2011)

LÉOPOLD SIMAR

- *Regularization of non-parametric frontier estimators*
Università di Lecce, Italy (October 2010)
- *Probabilistic characterization of directional distances and their robust versions*
Centro Studi di Ingegneria Economico-Gestionale, Università di Bologna, Italy (October 2010)
- *Efficiency and productivity analysis, the statistical approach*
Università degli Studi di Roma "La Sapienza", Italy (March 2011)
- *How to measure the impact of environmental factors in a nonparametric production model?*
Università di Lecce, Italy (October 2010)

JOE THARAKAN

- *Endogenous mode of competition in general equilibrium*
Katholieke Universiteit Leuven, Belgium (December 2010)

ISABELLE THOMAS

- *Echelles spatiales: enjeux statistiques et stratégiques*
Séminaire IRIB élargi, Facultés Universitaires Saint-Louis, Brussels, Belgium (November 2010)
- *Régions et frontières de téléphonie mobile: une méthodologie et son application à la Belgique*
Les Midis de la Recherche, UCL, Belgium (December 2010)
- *Modèles de localisation: méthodes et solutions*
Université de Luxembourg, Luxembourg (May 2011)

HIROSHI UNO

- *Hierarchical adaptations*
Osaka University, Japan (January 2011)
Yokohama City University, Japan (January 2011)

SÉBASTIEN VAN BELLEGEM

- *Endogeneity problems and school effectiveness*
Pontificia Universidad Catolica de Chile, Santiago, Chile (January 2011)

DIRK VAN DE GAER

- *Children's health opportunities and project evaluation: Mexico's oportunidades program*
Université de Caen, France (March 2011)

HYLKE VANDENBUSSCHE

- *Multi-product exporters, margins of trade and carry-along trade*
Central Bureau of the Netherlands, Den Haag, The Netherlands (March 2011)
- *Vertizontal differentiation in monopolistic competition*
Emory University, Atlanta (GA), USA (April 2011)
Georgia Tech University, Atlanta (GA), USA (April 2011)
Federal Reserve Bank of Chicago (IL), USA (April 2011)
University of Notre-Dame (IN), USA (April 2011)

LAURENT VAN MALDEREN

- *Plans de mobilité d'entreprise: quel impact sur les déplacements domicile-travail*
Facultés Universitaires Notre-Dame de la Paix, Namur, Belgium (October 2010)

MATHIEU VAN VYVE

- *Fixed charge transportation on a path: linear-programming formulations*
Université Bordeaux 1, France (March 2011)

XAVIER WAUTHY

- *Judo Economics*
Séminaire du CATT, Université de Pau, France (March 2011)

LAURENCE WOLSEY

- *Simple MIPs and losizing: new results and recent favorites*
Koç University, Istanbul, Turkey (December 2010)

- *Simple MIPs and losizing: theory and computation*
Université de Liège, Belgium (February 2011)
- *MIP Formulations for production/transportation and production/scheduling*
Georgia Tech, School of Industrial and Systems Engineering, Atlanta (GA), USA (April 2011)
- *Extended formulations of integer programs: theory and practice*
Georgia Tech, School of Industrial and Systems Engineering, Atlanta (GA), USA (April 2011)

10

**ACADEMIC VISITS OF CORE
MEMBERS**

PAUL BELLEFLAMME

Ecole Polytechnique de Paris, France (February-May 2011)

Universidade do Porto, Portugal (March 2011)

Université du Luxembourg (June-July 2011)

JEAN-FRANÇOIS CARPANTIER

National Bank of Belgium, Brussels, Belgium (September-December 2010)

School of Business and Economics, Universiteit Maastricht (February-June 2011)

JULIO DAVILA

Kyoto Institute for Economic Research, University of Kyoto, Japan (April 2011)

School of Economics and Finance, University of Hong-Kong, China (April 2011)

PIERRE DEHEZ

BETA, Université de Nancy, France (regular visits)

DAVID DE LA CROIX

Northwestern University, Evanston (IL), USA (March 2011)

ADEL HATAMI-MARBINI

Copenhagen Business School, Denmark (November 2010)

