

The cover features a light blue background with white geometric lines forming triangles and a large yellow triangle on the left. A central dark blue circle with a white dotted border contains the title. To the right, a thick yellow ribbon loops around the circle. The text 'ANNUAL REPORT' is in white, and '2015-2016' is in yellow. A diagonal white band at the bottom contains the center's name in blue.

ANNUAL REPORT
2015-2016

CENTER FOR OPERATIONS
RESEARCH AND ECONOMETRICS

UCL
Université
catholique
de Louvain

50 1966 - 2016
CORE
BRIDGING GAPS

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PRESENTATION

PREAMBLE



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

CORE follows **three objectives**. The first objective is the development of scientific **research** in the fields of economics, econometrics, operations research and quantitative and economic geography. The second objective is the **training** of young researchers at the doctoral and postdoctoral stages of their career. The third objective is the promotion of local and international scientific **exchanges and collaborations**. This report gives an overview of the activities developed in the period from Summer 2015 to Summer 2016 to meet these objectives. A more dynamic follow-up of the current activities can be found in the CORE Newsletter which is published three times a year (<https://uclouvain.be/en/research-institutes/immaq/core/newsletter.html>), on the CORE website (<https://uclouvain.be/en/research-institutes/immaq/core>), and on social networks (<https://www.facebook.com/CORE.UCL>, https://twitter.com/CORE_UCL, https://en.wikipedia.org/wiki/Center_for_Operations_Research_and_Econometrics).

RESEARCH DIRECTIONS

CORE's activities integrate fundamental and applied research to shed analytical light on a wide range of issues arising from economic policy and the management of private and public organizations. These research activities build on a common foundation of quantitative modeling and rigorous mathematical reasoning, encompassing many different fields of human activity. The main scientific disciplines to which CORE researchers actively contribute are: economics and game theory; econometrics; operations research; and quantitative and economic geography.

The research in **economics** and **game theory** at CORE is indeed quite diverse and comprises applied and empirical work grounded on robust theoretical foundations. While general equilibrium and game theory were dominating themes in the early years of CORE, current research in economics is now mostly directed towards applications of theory to problems in market regulation and the organization of the public sector. In 2015-2016, CORE members pursued active research projects in industrial organization; public economics and political economy; environmental economics; welfare economics and social choice theory; as well as general equilibrium and game theory.

Econometrics research at CORE is concerned with the development of quantitative models and of statistical and computational methods for the analysis of economic data. CORE's best known early contributions to econometrics were the introduction and development of Bayesian methods and inference. In 2015-2016, CORE members worked on financial econometrics, studying volatility models; on the development and analysis of high dimensional stochastic models, as well as identification and inference for time series and the analysis of complex data; and on further developments of Bayesian methods, in particular Markov Chain Monte Carlo algorithms and Bayesian inference.

Operations research deals with the development and application of analytical methods to help make better decisions. CORE has long been known for its methodological contributions to mathematical programming, in particular convex optimization and integer programming. It has expanded its interests and expertise to applications in operations management and to the study of large energy investments, transmission systems and energy markets. In 2015-2016, CORE's OR researchers worked on interior point methods in optimization; the computation of economic equilibria; the study and applications of mixed integer programming and discrete optimization models; the design and development of algorithmic procedures and optimization software; as well as applications in energy management and supply chain management.

Quantitative and economic geography brings a quantitative modeling orientation to the study of the location, distribution and spatial organization of economic and other human activities. In 2015-2016, QEG research at CORE was mainly devoted to measuring and modelling socio-economic, transport and urban/peri-urban realities, covering different spatial levels of analysis on such topics as optimal location-allocation modeling; spatial statistics; urban modelling; land-use planning policy issues (LUTI models); and system of cities. This research addressed methodological challenges brought about by our connected world and resulting enormous data bases, where spatial theories must be informed by Big Data analysis and modeling.

RESEARCH ACHIEVEMENTS AND RECOGNITION

Scientific publications are the main outlet for research work in the directions pursued at CORE. In 2015-2016, CORE members have produced three **books** in the area of public economics. They have published a total of 149 papers in scientific journals, of which 96 have been included in the **CORE Reprints Series**.

Following a well-established tradition, many research papers are first released, following an internal refereeing process, as *CORE Discussion*

Papers, to elicit comments and discussion before or during submission to scientific journals. 49 papers were contributed to the **CORE Discussion Papers** series in 2015-2016.

Details on these publications, as well as on newspaper articles and commissioned reports contributed by CORE members, are found in **Chapter 2**.

CORE researchers and their work continue to receive **international recognition**, including two *EURO Gold Medals* (Yurii NESTEROV, and Maurice QUEYRANNE) from the Association of European Operational Research Societies; a *Fernand Braudel Senior Fellowship* (Julio DAVILA) from the European University Institute; membership nominations in scientific societies and additional distinctions from universities and academic journals. Further details on these prizes and awards are also found in **Chapter 2**.

TRAINING

Training of young researchers takes several forms at CORE. In 2015-2016 CORE was home to 37 **doctoral students**, of whom 6 defended their thesis in this period; and to 8 **postdoctoral research fellows**. These junior researchers develop their research under the supervision or sponsorship of one or several permanent CORE academic members.

CORE is a founding member of, and an active participant in two European doctoral programs, the **European Doctorate in Economics Erasmus Mundus** (EDEEM), of which 4 students were at CORE in 2015-2016, and the **European Doctoral Program in Quantitative Economics** (EDP), with 5 students at CORE in 2015-2016.

CORE also organizes or co-organizes **Winter/Spring/Summer schools** on emerging topics, aimed at junior (and not so junior) researchers. The *SoFiE Summer School on Noncausal Autoregressive Process and the Modelling of Speculative Bubbles* was held in at the National Bank of Belgium (in Brussels) in July 2016. CORE was also associated with the **CEMS PhD Course on Term Structure Models**, also held at the National Bank of Belgium in April 2016. Doctoral students in economics at CORE also actively participate, together with students from other Belgian universities, in **Doctoral Workshops** in October 2015 and June 2016.

The **CORE Brown Bag seminar** series, launched in 2014 by the junior researchers, provides a forum where junior researchers from CORE, the UCL and occasionally from other institutions, present their current work or job market paper and obtain invaluable feedback in an attentive and friendly atmosphere. The Brown Bag Seminar series expanded in 2015-2016 by including research overview and expository presentations given by senior CORE academics. Of the 13 brown bag seminar presentations in 2015-2016, 8 were given by junior researchers and 5 by senior CORE academics.

SCIENTIFIC EXCHANGES AND COLLABORATIONS

One of the main features of CORE since its very foundation has been its focus on developing interuniversity and international scientific exchanges. CORE actively pursues this networking tradition, at both the institutional and individual levels. Such scientific exchanges and collaborations, detailed in **Chapter 4**, take many forms, notably:

- ▶ First and foremost is the continuing stream of **research visitors**, including *Associate Fellows* from (mostly) Belgian universities, who work at CORE on a regular, weekly basis, and participate in weekly seminars and other research activities; *Research Associates*, usually former CORE members, who regularly visit CORE, typically for a few weeks each year; and short-term visitors, about 26 of them in 2015-2016, who spent from a few days to several months at CORE and presented their work at one of the weekly research seminars, participated in CORE workshops or conferences, and worked on joint research at CORE.
- ▶ CORE organizes or co-organizes international and national **scientific meetings**. Several of the scientific meetings held at CORE in 2016 were part of the *50 Days@CORE* celebration activities described below.
- ▶ Following a well-established and successful CORE tradition, weekly research **seminars** in the four main CORE disciplines described above, allow CORE members and visitors to present their work and share ideas. Well over 100 research seminars were held at CORE in 2015-2016.
- ▶ Another initiative of junior researchers was the organization of a **Reading Group** on *Bridging Gaps between OR and Economics* held bi-weekly at CORE from October 2015 to March 2016.
- ▶ Finally, CORE members were invited to speak in numerous international and national conferences and to give research presentations at various universities and research centers.

CORE@50

The year 2016 was an exciting year as CORE celebrated its 50th anniversary. The **CORE@50** celebrations entail scientific and community events spanning the entire 2016 year, under the motto *Bridging Gaps*: bridging gaps between the first 50 years of CORE and its next 50 (and more) years; between generations; between scientific disciplines; as well as gaps within societies and economic systems; between countries and between world regions.

1 Presentation

As the centerpiece of the 50th anniversary celebrations, the **Bridging Gaps Conference** was held in Louvain-la-Neuve during the whole week of May 23-27, 2016 and featured:

- ▶ the award of UCL Honorary Doctor (DHC) degrees to three distinguished former CORE members;
- ▶ four plenary lectures given by the three DHC recipients and a fourth distinguished speaker;
- ▶ nine invited CORE Scientific Sessions on current and emerging research directions, organized by CORE academic members and featuring established and rising international experts on these subjects;
- ▶ sixteen contributed scientific sessions; and
- ▶ cultural and social events, including a well-attended and lively conference dinner.

Celebratory activities during the year 2016 were grouped under the umbrella **50 Days@CORE**. During the first part (January-July) of 2016 these *50 Days@CORE* activities included, in addition to the *Bridging Gaps Conference*,

- ▶ two campus-wide **Nobel Talks** given by Nobel prize laureates;
- ▶ four scientific conferences;
- ▶ four research workshops, as well as a public debate on *Social Justice*;
- ▶ two debates; and
- ▶ a CORE Lecture Series on *Optimal Transport and Economic Applications*.

All these events were well attended, received positive comments from participants, and contributed to the local and international visibility of CORE and the University. Additional *50 Days@CORE* activities are planned for the rest of 2016.

PEOPLE

Most of CORE research and activities are led by its permanent **academic members** who form the “heart and soul” of CORE, see **Chapter 6**. In addition to conducting their own research and performing their other university duties, CORE academic members lead and supervise junior researchers, collaborate with visitors, coordinate and participate in research seminars, and contribute to the organization of scientific meetings. They also play a critical role in securing the financial support outlined below.

CORE could not continue to be the lively, stimulating and welcoming research environment it is today without its efficient and friendly **administrative staff**. These essential members of CORE create a place where the researchers can focus on their work without being hampered by practical issues. They also play an essential role in making CORE an attractive place for visitors. The contributions of the administrative staff are gratefully acknowledged.

SUPPORT

These activities are supported by CORE’s participation in a long list of **research projects and contracts**, detailed in **Chapter 7**. These projects are financed by several institutions, including the Belgian Federal Government (*FNRS scientific research fund, Belgian Science Policy Office*), the Belgian French Community (*Fédération Wallonie-Bruxelles*), Belgian Public Institutions (*Région de Bruxelles*), the European Commission, and private partners.

In 2015-2016 CORE was home to three **Research Chairs**: the *GDF Suez Chair on Energy Economics and Management of Energy Risk*; the *GSK Biologicals Chair on Strategic Sourcing and Procurement*; and the *Lhoist Berghmans Chair in Environmental Economics and Management*. These Research Chairs provide financial and other support for junior and senior researchers, as well as for teaching, training and outreach activities.

Last, and not least, we gratefully acknowledge the continuing and vital support from the **Université catholique de Louvain**.



2

RESEARCH ACHIEVEMENTS AND RECOGNITION

- ▶ BOOKS AND EDITED BOOKS
- ▶ CORE REPRINTS
- ▶ OTHER PUBLISHED PAPERS
- ▶ CORE DISCUSSION PAPERS
- ▶ OTHER DISCUSSION PAPERS AND MANUSCRIPTS
- ▶ ARTICLES IN NEWSPAPERS
- ▶ REPORTS
- ▶ PRIZES AND AWARDS

RESEARCH ACHIEVEMENTS AND RECOGNITION

PUBLICATIONS

BOOKS AND EDITED BOOKS

Industrial Organization

- ▶ **Paul BELLEFLAMME** and Martin PEITZ. *Industrial Organization: Markets and Strategies (2nd edition)*. Cambridge, Cambridge University Press, 2015.

“*Industrial Organization: Markets and Strategies*” provides an up-to-date account of modern industrial organization that blends theory with real-world applications. Written in a clear and accessible style, it acquaints the reader with the most important models for understanding strategies chosen by firms with market power and shows how such firms adapt to different market environments. It covers a wide range of topics including recent developments on product bundling, branding strategies, restrictions in vertical supply relationships, intellectual property protection, and two-sided markets, to name just a few. Models are presented in detail and the main results are summarized as lessons. Formal theory is complemented throughout by real-world cases that show students how it applies to actual organizational settings. The book is accompanied by a website containing a number of additional resources for lecturers and students, including exercises, answers to review questions, case material and slides.

Public Economics

- ▶ Eric DE KEULENEER, Bernard RENTIER, Lionel ARTIGE, Paul-Marie BOULANGER, **Thierry BRÉCHET**, Lionel ARTIGE, Isabelle CASSIERS, **David DE LA CROIX**, Philippe DONNAY, Kevin MARÉCHAL and Abdelfattah TOUZRI (EDS). *La Croissance: Réalités et Perspectives*. Actes du XXIème congrès des économistes belges de langue française. Université Ouverte de la Fédération Wallonie Bruxelles, 2016.

Although the idea of economic growth seems simple, it is actually a matter of debate. It is sometimes presented as an easy answer to complex problems as public debts and unemployment. Still, the very concept of growth raises many questions. The 2015 Congress of the Belgian French speaking Economists addressed the issue of economic growth from a broad perspective, starting from its historical origin and its societal purpose in the context of our contemporary societies. From a historical perspective, economic growth seems to be a spontaneous phenomenon, but some policy measures may drive the nature and the pace of the economic growth. If it is the case, what should be the objectives of such policies? The objectives in terms of debt reduction, monetary policy or fiscal balance are sometimes contradictory. And the same holds true in terms of environmental pressures where economic growth may well be both the problem and the solution.

Others

- ▶ **Victor GINSBURGH** and Shlomo WEBER (EDS). *The Palgrave Handbook of Economics and Language*. Basingstoke, UK: Palgrave-MacMillan, 2016.

Do the languages people speak influence their economic decisions and social behavior in multilingual societies? This handbook brings together scholars from various disciplines to examine the links and tensions between economics and language to find the delicate balance between monetary benefits and psychological costs of linguistic dynamics.

CORE REPRINTS

Econometric Theory

- 2734. **Michel MOUCHART** and Renzo ORSI. Building a structural model: parameterization and structurality. *Econometrics*, 4(2), 1-16, 2016.
- 2761. **Michel MOUCHART**, Guillaume WUNSCH and Federica RUSSO. Controlling variables in social systems. A structural modelling approach. *Bulletin de Méthodologie Sociologique*, 132, 5-25, 2016.
- 2762. **Christian HAFNER** and Arie PREMINGER. The effect of additive outliers on fractional unit root tests. *Advances of Statistical Analysis*, 100(4), 401-420, 2016.
- 2770. **Christian HAFNER** and Arie PREMINGER. An ARCH model without intercept. *Economics Letters*, 129, 13-17, 2015.
- 2771. Fabian Y.R.P. BOCART and **Christian HAFNER**. Volatility of price indices for heterogeneous goods with applications to the fine art market. *Journal of Applied Econometrics*, 30, 291-312, 2015.
- 2772. **Christian HAFNER** and Arie PREMINGER. A note on the Tobit model in the presence of a duration variable. *Economics Letters*, 126, 47-50, 2015.

Econometrics of Financial Markets

- 2733. **Manuela BRAIONE** and Nicolas K. SCHOLTÈS. Forecasting value-at-risk under different distributional assumptions. *Econometrics*, 4(3), 1-27, 2016.
- 2775. **Luc BAUWENS**, Lyudmila GRIGORYEVA and Juan-Pablo ORTEGA. Estimation and empirical performance of non-scalar DCC models. *Computational Statistics and Data Analysis*, 100, 17-36, 2016.
- 2777. Paolo MAZZA and **Mikael PETITJEAN**. How integrated is the European carbon derivatives market? *Finance Research Letters*, 15, 18-30, 2015.
- 2780. Paolo MAZZA and **Mikael PETITJEAN**. On the usefulness of intraday price ranges to Gauge liquidity in cap-based portfolios. *Economic Modelling*, 54, 67-81, 2016.

Energy Economics

- 2720. **Per J. AGRELL**. Incentive regulation of networks. Concepts, definitions and models. *Reflets et Perspectives de la Vie Economique*, 2015/1, Tome LIV, 103-132, 2015.
- 2724. **Per J. AGRELL** and Emili GRIFELL-TATJÉ. A dynamic model for firm-response to non-credible incentive regulation regimes. *Energy Policy*, 90, 287-299, 2016.
- 2725. **Per J. AGRELL** and **Jonas TEUSCH**. Making the Belgian distribution system fit for the energy transition: the case of yardstick competition. *Reflets et Perspectives de la Vie Economique*, 2015/1, Tome LIV, 157-174, 2015.
- 2769. Nicolas BOCCARD et **Axel GAUTIER**. Le coût de l'énergie verte en Wallonie. *Reflets et Perspectives de la Vie Economique*, 2015/1, Tome LIV, 71-85, 2015.

Environmental Economics

- 2759. **Henry TULKENS**. COP 21 and economic theory: taking stock. *Revue d'Economie Politique*, 126, 471-486, 2016.
- 2781. **Thierry BRÉCHET**, Natali HRITONENKO and Yuri YATSENKO. Domestic environmental policy and international cooperation for global commons. *Resource and Energy Economics*, 44, 183-205, 2016.
- 2782. **Henry TULKENS** and **Thierry BRÉCHET**. Climate policies: a burden, or a gain? *The Energy Journal*, 36(3), 155-170, 2015.

Game Theory

- 2717. Nicolas CARAYOL, Rémy DELILLE and **Vincent VANNETELBOSCH**. Allocating value among farsighted players in network formation. *Economics Letters*, 137, 50-53, 2015.
- 2718. Jean-François CAULIER, **Ana MAULEON** and **Vincent VANNETELBOSCH**. Allocation rules for coalitional network games. *Mathematical Social Sciences*, 78, 80-88, 2015.
- 2738. Mikel BEDAYO, **Ana MAULEON** and **Vincent VANNETELBOSCH**. Bargaining in endogenous trading networks. *Mathematical Social Sciences*, 80, 70-82, 2016.
- 2739. **Ana MAULEON**, **Jose SEMPERE-MONERRIS** and **Vincent VANNETELBOSCH**. Contractually stable alliances. *Journal of Public Economic Theory*, 18(2), 212-225, 2016.
- 2740. Manuel FOSTER, **Ana MAULEON** and **Vincent VANNETELBOSCH**. Trust and manipulation in social networks. *Network Science*, 4(2), 216-243, 2016.
- 2741. Georg KIRCHSTEIGER, Marco MANTOVANI, **Ana MAULEON** and **Vincent VANNETELBOSCH**. Limited farsightedness in network formation. *Journal of Economic Behavior & Organization*, 128, 97-120, 2016.
- 2755. Samuel FERÉY and **Pierre DEHEZ**. Overdetermined causation cases, contribution and the Shapley value. *Chicago-Kent Law Review*, 91(2), 637-658, 2016.
- 2756. Samuel FERÉY and **Pierre DEHEZ**. Multiple causation, apportionment and the Shapley value. *Journal of Legal Studies*, 45, 143-171, 2016.