Universidad Autonoma Barcelona, Spain (March 2011)

MARIE-LOUISE LEROUX

Universidad del Rosario, Bogota, Columbia (November 2010)

FRANÇOIS MANIQUET

University of Warwick, United Kingdom (January-February 2011)

ANA MAULEON

Universidad del Pais Vasco, Bilbao, Spain (November 2010)

Université Montesquieu-Bordeaux IV, France (May 2011)

MARGHERITA NEGRI

European University Institute, Firenze, Italy (February-July 2011)

PIERRE PESTIEAU

Institut d'Economie Industrielle, Toulouse, France (September 2010 and April 2011)
International Monetary Fund, Washington (DC), USA (October-November 2010)
Universidad del Rosario, Bogota, Columbia (February – March 2011)

PAOLO PIACQUADIO

European University Institute, Firenze, Italy (September 2010 – February 2011)

PIERRE PICARD

Max Planck Institute, München, Germany (February 2011)

EVE RAMAEKERS

Indian Statistical Institute, New Delhi, India (March 2011)

LÉOPOLD SIMAR

INRA-GREMAQ, Toulouse School of Economics, France (September and December 2010 and May 2011)
Centro Studi di Ingegneria Economico-Gestionale, Università di Bologna, Italy (October 2010 and March 2011)
Institute for Economics and Social Sciences, Bonn Universität, Germany (February 2011)
Università degli Studi di Roma "La Sapienza", Italy (April 2011)
Università di Lecce, Italy (June 2011)

YVES SMEERS

Ecole des Mines, Sophia-Antipolis, France (February 2011)
Fondazione Eni Enrico Mattei, Milano, Italy (March 2011)
Eidgenössische Technische Hochschule Zürich, Switzerland (March 2011)

SÉBASTIEN VAN BELLEGEM

Pontificia Universidad Catolica de Chile, Santiago, Chile (December – January 2011)

LAURENCE WOLSEY

Université d'Abomey-Calavi, Cotonou, Benin (September 2010)
ISYE Georgia Institute of Technology, Atlanta (GA), USA (March-April 2011)

**CONFERENCES ATTENDED
BY CORE MEMBERS**

CORE members attended the following conferences and most presented a paper .

IGNACE ADANT

Exchanging Knowledge: Complementary Perspectives on Markets for Patents, BELSPO Conference, City Atrium, Brussels (May 2011)

PER AGRELL

EnergiNorge Workshop on Network Regulation, Oslo, Norway (September 2010)

CEMS 8th Research Seminar on Supply Chain Management, Riezlern, Austria (January 2011)

12th European Workshop on Efficiency and Productivity Analysis (EWEPA), Università di Verona, Italy (June 2010)

CRESSE International Conference on Regulation and Competition, Rhodes, Greece (July 2011)

THOMAS BAUDIN

59^{ème} Congrès de l'Association Française de Sciences Economiques, Paris-Nanterre (September 2010)

Workshop on "Optimal Fertility in Ageing Societies", Vienna Institute of Demography, Austria (December 2010)

Overlapping Generations Days 2011: Long-Term Macroeconomics – Growth and Development Dynamics in General Equilibrium, Vielsalm, Belgium (May 2011)

LUC BAUWENS

One-Day Conference on "Latest Developments in Financial Econometrics", ECARES, Université Libre de Bruxelles, Brussels (March 2011)

PAUL BELLEFLAMME

4th Intertic Conference on "Competition in High-Tech Markets". Università di Milano, Italy (October 2010)

2nd Annual UECE-Lisbon Meetings "Game Theory and Applications", Instituto Superior de Economia e Gestao, Universidade Técnica de Lisboa, Portugal (November 2010)

Exchanging Knowledge: Complementary Perspectives on Markets for Patents, BELSPO Conference, City Atrium, Brussels (co-organizer) (May 2011)

THIERRY BRÉCHET

International Workshop on "Natural Resource, Environment and Growth", European University of Saint-Petersburg, Russia (organizer) (October 2010)