Industrial Organization

- 2765.** Axel GAUTIER and Jean-Christophe PODOU. Reforming the postal universal service. *Review of Network Economics*, 13(4), 453-477, 2015.
- 2766.** Walid Ben OMRANE and Christian HAFNER. Macroeconomic news surprises and volatility spillover in foreign exchange markets. *Empirical Economics*, 48, 577-607, 2015.
- 2786.** Pedro MENDI, Rafael MONER-COLONQUES and José J. SEMPERE-MONERRIS. Optimal know-how transfers in licensing contracts. *Journal of Economics*, 118, 121-139, 2016.
- 2787.** Cristina PARDO-GARCIA and José J. SEMPERE-MONERRIS. Equilibrium mergers in a composite good industry with efficiencies. *SERIEs: Journal of Spanish Economic Association*, 6(1), 101-127, 2015.
- 2793.** Paul BELLEFLAMME, Nessrine OMRANI and Martin PEITZ. The economics of crowdfunding platforms. *Information Economics and Policy*, 33, 11-28, 2015.
- 2794.** Paul BELLEFLAMME and Julien JACQMIN. An economic appraisal of MOOC platforms: business models and impacts on higher education. *CESifo Economic Studies*, 62, 148-169, 2016.
- 2803.** Elias CARRONI, Berardino CESI and Dimitri PAOLINI. Local university supply and distance: a welfare analysis with centralized and decentralized tuition fees. *Italian Economic Journal*, 2(2), 239-252, 2016.

Macroeconomic Policies

- 2728.** Julio DAVILA and Marie-Louise LEROUX. Efficiency in overlapping generations economies with longevity choices and fair annuities. *Journal of Macroeconomics*, 45, 363-383, 2015.

Microeconomic Theory

- 2721.** Gustavo BERGANTIÑOS and Juan D. MORENO-TERNERO. A new rule for the problem of sharing the revenue from museum passes. *Operations Research Letters*, 44, 208-211, 2016.
- 2763.** Andreu ARENAS. Sticky votes. *Journal of Economic Behavior & Organization*, 132, 12-25, 2016.
- 2764.** Mathieu PARENTI, Philip USHCHEV and Jacques-François THISSE. Toward a theory of monopolistic competition. *Journal of Economic Theory*, 167, 86-115, 2017.
- 2776.** Benoît DECERF and Martin VAN DER LINDEN. Fair social orderings with other-regarding preferences. *Social Choice and Welfare*, 46(3), 655-694, 2016.
- 2797.** Claude D'ASPROMONT and Rodolphe DOS SANTOS FERREIRA. Oligopolistic vs. monopolistic competition: do intersectoral effects matter? *Economic Theory* 62(1), 299-324, 2016.
- 2806.** Julio DAVILA. The rationality of expectations. *The B.E. Journal of Theoretical Economics*, 16(2), 515-543, 2016.

Network & Systems

- 2783.** Romain HOLLANDERS, Balazs GERENCSEK, Jean-Charles DELVENNE and Raphaël M. JÜNGERS. Improved bound on the worst case complexity of policy iteration. *Operations Research Letters*, 44, 267-272, 2016.
- 2784.** Martin GUEUNING, Jean-Charles DELVENNE and Renaud LAMBIOTTE. Imperfect spreading on temporal networks. *The European Physical Journal B*, 88:282, 2015.
- 2785.** Maguy TREFOIS and Jean-Charles DELVENNE. Zero forcing number, constrained matchings and strong structural controllability. *Linear Algebra and its Applications*, 484, 199-218, 2015.

Optimization Methods and Operations Research

- 2714.** Abdollah HADI-VENCHECH, Adel HATAMI-MARBINI, Zahra GHELEJ BEIGI and Kobra GHOLAMI. An inverse optimization for imprecise data envelopment analysis. *Optimization*, 64(11), 2411-2454, 2015.
- 2715.** Adel HATAMI-MARBINI, Mohsen ROSTAMY-MALKHALIFEH, Per J. AGRELL, Madjid TAVANA and Fatemeh MOHAMMADI. Extended symmetric and asymmetric weight assignment methods in data envelopment analysis. *Computers & Industrial Engineering*, 87, 621-631, 2015.
- 2716.** Mohammad Reza GHASEMI, Joshua IGNATIUS, Sebastián LOZANO, Ali EMROUZEJAD, and Adel HATAMI-MARBINI. A fuzzy expected value approach under generalized data envelopment analysis. *Knowledge-Based Systems*, 89, 148-159, 2015.
- 2719.** Ivar EKELAND and Maurice QUEYRANNE. Optimal pits and optimal transportation. *ESAIM: Mathematical Modelling and Numerical Analysis*, 49(6), 1659-1670, 2015.
- 2722.** Adel HATAMI-MARBINI, Zahra GHELEJ BEIGI, Hirofumi FUKUYAMA and Kobra GHOLAMI. Modeling centralized resources allocation and target setting in imprecise data envelopment analysis. *International Journal of Information and Decision Sciences*, 14(6), 1189-1213, 2015.
- 2723.** Saber SAATI, Madjid TAVANA, Adel HATAMI-MARBINI and Elham HAJIAKHONDI. A fuzzy linear programming model with fuzzy parameters and decision variables. *International Journal of Information and Decision Sciences*, 7(4), 312-333, 2015.
- 2727.** Daniel RALPH and Yves SMEERS. Risk trading and endogenous probabilities in investment equilibria. *SIAM Journal on Optimization*, 25(4), 2589-2611, 2015.
- 2730.** Laurence A. WOLSEY and Hande YAMAN. Continuous knapsack sets with divisible capacities. *Mathematical Programming Series A*, 156, 1-20, 2016.

- 2731.** Sanjeeb DASH, OKTAY GÜNLÜK and **Laurence A. WOLSEY**. The continuous knapsack set. *Mathematical Programming Series A*, 155, 471-496, 2016.
- 2735.** Joshua IGNATIUS, Mohammad Reza GHASEMI, Feng ZHANG, Ali EMROUZNEJAD and **Adel HATAMI-MARBINI**. Carbon efficiency evaluation: an analytical framework using fuzzy DEA. *European Journal of Operational Research*, 253(2), 428-440, 2016.
- 2736.** Xuansheng WANG, **François GLINEUR**, Linzhang LU and Paul VAN DOOREN. Extended Lanczos bidiagonalization algorithm for low rank approximation and its applications. *Journal of Computational and Applied Mathematics*, 301, 213-229, 2016.
- 2737.** Arnaud VANDAELE, Nicolas GILLIS, **François GLINEUR** and Daniel TUYTTENS. Heuristics for exact nonnegative matrix factorization. *Journal of Global Optimization*, 65(2), 369-400, 2016.
- 2751.** Hassene AISSI, A. Ridha MAHJOUB, S. Thomas MCCORMICK and **Maurice QUEYRANNE**. Strongly polynomial bounds for multiobjective and parametric global minimum cuts in graphs and hypergraphs. *Mathematical Programming Series B*, 154(1), 3-28, 2015.
- 2752.** Dominik DORSCH, Walter GOMEZ and **Vladimir SHIKHMAN**. Sufficient optimality conditions hold for almost all nonlinear semidefinite programs. *Mathematical Programming Series A*, 158(1), 77-97, 2016.
- 2753.** **Sebastian U. STICH**, Christian L. MÜLLER and Bernd GÄRTNER. Variable metric random pursuit. *Mathematical Programming Series A*, 156(1), 549-579, 2016.
- 2767.** **Daniele CATANZARO**, Roberto ARINGHERI, Marco DI SUMMA and Raffaele PESENTI. A branch-price-and-cut algorithm for the minimum evolution problem. *European Journal of Operational Research*, 244, 753-765, 2015.
- 2773.** **Daniele CATANZARO**, Luis GOUVEIA and Martine LABBÉ. Improved integer linear programming formulations for the job. Sequencing and tool switching problem. *European Journal of Operational Research*, 244, 766-777, 2015.
- 2774.** **Daniele CATANZARO**, Steven CHAPLICK, Stefan FELSNER, Bjarni V. HALLDORSSON, Magnus M. HALLDORSSON, Thomas HIXON and Juraj STACHO. Max point-tolerance graphs. *Discrete Applied Mathematics*, 216, 84-97, 2017.
- 2778.** **Daniele CATANZARO**, Stanley E. SCHACKNEY, Alejandro A. SCHÄFFER and Russell SCHWARTZ. Classifying the progression of Ductal Carcinoma from single-cell sampled data via integer linear programming: a case study. *IEEE/ACM Transactions on Computational Biology and Bioinformatics*, 13(4), 643-655, 2016.
- 2779.** **Daniele CATANZARO** and Céline ENGELBEEN. An integer linear programming formulation for the minimum cardinality segmentation problem. *Algorithms*, 8, 999-1020, 2015.
- 2792.** **Yurii NESTEROV** and Levent TUNCEL. Local superlinear convergence of polynomial-time interior-point methods for hyperbolicity cone optimization problems. *SIAM Journal on Optimization*, 26(1), 139-170, 2016.
- 2807.** Claudio TELHA and **Mathieu VAN VYVE**. Efficient approximation schemes for economic lot-sizing in continuous time. *Discrete Optimization*, 20, 23-39, 2016.
- 2808.** Mehdi MADANI and **Mathieu VAN VYVE**. Computationally efficient MIP formulation and algorithms for European day-ahead electricity market auctions. *European Journal of Operational Research*, 242, 580-593, 2015.

Public and Welfare Economics

- 2726.** Chiara CANTA and **Marie-Louise LEROUX**. Public and private hospitals, congestion, and redistribution. *Journal of Public Economic Theory*, 18(1), 42-66, 2016.
- 2729.** Marc FLEURBAEY, **Marie-Louise LEROUX**, **Pierre PESTIEAU** and Gregory PONTIÈRE. Fair retirement under risky lifetime. *International Economic Review*, 57(1), 117-210, 2016.
- 2732.** Chiara CANTA, **Pierre PESTIEAU** and Emmanuel THIBAULT. Long-term care and capital accumulation: the impact of the state, the market and the family. *Economic Theory*, 61, 755-785, 2016.
- 2745.** **Pierre PESTIEAU** and Maria RACIONERO. Harsh occupations, life expectancy and social security. *Economic Modelling*, 58, 194-202, 2016.
- 2746.** Harun ONDER and **Pierre PESTIEAU**. Aging and the inherited wealth of nations. *CESifo DICE Report*, 1/2016.
- 2747.** **Pierre PESTIEAU** and Maria RACIONERO. Tagging with leisure needs. *Social Choice and Welfare*, 45(4), 687-706, 2015.
- 2748.** **Pierre PESTIEAU** and Maria RACIONERO. Harsh occupations, health status and social security. *Journal of Economics*, 3(117), 239-257, 2016.
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Supply Chain Management

- ▶ Bart MACCARTHY, **Constantin BLOME**, Jan OLHAGER and Xiande ZHAO. Supply chain evolution: theory, concepts and science. To appear in the *International Journal of Operations & Production Management*.
- ▶ Hannes HOFMAN, Martin C. SCHLEPER and **Constantin BLOME**. Conflict minerals and supply chain due diligence: an exploratory study of multi-tier supply chains. To appear in *Journal of Business Ethics*.
- ▶ Antony PAULRAJ, Injazz J. CHEN and **Constantin BLOME**. Motives and performance outcomes of sustainable supply chain management practices: a multi-theoretical perspective. To appear in *Journal of Business Ethics*.
- ▶ Martin C. SCHLEPER, **Constantin BLOME** and David A. WUTTKE. The dark side of buyer power: supplier exploitation and the role of ethical climates. To appear in *Journal of Business Ethics*.

Others

- ▶ **Juan D. MORENO TERNERO, Víctor GINSBURGH** and Israël ZANG. Ranking languages in the European Union: before and after brexit. ECARES working paper 2016-29, Université libre de Bruxelles, 2016.
- ▶ **Frédéric VRINS**. Wrong-way risk models: a comparison of analytical exposures. Mimeo, 2016.

ARTICLES IN NEWSPAPERS

- ▶ **Paul BELLEFLAMME**. La “taxe rose” : un genre de prix ou des prix de genre ? *Problèmes économiques : sélection de textes français et étrangers*, no. 3107, March 2015.
- ▶ **Paul BELLEFLAMME**. Taxer les plateformes de l'économie collaborative ? Oui, mais attention aux effets secondaires ! *Focus - Regards économiques*, April 28, 2016.
- ▶ **Paul BELLEFLAMME**. Dans l'économie du partage, il faut comprendre que les taxes aussi sont partagées. *The Conversation*, April 29, 2016.
- ▶ **Victor GINSBURGH**. Uber et covoiturage. *L'Echo*, September 18, 2015.
- ▶ **Victor GINSBURGH**. D'un aéroport à l'autre ou les tribulations d'un sauveur du climat. *L'Echo*, September 29, 2015.
- ▶ **Victor GINSBURGH**. Lanceur d'alerte et délation. *L'Echo*, November 17, 2015.
- ▶ **Victor GINSBURGH**. Armes belges en Arabie heureuse. *L'Echo*, January 5, 2016.
- ▶ **Victor GINSBURGH**. Churchill, Thatcher, Cameron, Videla et Pinochet. *L'Echo*, February 9, 2016.
- ▶ **Victor GINSBURGH**. Nouveaux signes routiers à Bruxelles. *L'Echo*, February 23, 2016.
- ▶ **Victor GINSBURGH**. Tabelle, gabelle, baballe. *La Libre.be*, March 12, 2016.
- ▶ **Victor GINSBURGH**. Israël doit prendre exemple sur la Belgique. *L'Echo*, April 12, 2016.
- ▶ **Victor GINSBURGH**. Un prix Nobel entre Afrique du Sud et Jérusalem. *La Libre.be*, June 2, 2016.
- ▶ **Victor GINSBURGH**. Brexit et langue anglaise. *L'Echo*, June 8, 2016.
- ▶ Antonia MARGHERITA et **Pierre PICARD**. Jean Tirole: de la microéconomie à l'économie comportementale. *Land*, Nummer 19, May 8, 2015.
- ▶ Eleonora PATACCHINI, **Pierre PICARD** and Yves ZENOU. How location affects friendship interactions. *VOX CEPR's Policy Portal*, July 20, 2015.
- ▶ **Mikael PETITJEAN**. The seven RSI families, *BNQ Quaterly*, October 15, 2015.
- ▶ **Mikael PETITJEAN**. The casino tax on stock exchange transactions, *La Libre Entreprise*, October 31, 2015.
- ▶ **Mikael PETITJEAN**. Banque en faillite: la liste des perdants. *L'Avenir*, February 15, 2016.
- ▶ **Mikael PETITJEAN**. La taxe Tobin, pour plus de justice ? *L'Avenir*, June 15, 2016.

REPORTS

- ▶ **Constantin BLOME**, Hannes HOFMANN AND Martin SCHLEPER. Future challenges for pharmaceutical supply chains. Project Report, University of Sussex, Brighton, United Kingdom, 2015.
- ▶ **Constantin BLOME**, Hannes HOFMANN AND Martin SCHLEPER. Stopping conflict minerals with the OECD guidance for responsible mineral supply chains: status quo in Europe. Project Report, University of Sussex, Brighton, United Kingdom, 2016.
- ▶ Anouk CLAES and **Wouter VERGOTE**. Econometric study on parcel list prices. Report for the European Commission, <http://ec.europa.eu/DocsRoom/documents/14647>, December 2015.

PRIZES & AWARDS

- ▶ **Manuela BRAIONE** is Member of the Society for Financial Econometrics (SoFiE) and of the International Association for Applied Econometrics (IAEE).
- ▶ The application of **Julio DAVILA** as Fernand Braudel Fellow has been accepted on Spring 2016.
- ▶ **Jean-Jacques HERINGS** is now Member of the Council of the Game Theory Society as well as Secretary-Treasurer of the same society.
- ▶ On the occasion of the Institute's Greenday on 16th September 2016, **Leonardo IANIA** was awarded the ILSM Research Award 2015 for his paper “A macro-financial analysis of the Euro area sovereign bond market”.
- ▶ **Yurii NESTEROV** AND **Maurice QUEYRANNE** were awarded a EURO Gold Medal 2016 by the Associations of European Operations Research Societies.
- ▶ In 2015 the publication of **Anthony PAPAVALIOU** “Multi-area stochastic unit commitment for high wind penetration in a transmission constrained network” (*Operations Research*, 61(3), 578-592, 2013) was designated as best publication in Energy by INFORMS.
- ▶ **Léopold SIMAR** is Fellow of the Journal of Econometrics since 2015.
- ▶ **Léopold SIMAR** has obtained the Econometric Theory Multa Scripsit Award in 2016.
- ▶ **Isabelle THOMAS** has been designated “Distinguished Speaker”, Transport Lecture Series 2015, Institute of Transport Studies, University of Hong Kong in November 2015.