Colloque 2010 de la Conférence Permanente du Développement Territorial (CPDT): "La dimension territoriale des Politiques Energétiques et de Réduction des Gaz à Effet de Serres", Liège, Belgium (November 2010)

JEAN-FRANÇOIS CARPANTIER

4th Methods in International Finance Network (MIFN) Annual Workshop, Shandong University, Beijing, China (October 2010)

Journée d'Econométrie – Développements Récents de l'Econométrie Appliquée à la Finance, Paris Nanterre, France (November 2010)

GEOFFREY CARUSO

24th Summer School of the European Regional Science Association, Luxembourg (July 2011)

CHIARA CANTA

Italian Health Economics Association 15th Annual Conference, Torino, Italy (September 2010)

CESifo Area Conference on Public Sector Economics 2011, München, Germany (April 2011)

Journées Louis-André Gérard-Varet #10, Ecole des Hautes Etudes en Sciences Sociales, Marseille, France (June 2011)

International Health Economics Association Conference, Toronto, Canada (July 2011)

PHILIPPE CHEVALIER

Arcelor-Mittal Workshop on Optimization, Paris, France (October 2010)

INFORMS Annual Conference, Austin (TX), USA (November 2010)

International Workshop on Supply Chain Models for Shared Resource Management, Brussels, Belgium (January 2011)

KWANGHUN CHUNG

INFORMS Annual Conference, Austin (TX), USA (November 2010)

KORMS/KIIE Joint Conference, Incheon, Korea (May 2011)

NGUYEN THANG DAO

Singapore Economic Review Conference (SERC), Singapore (August 2011)

CLAUDE D'ASPREMONT

Sen's Collective Choice and Social Welfare 40th Anniversary, London School of Economics, United Kingdom (October 2010)

Dauphine Workshop on Economic Theory, Paris, France (November 2010)

Journées Louis-André Gérard-Varet #10, Ecole des Hautes Etudes en Sciences Sociales, Marseille, France (June 2011)

JULIO DAVILA

European Workshop on General Equilibrium Theory, Baiona, Spain (June 2011)
 Association of Public Economic Theory Workshop on the Political Economy of Development,
 Chulalongkorn University, Bangkok, Thailand (June 2011)
 Asian Meeting of the Econometric Society, Korea University, Seoul, South Korea (August 2011)

KOEN DECANCO

Workshop on "The Multiple Dimensions of Equality and Fairness", Université de la
 Méditerranée, Marseille, France (November 2010)
 6th Winter School on Inequality and Social Welfare Theory (ITG), Canazei, Italy (January 2011)
 4th Meeting of the Society of the Study of Economic Inequality (ECINEQ), Università degli Studi
 Di Catania, Italy (July 2011)
 OECD-Joint Universities Congress on "New Directions in Welfare Economics", Paris, France (July
 2011)

PIERRE DEHEZ

7th Spain-Italian-Netherlands Meeting on Game Theory, SING 7, Paris, France (July 2011)
 7th Meeting on Game Theory, TELECOM, ParisTech, France (July 2011)

DAVID DE LA CROIX

2010 Cologne Workshop on Macroeconomics, Center for Macroeconomic Research, Universität
 zu Köln, Germany (September 2010)
 Conference on Development, Paris School of Economics, France (Septembre 2010)
 Symposium on "Towards Sustained Growth", Barcelona, Spain (organizer) (October 2010)
 Conference on "Optimal Fertility in Ageing Societies", Vienna Institute for Demographic
 Research, Austria (December 2010)
 IUSSP (Panel New Challenges in Population and Development) International Conference,
 Center for Regional Development and Planning, Belo Horizonte, Brazil (June 2011)
 Summer School on Economic Demography, Max Planck Institute for Demography Research,
 Rostock, Germany (June 2011)
 Conference on "Cultural Change and Economic Growth in the Long Run", Universität München,
 Germany (July 2011)

OLIVIER DEVOLDER

OPTEC Workshop on Large Scale Convex Quadratic Programming: Algorithms, Software and
 Applications, Katholieke Universiteit Leuven, Belgium (November 2010)
 ORBEL25: 25th Annual Conference of the Belgian Operations Research Society, Universiteit
 Gent, Belgium (February 2011)
 SIAM Conference on Optimization, Darmstadt, Germany (May 2011)
 Mynisympodium Optimization: Complexity and Applications, 24th Biennial Conference on
 Numerical Analysis, Glasgow, United Kingdom (July 2011)

ARNAUD DUFAYS

4th CSDA International Conference on "Computational and Financial Econometrics" (CFE'10),
University of London, United Kingdom (December 2010)

3rd International Conference on the ERCIM WG on Computing & Statistics (ERCIM'10),
University of London, United Kingdom (December 2010))

CLAIRE DUJARDIN

51st European Congress of the Regional Science Association International, Barcelona, Spain
(August 2011)

JOACHIM GAHUNGU

2010 1st International Nuclear & Renewable Energy Conference (INREC), Essen, Germany
(October 2010)

AXEL GAUTIER

37th EARIE Annual Conference, Istanbul, Turkey (September 2010)

9th Annual International Industrial Organization Conference, Boston (MA), USA (April 2011)

19th Conference on Postal and Delivery Economics, Saint-Helier, Jersey (June 2011)

NICOLAS GILLIS

SIAM Conference on Optimization, Darmstadt, Germany (May 2011)

3rd Workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing
(WHISPERS), Instituto Superior Técnico, Lisbon, Portugal (June 2011)

Directions in Matrix Theory 2011, University of Coimbra, Portugal (July 2011)

MAT TRIAD 2011, Instituto Politécnico de Tomar, Portugal (July 2011)

FRANÇOIS GLINEUR

1st Cargese Workshop in Combinatorial Optimization, Institut d'Etudes Scientifiques de
Cargèse, France (September 2010)

FoCM'11: Foundations of Computational Mathematics Conference, Budapest, Hungary (July
2011)

CHRISTIAN HAFNER

18th Meeting of the Belgian Statistical Society, Spa, Belgium (October 2010)

Conference on "Extreme Dependence in Financial Markets", Econometric Institute, Erasmus
Universiteit Rotterdam, The Netherlands (March 2011)

ADEL HATAMI-MARBINI

11th Workshop on "Logistics and Supply Chain Management", Facultés Universitaires Saint-Louis, Brussels, Belgium (November 2010)
 12th European Workshop on "Efficiency and Productivity Analysis" (EWEPA), Università di Verona, Italy (June 2011)

KOEN JOCHMANS

Greater New York Metropolitan Area Econometrics Colloquium 2010, New York University (NY), USA (December 2010)
 North American Winter Meeting of the Econometric Society, Denver (CO), USA (January 2011)
 CIdE (Centro Interuniversitario di Econometria) Summer School, Università di Bertinoro, Italy (June 2011)

JONATHAN JONES

SustainCity Consortium Meeting, Institut National d'Etudes Démographiques (INED), Paris, France (September 2010)
 SustainCity Consortium Meeting, Brussels, Belgium (February 2011)
 24th Summer School of the European Regional Science Association, Luxembourg (July 2011)
 51st European Congress of the Regional Science Association International, Barcelona, Spain (August 2011)

ALEJANDRO LAMAS

ORBEL25: 25th Annual Conference of the Belgian Operations Research Society, Universiteit Gent, Belgium (February 2011)

STÉPHANE LAMBRECHT

International Workshop on "Natural Resource, Environment and Growth", European University of Saint-Petersburg, Russia (organizer) (October 2010)

MARIE-LOUISE LEROUX

Journées Louis-André Gérard-Varet #10, Ecole des Hautes Etudes en Sciences Sociales, Marseille, France (June 2011)

ROLAND LUTTENS

UECE Lisbon Meetings 2010: Game Theory and Applications, ISEG, Universidade Técnica de Lisboa, Portugal, November 2010
 65th European Meeting of the Econometric Society (ESEM), Oslo, Norway (August 2011)

FRANÇOIS MANIQUET

Annual Christmas Meeting of Belgian Economists, IRES, UCL, Belgium (December 2010)