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TRAINING

- ▶ JUNIOR RESEARCHERS
- ▶ COMPLETED PH.D. DISSERTATIONS
- ▶ PH.D. DISSERTATIONS IN PROGRESS
- ▶ EDEEM PROGRAM
- ▶ EUROPEAN DOCTORAL PROGRAM IN QUANTITATIVE ECONOMICS
- ▶ SUMMER SCHOOL
- ▶ DOCTORAL WORKSHOPS
- ▶ PH.D. COURSES
- ▶ BROWN BAG SEMINAR SERIES

TRAINING

JUNIOR RESEARCHERS

DOCTORAL STUDENTS AND RESEARCH ASSISTANTS

Adam ARNAUD · Ignacio Andrés ARAVENA SOLÍS · Gautier ATTANASI · Rytis BAGDZIUNAS · Sinem BAS · Manuela BRAIONE · Benoit DECERF · Justin DELLOYE · Julien DEWEZ · Aditi DIMRI · Cyrille DOSSOUGOIN · Mery FERRANDO GUTIERREZ · Bartosz FILIPECKI · Sophie FLAGOTHIER · Valeria FORLIN · Andras GREGOR · Oswaldo GRESSANI · Thuc Huan HA · Manuel HERRERA RODRIGUEZ · Jonathan JONES · Arnaud LATIERS · Liana-Sabina LUNCASU · Simone MARTELLI · Arnaud MONSEUR · Gaetan MONTERO REDONDO · Yuting MOU · Risa PAVIA · Wenli PENG · Francesco Andrea PIRRONE · Nicolas K. SCHOLTES · Eva-Maria SCHOLZ · Alice SERVAIS · Yu SUN · Jonas TEUSCH · Sonia TRABELSI · Baris VARDAR · Jean-Charles WIJNANDTS

RESEARCH FELLOWS

Research Fellows are scholars working at CORE for a predefined time period (from one to three years):

- ▶ Adeline DECUYPER, CESAME, UCL, Belgium
- ▶ Véronique GILLE, CORE, UCL, Belgium
- ▶ Joniada MILLA, CORE, UCL, Belgium
- ▶ Dirk NEUMANN, CORE, UCL, Belgium
- ▶ Eve RAMAEKERS, CORE, UCL, Belgium
- ▶ Vladimir SHIKMAN, CORE, UCL, Belgium
- ▶ Sebastian URBAN STICH, CORE, UCL, Belgium
- ▶ Tom TRUYTS, KU Leuven, Belgium

COMPLETED PH.D. DISSERTATIONS

Six doctoral students successfully defended their Doctoral Dissertation at CORE.

- ▶ **Mikel BEDAYO.** *Essays on financial and economic networks*
Economics School of Louvain, UCL, Belgium, September 21, 2015 under the supervision of Vincent VANNETELBOSCH
Current position: Economist at Banco de España

This thesis aims at discerning connections' effects in inter-connected multi-agent networks questioning how the number and intensity of these connections shape agents' utility. The theoretical and empirical essays presented herein shed light on the consequences of keeping strong relationships with different number of agents. Chapter 1 analyzes the type of networks that emerge in the long run when heterogeneous agents form a set of connections that allows them to trade, create and share a generated surplus derived from trade. Chapter 2 focuses on players' incentives to link other players in order to trade illegal goods when doing so entails an assignment of a positive probability to be arrested by the police. A trade-off between players' incentives to participate in the trade and the expected fine in case they are arrested is presented. Chapter 3 examines whether firms keeping a strong relationship with their lender(s) obtain a higher and cheaper access to credit than otherwise, and evaluates whether the direction of these effects differ depending on the type of financial institutions firms keep a relationship with. Last, Chapter 4 looks at firms' alternative scheme to obtain credit by collectively applying for credit instead of applying directly. Firms' financial needs to jointly apply for credit are analyzed together with the dissimilar consequences of joining some firms instead of others and the outcomes of using the same vs. several banks for different purposes.

- ▶ **Benoit DECERF.** *Welfare and behavior micro-analysis of economies with agents exhibiting non-classical preferences*
Economics School of Louvain, UCL, Belgium, December 8, 2015 under the supervision of François MANIQUET and Frank RIEDL
Current position: Assitant Professor, Université de Namur

This dissertation in microeconomic theory is composed of four chapters. The first two chapters investigate two closely related normative questions. How can we compare different distributions of a multi-goods endowment among individuals that care for their relative situation? How can we compare the poverty in different income distributions when both the absolute and relative aspects of income matter? The outputs of these chapters are indicators able to rank economic outcomes as a function of their adequacy with the principles of Pareto efficiency and equality of resources. The third chapter aims at comparing different mechanisms used for the allocation of economic resources among individuals holding private information, e.g. their preferences over these resources. This implies studying both the incentives these mechanisms provide and the properties of the allocations to which they lead. The chapter proposes a general criterion for comparing the performance of allocation mechanisms and apply this criterion to the stability of school choice mechanisms. The last chapter focuses on the strategic interactions between individuals averse to ambiguity. It proposes a new interpretation for equilibria in ambiguous randomization strategies.

▶ **Andrew PUA**, *Responses to the incidental parameter problem*

Economics School of Louvain, UCL, Belgium, March 10, 2016 under the supervision of Peter BOSWIJK and Sébastien VAN BELLEGEM
Current position: Assistant professor at Xianem University

In recent years, we have seen an explosion of data collected from individuals, firms, or countries across short or long periods of time. This type of data gives us an opportunity to study the dynamics of change while controlling for time-invariant unobserved heterogeneity. Unfortunately, this type of heterogeneity, which is usually in the form of individual-specific fixed effects, creates problems for identification, estimation, and inference, especially if we continue to use default procedures without modification or without critical exploration. This dissertation revolves around a common theme – what practices and methods can be considered appropriate responses to the incidental parameter problem in panel data models. The approach to research is firmly rooted in the examination of empirical and theoretical practices so that we can come to an understanding of what we can and cannot do.

▶ **Arnaud LATIERS**, *Frequency containment reserve from energy constrained loads. A system perspective*

Graduate School in Systems, Optimization, Control and Networks, UCL, Belgium, April 22, 2016 under the supervision of François GLINEUR and Emmanuel DE JAEGER
Current position: Energy Specialist at Actility Benelux

Our fossil-fueled societies have to rapidly evolve towards decarbonated energy systems. Soon, we will rely on a more evanescent form of energy: the sun rays. As the morning comes and the night falls, this source of energy is intermittent, which is of particular concern to electric energy systems as electrical power cannot be easily stored. Therefore, any alternative to building new energy storage infrastructures will soon both turn lucrative and vital to safe and efficient power system operations. One of such alternative is Demand-Side Management: the actions that can be undertaken on flexible loads/processes to influence the amount and/or timing of their electrical energy consumption.

This work studies the flexible capacity offered by a group of small electric loads faced with energy constraints and providing a service known as Frequency Containment Reserves (FCR). This service is an essential part of power system short-term stability as it restores the balance between the power generation and demand within seconds. In this work, loads adapt their power consumption autonomously (i.e., without external communication) based on measurements they can acquire in their local environment. The control framework is designed such that a certain order appears from the apparent chaos. As a consequence of the load's energy constraints, the amount of energy that can be shifted in time by the load group is limited. This induces a specific kind of control error called energy rebound which has technical and economic consequences both in the short-term (seconds to minutes) as well as in the long-term (year-long). Those consequences are assessed through the use of aggregate models. These are simple mathematical structures that accurately represent the behavior of the group with reduced computational efforts. We propose two original families of aggregate models that are relative to two control frameworks. Altogether, we show that load control is economically efficient when applied to the loads with adequate parameters (run time, power). Addressing only the most interesting loads is crucial for ensuring an overall positive societal impact. Yet, the expected benefits in today's context are limited. In consequence, massive implementation programs and standardization seem to be the adapted processes to access the flexibility of small electric loads. As the impact on the end-user is often imperceptible, including these controllers as a standard feature of most interesting appliances would be very well accepted. Finally, we highlighted that the system operator's role is crucial in the overall profitability of the proposed control schemes. Its actions, and particularly the way it manages slower flexibility resources, have an important impact on the load control performances.

▶ **Jonathan JONES**, *Spatial bias in LUTI models*

School of Geography, UCL, Belgium, June 22, 2016 under the supervision of Isabelle THOMAS and Dominique PEETERS
Current position: Geomatician and Dataminer, Viapass

Land use and transport interactions (LUTI) models are widely employed by planners, to forecast future urban patterns and to test the influence of land use or transport policies. This thesis examines their sensitivity to two types of spatial bias, the choice of the study area ("spatial extent") and of the areal units ("spatial resolution"). The first part of this thesis focuses on econometric components inside LUTI models. We propose two extensions to the literature on the Modifiable Areal Unit Problem (MAUP). First, the sensitivity of regression models to spatial extent is examined. Secondly, the influence of the spatial resolution on discrete choice models, used by most state-of-the-art LUTI models to forecast location choices of agents, is assessed. Significant variations are found in parameter estimates, leading to changes in the behaviour of the model. The second part of the thesis assesses the influence of these spatial biases on LUTI models' outputs. Two applications of the UrbanSim model are developed. We rely on a synthetic case study to examine the sensitivity of the final situation predicted by the model. Then, a model of the urban region of Brussels is used to explore the implications of this sensitivity for policy evaluation. The results show that variations induced by spatial bias on LUTI models' outputs are larger than those due to transport or land use scenarios, and that they affect the estimation of the sustainability of these scenarios. The last chapter offers recommendations to reduce the sensitivity of LUTI models to these spatial biases, consisting in the adoption of "best spatial practices" and of potential technical development, together with alternative approach of increasing the applicability of LUTI models.

- ▶ **Baris VARDAR.** *Optimal transition to clean technologies*
Economics School of Louvain, UCL, Belgium, June 30, 2016 under the supervision of Thierry BRÉCHET and Antoine D'AUTUME
Current position: Postdoctoral research fellow, HEC Montréal

This dissertation investigates the economic mechanisms underlying the transition to clean technologies and examines policy approaches to achieve the socially optimal path. It studies various policy measures aiming to deal with climate change, such as adaptation and taxation of non-renewable resources. Furthermore, it examines the policy instruments that target increasing the use of efficient technologies and identifies cases in which the policy reaches its objectives or not. It also analyzes the role of heterogeneity in society on agents' willingness to support a pollution tax. The first chapter studies the energy transition by using an optimal growth model in which non-renewable and renewable natural resources are imperfect substitutes in providing energy services necessary for production. The second chapter studies the role of adaptation policy on the transition to a low-carbon economy. It incorporates adaptation policy into the problem of optimal non-renewable resource extraction with pollution externalities, by focusing on the capital nature of adaptation measures. The third chapter focuses on the problem of adopting new technologies in a micro-economic framework. It studies the behavior of firms when they face a decision to invest either in a cheap but inefficient production capacity or in an expensive but efficient one, by taking into account the presence of a financial constraint. The fourth and last chapter investigates the distributional impacts of a pollution tax by considering a society in which wealth is distributed heterogeneously among households.

PH.D. DISSERTATIONS IN PROGRESS

Arnaud ADAM

- ▶ Title: A new geography of spatial interactions in the metropolitan area of Brussels
- ▶ Supervisor: Isabelle THOMAS
- ▶ Started: 2015
- ▶ Doctoral School: School of Geography, UCL, Belgium

Ignacio Andrés ARAVENA SOLÍS

- ▶ Title: Application of high-performance computing in short-term scheduling of electric power systems under uncertainty
- ▶ Supervisor: Anthony PAPAVALIOU
- ▶ Started: 2013
- ▶ Doctoral School: Graduate School in Systems, Optimization, Control and Networks, UCL, Belgium

Gautier ATTANASI

- ▶ Title: Dimension reduction of highdimensional nonstationary time series
- ▶ Supervisor: Sébastien VAN BELLEGEM
- ▶ Started: 2014
- ▶ Doctoral School: Economics School of Louvain, UCL, Belgium

Rytis BAGDZIUNAS

- ▶ Title: Functional data estimation in the presence of endogeneity
- ▶ Supervisor: Sébastien VAN BELLEGEM
- ▶ Started: 2011
- ▶ Doctoral School: Economics School of Louvain, UCL, Belgium

Sinem BAS

- ▶ Title: Essays on poverty and inequality
- ▶ Supervisors: Alain CHATEAUNEUF and François MANIQUET
- ▶ Started: 2012
- ▶ Doctoral School: Economics School of Louvain, UCL, Belgium and Université Paris 1 Panthéon Sorbonne, France (EDEEM student)

Manuela BRAIONE

- ▶ Title: Component dynamic models for realized covariance matrices
- ▶ Supervisor: Luc BAUWENS
- ▶ Started : 2013
- ▶ Doctoral School: Economics School of Louvain, UCL, Belgium

Justin DELLOYE

- ▶ Title: Three-dimensional urban morphodynamics
- ▶ Supervisors: Dominique PEETERS and Isabelle THOMAS
- ▶ Started : 2014
- ▶ Doctoral School: School of Geography, UCL, Belgium

Julien DEWEZ

- ▶ Title: Lower bounds on the nonnegative rank
- ▶ Supervisor: François GLINEUR
- ▶ Started : 2013
- ▶ Doctoral School: Graduate School in Systems, Optimization, Control and Networks, UCL, Belgium

Aditi DIMRI

- ▶ Title: Three essays on gender inequalities and measurement
- ▶ Supervisors: François MANIQUET and François BOURGUIGNON
- ▶ Started : 2013
- ▶ Doctoral School: Economics School of Louvain, UCL, Belgium and Université Paris 1 Panthéon Sorbonne, France (EDEEM student)

Cyrille DOSSOUGOIN

- ▶ Title: A spatial econometric approach to financial network modelling
- ▶ Supervisors: Sophie BÉREAU and Nicolas DEBARSY
- ▶ Started : 2013
- ▶ Doctoral School: LSM Doctoral School, UCL, Belgium

Mery FERRANDO

- ▶ Title: Essays on human capital accumulation among disadvantaged agents
- ▶ Supervisor: François MANIQUET
- ▶ Started : 2012
- ▶ Doctoral School: Economics School of Louvain, UCL, Belgium

Bartosz FILIPECKI

- ▶ Title: Improving models & algorithms for mixed-integer nonlinear optimization in the power industry
- ▶ Supervisor: Mathieu VAN VYVE
- ▶ Started : 2014
- ▶ Doctoral School: Graduate School in Systems, Optimization, Control and Networks, UCL, Belgium

Valeria FORLIN

- ▶ Title: Essays in industrial organization
- ▶ Supervisors: Paul BELLEFLAMME and Thierry BRÉCHET
- ▶ Started : 2014
- ▶ Doctoral School: Economics School of Louvain, UCL, Belgium

Andras GREGOR

- ▶ Title: Essays on public economics
- ▶ Supervisor: Jean HINDRIKS
- ▶ Started : 2014
- ▶ Doctoral School: Economics School of Louvain, UCL, Belgium

Thuc HUAN HA

- ▶ Title: Essays in circular economy
- ▶ Supervisors: Thierry BRÉCHET and Paul BELLEFLAMME
- ▶ Started: 2015
- ▶ Doctoral School: Economics School of Louvain, UCL, Belgium

Sabina LUNCASU

- ▶ Title: Nonparametric estimation of efficiency frontiers with noise in both variables
- ▶ Supervisor: Sébastien VAN BELLEGEM
- ▶ Started: 2015
- ▶ Doctoral School: Economics School of Louvain, UCL, Belgium

Simone MARTELLI

- ▶ Title: On the drivers of greenhouse gas emissions and policies for climate change mitigation
- ▶ Supervisor: Thierry BRÉCHET
- ▶ Started : 2013
- ▶ Doctoral School: Economics School of Louvain, UCL, Belgium

Gaëtan MONTERO REDONDO

- ▶ Title: Measuring and understanding the morphology of urban space. Theoretical and empirical contributions on the basis of Brussels metropolitan area
- ▶ Supervisor: Isabelle THOMAS
- ▶ Started : 2015
- ▶ Doctoral School: School of Geography, UCL, Belgium

Arnaud MONSEUR

- ▶ Title: Macro finance models of interest rates in Europe
- ▶ Supervisor: Leonardo IANIA
- ▶ Started : 2015
- ▶ Doctoral School: Louvain School of Management, UCL, Belgium

Yuting Mou

- ▶ Title: Modelling residential electricity demand flexibility
- ▶ Supervisor:s Philippe CHEVALIER and Anthony PAPAVALIOU
- ▶ Started : 2015
- ▶ Doctoral School: Graduate School in Systems, Optimization, Control and Networks, UCL, Belgium

RISA PAVIA

- ▶ Title: Taxation of multinational corporations
- ▶ Supervisors: Jean HINDRIKS and Susana PERALTA
- ▶ Started : 2014
- ▶ Doctoral School: Economics School of Louvain, UCL, Belgium and Universidade Nova de Lisboa, Portugal (EDEEM student)

Wenly PENG

- ▶ Title: Stochastic modelling of real world scheduling problem
- ▶ Supervisor: Philippe CHEVALIER
- ▶ Started : 2012
- ▶ Doctoral School: Doctoral School of Management, UCL, Belgium

Francesco Andrea PIRRONE

- ▶ Title: On common knowledge in games and growth and liquidity in pension design
- ▶ Supervisor: Julio DAVILA
- ▶ Started : 2013
- ▶ Doctoral School: Economics School of Louvain, UCL, Belgium

Nicolas SCHOLTÈS

- ▶ Title: Agent-based models and network theory applied to interbank markets
- ▶ Supervisors: Sophie BÉREAU and Jean-Yves GNABO
- ▶ Started : 2013
- ▶ Doctoral School: LSM Doctoral School, UCL, Belgium

Eva Maria SCHOLZ

- ▶ Title: Essays in industrial organization
- ▶ Supervisor: Paul BELLEFLAMME
- ▶ Started : 2013
- ▶ Doctoral School: Economics School of Louvain, UCL, Belgium

Alice SERVAIS

- ▶ Title: An interbank market in a DSGE model
- ▶ Supervisors: Sébastien VAN BELLEGEM and Frank SMETS
- ▶ Started : 2012
- ▶ Doctoral School: Economics School of Louvain, UCL, Belgium and Katholieke Universiteit Leuven, Belgium

Yu SUN

- ▶ Title: Environment shocks, health investment, and economic growth
- ▶ Supervisor: Thierry BRÉCHET
- ▶ Started : 2015
- ▶ Doctoral School: Economics School of Louvain, UCL

Jonas TEUSCH

- ▶ Title: Yardstick competition under heterogeneity
- ▶ Supervisors: Per AGRELL and Axel GAUTHIER
- ▶ Started : 2013
- ▶ Doctoral School: HEC-Ecole de Gestion de l'Université de Liège, Belgium

Sonia TRABELSI

- ▶ Title: Morphometrics of green spaces
- ▶ Supervisor: Isabelle THOMAS
- ▶ Started : 2015
- ▶ Doctoral School: School of Geography, UCL

Jean-Charles WIJMANDTS

- ▶ Title: Essays in empirical asset pricing
- ▶ Supervisors: Leonardo IANIA
- ▶ Started : 2016
- ▶ Doctoral School: LSM Doctoral School, UCL, Belgium

EDEEM PROGRAM

EDEEM is a doctoral programme in economics that gathers seven leading European institutions coordinated by Universität Bielefeld, Germany.