ANA MAULEON

MINT Seminar: "Models of Influence and Network Theory", Centre d'Economie de la Sorbonne, Paris, France (October 2010)

5th Workshop on Economic Design and Institutions, Facultés Universitaires Saint-Louis, Brussels, Belgium (organizer) (November 2010)

European Science Foundation, Social Sciences Exploratory Workshop: "Information and Behaviour in Networks", University of Oxford, United Kingdom (December 2010)

16th Coalition Theory Network Workshop, Universitat Autònoma de Barcelona, Spain (February 2011)

12th Annual Conference of the Association for Public Economic Theory, PET11, Indiana University, Bloomington (IN), USA (member of the programme committee) (June 2011)

11th Annual Conference of the Society for the Advancement of Economic Theory, SAET11, Anca, Faro, Portugal (June-July 2011)

7th Spain-Italian-Netherlands Meeting on Game Theory, SING 7, Paris, France (July 2011)

FLORIAN MAYNERIS

IWEPS Annual Conference on Evaluation, Institut wallon de l'évaluation, de la prospective et de la statistique, Namur (December 2010)

Belgian Trade Economists Workshop 2010, ECARES, Université Libre de Bruxelles, Brussels, Belgium (May 2011)

Trade and Quality Workshop, Paris School of Economics, France (May 2011)

CESifo Workshop, Venice, Italy (July 2011)

TANJA MLINAR

ORBEL25: 25th Annual Conference of the Belgian Operations Research Society, Universiteit Gent, Belgium (February 2011)

22nd Annual POMS Conference: "Operations Management - The Enabling Link", Reno (NV) Nevada (April-May 2011)

JUAN D. MORENO-TERNERO

UECE Lisbon Meetings 2010: Game Theory and Applications, ISEG, Universidade Técnica de Lisboa, Portugal, November 2010

Workshop on New Perspectives in Justice, Rationality and Choice, München, Germany (November 2010)

5th Workshop on Social Decisions, Malaga, Spain (organizer) (November 2010)

35 Simposio de Analisis Economica, Madrid, Spain (December 2010)

18 Encuentro de Economia Publica, Malaga, Spain (February 2011)

31 Jornadas de la Asociacion de Economia de la Salud, Palma de Mallorca, Spain (May 2011)

11th Annual Conference of the Society for the Advancement of Economic Theory, SAET11, Ancao, Faro, Portugal (June-July 2011)
 Asian Meeting of the Econometric Society, Korea University, Seoul, Korea (August 2011)
 European Meeting of the Econometric Society, Oslo, Norway (August 2011)

MARGHERITA NEGRI

Rotterdam Workshop in Political Economy, Erasmus Universiteit Rotterdam, The Netherlands (June 2011)

YURII NESTEROV

International Congress of Mathematicians, Hyderabad, India (August 2009)
 IPAM Workshop on Continuous Optimization, Institute for Pure & Applied Mathematics, University of California, Los Angeles (CA), USA (October 2010)
 International Workshop on Quadratic Optimization, Katholieke Universiteit Leuven, Belgium (November 2010)
 International Conference on Optimization and Applications, CIRM, Barcelona, Spain (November 2010)
 International Conference on Machine Learning, Vancouver, Canada (December 2010)

PIERRE PESTIEAU

66th Congress of the International Institute of Public Finance Congress (IIPF), Uppsala, Sweden (August 2010)
 Conference on Upgrading Lebanon's Economic Analytical Capacity, Beyrouth, Lebanon (September 2010)
 NETSPAR, Toulouse, France (October 2010)
 1st Workshop on "Long Term Care", Toulouse, France (January 2011)
 CESifo Area Conference on Public Sector Economics 2011, München, Germany (April 2011)
 Journées Louis-André Gérard-Varet #10, Ecole des Hautes Etudes en Sciences Sociales, Marseille, France (June 2011)
 Fiscalité et Assurance Sociale: Entre Théorie et Politique Economiques, Collège de France, Paris, France (June 2011)

PAOLO PIACQUADIO

Overlapping Generations Days 2011: Long-Term Macroeconomics – Growth and Development Dynamics in General Equilibrium, Vielsalm, Belgium (May 2011)

PIERRE PICARD

57th North American Meeting of the Regional Science Association International, Denver (CO), USA (November 2010)

GUILLAUME ROELS

INFORMS Annual Conference, Austin (TX), USA (November 2010)
2011 Utah Winter Operations Conference, David Eccles School of Business, Salt Lake City (UT), USA (February 2011)

ERIK SCHOKKAERT

Ministerial Conference Belgian EU-Presidency "Innovation and Solidarity in Pharmaceuticals", Brussels, Belgium (September 2010)
Author's Workshop of the Handbook of Health Economics, Lisboa, Portugal (November 2010)
Re-Bel Event, Brussels, Belgium (December 2010)
Workshop on Equality of Opportunity, Barcelona, Spain (December 2010)
Workshop on Orphan Drugs, Fondation Roi Baudouin, Brussels, Belgium (February 2011)
Conference Institute of Philosophy, Katholieke Universiteit Leuven, Belgium (May 2011)

LÉOPOLD SIMAR

12th European Workshop on Efficiency and Productivity Analysis, Verona, Italy (June 2011)
Workshop on "Efficiency Measurement: New Methods and Applications to Food Sector", Toulouse School of Economics, France (June 2011)

YVES SMEERS

Workshop "Smart Grids", Ecole Polytechnique, Paris, France (October 2011)
INFORMS Annual Conference, Austin (TX), USA (November 2010)
Hawaii International Conference on Systems Sciences (HICSS 44), Koloa (HI), USA (January 2011)
2011 Annual Conference "Speed Bumps on the Road to Sustainability", Brussels, Belgium (February 2011)
Financing Tomorrow's EU Energy Policy, Bibliothèque Solvay, Brussels, Belgium (April 2011)

JACQUES THISSE

North-American Meeting of the Regional Science Association International, Denver (CO), USA (October 2010)
51st European Congress of the Regional Science Association International, Barcelona, Spain (August 2011)

ISABELLE THOMAS

Journées Mobilité et Santé, Brussels, Belgium (September 2010)
Forum Federalism, Antwerpen, Belgium (May 2011)
Network on European Communications and Transport Activities Research (NECTAR) Conference 2011, Antwerpen, Belgium (May 2011)
S4 meeting, Marseille, France (May 2011)

TOM TRUYTS

5th Workshop on Economic Design and Institutions, Facultés Universitaires Saint-Louis, Brussels, Belgium (organizer) (November 2010)

SÉBASTIEN VAN BELLEGEM

Annual Christmas Meeting of Belgian Economists, IRES, UCL, Belgium (December 2010)
 17th International Meeting of the Psychometric Society, Hong Kong Institute of Education, Hong Kong (July 2011)

DIRK VAN DE GAER

59th Congress of the Association Française de Sciences Economiques, Paris-Nanterre (September 2010)
 Workshop: "The Multiple Dimensions of Equality and Fairness", Université de la Méditerranée, Marseille, France (November 2010)
 Workshop on "Inequality of Opportunities", Oxford Poverty & Human Development Initiative, University of Oxford, United Kingdom (November 2010)
 Workshop on "Equality of Opportunity and Intergenerational Mobility", Universidad Autonoma de Barcelona, Spain (December 2010)
 Public Economics Seminar on Fiscal Federalism, Universiteit Gent, Belgium (organizer) (December 2010)
 Economic Theory Day, Tinbergen Institute, Amsterdam, The Netherlands (March 2011)
 2011 Annual Bank Conference on Development Economics (OECD), Paris, France (May 2011)
 4th Meeting of the Society of the Study of Economic Inequality (ECINEQ), Università degli Studi Di Catania, Italy (July 2011)

HYLKE VANDENBUSSCHE

European Trade Study Group (ETSG2010), Lausanne, Switzerland (September 2010)
 International Conference 2010 on "International Trade: Threats and Opportunities in a Globalised World", National Bank of Belgium, Brussels, Belgium (October 2010)
 7th Danish International Economics Workshop, Aarhus, Denmark (May 2010)
 11th Annual Conference of the Society for the Advancement of Economic Theory, SAET11, Anca, Faro, Portugal (June-July 2011)