EDEEM is a research-oriented programme and aims to produce top-quality researchers, who will gain international experience working within the research units with some of Europe's leading researchers in economics. Students are trained for positions in academia at the international level as well as for responsible positions in government, research organizations, and business enterprises. High focus is made on research work, publication and presentation, with dedicated Jamborees and Summer Schools being an integral part of the training.

The EDEEM programme welcomes around 25 students each year. Admission is based on excellence in previous Master Degree studies or equivalent. This degree does not have to be in economics, although interest in economics is certainly desirable and a strong background in mathematics will be helpful together with fluent written and spoken English. The programme is organised in three years.

All Ph.D. students are jointly supervised by two advisers through a co-tutelle agreement between two universities of the consortium. The student must spend at least two semesters in each of the two degree-granting universities. A single defense in one of the two universities is organized. After having successfully completed the programme, the student is awarded a double degree from the two hosting institutions. The consortium is fully committed to the placement of students at the end of the programme.

Four students were at CORE in the scope of this programme during academic year 2015-2016: **Sinem BAS**, **Benoît DECERF**, **Aditi DIMRI** and **Risa PAVIA**.

As part of the European Doctorate in Economics - Nova School of Business and Economics, Lisboa, Portugal hosted the 2016 Summer Meeting in July 2016. The event is one of the activities for doctoral students participating in the EDEEM program. The idea of the Jamboree is to give students the opportunity to present their work within the EDEEM network and to encourage discussion. Another jamboree activity was a job market placement training session. Furthermore, the annual monitoring of EDEEM doctoral students took place during the jamboree.

SUMMER MEETING PROGRAM

July 6, 2016

PARALLEL SESSION: DYNAMIC MODELLING

Chair: Guillermo HUNTER, Universidade Nova de Lisboa, Portugal

- ▶ Elena ORLOVA, Universität Bielefeld, Germany and Ecole des Hautes Etudes en Sciences Sociales, Paris, France
Evolution of social preferences and cognitive intelligence
- ▶ Marko PETROV, Universidade Nova de Lisboa, Portugal and Universiteit Amsterdam, The Netherlands
Pricing of bivariate options on stocks paying discrete dividends
- ▶ Simon SCHOPHOL, Universität Bielefeld, Germany, Ecole des Hautes Etudes en Sciences Sociales, Paris, France and Université catholique de Louvain, Belgium
Communication games with optional verification
- ▶ Hasinavonizaka Rahantamialisoa FANIRISOA ZAZARAVAKA, Université Paris 1 Panthéon-Sorbonne, France and Università Ca'Foscari Venezia, Italy
Two steep modified-QLM estimation for NIG-GARCH processes

PARALLEL SESSION: LABOUR ECONOMICS

Chair: Susana PERALTA, Universidade Nova de Lisboa, Portugal

- ▶ Tijan L. BAH, Universidade Nova de Lisboa, Portugal and Ecole des Hautes Etudes en Sciences Sociales, Paris, France
Occupation-skill mismatch and selection of immigrants: evidence from the Portuguese labor market
- ▶ Dalal MOOSA, Université catholique de Louvain, Belgium, Université Paris 1 Panthéon-Sorbonne, France, and Università Cà Foscari di Venezia, Italy
The effect of a demographic shock on labor market informality: the case for Egypt
- ▶ Sinem BAS, Université catholique de Louvain, Belgium and Université Paris 1 Panthéon Sorbonne, France
A collective model of female labor supply in Turkey
- ▶ Zainab IFTKHAR, Université catholique de Louvain, Belgium and Universität Bielefeld, Germany
General equilibrium effects of immigration in Germany: search and matching approach

July 7, 2016

PARALLEL SESSION: EDUCATION AND DEVELOPMENT

Chair: Pedro VINCENTE, Universidade Nova de Lisboa, Portugal

- ▶ Aditi DIMRI, Université catholique de Louvain, Belgium and Ecole des Hautes Etudes en Sciences Sociales, Paris, France
Sex-selective abortion: measuring the who, how many and how often
- ▶ Madhuri ARGAWAL, Universidade Nova de Lisboa, Portugal and Universität Bielefeld, Germany
The effect of teacher contracts and hiring process on student performance: evidence from elementary schools in India
- ▶ Nucke Widowati KUSUMO PROJO, Université Paris 1 Panthéon-Sorbonne, France and Universidade Nova de Lisboa, Portugal
Measuring the impact of dual physician practice to patient welfare using Indonesia family life survey data

PARALLEL SESSION: INTERNATIONAL ECONOMICS

Chair: Fulvio CORSI, Università Ca' Foscari Venezia, Italy

- ▶ Hung LY DAI, Bielefeld Universität, Germany and Université Paris 1 Panthéon-Sorbonne, France
Endogenous interest rate wedge and international capital flows
- ▶ Christoph DEUSTER, Université catholique de Louvain, Belgium and Universidade Nova de Lisboa, Portugal
European immigration prospects: the roles of climate change, demography and income inequality
- ▶ Risa PAVIA, Université catholique de Louvain, Belgium and Universidade Nova de Lisboa, Portugal
Testing the effectiveness of investment incentives in Portugal

PARALLEL SESSION: ENVIRONMENTAL AND INTERNATIONAL ECONOMICS

Chair: Kees Jan van GARDEREN, Universiteit Amsterdam, The Netherlands

- ▶ Moutaz ALTAGHLIBI, Université Paris 1 Panthéon-Sorbonne, France and Universiteit Amsterdam, The Netherlands
Climate policy and carbon leakage with firm heterogeneity
- ▶ Igor KHORENZHENKO, Université Paris 1 Panthéon-Sorbonne, France and Universität Bielefeld, Germany
Price variation and network formation aspects of the interaction model of EU carbon market
- ▶ Predrag SAVIC, Universidade Nova de Lisboa, Portugal and École des Hautes Etudes en Sciences Sociales, Paris, France
Impact of remittances/migrations on nutritional outcomes in the case of Nepal

PARALLEL SESSION: MACROECONOMICS

Chair: Herbert DAWID, Universität Bielefeld, Germany

- ▶ Anna PETRONEVICH, Université Paris 1 Panthéon-Sorbonne, France and Università Ca'Foscari Venezia, Italy
Dynamical interaction between the financial and the business cycles
- ▶ Ilya ERYZHENSKIY, Université Paris 1 Panthéon-Sorbonne, France and Universität Bielefeld, Germany
Endogenous borrowing constraints and government debt in a life-cycle economy
- ▶ Hamzeh ARABZADEH JAMALI, Paris School of Economics, France and Université catholique de Louvain, Belgium
The political economy of twin deficits and wage setting centralization
- ▶ Gregor BÖHL, Universität Bielefeld, Germany
Bubbles, cycles and monetary policy in a DSGE model with boundedly rational stock markets

OPEN SESSION

- ▶ Isabel HORTA CORREIA, Banco de Portugal, Lisboa, Portugal
A radical tax reform

EUROPEAN DOCTORAL PROGRAM IN QUANTITATIVE ECONOMICS

The European Doctoral Program in Quantitative Economics (EDP) is a program of doctoral studies in economics organised jointly by the following universities: Université catholique de Louvain (Belgium), Ecole des Hautes Etudes en Sciences Sociales, Paris (France), Rheinische Friedrich-Wilhelms-Universität Bonn (Germany), European University Institute, Florence (Italy), Universitat Pompeu Fabra, Barcelona (Spain), London School of Economics (United Kingdom) with Tel Aviv University (Israel) as an exchange partner.

This is done within the framework of the existing degree requirements of these institutions. The aim of EDP is to promote the exchange of doctoral students between these institutions in order for their research training to benefit from their strengths in various areas of quantitative economics.

Each institution offers Masters and Ph.D. courses, seminars and workshops, and research supervision. Doctoral students participating in the program do the research work for their dissertation in the institutions of the EDP network. They are required to spend at least 3 months abroad in an EDP institution different from the one where their dissertation will be presented.

The program focuses on economic theory, mathematical economics, decision and game theory, econometric theory and methodology, empirical econometrics and applied mathematical economics through the coordinated curriculum based on the activities at Barcelona, Bonn, Florence, London, Louvain, Paris and Tel-Aviv. It creates the opportunity for students to specialize in almost any major area of quantitative economics and, at the same time, it allows students to integrate different aspects of economics. Moreover, the EDP offers unique access to the traditions and current research of these seven institutions.

The program started in 1977. Fifty students are currently enrolled. Five are currently staying at CORE: **Mikel BEDAYO**, **Mery FERRANDO**, **Valeria FORLIN**, **Francesco Andrea PIRRONI** and **Eva-Maria SCHOLZ**.

As part of the European Doctoral Program in Quantitative Economics, The London School of Economics organized the Jamboree 2015-2016. Around thirty students attended it.

JAMBOREE PROGRAM

September 14, 2015

INTRODUCTORY LECTURE

- ▶ Ricardo REIS, London School of Economics, United Kingdom
New style central banking

PARALLEL SESSION: MICROECONOMICS

Chair: Laurent LAMY, Centre International de Recherche sur l'Environnement et le Développement, Paris, France

- ▶ Mirjam WUGGENIG, Rheinische Friedrich-Wilhelms-Universität Bonn, Germany
Learning faster or more precisely? Strategic experimentation in networks
- ▶ Konstantinos TOKIS, London School of Economics, United Kingdom
Dynamic contracting under career concerns
- ▶ Lisa WINDSTEIGER, London School of Economics, United Kingdom
Sorting equilibria with misperceptions
- ▶ Elias POUACIDA, Paris School of Economics, France
An application of behavioural welfare economics to consumption data

PARALLEL SESSION: DEVELOPMENT ECONOMICS/INDUSTRIAL ORGANISATION

Chair: Martin PESENDORFER, London School of Economics, United Kingdom

- ▶ Valeria FORLIN, CORE, Université catholique de Louvain, Belgium
How competition determines the success of an eco-label
- ▶ Nicola LIMODIO, London School of Economics, United Kingdom
Manager selection and aid effectiveness: evidence from World Bank projects
- ▶ Torsten WALTER, London School of Economics, United Kingdom
Re-organising production processes: direct and indirect effects on productivity

JOB MARKET SESSION 1: HOUSING MARKETS

Chair: Daniel STURM, London School of Economics, United Kingdom

- ▶ Stefanie HUBER, Universitat Pompeu Fabra, Barcelona, Spain
Preference for housing services and rational house price bubbles
- ▶ Pedro PINTO, London School of Economics, United Kingdom
Securitization, screening and housing bubbles

JOB MARKET SESSION 2: APPLIED MICROECONOMICS MARKETS

Chair: Alessandro GAVAZZA, London School of Economics, United Kingdom

- ▶ Andrea ENACHE, Paris School of Economics, France
Identification and estimation in a classical model of regulation
- ▶ Julien COMBE, Paris School of Economics, France
The design of teacher assignment: theory and evidence

September 15, 2015

PARALLEL SESSION : APPLIED MICROECONOMICS

Chair: Guy MICHAELS, London School of Economics, United Kingdom

- ▶ Mery FERRANDO, CORE, Université catholique de Louvain, Belgium
Does the identity of leaders matter for education? Evidence from the first black governor in the US
- ▶ Guzman OURENS, IRES, Université catholique de Louvain, Belgium
The long-term impact of trade with firm heterogeneity
- ▶ Tommaso SONNO, IRES, Université catholique de Louvain, Belgium
Firm's financial conditions and the R&D-export trade-off
- ▶ Emma DUCHINI, Universitat Pompeu Fabra, Barcelona, Spain
How does maternal labour supply respond to changes in children's school schedule

- ▶ Thomas STOERK, Universitat Pompeu Fabra, Barcelona, Spain
Heaven is high and the emperor is far away: the political economy of air pollution in China

PARALLEL SESSION : MACROECONOMICS

Chair: Wouter DEN HAAN, London School of Economics, United Kingdom

- ▶ Andresa LAGERBERG, European University Institute, Firenze, Italy
Do stock market booms anticipate baby booms? A VAR and DSGE perspective
- ▶ Andrea PIRRONE, CORE, Université catholique de Louvain, Belgium
Liquidity problems and growth implications: a reconsideration of pension scheme roles
- ▶ Thomas DRECHSEL, London School of Economics, United Kingdom
Following the trend: tracking GDP when long-run growth is uncertain
- ▶ Thomas WILLIAMS, Universitat Pompeu Fabra, Barcelona, Spain
International asset allocations and capital flows: the benchmark effect

JOB MARKET SESSION 3: MICROECONOMIC THEORY

Chair: Vincent VANNETELBOSCH, CORE, Université catholique de Louvain, Belgium

- ▶ Tobias GAMP, Rheinische Friedrich-Wilhelms-Universität Bonn, Germany
Guided search
- ▶ Pedro ALVES, London School of Economics, United Kingdom
A new theoretical explanation for three part tariffs

JOB MARKET SESSION 4: DEVELOPMENT ECONOMICS

Chair: Robin BURGESS, London School of Economics, United Kingdom

- ▶ Pauline ROSSI, Paris School of Economics, France
Strategic choices in polygamous households: theory and evidence from Senegal
- ▶ Shlyu Bo, London School of Economics, United Kingdom
The value of centralisation: evidence from a political hierarchy reform in China

SUMMER SCHOOL

SoFiE FINANCIAL ECONOMETRICS SUMMER SCHOOL

The SoFiE Financial Econometrics Schools are annual week-long research-based courses for Ph.D. students and new faculty in financial econometrics. In July 2016, The National Bank of Belgium hosted the Summer School focused on “**Noncausal autoregressive process and the modelling of speculative bubbles**”.

A recent statistical and econometric literature highlights the importance of mixed causal/noncausal ARMA processes for the modeling of macroeconomic and financial time series. Indeed the nonlinear causal dynamic of such processes can capture unit roots, asymmetric cycles, and bubbles features. The objective of the lectures is to present the notions and concepts of the literature on noncausal processes and to explain how they can be used for the modeling and analysis of speculative bubbles. The focus will be both on the modelling and statistical aspects. The 2016 confirmed lecturers were: Christian GOURIÉROUX (Université de Toronto, Canada and CREST, Paris, France) and Jean-Michel ZAKOIAN (Université de Lille and CREST, Paris, France).

OUTLINE OF LECTURES

- ▶ **Noncausal ARMA Process**
Review of nonlinear processes, conditions for the existence and uniqueness of an infinite moving average representation when innovations have fat tails, interpretation of trajectories as random linear combinations of deterministic paths and the creation of bubbles.
- ▶ **Noncausal AR(1) Process with Stable Errors**
Properties of errors with stable distributions, stationary distribution of the noncausal AR(1) process, analysis of its conditional moments, aggregation of noncausal processes.
- ▶ **State Space Representation of Noncausal Processes**
The causal and noncausal “innovations” of a mixed one-dimensional process, the state space representation, application to maximum likelihood estimation, prediction and filtering, extension to mixed VAR(1) process. Application to the exchange rate bitcoin/US\$, prediction of future bubbles and of bubble crash.

▶ **Test Procedures**

Standard tests for unit root and random walk hypotheses, behavior of these testing procedures for a noncausal Cauchy process, stationary versus nonstationary martingales, robust tests of the martingale hypothesis.

▶ **Modelling Speculative Bubbles**

The modeling of speculative bubbles in the economic literature. The role of martingales in linear rational expectation models, the multiplicity of solutions in a RE model, how to construct the impulse response functions.

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 for doctoral students, access to the workshop is open to a larger public. Professors and researchers of the department and from partner institutions are invited to attend all sessions. Doctoral students from Université catholique de Louvain, Université de Namur, Université Saint-Louis, Bruxelles, Université libre de Bruxelles, Université de Liège, Universiteit Gent and KU Leuven are kindly invited to attend the sessions and present their research.

WINTER SESSION 2015, UNIVERSITÉ SAINT-LOUIS, BRUXELLES, BELGIUM

October 16, 2015

PARALLEL SESSION: ENVIRONMENTAL ECONOMICS

Chair: Hélène LATZER, Université Saint-Louis, Bruxelles, Belgium

- ▶ Abdelfeteh BITAT, Université Saint-Louis, Bruxelles, Belgium
Environmental regulation and business competitiveness
- ▶ Martin NEVE, Université Saint-Louis, Bruxelles, Belgium
Consumption accounting of CO₂ emissions: a real progress for the EU

PARALLEL SESSION: LABOR ECONOMICS

Chair: Bruno VAN DER LINDEN, IRES, UCL, Belgium

- ▶ Alexandre OUNNAS, IRES, UCL, Belgium
Downward occupational mobility and unemployment
- ▶ Vanessa LUTGEN, IRES, UCL, Belgium
Regional unemployment and place-based policies

PARALLEL SESSION: DEVELOPMENT ECONOMICS

Chair: Bastien CHABÉ-FERRET, IRES, UCL, Belgium

- ▶ Elena SERFILIPPI, Université de Namur, Belgium
Learning and channels of communication transmission. The adoption of GM cotton in Burkina Faso
- ▶ Modeste DAYÉ, Université de Namur, Belgium
Modeling a financial contracting framework for small-sized businesses in developing countries

PARALLEL SESSION: POLITICAL ECONOMICS

Chair: Isabelle CASSIERS, IRES, UCL, Belgium

- ▶ Hervé DE BROUWER, Université Saint-Louis, Bruxelles, Belgium
Patrimonial economics and the ethics of care
- ▶ Olivier MALAY, HOOV, UCL, Belgium
Firm's social and environmental indicators: make it hard to see the wood for the trees?

PARALLEL SESSION: FINANCIAL ECONOMICS

- ▶ Kenneth DE BECKEER, Université Saint-Louis, Bruxelles, Belgium
Did bank funding influence the bank-lending channel during the global financial crisis? Evidence from the Euro area
- ▶ Julien PINTER, Université Saint-Louis, Bruxelles, Belgium
The post-crisis puzzling behavior of deposit rates: choosing the right benchmark

PARALLEL SESSION: ECONOMETRICS

- ▶ Fabian WALDERS, ISBA, UCL, Belgium
Do corporate bond spreads explain aggregate investment? A functional data perspective
- ▶ Manuela BRAIONE, CORE, UCL, Belgium
On the estimation of the multiplicative MIDAS realized DCC (MMReDCC) in high dimension

PARALLEL SESSION: WELFARE & MIGRATION ECONOMICS

Chair: Tom TRUYTS, Université Saint-Louis, Bruxelles, Belgium

- ▶ Benoit DECERF, CORE, UCL, Belgium
Balancing the absolute and relative aspects of income poverty: a new decomposable index
- ▶ Michal BURZYNSKI, IRES, UCL, Belgium
Time, space and skills in designing migration policy

PARALLEL SESSION: FINANCIAL ECONOMICS

Chair: Nicolas SCHOLTÈS, Université de Namur, Belgium

- ▶ Marco Valerio GERACI, ECARES, Université libre de Bruxelles, Belgium
Estimating interconnectedness between financial institutions with Bayesian time-varying VARs
- ▶ Olivier HUBERT, Université de Namur, Belgium
The non-linear effects of fiscal policy on the yield curve

PARALLEL SESSION: DEVELOPMENT ECONOMICS

- ▶ Jolan MOHIMONT, Université de Namur, Belgium
Empirical framework for macroeconomic policies in Sub-Saharan Africa
- ▶ Astrid SIMILON, Université de Namur, Belgium
Venture vs. traditional philanthropy
- ▶ Andras GREGOR, CORE, UCL, Belgium
Politically motivated targeting of Hungarian municipal liquidity grants

PARALLEL SESSION: INDUSTRIAL ORGANIZATION

Chair: Xavier WAUTHY, Université Saint-Louis, Bruxelles, Belgium

- ▶ Jonas TEUSCH, CORE, UCL, Belgium
Yardstick competition, unobserved heterogeneity, and merger incentives
- ▶ Eva-Maria SCHOLZ, CORE, UCL, Belgium
The missing link: leveraging consumers' recycling incentives in a circular economy
- ▶ Guzman OURENS, IRES, UCL, Belgium
The long-term impact of trade with firm heterogeneity

SPRING SESSION 2016, IRES, UCL, BELGIUM

June 2, 2016

PARALLEL SESSION: MONETARY ECONOMICS AND INTERNATIONAL TRADE

Chair: Bastien CHABÉ-FERRET, IRES, UCL, Belgium

- ▶ Olivier HUBERT, Université de Namur, Belgium
Non-linear effects of fiscal policy on the yield curve
- ▶ Alice SERVAIS, KU Leuven and CORE, UCL, Belgium
Bank capital requirement and monetary policy
- ▶ Tommaso SONNO, IRES, UCL, Belgium
Markups, productivity and the financial capability of firms

PARALLEL SESSION: PUBLIC ECONOMICS

Chair: MURIEL DEJEMEPPE, IRES, UCL, Belgium

- ▶ Andras GREGOR, CORE, UCL, Belgium
Politically motivated targeting of Hungarian municipal liquidity grants

- ▶ Pierre PECHER, IRES, UCL, Belgium
Militant organizations representing minorities at risk in MENA: the determinants of inter-organizations conflicts
- ▶ Elisa Rizzo, IRES, UCL, Belgium
Education and crime in India: a district level analysis

PARALLEL SESSION: ENVIRONMENTAL ECONOMICS

Chair: Thierry BRÉCHET, CORE, UCL, Belgium

- ▶ Valeria FORLIN, CORE, UCL, Belgium
The missing link: leveraging consumers' recycling incentives in a circular economy
- ▶ Yu SUN, CORE, UCL, BELGIUM
Intertemporal decision making when catastrophes threaten
- ▶ Benjamin PEETERS, Université Saint-Louis, Bruxelles, Belgium
Work time regulation policies and natural resources

PARALLEL SESSION: GENDER ECONOMICS

Chair: Fabio MARIANI, IRES, UCL, Belgium

- ▶ Annalisa FRIGO, IRES, UCL, Belgium
Now she is Martha, then she is Mary: the influence of beguinages on gender norms
- ▶ Eric ROSA, IRES, UCL, Belgium
Child mortality and female labor force participation

PARALLEL SESSION: MICROECONOMICS

Chair: Pierre DEHEZ, CORE, UCL, Belgium

- ▶ Astrid SIMILON, Université de Namur, Belgium
NPO's self-selection into traditional vs. venture philanthropy: when private benefits are watchdogs of effectiveness
- ▶ Risa PAVIA, CORE, UCL, Belgium
Testing the effectiveness of investment incentives in Portugal
- ▶ Hélène LAURENT, Université de Namur, Belgium
Is corruption beneficial for entrepreneurship?

PARALLEL SESSION: LABOUR ECONOMICS

Chair: Bruno VAN DER LINDEN, IRES, UCL, Belgium

- ▶ Dalal MOOSA, IRES, UCL, Belgium
Demography and the informal labor market
- ▶ Lutgen VANESSA, IRES, UCL, Belgium
Place-based policies: how to tackle unemployment differentials?
- ▶ Françoise DELMEZ, Université de Namur, Belgium
The Hellerstein-Neumark model applied to Belgian firms: part-time workers are more productive than their full-time counterparts
- ▶ Juliana MESÉN VARGAS, IRES, UCL, Belgium
Unemployment insurance and the poor

PARALLEL SESSION: MACROECONOMICS

Chair: Luca PENSIEROSO, IRES, UCL, Belgium

- ▶ Boris CHAFWEHÉ, IRES, UCL, Belgium
Durable expenditure dynamics in the presence of resale frictions
- ▶ Charlotte DE MONTELLIER, Université de NAMUR, Belgium
The Eurozone crisis from a neoclassical perspective
- ▶ François COURTOY, IRES, UCL, Belgium
Optimal fiscal policy: what moments?
- ▶ Pablo AGUILA, IRES, UCL, Belgium
Learning the hard way: expectations and the great depression

PARALLEL SESSION: ECONOMETRICS

Chair: Zengyuan GAO, CORE, UCL, Belgium

- ▶ Gautier ATTANASI, CORE, UCL, Belgium
Covariance matrix estimation in high dimension

- ▶ Mathieu SAUVENIER, CORE, UCL, Belgium
Original definition and theoretical condition for sparsity
- ▶ Luca BARBAGLIA, KU Leuven, Belgium
Multi-class sparse analysis of commodity markets

PARALLEL SESSION: FAMILY ECONOMICS

Chair: David DE LA CROIX, IRES, UCL, Belgium

- ▶ Marie-Sophie VAN DAMME, Université de Namur, Belgium
The target rule and its household size effect to explain excess girl mortality in India
- ▶ Keiti KONDI, IRES, UCL, Belgium
Gender gap policies as a mechanism to lower sex selective abortion
- ▶ Iftikhar ZAINAB, IRES, UCL, Belgium
Effects of fertility norms on trade-off between children quality and quantity

Ph.D. COURSES

CEMS PH.D. COURSE ON TERM STRUCTURE MODELS

On April 2016, the CeSAM organized its 6th regular CEMS Ph.D. courses in finance. The 4-day intensive course taught by Jens CHRISTENSEN took place at the National Bank of Belgium, in Brussels. Jens CHRISTENSEN from the Federal Reserve Bank of San Francisco gave a series of lectures on “**Term Structure Models and the Zero Lower Bound**”.

The course covered the most recent literature on how to model the term structure of bond yields including the challenges posed by the asymmetric behavior of yields near their lower bound. Jens CHRISTENSEN is a leading expert in interest rate term structure modeling and his research has been widely published in leading academic journals such as the *Economic Journal*, the *Journal of Business and Economic Statistics*, the *Journal of Econometrics*, the *Journal of Financial Econometrics*, *Journal of Monetary Economics*, and the *Journal of Money, Credit, and Banking* among others. Jens CHRISTENSEN is a research advisor in the Economic Research Department of the Federal Reserve Bank of San Francisco, which he joined in 2006 after receiving his Ph.D. in finance from Copenhagen Business School. He also hold an MSc in economics from the University of Copenhagen.

OUTLINE OF THE COURSE

- ▶ **Part I: Term Structure Modeling in Normal Times**
In the first part of the course, we first introduce the canonical affine term structure models as outlined by Dai and Singleton (2000) with particular focus on the canonical Gaussian models whose estimation is discussed in Joslin, Singleton, and Zhu (2011) and Hamilton and Wu (2012). Second, we analyze the class of arbitrage-free Nelson-Siegel models introduced in Christensen, Diebold, and Rudebusch (2011) and its extension to allow for stochastic volatility provided in Christensen, Lopez, and Rudebusch (2014a). Third, we will discuss the estimation of these models based on the Kalman filter and issues related to finite-sample bias, see Bauer, Rudebusch, and Wu (2012) and Christensen, Lopez, and Rudebusch (2015b).
- ▶ **Part II: Term Structure Modeling and the Lower Bound Problem**
In the second part of the course, we focus on the problems arising from the fact that the key policy rates of the world’s most prominent central banks have remained at or near their effective lower bounds for many years by now. We will study shadow-rate models and their estimation based on the extended Kalman filter in great detail since this is the leading solution to the lower bound problem. However, we will also analyze the novel stay-at-zero affine models developed by Monfort et al. (2015) and the linear-rational models introduced in Filipovic, Larsson, and Trolle (2014).
- ▶ **Part III: Term Structure Modeling and Applications to Policy Questions**
In the third part of the course, it is demonstrated how term structure models can be used to analyze problems relevant to monetary policy. First, the analysis in Christensen and Rudebusch (2012) and Christensen and Krogstrup (2015) are described. Both studies look into how quantitative easing (QE) affects long-term interest rates. Understanding how QE works is likely to be useful for how to handle the exit from the unconventional policies. Second, we will stress test the Fed’s assets and income following Christensen, Lopez, and Rudebusch (2015a). In this case, the relevant policy questions are: What is the likelihood of large losses to the Fed’s securities portfolio? What is the chance of a halt to the remittances to the U.S. Treasury? This research emphasizes the potential costs of QE and can also be used to stress test commercial banks’ portfolios. Finally, we follow Christensen, Lopez, and Rudebusch (2010) and discuss a joint modeling of nominal and real yields in order to extract the inflation expectations embedded in Treasury yields.

BROWN BAG SEMINAR SERIES

A noteworthy initiative of the junior researchers is the launching in October 2014 of a CORE Brown Bag seminar series, where junior researchers from CORE, UCL, and occasionally from other institutions, present their current work or job market paper and obtain invaluable feedback in an attentive and friendly atmosphere.

Thirteen seminar presentations were held in 2015-2016:

- ▶ October 14, 2015. Bastien CHABÉ-FERRET, IRES, UCL, Belgium
The long-term differential impacts of a universal voucher system
- ▶ October 21, 2015. Anthony PAPAVALIOU, CORE, UCL, Belgium
Capacity remuneration in the Belgian electricity market
- ▶ October 28, 2015. Nicolas SCHOLTÈS, CORE, UCL, Belgium
Confidence crises in an agent-based network model of the interbank market
- ▶ November 18, 2015. Per AGRELL, CORE, UCL, Belgium
Keep your life west on: operator efficiency under non-credible infrastructure regulation
- ▶ November 25, 2015. Jonas TEUSCH, CORE, UCL, Belgium
Yardstick competition, unobserved heterogeneity and merger incentives
- ▶ December 16, 2015. Martin VAN DER LINDEN, Vanderbilt University, Nashville (TN), USA
Jury selection: leveling the playing fields in preemptory challenges
- ▶ February 3, 2016. Michal BURZYNSKI, IRES, UCL, Belgium
Time, space and skills in designing migration policy
- ▶ February 17, 2016. Vahab ROSTAMPOUR, Technische Universiteit Delft, The Netherlands
Stochastic constrained control for large scale complex systems
- ▶ February 24, 2016. Yue ZHANG, University of McMaster, Hamilton (ON), Canada
Bankruptcy and the cost of organized labor: evidence from union elections
- ▶ March 9, 2016. Zhengyuan GAO, CORE, UCL, Belgium
An attempt to understand economic inequality from an abstract (econometric) perspective
- ▶ March 16, 2016. Tarik ROUKNY, Université libre de Bruxelles, Belgium
Interconnectedness as a source of uncertainty in systemic risk
- ▶ April 20, 2016. Paul BELLEFLAMME, CORE, UCL, Belgium
Tax incidence on competing two-sided platforms: lucky break or double jeopardy
- ▶ May 4, 2016. François MANIQUET, CORE, UCL, Belgium
Well-being poverty and labor income taxation: theory and application to Europe and the US

4

SCIENTIFIC EXCHANGES AND COLLABORATIONS

- ▶ RESEARCH VISITORS
- ▶ SCIENTIFIC MEETINGS
- ▶ WEEKLY CORE SEMINARS
- ▶ READING GROUPS
- ▶ PARTICIPATION OF CORE MEMBERS IN MEETINGS ORGANIZATION
- ▶ CORE MEMBERS INVITED TO CONFERENCES AND SEMINARS

SCIENTIFIC EXCHANGES AND COLLABORATIONS

RESEARCH VISITORS

ASSOCIATE FELLOWS

Associate Fellows are scholars working at CORE on a regular weekly basis and are assigned an office for a predefined time period:

- ▶ Daniele CATANZARO, ILSM Mons, UCL, Belgium
- ▶ Koen DECANCO, Universiteit Antwerpen, Belgium
- ▶ Jean-Charles DELVENNE, Ecole Polytechnique de Louvain, UCL, Belgium
- ▶ Claire DUJARDIN, Institut Wallon de l'Évaluation de la Prospective et de la Statistique, Namur, Belgium
- ▶ Axel GAUTIER, Université de Liège, Belgium
- ▶ Leonardo IANIA, ILSM and National Bank of Belgium
- ▶ Pascal MOSSAY, University of Reading, United Kingdom
- ▶ Mikael PETITJEAN, ILSM, UCL, Belgium
- ▶ Joe THARAKAN, Université de Liège, Belgium
- ▶ Dirk VAN DE GAER, Universiteit Gent, Belgium
- ▶ Wouter VERGOTE, Université Saint-Louis, Bruxelles, Belgium
- ▶ Frederic VRINS, ILSM Mons, UCL, Belgium

RESEARCH ASSOCIATES

Research Associates are scholars visiting CORE on a regular yearly basis:

- ▶ Francis BLOCH, Ecole Polytechnique, Paris, France
- ▶ Philippe DESCHAMPS, Université de Fribourg, Switzerland
- ▶ Johanna GOERTZ, University of Guelph, Canada
- ▶ Jean-Jacques HERINGS, Universiteit Maastricht, The Netherlands
- ▶ Jan Johannes, Ruprecht-Karls-Universität Heidelberg, Germany
- ▶ Marie-Louise LEROUX, Université du Québec à Montréal, Canada
- ▶ Dunia Lopez PINTADO, Universidad Pablo de Olavide, Seville, Spain
- ▶ Juan MORENO TERNERO, Universidad Pablo de Olavide, Seville, Spain
- ▶ Dimitri PAOLINI, Università degli Studi di Sassari, Italy
- ▶ Guillaume ROELS, University of California, Los Angeles (CA), USA
- ▶ Ernesto SAN MARTIN, Pontificia Universidad Católica de Chile, Santiago, Chile
- ▶ Jose J. SEMPERE MONERRIS, Universidad de Valencia, Spain
- ▶ Shin-Huei WANG, National Tsing Hua University, Hsinchu City, Taiwan

SHORT-TERM VISITORS

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

- ▶ Andrea ATTAR, Toulouse School of Economics, France
- ▶ Michela BOLDRINI, Università di Roma, La Sapienza, Italy
- ▶ Etienne DE KLERK, Universiteit Tilburg, The Netherlands
- ▶ Esteban GIL, Universidad tecnica Federico Santa Maria, Valparaíso, Chili
- ▶ Véronique GILLE, Institut de Recherche pour le Développement, Paris, France
- ▶ Natalia HRITONENKO, Prairie View A&M University (TX), USA
- ▶ Hanspeter HOSCHLE, KU Leuven Belgium
- ▶ Marion LETURCO, INED, Paris, France
- ▶ Cyrille MEDARD de CHARDON, Université de Luxembourg, Luxembourg
- ▶ Antonio NAIMOLI, Università degli Studi di Salerno, Italy
- ▶ Ion NECOARA, Universitatea Politehnica din Bucuresti, Bucharest, Romania
- ▶ Yukihiro NISHIMURA, Osaka University, Japan
- ▶ Giorgia OGGIONI, Università degli Studi di Bergamo, Italy
- ▶ Maria DEL MAR RACIONERO, Australian National University, Canberra, Australia
- ▶ Giovanni NUNES GARPIGLIA, Universidade Federal do Paraná, Brazil
- ▶ Joana RESENDE, Universidade do Porto, Portugal
- ▶ Vahab ROSTAMPOUR, Technische Universiteit Delft, The Netherlands
- ▶ Margarita SAMARTIN, Universidad Carlos III de Madrid, Spain
- ▶ Levent TUNCEL, University of Waterloo, Canada
- ▶ Filip USHCHEV, National Research University, Higher School of Economics, Moscow, Russia
- ▶ Martin VAN DER LINDEN, Vanderbilt University, Nashville (TN), USA
- ▶ Fabian WALDERS, Bonn Graduate School of Economics, Germany
- ▶ Xi WENG, Peking University, China

- ▶ Roger WHITE, Memorial University of Newfoundland, Saint-Jean, Canada
- ▶ Hande YAMAN, Bilkent University, Turkey
- ▶ Youri YATSENKO, Houston Baptist University (TX), USA

SCIENTIFIC MEETINGS

4TH INTERNATIONAL WORKSHOP ON NATURAL RESOURCES, ENVIRONMENT AND ECONOMIC GROWTH

The Department of Economics (European University at St. Petersburg, Russia) and CORE (Université catholique de Louvain, Belgium) organized a two-day international workshop on October 1–2, 2015, to promote the use of advanced economic theory in the field of natural resources, environment and growth. The workshop was held at the European University at St. Petersburg, Russia. Thierry BRÉCHET was a member of the Scientific Committee of the workshop.

PROGRAM

OCTOBER 1, 2015

- ▶ Cees WITHAGEN, Vrije Universiteit Amsterdam, The Netherlands
The green paradox, a first assessment
- ▶ Giulia VALACCHI, Graduate Institute Geneva, Switzerland
Directed technical change and natural resources: the tragedy of the locals
- ▶ Philippe MAHENC, Université de Montpellier, France
Honest versus misleading certification
- ▶ Stefano BOSI, Université d'Evry, France
Limit cycles under a negative effect of pollution on consumption demand: the role of an environmental Kuznets curve
- ▶ Stefan BEHRINGER, Universität Duisburg-Essen, Germany
Exploitation of renewable resources and Cournotian dynamics
- ▶ Anastasios XEPAPADEAS, University of Economics and Business, Athens, Greece
Spatial resource management under pollution externalities
- ▶ Natali HRITONENKO, Prairie View A&M University (TX), USA
Sustainable forest management under climate change and natural disturbances
- ▶ Maria CHISTYAKOVA, Université Montpellier, France
Free-riding on environmental taxation
- ▶ Kirill BORISSOV, European University at St. Petersburg, Russia
Trade liberalization and human capital accumulation: resource curse revisited
- ▶ Armon REZAI, Institute for Ecological Economics, Vienna, Austria
Intergenerational inequality aversion, growth and the role of damages: Occam's rule for the global tax
- ▶ Nigar HASHIMZADE, Durham University Business School, United Kingdom
Corporate environmental contributions: can they sustain the public interest defence?