GRÉGORY VANDENBULCKE

4th Belgian Geography Days, Katholieke Universiteit Leuven, Belgium (October 2010)
 NECTAR International Workshop, Universiteit Antwerpen, Belgium (May 2011)
 BIVET-GIBET Transport Research Day 2011, Facultés Universitaires Notre-Dame de la Paix, Namur, Belgium (May 2011)

LAURENT VAN MALDEREN

Network on European Communications and Transport Activities Research Conference 2011,
Antwerpen, Belgium (May 2011)
S4 meeting, Marseille, France (May 2011)

VINCENT VANNETELBOSCH

5th Workshop on Economic Design and Institutions, Facultés Universitaires Saint-Louis,
Brussels, Belgium (organizer) (November 2010)
12th Annual Conference of the Association for Public Economic Theory, PET11, Indiana
University, Bloomington (IN), USA (June 2011)
7th Spain-Italian-Netherlands Meeting on Game Theory, SING 7, Paris, France (July 2011)

MATHIEU VAN VYVE

1st Cargese Workshop on Combinatorial Optimization, Institut d'Etudes Scientifiques de
Cargese, Corsica (September 2010)
15th Combinatorial Optimization Workshop, Aussois, France (January 2011)
IPCO 2011 – The 15th Conference on Integer Programming and Combinatorial Optimization,
New York (NY), USA (June 2011)
International Workshop on Lot-Sizing (IWLS 2011), Istanbul, Turkey (August 2011)

WOUTER VERGOTE

USA International Conference on Game Theory, Stony Brook University (NY), USA (July 2011)

XAVIER WAUTHY

5^{èmes} Journées d'Economie de la Culture, Centre Pompidou, Paris, France (February 2011)
ICTS Workshop "The economics of media and content industry", Sevilla, Spain (May 2011)

LAURENCE WOLSEY

International Workshop on Lot-Sizing, Gardanne, France (August 2010)
1st Cargese Workshop on Combinatorial Optimization, Institut d'Etudes Scientifiques de
Cargese, Corsica (September 2010)
ORBEL25: 25th Annual Conference of the Belgian Operations Research Society, Universiteit
Gent, Belgium (February 2011)

STÉPHANE ZUBER

CEsifo Area Conference on Public Sector Economics 2011, München, Germany (April 2011)

STATISTICAL APPENDIX

PEOPLE

■ YEARLY AVERAGES 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
1996-2005	32	43	84	10

■ RECENT YEARLY NUMBERS

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

SCIENTIFIC ACTIVITIES

■ YEARLY AVERAGES PER 10 YEAR PERIOD

Period						Seminars				
	Discussion Papers	Books	Published papers	Editorial activities	Theses	Economics	Econometrics	Operations Research	Conferences	Yearly contracts
1966-1975	32	1	24	0	2	26	15	17	0	4
1976-1985	47	1	53	11	2	48	22	24	2	6
1986-1995	62	5	69	30	5	79	25	26	4	13
1996-2005	78	4	105	46	7	94	22	21	5	15

RECENT YEARLY NUMBERS

						Seminars				
Period	Discussion Papers	Books	Published papers	Editorial activities	Theses	Economics	Econometrics	Operations Research	Conferences	Yearly contracts
2005-2006	118	8	129	45	9	81	30	20	10	12
2006-2007	115	6	133	64	12	79	32	27	7	16
2007-2008	82	1	133	60	8	83	28	19	4	27
2008-2009	84	5	128	68	7	80	35	24	6	38
2009-2010	86	6	172	74	6	78	28	19	11	41
2010-2011	81	11	166	76	8	69	26	41	13	35

▪ TOTAL OF THE 42 YEARS

1966-2011	2678	141	4257	1263	208	2915	1037	1013	162	533
-----------	------	-----	------	------	-----	------	------	------	-----	-----

All details can be found on the CORE webpage.