OCTOBER 2, 2015

- ▶ Yuri YATSENKO, Houston Baptist University (TX), USA
Models and games with adaptation and mitigation
- ▶ Frederick VAN DER PLOEG, Oxford University, United Kingdom
Second-best carbon taxation in the global economy: the green paradox and carbon leakage revisited
- ▶ Mikhail PAKHNIN, European University at St. Petersburg, Russia
On discounting and voting in a simple growth model with natural resources
- ▶ Baris VARDAR, Université Paris 1 Panthéon-Sorbonne, France
Optimal mixture of adaptation and mitigation policies when the polluting resources are exhaustible
- ▶ Susanne SORETZ, Ernst-Moritz-Arndt-Universität Greifswald, Germany
Green attitude and economic growth
- ▶ Ingmar SCHUMACHER, IPAG Business School, Paris, France
What is the role of insurance for addressing climate-driven extreme events?
- ▶ Dimitry V. KOVALEVSKY, Nansen International Environmental and Remote Sensing Centre, St. Petersburg, Russia
Modelling the coupled climate-economic dynamics within time-to-build approach
- ▶ Sylvain HOURS, LAMETA, Université de Montpellier I, France
Does rivalry in R&D foster harmful innovations?
- ▶ Louis-Gaëtan GIRAUDET, Centre International de Recherche sur l'Environnement et le Développement, Paris, France
Global warming as a non-uniform public bad: a differential game approach

4TH BAAE RESEARCH WORKSHOP ON ENERGY ECONOMICS

The Benelux Association for Energy Economics (BAEE) organized its fourth Research Workshop on Energy Economics on Friday October 30th, 2015. The workshop took place at CORE. It offered Master and Ph.D. students as well as experienced researchers from the Benelux the opportunity to present a paper on energy economics and to interact with colleagues. The workshop covered all topics related to energy economics, from environmental policy and reliability of energy networks to regulation and competition issues. Papers were accepted in economic theory, empirical work and economic policy, as well as interdisciplinary work such as techno-economic energy models or legal-economic analysis of energy policy. Master and Ph.D. students were especially encouraged to submit their work. A scientific committee reviewed the papers.

The event was supported by the ENGIE Chair in Energy Economics and Energy Risk Management.

PROGRAM

PARALLEL SESSION 1

TRACK A

- ▶ Jonas TEUSCH, CORE, UCL, and Université de Liège, Belgium
Yardstick competition, unobserved heterogeneity, and merger incentives
- ▶ Geert VAN MOER, Universiteit Antwerp, Belgium
Mergers and collusion with horizontal subcontracting

TRACK B

- ▶ Ignacio ARAVENA, CORE, UCL, Belgium
Renewable energy integration in the Central Western European system: models and analysis
- ▶ Kenneth VAN DEN BERG, KU Leuven, Belgium
The flow-based market coupling in Central Western Europe: concepts and definitions

TRACK C

- ▶ Agustin PEZEZ-BARAHONA, INRA and Ecole Polytechnique, Paris, France
Energy and physical capital: a case of non-classical behaviour
- ▶ Ingmar SCHUMACHER, IPAG, Paris, France
The aggregation dilemma in climate change policy evaluation

PLENARY TALK

- ▶ Mirjam GROOTE SCHAARSBERG, TNO Strategic Business Analysis, Rotterdam, The Netherlands
Assessing the effects of policy measures in liberalized energy markets

PARALLEL SESSION 2

TRACK A

- ▶ Hanspeter HÖSCHE, KU Leuven, Belgium
Joint impact of price responsive demand and different capacity remuneration mechanisms on generation adequacy
- ▶ Pradyumna BHAGWAT, Technische Universiteit Delft, The Netherlands
Cross-border effects of capacity mechanisms

TRACK B

- ▶ Axel GAUTIER, CORE, UCL, and HEC, Université de Liège, Belgium
An economic theory of prosumers
- ▶ Arnaud LATIERS, CORE, UCL, Belgium
Demand response perspectives for Belgium

TRACK C

- ▶ Julien JACQMIN, Université de Liège, Belgium
The role of market-oriented institutions in the development of renewable energies
- ▶ Kaveri IYCHETTIRA, Technische Universiteit Delft, The Netherlands
Evaluation of price-based renewable energy support schemes in interconnected Europe using agent-based modelling

PARALLEL SESSION 3

TRACK A

- ▶ João GORENSTEIN DEDECCA, Technische Universiteit Delft, The Netherlands
A review of the North seas offshore grid modelling: current and future research
- ▶ Arne VAN STIPHOUT, KU LEUVEN, BELGIUM
The Impact of operating reserves on investment planning of renewable power systems

TRACK B

- ▶ Mehdi MADANI, ILSM, UCL, Belgium
Revisiting minimum profit conditions in uniform price day-ahead electricity auctions
- ▶ Rens PHILIPSEN, Technische Universiteit Delft, The Netherlands
Designing markets for congestion management on distribution grids

TRACK C

- ▶ Marten OVAERE, CES, KU Leuven, Belgium
Reliability, congestion and investment: inefficiencies in electricity transmission reliability management
- ▶ Mehdi BOUGNOUCH, HEC, Université de Liège, Belgium
Photovoltaic panel development in Wallonia

WORKSHOP ON “THE BELGIAN ENERGY MARKET PERSPECTIVES”

On December 4, 2015, CORE, Université catholique de Louvain and HEC Management School, Université de Liège, organized an open workshop on the Belgian energy market transition, addressing critical dimensions for the Belgian situation. All papers were just recently published in a special issue of *Reflets et Perspectives de la Vie Economique*. Among the topics: price development for consumers and industry, resistance to windpower, the true cost of green power in Wallonia, vote-buying through directed support for renewables, the regulation and non-regulation of electricity distribution in Belgium.

The conference was supported by an FNRS FRFC grant entitled “Beyond Incentive Regulation” and organized by Per AGRELL (CORE, UCL, Belgium) and Axel GAUTIER (CORE, UCL and HEC, Liège, Belgium).

PROGRAM

SESSION 1: LONG TERM ENERGY PERSPECTIVES

- ▶ Danielle DEVOGELAER, Bureau Fédéral du Plan, Bruxelles, Belgium
Scenario outlook and adequacy forecast in bipolar power systems: the impact of a climate target
- ▶ Dominique GUSBIN, Bureau Fédéral du Plan, Bruxelles, Belgium
The impact of EU climate/energy policies on Belgium's energy dependence up to 2050

SESSION 2: CHANGING REGULATIONS

- ▶ Jonas TEUSCH, CORE, UCL and Université de Liège, Belgium
Making the Belgian distribution system fit for the energy transition. The case for yardstick competition
- ▶ Jan BOUCKAERT, Universiteit Antwerpen, Belgium
Le (R)ROI est mort! Vive le (R)ROI!": Regulation of electricity distribution in Belgium

SESSION 3: SUPPORT TO RENEWABLE ENERGIES I: FINANCIAL SUPPORT

- ▶ Axel GAUTIER, CORE, UCL and HEC, Université de Liège, Belgium
Le coût de l'énergie verte en Wallonie: 2003-2012
- ▶ Vincent DAXBEB, Université libre de Bruxelles, Belgium
La taxation directe effective de l'énergie en Belgique: Pourquoi faire simple si on peut faire compliqué pour taxer peu?

SESSION 4: SUPPORT TO RENEWABLE ENERGIES II: CITIZEN AND POLITICAL SUPPORT

- ▶ Lotte OVAERE, KU Leuven, Belgium
Buying votes with discriminative support for renewable energy technologies
- ▶ Thomas BAUWENS, Université de Liège, Belgium
Propriété coopérative et acceptabilité sociale de l'éolien terrestre

19TH CEMS SAINT-LOUIS WORKSHOP ON “LOGISTICS AND SUPPLY CHAIN MANAGEMENT”

The 19th CEMS workshop on Logistics and Supply Chain Management took place at Université Saint-Louis, Bruxelles on December 11, 2015. This workshop has now been in existence for 10 years and its purpose is to present ongoing research from Ph.D. students and postdocs in logistics and supply chain management. The objective is to present to fellow researchers the state of the art and current problems being tackled. As the audience is formed by other researchers and professors, the content is mostly composed of presentations and high calibre but relaxed discussions.

PROGRAM

- ▶ Stef LEMMENS, KU Leuven, Belgium
Design of a responsive vaccine supply chain under supply and demand uncertainty
- ▶ Bipan ZOU, Huazhong University of Science and Technology, Hubei Sheng, China
Modeling and design insights for compact automated parking systems
- ▶ José Miguel QUESADA PEREZ, ILSM, UCL, Belgium
Dual hub air express network design
- ▶ Jelle DE VRIES, Vrije Universiteit Amsterdam, The Netherlands
Which drivers should transport your cargo? Empirical evidence from long-haul transport
- ▶ Jelmer VAN DER GAAST, Rotterdam School of Management, Erasmus Universiteit Rotterdam, The Netherlands
Analysis of a polling system for milkrun order picking
- ▶ Gilles MERCKX, Université de Namur, Belgium
Buyer-supplier relationship and resiliency to supply disruptions: an empirical study

ORBEL30 CONFERENCE

See page 61 for more information

CORE NOBEL TALK: LARS PETER HANSEN, 2013 NOBEL PRIZE LAUREATE IN ECONOMICS

See page 66 for more information

1ST BELGO-JAPANESE PUBLIC FINANCE WORKSHOP

See page 66 for more information

2ND WORKSHOP ON INDUSTRIAL ORGANIZATION IN THE DIGITAL ECONOMY

See page 67 for more information

DEFUSE THE ENERGY FUTURE (AND DISCUSS TOMORROW’S ELECTRICITY SYSTEM)

See page 68 for more information

BELGIAN FINANCIAL RESEARCH FORUM

See page 68 for more information

BIG DATA IN THE PLATFORM ECONOMY

This conference was co-organized by CRIDES and CORE (UCL) and CIPI (Université Saint-Louis, Bruxelles) on May 13, 2016. The conference aimed to present the potentialities and tools of big data analytics, to explore various ways for companies and organizations to exploit big data, and to discuss whether the legal framework is fit for regulating the data-related issues. The program was divided into four sessions focusing on big data for, respectively, engineers and data scientists, economists and managers, competition lawyers, and regulators.

PROGRAM

PLENARY SESSION

- ▶ Paul BELLEFLAMME, CORE, UCL, Belgium and Alain STROWEL, CRIDES, UCL and CIPI, Université Saint-Louis, Bruxelles, Belgium
Big data in the platform economy: an introduction to the issues

SESSION 1: BIG DATA, ENGINEERS AND ANALYSTS - WHAT IS BIG DATA? WHAT ARE THE DATA ANALYTIC TOOLS? WHAT ARE THE RISKS?

- ▶ Gautier KRINGS, EPL, UCL, Belgium
Multiple facets of big data: from technical challenges to practical applications
- ▶ Rudy VAN HOE, Microsoft Corporation, Belgium
Microsoft big data solutions
- ▶ Julien HENDRICKX, EPL, UCL, Belgium
Data analytics and the re-identification and inference risks

SESSION 2: BIG DATA, ECONOMISTS AND MANAGERS - HOW, AND TO WHAT PURPOSE, DO ORGANIZATIONS EXPLOIT BIG DATA

- ▶ Pierre-Nicolas SCHWAB, Université libre de bruxelles, Belgium
Big data and marketing: trends and challenges for the future
- ▶ Wouter VERGOTE, CORE, UCL, and Université Saint-Louis, Bruxelles, Belgium
Big data, targeting, competition and privacy
- ▶ Adeline DECUYPER, CORE, UCL, Belgium
On the use of big data for public good purposes: challenges and opportunities

SESSION 3: BIG DATA AND COMPETITION LAWYERS - WHAT ROLE FOR PERSONAL DATA AND BIG DATA IN THE REGULATION BY COMPETITION

- ▶ Cyril RITTER, DG Competition, European Commission, Bruxelles, Belgium
The interaction of big data, personal data and competition policy
- ▶ Inge GRAEF, KU Leuven, Belgium
Data aggregation in the competition law analysis
- ▶ Alexander DE STREEL, Université de Namur, Belgium
Big data: traditional and new issues for competition policy

SESSION 4: BIG DATA AND REGULATORS - IS THERE A NEED TO ADJUST INTELLECTUAL PROPERTY AND DATA PROTECTION RULES IN THE ERA OF BIG DATA?

- ▶ Benoît MICHAUX, Université de Namur, Belgium
Copyright and database scope and exceptions
- ▶ Christian D'UNHA, European Commission, Bruxelles, Belgium
Data protection and data portability

CONFERENCE ON “ARE EMOTIONS RATIONAL?”

See page 70 for more information.

DEBATE ON SOCIAL JUSTICE: FAIR ALLOCATION VERSUS REAL FREEDOM FOR ALL

See page 71 for more information.

37TH WIC SYMPOSIUM ON INFORMATION THEORY IN THE BENELUX

See page 71 for the full program.

BRIDGING GAPS: CORE@50 CONFERENCE

See page 55 for more information.

CORE LECTURE SERIES: ALFRED GALICHON, “OPTIMAL TRANSPORT AND ECONOMIC APPLICATIONS: MODELLING AND ESTIMATION”

See page 73 for more information.

CORE NOBEL TALK: CHRISTOFER A. SIMS, 2011 NOBEL PRIZE LAUREATE IN ECONOMICS

See page 73 for more information.

STOCHMOD 2016

See on page 74 for more information.

SOFIE FINANCIAL ECONOMETRICS SUMMER SCHOOL

See page 28 for more information.

WEEKLY CORE SEMINARS

Econometrics Seminars

- ▶ September 18, 2015. Jean-Paul RENNE, HEC Lausanne, Switzerland
Staying at zero with affine processes: an application to term structure modelling
(Joint with LSM)
- ▶ September 25, 2015. John QUAH, Oxford University, United Kingdom
A revealed preference theory of monotone choice and strategic complementarity
(Joint with Operations Research seminar)
- ▶ October 2, 2015. Olivier LINTON, University of Cambridge, United Kingdom
Semiparametric dynamic portfolio chance with multiple conditioning variables
(Joint with LSM)
- ▶ October 9, 2015. Marinho BERTANHA, CORE, UCL, Belgium and Stanford University (CA), USA
Essays on the econometrics of causal inference, resampling and spatial dependence
- ▶ October 23, 2015. Laurens CHERCHYE, KU Leuven, Belgium
Household consumption when the marriage is stable
- ▶ November 6, 2015. Richard J. SMITH, Cambridge University, United Kingdom
Additional conditional moment tests
- ▶ November 12, 2015. Arthur LEWBEL, Boston College (MA), USA
Unobserved preference heterogeneity in demand using generalized random coefficients
- ▶ December 4, 2015. Eric GHYSELS, University of North Carolina at Chapel Hill (NC), USA
Is industrial production still the dominant factor for the US economy?
- ▶ December 18, 2015. Guillaume CARLIER, CEREMADE, Université Paris Dauphine, France
When optimal transport meets economics and econometrics (CORE-WIDE Seminar)
- ▶ January 14, 2016. Peter TYMMS, Durham University, United Kingdom
The long term impact of successful schooling
- ▶ February 10, 2016. Lars Peter HANSEN, University of Chicago (IL), USA
Confronting uncertainty
(CORE-WIDE Seminar-Joint with CeSAM)
- ▶ February 12, 2016. Martin M. ANDREASEN, Aarhus Universitet, Denmark
Bond market asymmetries across recessions and expansions: new evidence on term premia
(Joint with CeSAM)
- ▶ February 19, 2016. Gautham TRIPATHI, Université du Luxembourg, Luxembourg
Integrated likelihood based inference for nonlinear panel data models with unobserved effects
- ▶ February 26, 2016. Albert MENKVELD, Vrije Universiteit Amsterdam, The Netherlands
A network map of information percolation
- ▶ March 4, 2016. Abdelaati DAOUIA, Toulouse School of Economics, France
A random locational M-estimation problem based on the L2-Wasserstein distance
- ▶ March 11, 2016. Eric GAUTIER, Toulouse School of Economics, France
Inference on social effects when the network is sparse and unknown
(Joint with ISBA)
- ▶ March 18, 2016. Toru KITAGAWA, University College London, United Kingdom
Who should be treated? Empirical welfare maximization methods for treatment choice
- ▶ April 29, 2016. Marc HENRY, Pennsylvania State University (PA), USA
Single market nonparametric identification of multi-attribute hedonic equilibrium models
- ▶ May 10, 2016. Daniel KUHN, Ecole Polytechnique Fédérale de Lausanne, Switzerland
Data-driven distributionally robust optimization using the Wasserstein metric
(Joint with Operations Research Seminar)
- ▶ May 13, 2016. Valentin ZELENYUK, University of Queensland, Australia
Nonparametric dynamic discrete choice models for time series data

Economics Seminars

- ▶ September 21, 2015. Alex SOLIS, Uppsala Universitet, Sweden
Credit access and college enrollment
- ▶ October 1, 2015. Giammario IMPULLITTI, Nottingham University, United Kingdom
Globalization and wage polarization
(Joint with IRES)
- ▶ October 5, 2015. Xi WENG, Peking University, China
A theory of organizational dynamics: international politics and efficiency
- ▶ October 12, 2015. Almut BALLEER, Stockholms Universitet, Sweden
Financial market imperfections and the pricing decision of firms: theory and evidence
- ▶ October 19, 2015. Andreas PEICHL, Centre for European Economic Research (ZEW), Mannheim, Germany
Partnership patterns and long-term trends in US family earnings inequality
- ▶ October 26, 2015. Marco BECHT, ECARES, Université libre de Bruxelles, Belgium
Does mandatory shareholder voting prevent bad acquisitions?
(ECORES Workshop)
- ▶ October 26, 2015. Jan DE LOECKER, KU Leuven, Belgium
Estimating market power. Evidence from the US beer industry
(ECORES Workshop)
- ▶ October 26, 2015. Anthony PAPAVALIOU, CORE, UCL, Belgium
Study on the remuneration of capacity in conditions of scarcity in Belgium
(ECORES Workshop)
- ▶ November 9, 2015. Sang Yoon LEE, Universität Mannheim, Germany and Toulouse School of Economics, France
Managing a polarized structural change
- ▶ November 16, 2015. Andrea ATTAR, Toulouse School of Economics, France and Università di Roma "Tor Vergata", Italy
Multiple lenders, strategic default and covenants
- ▶ November 23, 2015. Ingvild ALMAS, Norwegian School of Economics, Bergen, Norway
Are Americans more meritocratic and efficiency seeking than Scandinavians?
- ▶ November 30, 2015. Matthew ELLMAN, Institut d'Anàlisi Econòmica (IAE-CSIC) and Barcelona GSE, Spain
Optimal crowdfunding design
- ▶ December 7, 2015. Bas VAN DER KLAUW, Vrije Universiteit Amsterdam, The Netherlands
Job search periods for welfare applicants: : evidence from a randomized experiment
- ▶ December 14, 2015. Alexandre DE CORNIÈRE, University of Oxford, United Kingdom
A model of biased intermediation
- ▶ December 18, 2015. Guillaume CARLIER, Université Paris Dauphine, France
When optimal transport meets economics and econometrics
(CORE-Wide Seminar joint with LSM)
- ▶ January 25, 2016. Tobias REGNER, Friedrich-Schiller Universität Jena, Germany
Moral wiggle room and reciprocity
- ▶ February 1, 2016. Yassine LEFOUILLI, Toulouse School of Economics, France
Cross-licensing and competition
- ▶ February 8, 2016. Michela Maria TINCANI, University College London, United Kingdom
Heterogeneous peer effects and rank concerns: theory and evidence
- ▶ February 15, 2016. Helen WEEDS, University of Essex, United Kingdom
Does freedom of information deter information acquisition?
- ▶ February 22, 2016. Pamela CAMPA, University of Calgary, Canada
Politico-economic regimes and attitudes: female workers under state-socialism
- ▶ February 29, 2016. Fabrizio GERMANO, Universitat Pompeu Fabra, Barcelona, Spain
On the macroscopic origins on economic inequality: an evolutionary perspective
- ▶ March 7, 2016. Stéphane GAUTHIER, Paris School of Economics, France
Consumption taxes and taste heterogeneity
- ▶ March 14, 2016. Yonatan AUMANN, Bar-Ilan University, Tel Aviv, Israël
A conceptual foundation for the theory of risk aversion
- ▶ March 21, 2016. Cédric ARGENTON, Universiteit Tilburg, The Netherlands
Colluding on excluding
- ▶ April 11, 2016. Cecilia VERGARI, Università di Bologna, Italy
Hedonic and environmental quality: a hybrid model of product differentiation
- ▶ April 18, 2016. Jan BOUCKAERT, Universiteit Antwerpen, Belgium
Mergers and horizontal subcontracting
- ▶ May 2, 2016. Wouter VERGOTE, CORE, UCL and Université Saint-Louis, Bruxelles, Belgium
Price competition with imperfect targeting
- ▶ May 9, 2016. Jose SEMPERE MONERRIS, CORE, UCL, Belgium and Universidad de Valencia, Spain
Relative R&D intensity for exporters in an industry with spillovers

4 Scientific Exchanges and Collaborations

- ▶ May 17, 2016. Arno RIEDL, Universiteit Maastricht, The Netherlands
Market competition and efficient cooperation
- ▶ June 6, 2016. Claudia NERI, University of St Gallen, United Kingdom
Freedom, power, and interference
- ▶ June 13, 2016. Jon EGUIA, Michigan State University, East Lansing (MI), USA
Discrimination and assimilation

OPERATIONS RESEARCH SEMINARS

- ▶ September 22, 2015. Bruno SCHERRER, Université de Lorraine, Nancy, France and Thomas DUEHOLM HANSEN, Aarhus Universitet, Denmark
On the use of non-stationary policies for infinite-horizon Markov decision processes. An improved version of the random-facet pivoting rule for the simplex algorithm
(Joint with CESAME Seminars in Systems and Control)
- ▶ September 25, 2015. John QUAH, Oxford University, United Kingdom
A revealed preference theory of monotone choice and strategic complementarity
(Joint with Econometrics Seminar)
- ▶ October 6, 2015. Jugal GARG, Max-Planck-Institut für Informatik, Saarbrücken, Germany
Complementary pivot algorithms for market equilibria
- ▶ October 13, 2015. Levent TUNCEL, University of Waterloo, Canada
Primal-dual symmetric interior-point methods for convex optimization
- ▶ October 27, 2015. Filipe BRANDÃO, Universidade do Porto, Portugal
Bin packing and related problems: general arc-flow formulation with graph compression
- ▶ October 27, 2015. Peter RICHTARIK, University of Edinburgh, United Kingdom
Randomized iterative methods for linear systems
(Joint with CESAME Seminars in Systems and Control)
- ▶ November 10, 2015. Tobias JACOBS, NEC Europe Ltd, London, United Kingdom
An analysis scheme for one scheduling algorithm under arbitrary cost functions
- ▶ November 17, 2015. Sjur Didrik FLÅM, Universitetet i Bergen, Norway
Emergence of market clearing prices
(Joint with Economics Seminar)
- ▶ November 24, 2015. Robert BOUTE, Vlerick Business School, KU Leuven, Belgium
Collaborative shipping under different cost-sharing agreements
- ▶ December 1, 2015. Hassène AISSI, Université Paris-Dauphine, France
Robust capacity expansion of a network under demand uncertainty: a bi-objective approach
- ▶ December 8, 2015. Sven DE VRIES, Universität Trier, Germany
An ascending Vickrey auction for selling bases of a matroid
- ▶ December 15, 2015. Aadhaar CHATURVEDI, Université de Namur, Belgium
Split-award auctions: insights from theory and experiments
- ▶ December 18, 2015. Guillaume CALIER, Université Paris-Dauphine, France
When optimal transport meets economics and econometrics
CORE-Wide Seminar
- ▶ February 16, 2016. Geovani Nunes GRAPIGLIA, Federal University of Paraná, Curitiba, Brazil
Nonlinear stepsize control algorithms: complexity bounds for first and second order optimality
- ▶ February 23, 2016. Panos PATRINOS, KU LEUVEN
A forward-backward quasi-Newton algorithm for minimizing the sum of two nonconvex functions
- ▶ March 1, 2016. Luciano PORRETA, Université libre de Bruxelles, Belgium
A branch-and-price algorithm for the minimum cost clique cover problem in max-point tolerance graphs
- ▶ March 22, 2016. Christoph HELMBERG, Technische Universität Chemnitz, Germany
Bundle methods - A flexible tool in convex relaxation and optimization
- ▶ April 19, 2016. Martin JAGGI, ETH Zürich, Switzerland
Primal-dual rates and certificates
- ▶ April 26, 2016. Claudia D'AMBROSIO, Laboratoire d'Informatique de l'École polytechnique, Paris, France
Smart grids observability using bilevel programming
- ▶ May 3, 2016. Sonja WOGGIN, Universidad Pontificia Comillas, Madrid, Spain
Open loop approximation of closed loop capacity equilibria: an application to generation expansion planning in deregulated electricity markets

4 Scientific Exchanges and Collaborations

- ▶ May 10, 2016. Daniel KUHN, École Polytechnique Fédérale de Lausanne, Switzerland
Data-driven distributionally robust optimization using the Wasserstein metric
(Joint with Econometrics Seminar)
- ▶ May 11, 2016. Hande YAMAN, Bilkent University, Ankara, Turkey
Network design with relays
- ▶ May 31, 2016. Etienne DE KLERK, Universiteit Tilburg, The Netherlands
Improved convergence rates for Lasserre-type hierarchies of upper bounds for box-constrained polynomial optimization
- ▶ June 17, 2016. Boris MORDUKHOVICH, Wayne State University, Detroit (MI), USA
Subdifferentiation of Gelfand integral with applications to stochastic dynamic programming

WELFARE ECONOMIC SEMINARS

- ▶ September 21, 2015. Aditi DIMRI, CORE, UCL, Belgium
Household composition and women empowerment: living with in-laws in India
- ▶ September 28, 2015. François MANIQUET, CORE, UCL, Belgium
Partial responsibility for one's preferences
- ▶ October 12, 2015. Vladimir SHIKHMAN, CORE, UCL, Belgium
Computation of Fisher-Gale equilibrium by auction
- ▶ November 16, 2015. François MANIQUET, CORE, UCL, Belgium
Well-being, poverty and labor income taxation: theory and application to Europe and the US
- ▶ November 23, 2015. Mate FODOR, Université libre de Bruxelles, Belgium
Education, task allocation and ICT capital
- ▶ November 30, 2015. Bart CAPEAU and André DECOSTER, KU Leuven, Belgium
Getting tired of work, or re-tiring absence of decent job opportunities? Some insights for an estimated random utility/random opportunity model on Belgian data
- ▶ December 7, 2015. Justina KLIMAVICIUTE, Université de Liège, Belgium
Long term care social insurance. How to avoid big losses?
- ▶ December 14, 2015. Tom TRUYTS, CORE, UCL and Université Saint-Louis, Bruxelles, Belgium
Noise-proofness in signaling games
- ▶ February 8, 2016. Véronique GILLE, Institut de Recherche pour le Développement, Paris, France
Paper Presentation: Sex-selective abortions, fertility, and birth spacing (by C. Portner)
- ▶ March 21, 2016. Emel OZTURK, University of Glasgow, United Kingdom
Measurement of equality of opportunity: a normative approach
- ▶ April 11, 2016. Charlotte BARTELS, Freie Universität Berlin, Germany
Redistribution and insurance in welfare states around the world
- ▶ April 18, 2016. Keiti KONDI, IRES, UCL, Belgium
Gender gap policies as a mechanism to lower sex selective abortion
- ▶ May 2, 2016. Benoit DECERF, CORE, UCL, Belgium
*Paper Presentation: A theory of optimal inheritance taxation (by Piketty & Saez, *Econometrica* 2013)*
- ▶ May 30, 2016. Lancelot HENRY DE FRAHAN, University of Chicago (IL), USA
Poverty reduction, responsibility and optimal income taxes
- ▶ June 6, 2016. Jean HINDRIKS, CORE, UCL, Belgium
Where is the school of opportunity?
- ▶ June 13, 2016. Davide PIETROBON, IDEA, Universitat Autònoma Barcelona, Spain and Università Ca' Foscari of Venice, Italy
Better not to know? Uncertainty and team formation

READING GROUPS

BRIDGING GAPS BETWEEN OR AND ECONOMICS

See page 88 for more information.

BROWN BAG SEMINARS

See page 41 for more information.

PARTICIPATION OF CORE MEMBERS IN MEETINGS ORGANIZATION

- ▶ **UECE Lisbon Meetings 2015 “Game Theory and Applications”**, Lisboa School of Economics and Management, Universidade de Lisboa, Portugal, November 2015
CORE members of the Program Committee: Ana MAULEON and Vincent VANNETELBOSCH
- ▶ **Doctoral Course “Nonlinear Valuation and XVA under Credit Risk, Collateral Margins and Funding Costs”** by D. Brigo, MATH, UCL, Belgium, November 2015
CORE-organizers: Leonardo IANIA and Frédéric VRINS
- ▶ **Nederlandse Economen Dag**, De Nederlandsche Bank, Amsterdam, The Netherlands, November 2015
CORE member of the Committee of Recommendation: Jean-Jacques HERINGS
- ▶ **10th Workshop on Economic Design**, CEREC, Université Saint-Louis, Bruxelles, Belgium, December 2015
CORE organizers: Ana MAULEON and Vincent VANNETELBOSCH
- ▶ **8th International Conference of the ERCIM WG on Computational and Methodological Statistics (CMStatistics 2015)**, University of London, United Kingdom, December 2015
CORE member of the Scientific Program Committee: Jan JOHANNES
- ▶ **8th MOMA Group Meeting**, Universidad Pablo de Olavide, Sevilla, Spain, January 2016
CORE-organizer: Juan MORENO TERNERO
- ▶ **Workshop on “The Design and Evaluation of Long-Term Care Policy”**, CIRANO, Montréal, Canada, April 2016
CORE-organizer: Marie-Louise LEROUX
- ▶ **33rd International Conference of the French Finance Association (AFFI) 2016**, HEC Management School, Université de Liège, Belgium, May 2016
CORE member of the Organizing Committee: Mikael PETITJEAN
- ▶ **Workshop on “Firms in Developing Countries: Which Challenges in a Globalized World”**, UCL, Belgium, May 2016
CORE organizer: Florian MAYNERIS
- ▶ **13th International Conference on the European Energy Market (EEM16)**, Universidade do Porto, Portugal, June 2016
CORE member of the Scientific Committee: Per AGRELL
- ▶ **21st Coalition Theory Network Workshop**, NES Center for the Study of Diversity and Social Interactions, Moscow, Russia, May 2016
CORE member of the Program Committee: Vincent VANNETELBOSCH
- ▶ **Doctoral Workshop 2016**, Economics School of Louvain, UCL, Belgium, June 2016
CORE organizer: Valeria FORLIN
- ▶ **7th Workshop on Institutions, Individual Behavior and Economic Outcomes**, CRENOS, Alghero, Italy, June 2016
CORE organizer: Dimitri PAOLINI
- ▶ **SCOR Workshop on Long Term Care**, SCOR, Paris, France, June 2016
CORE-organizer: Pierre PESTIEAU
- ▶ **2016 Meeting of the Association for Public Economic Theory (PET 16)**, EPGE Brazilian School of Economics and Finance, Rio de Janeiro, Brazil, July 2016
CORE members of the Organizing Committee: Ana MAULEON, Pierre PESTIEAU and Vincent VANNETELBOSCH
- ▶ **5th World Congress of the Game Theory Society**, Universiteit Maastricht, The Netherlands, July 2016
CORE member of the Program Committee: Jean-Jacques HERINGS

CORE MEMBERS INVITED TO CONFERENCES AND SEMINARS

Arnaud ADAM

- ▶ *Detecting communities in the metropolitan area of Brussels*
19th European Colloquium on Theoretical and Quantitative Geography, Mediterranean Agronomic Institute of Bari, Italy, September 2015
6th Belgian Geography Days, Université libre de Bruxelles, Belgium, November 2015
- ▶ *The Brunet project: detecting urban structures with a new look*
5MC & WGs meetings, “Ion Mincu” University of Architecture and Urbanism, Bucharest, Romania
- ▶ *Revisiting the urban structure of Brussels by means of mobile phone data and community detection*
Mobile Tartu 2016, University of Tartu, Estonia, June 2016

Per AGRELL

- ▶ *Regulation of network mergers or mergers for network regulation*
Competition and Regulation in Network Industries (CRNI 2015), Technische Universiteit Delft, The Netherlands, November 2015

4 Scientific Exchanges and Collaborations

- ▶ *Carrier market coordination through cooperative governance structures*
19th International Working Seminar on Production Economics, Innsbruck, Austria, February 2016
- ▶ *The cost of inadequate yardstick models*
9th North American Productivity Workshop (NAPW 2016), Carleton University, Quebec, Canada, June 2016
- ▶ *An applicaiton to the Far Eeast - USA/Europe trade flows*
28th NOFOMA Conference, University of Turku, Finland, June 2016

Ignacio Andrés ARAVENA SOLIS

- ▶ *Renewable energy integration in the Central Western European System*
SIAM Conference on Uncertainty Quantification (UQ16), Université de Lausanne, Switzerland, April 2016

LUC BAUWENS

- ▶ *Forecasting comparison of long term component models for realized covariance matrices*
Statistische Woche, Universität Hamburg, Germany, September 2015
- ▶ *Autoregressive moving average infinite hidden Markov-switching models*
Workshop on "Advances in Time Series and Forecasting", Essec Business School, Paris, France, November 2015
Wirtschaftsuniversität Wien, Austria, June 2016

Paul BELLEFLAMME

- ▶ *Innovation incentives for competing two-sided platforms*
DICE, Universität Düsseldorf, Germany, January 2016
9th IDEI-TSE-IASST Conference on The Economics of Intellectual Property, Software and the Internet, Toulouse, France, January 2016
- ▶ *Monopoly price discrimination and privacy: The hidden cost of hiding*
6th Euro-African Conference in Finance and Economics (CEAFE), Aix-Marseille School of Economics, France, April 2016
- ▶ *Tax incidence on competing two-sided platforms: Lucky break or double jeopardy*
7th Workshop on Institutions, Individual Behavior and Economics Outcomes, CRENOS, Alghero, Italy, June 2016
- ▶ *Pricing information goods in the digital age*
SERCI Annual Congress 2016, Loyola University, Chicago School of Law (IL), USA, June 2016

Marinho BERTANHA

- ▶ *External validity in fuzzy regression discontinuity designs*
37th Annual APPAM Fall Research Conference, Miami (FL), USA, November 2015
- ▶ *Frontiers in regression discontinuity designs*
The Econometric Society 2016 North American Winter Meeting, San Francisco (CA), USA, January 2016

Manuela BRAIONE

- ▶ *A dynamic component for forecasting high dimensional realized covariance matrices*
IAEE 2016 Annual Conference, Università degli Studi di Milano, Italy, June 2016
Conference on Financial Econometrics & Empirical Asset Pricing, Lancaster University, United Kingdom, July 2016

Claude D'ASPROMONT

- ▶ *Revealed preference analysis of semi-cooperative household behavior*
Conference in Honor of Hervé Moulin, Aix-Marseille School of Economics, France, September 2015
- ▶ *Full surplus sharing with or without free beliefs*
Journée des Anciens Théoriciens, Laboratoire d'Econométrie, Ecole Polytechnique, Paris, France, October 2015
Bhaskar Dutta 65th Birthday Conference, Indian Statistical Institute, Delhi, India, December 2015
66th Euro-African Conference in Finance and Economics (CEAFE), Aix-Marseille School of Economics, France, April 2016
Advances in the Economics of Organization and the New Economy, Conference in Honor of Jacques Crémer, Toulouse School of Economics, France, June 2016
- ▶ *Oligopolistic vs. monopolistic competition: do intersectoral effects matter?*
Workshop in Honor of Didier Laussel, Aix-Marseille School of Economics, France, March 2016
- ▶ *Pareto equity and separability axioms: some difficulties in social welfare evaluation under uncertainty*
13th Meeting of the Society for Social Choice and Welfare, Lunds Universitet, Sweden, June-July 2016

4 Scientific Exchanges and Collaborations

Julio DAVILA

- ▶ *Public domain*
Universiteit Antwerpen, Belgium, December 2015
European University Institute, Firenze, Italy, February 2016

Benoit DECERF

- ▶ *A general criterion to compare mechanisms when solutions are not unique, with applications to school choice*
KU Leuven, Belgium, March 2016
13th Meeting of the Society for Social Choice and Welfare, Lunds Universitet, Sweden, June-July 2016
- ▶ *A new index combining the absolute and relative aspects of income poverty: theory and application*
Royal Economic Society Meeting, London, United Kingdom, January 2016
15th Journées Louis-André Gérard-Varet, Aix-en-Provence, France, June 2016

Adeline DECUYPER

- ▶ *On the use of mobile phone data for good: challenges and opportunities*
Statistics Seminar, UCL, Belgium, February 2016
- ▶ *On the issues of spatial aggregation for community detection in communication networks*
Mobile Tartu 2016, University of Tartu, Estonia, June 2016

Pierre DEHEZ

- ▶ *On Harsanyi dividends and asymmetric values*
Università di Pisa, Italy, October 2015
Université de Lorraine, Nancy, November 2015
UECE Lisbon Meetings on Game Theory and Applications, Universidade de Lisboa, Portugal, November 2015
- ▶ *Multiple causation, apportionment and the Shapley value*
Università di Roma, Italy, December 2015
Conference for the 40th Anniversary of the European University Institute, Firenze, Italy, January 2016

Justin DELLOYE

- ▶ *Urban morphodynamics: spatial patterns emerging from interacting location decisions*
19th European Colloquium on Theoretical and Quantitative Geography, Mediterranean Agronomic Institute of Bari, Italy, September 2015
- ▶ Earth and Life Institute, UCL, Belgium, November 2015
- ▶ *On the morphology of a growing city: adding space and time to static models* (poster session)
6th Belgian Geography Days, Université libre de Bruxelles, Belgium, November 2015

Cyrille DOSSOUGOIN

- ▶ *Assessing the role of transmission channels in sovereign risk: a spatial econometrics approach*
26th (EC)² Conference "Theory and Practice of Spatial Econometrics", Heriot-Watt University, Edinburgh, December 2015
10th World Conference of the Spatial Econometrics Association, Università Cattolica del Sacro Cuore, Rome, Italy, June 2016
- ▶ *Sovereign risk evaluation: a spatial econometrics approach*
15th International Workshop on Spatial Econometrics and Statistics, Université d'Orléans, France, May 2016

Valeria FORLIN

- ▶ *The missing link: leveraging consumers' recycling incentives in a circular economy*
Aix-Marseille School of Economics, France, May 2016
- ▶ *Equilibrium industry segmentation in a vertical differentiation model*
OLIGO Workshop 2016, Université Paris-Dauphine, France, June 2016

Zhengyuan GAO

- ▶ *Looking backward and looking forward*
4th RCEA Time Series Econometrics Workshop, Rimini, Italy, June 2016

François GLINEUR

- ▶ *Performance estimation of first-order methods for composite convex optimization*
CentER Operations Research, Universiteit Tilburg, The Netherlands, January 2016
IAP DYSCO Study Day: Dynamical Systems, Control and Optimization, Louvain-la-Neuve, Belgium, May 2016
- ▶ *First-order methods for optimization: a guided tour*
ICTEAM day, UCL, Belgium, May 2016
- ▶ *On the exact convergence rates of gradient methods for smooth (strongly) convex optimization*
Workshop on Advances in Optimization, Tokyo, Japan, August 2016
- ▶ *Convergence of first-order algorithms for convex optimization using inexact information*
5th International Conference on Continuous Optimization (ICCOPT 2016), Tokyo, Japan, August 2016

Christian HAFNER

- ▶ *Estimation of a multiplicative covariance structure*
Conference on multivariate time series econometrics, Universität zu Köln, Germany, October 2015
University of Santander, Columbia, May 2016

Adel HATAMI MARBINI

- ▶ *A facility location model using DEA*
28th European Conference on Operational Research (EURO 2016), Poznan, Poland, July 2016

Jean-Jacques HERINGS

- ▶ *Equilibrium and matching under price controls*
University of Turku, Finland, September 2015
International Max Planck Research School on Adapting Behavior in a Fundamentally Uncertain World, Maastricht, The Netherlands, September 2015
Research Seminar in Economics and Management, Paderborn, Germany, October 2015
Workshop on Economics and Finance, Karlsruher Institute für Technologie, Karlsruhe, Germany, January 2016
Lunds Universitet, Sweden, February 2016
10th International Conference on Game Theory and Management (GTM 2016), St Petersburg State University, Russia, July 2016
5th World Congress of the Game Theory Society, Universiteit Maastricht, The Netherlands, July 2016
- ▶ *Decentralized clearing in financial networks*
6th Annual Financial Market Liquidity Conference, Corvinus University of Budapest, Hungary, November 2015
10th Workshop on Economic Design and Institutions, Université Saint-Louis, Bruxelles, Belgium, December 2015

MANUEL HERRARA RODRIGUEZ

- ▶ *Incorporating the cost of time to a liner ship fleet deployment model. An application to the Far East -USA/Europe trade flows*
19th International Working Seminar on Production Economics, Innsbruck, Austria, February 2016
28th NOFOMO Conference (NOFOMA 2016), University of Turku, Finland, June 2016
- ▶ *Martinime traffic disruptions in liner ship fleet deployment models: an application to the Suez and Panama canals*
28th European Conference on Operational Research (EURO 2016), Poznan, Poland, July 2016

Leonardo IANIA

- ▶ *The response of Euro-area sovereign spreads to the ECB unconventional monetary policies*
ASSET Pricing Workshop 2016, University of York, United Kingdom, June 2016
- ▶ *A macro-financial analysis of the corporate bond market*
IFABS 2016 Barcelona Conference, Universitat Autònoma de Barcelona, Spain, June 2016

Jan JOHANNES

- ▶ *Adaptive Bayesian estimation in indirect Gaussian sequence space models*
Jahrestagung der Deutsche Mathematiker-Vereinigung 2015, Universität Hamburg, Deutschland, September 2015
8th International Conference of the ERCIM Working Group on Computational and Methodological Statistics, University of London, United Kingdom, December 2015
Meeting on "Mathematical Statistics and Inverse Problems", CIRM, Luminy, France, February 2016
12th German Probability and Statistics Days, Ruhr-Universität Bochum, Germany, March 2016

4 Scientific Exchanges and Collaborations

- ▶ *Functional linear instrumental regression: minimax-optimal estimation and adaptation*
Statistische Woche, Universität Hamburg, Germany, September 2015
- ▶ *Statistical inverse problems: motivations and data-driven Bayesian estimation*
Oberwolfach Workshop 1608b on "New Developments in Functional and Highly Multivariate Statistical Methodology", Mathematisches Forschungsinstitut, Oberwolfach, Germany, February 2016

Jonathan JONES

- ▶ *Policy evaluation by LUTI models: a sensitivity analysis to scale on a Belgian case study*
19th European Colloquium on Theoretical and Quantitative Geography, Mediterranean Agronomic Institute of Bari, Italy, September 2015

Marie-Louise LEROUX

- ▶ *Compliance, informality and contributive pensions*
Société Canadienne de Sciences Economiques, Québec, Canada, May 2016
- ▶ *The political economy of social long term care transfers when family gives time and money*
2016 Meeting of the Association for Public Economic Theory (PET 2016), FGV/EPGE School of Economics, Rio de Janeiro, Brazil, July 2016

François MANIQUET

- ▶ *Well-being poverty and labor income taxation: theory and application to Europe and the US*
108th Annual Conference on Taxation, Boston (MA), USA, November 2015

Ana MAULEON

- ▶ *Constitutions and social networks*
5th Belgian Network Research Meeting-BENet 2015, Université de Namur, Belgium, September 2015
Universidad Publica de Navarra, Pamplona, Spain, October 2015
37th Annual Meeting of the Association of Southern European Economic Theorists (ASSET 2015), Universidad de Granada, Spain, November 2015
- ▶ *2nd Mechanisms, Organizations, Markets and Agents (MOMA) Meeting*, Universidad Pablo de Olavide, Sevilla, Spain, January 2016
Dutch Social Choice Colloquium, Universiteit Maastricht, The Netherlands, February 2016
Université Paris 1 Panthéon-Sorbonne, France, May 2016
- ▶ *Stability of networks under level-k farsightedness*
2nd Annual NSF Conference on Network Science in Economics, Stanford University (CA), USA, April 2016
- ▶ *Stable sets in matching problems with coalitional sovereignty and path dominance*
21st Coalitional Theory Network Workshop, NES Center for the Study of Diversity and Social Interactions, Moscow, Russia, May 2016
CEREC Workshop in Economics, Université Saint-Louis, Bruxelles, Belgium, June 2016

Florian MAYNERIS

- ▶ *Improving or disappearing: firm-level adjustments to minimum wages in China*
Universidad Carlos III de Madrid, Spain, September 2015
Université Cergy-Ponthoise, France, September 2015
China-India Workshop, Paris School of Economics, France, June 2016
- ▶ *Providing services to boost good exports*
ETSG 2015 Paris - 17th Annual Conference, Université Paris 1 Panthéon-Sorbonne, France, September 2015
DEGIT XX, Université de Genève, Switzerland, September 2015
12th Danish International Economics Workshop, Tuborg Research Centre for Globalization and Firms, Aarhus, Denmark, June 2016
- ▶ *Consumer paradise: New York CSBA, 1990-2010*
London School of Economics, United Kingdom, December 2015

Joniada MILLA

- ▶ *Teacher incentives and sorting: evidence from a joint accountability and pay incentive program*
IRES, UCL, Belgium, October 2015
University of Guelph, Canada, November 2015
University of Prince Edward Island, Charlottetown, Canada, January 2016

JUAN MORENO-TERNERO

- ▶ *Normative foundations for equity-sensitive population health evaluation functions*
Health Economics Workshop, Universidad de Alicante, Spain, October 2015

4 Scientific Exchanges and Collaborations

- ▶ *Sharing the proceeds from a hierarchical venture*
Conference in Honor of Shlomo Weber, Southern Methodist University, Dallas (TX), USA, April 2016
13th Meeting of the Society for Social Choice and Welfare, Lunds Universitet, Sweden, July 2016
- ▶ *The implications of equal value of life and prioritarianism for the evaluation of population health*
Analytical Political Economy Workshop, University of London, United Kingdom, May 2016

Yurii NESTEROV

- ▶ *New perspectives for development first-order methods*
Workshop on Optimization Methods for Large-scale Problems, University College London, United Kingdom, January 2016
- ▶ *Primal-dual methods minimizing the model of objective function*
CODS2016: 3rd ACM IKDD Conference on Data Sciences, Pune, India, March 2016
- ▶ *Universal Newton method*
Massachusetts Institute of Technology, Cambridge (MA), USA, May 2016

Dimitri PAOLINI

- ▶ *Strategic promotion and release decisions in the movie market*
37th Annual Meeting of the Association of Southern European Economic Theorists (ASSET 2015), Universidad de Granada, Spain, November 2015

Anthony PAPAVALIOU

- ▶ *Solving stochastic unit commitment In a high performance computing environment*
Workshop on Analysis and Applications of Stochastic Systems, IMPA, Rio de Janeiro Brazil, March 2016
- ▶ *Remuneration of capacity in conditions of scarcity in Belgium,*
Workshop on Scarcity of Pricing, Council of European Energy Regulators, Bruxelles, Belgium, June 2016
- ▶ *Solving stochastic unit commitment at industrial scale using parallel computing: a case study of Central Western Europe*
PSCC 2016 - 19th Power Systems Computation Conference, Genova, Italy, June 2016
- ▶ *An asynchronous distributed subgradient algorithm for solving stochastic unit commitment*
DTU Summer School 2016 - Uncertainty in Electricity Markets and System Operation, Danmarks Tekniske Universitet, Copenhagen, Denmark, July 2016

Wenli PENG

- ▶ *Order sequencing with unreliable forecasts to minimize cash lead time*
27th Annual POMS Conference, Orlando (FL), USA, May 2016

Pierre PESTIEAU

- ▶ *The economics of taxing pensions*
CEPAR & CESifo Workshops: Pension Taxation, Population Ageing, and Globalisation, München, Germany, September 2015
- ▶ *LTC social insurance with two-sided altruism*
GREQAM, Marseille, France, September 2015
Conference on "Taxes, Subsidies, Regulation in Dynamic Models", Università degli Studi di Brescia, Italy, October 2015
- ▶ *The public economics of long term care*
A Just Society. Conference on the Honor of Joe Stiglitz, New York (NY), USA, October 2015
Conference on behalf of A. Petretto, Firenze, Italy, December 2015
- ▶ *Long-term care social insurance. How to avoid big losses?*
CIRANO Conference on the Design and Evaluation of Long-Term Care Policy, CIRANO, Montréal, Canada, April 2016
Workshop on Risk, Fairness, and Well-being in Collective Choice, KU Leuven, Belgium, May 2016
SCOR Conference on Long Term Care, Paris, June 2016

Mikael PETITJEAN

- ▶ *On the usefulness of intraday price ranges to gauge liquidity in cap-based portfolios*
SKEMA Business School, Lille, France, October 2015
IESEG School of Management, Lille, France, February 2016

Pierre PICARD

- ▶ *Currency areas and voluntary transfers*
GREQAM, Aix-Marseille, France, September 2015
Oxford University, United Kingdom, November 2015
- ▶ *State-owned firms and private debt*
7th Conférence Internationale “Economie des Partenariats Public Privé”, Université Paris 1, Panthéon-Sorbonne, France, June 2016

Maurice QUEYRANNE

- ▶ *Modelling convex subsets of points*
41st LNMB conference on The mathematics of Operations Research, Lunteren, Netherlands, January 2016
- ▶ Université libre de Bruxelles, Belgium, May 2016
- ▶ *Modeling convex subsets of points and related shape requirements with integer programming*
Big Data, Large-Scale Optimization and Applications, Laboratoire d'Informatique, de Modélisation et d'Optimisation des Systèmes Clermont Ferrand, France, June 2016

Guillaume ROELS

- ▶ *Win-win capacity allocation contracts in co-production and co-distribution alliances*
Santa Clara University (CA), USA, Fall 2015
University of Wisconsin, Madison (WI), USA, Fall 2015
- ▶ *Pooling queues with work-averse serves*
Hong Kong University of Science and Technology, Hong Kong, April 2016
City University of Hong Kong, Hong Kong, April 2016
The Chinese University of Hong Kong, Hong Kong, April 2016
Koç University, Istanbul, Turkey, Spring 2016
INSEAD, Fontainebleau, France, Spring 2016
University of Minnesota, Minneapolis (MI), USA, Spring 2016

Erik SCHOKKAERT

- ▶ *Attitudes towards redistribution*
COEURE (Cooperation on European Research in Economics) Workshop, Bruxelles, Belgium, September 2015
- ▶ *Risk adjustment in Belgium*
15th Risk Adjustment Network Meeting, CSS Institute for Empirical Health Economics, Lucerne, Switzerland, October 2015
- ▶ *Equivalent income and distributional weights in cost-benefit analysis*
Workshop “Priority settings in health care: principles and practice”, Universitat Pompeu Fabra, Barcelona, Spain, October 2015
- ▶ *Re-inventing the welfare state*
Conference “The end of postwar” Royal Flemish Academy, Bruxelles, December 2015
- ▶ *The difficult transfer of EBM into practice*
Vascular Symposium, Leuven, Belgium, December 2015
- ▶ *Well-being and inequality*
IPSP-Workshop on “Basic values and principles to guide assessment and promotion of social progress”, Center for Human Values, Princeton (NY), February 2016
- ▶ *Fairness in cost-benefit analysis - an application to health technology assessment*
Colloque Chaire-Santé, Université Paris-Dauphine, France, March 2016
Paris School of Economics, France, April 2016
- ▶ *Quality of working life: three approaches*
InGrid Summer School on ‘Quality of working life and vulnerabilities’, Centre d’Etudes de l’Emploi, Noisy-le-Grand, France, May 2016
- ▶ *Well-being inequality and preference heterogeneity*
Workshop “Risk, Fairness and Well-being in Collective Choice”, KU Leuven, Belgium, May 2016

Léopold SIMAR

- ▶ *Efficiency analysis, from parametric to nonparametric frontier models: the state of the art*
International Workshop on “Challenges of Big Data for Economic Modelling and Management”, Università di Roma La Sapienza, Italy, November 2015
- ▶ *Semi- and non-parametric estimations of frontiers*
8th International Conference of the ERCIM on Computational and Methodological Statistics, University of London, United Kingdom, December 2015

4 Scientific Exchanges and Collaborations

- ▶ *Portfolio selection in a multi-input-multi-output setting, without numerical optimization*
Conférence en Hommage à Nicolas Naplas, Toulouse School of Economics, France, January 2016
- ▶ *Unobserved heterogeneity and endogeneity in nonparametric frontier estimation*
University of Aston, Birmingham, United Kingdom, February 2016
- ▶ *An introduction to regression methods for continuous and discrete responses: from parametric to nonparametric approaches*
Università di Roma La Sapienza, Italy, April 2016

Yves SMEERS

- ▶ *Effect of ramping pricing scheme in systems with high wind energy penetration*
INFORMS, Philadelphia (PA), USA, November 2015
- ▶ *Remuneration of flexibility using operating reserve demand curves: a case study of Belgium*
39th IAAE International Conference, Norwegian School of Economics, Bergen, Norway, June 2016

Jonas TEUSCH

- ▶ *Merger incentives under yardstick competition*
21st Spring Meeting of Young Economists 2016, ISCTE-IUL Lisbon, Portugal
- ▶ *Merger incentives under yardstick competition: theory and evidence from Norway*
11th International Conference on Competition and Regulation (CRESE 2016), Rhodes, Greece, June-July 2016

Joe THARAKAN

- ▶ *An intermediary's geographical expansion choice under uncertainty*
7th Workshop on Institutions, Individual Behavior and Economics Outcomes, Università di Sassari, Italy, June 2016

Isabelle THOMAS

- ▶ *Quantifying the fractal nature of built-up footprints: some methodological issues based on Brussels and Lyon*
19th European Colloquium on Theoretical and Quantitative Geography, Mediterranean Agronomic Institute of Bari, Italy, September 2015
- ▶ *On the geography of road accidents. Challenges and opportunities*
Distinguished Transport Lecture Series 2015, University of Hong Kong, Hong Kong, November 2015
- ▶ *Spatial issues in data analysis and model building: distance, scale and complexity*
Applied Statistics Workshop, ISBA, UCL, Belgium, December 2015
- ▶ *Location models: methods and solutions*
Belval, Université du Luxembourg, Luxembourg, November 2015
- ▶ *Identifying urban boundaries and analysing their shape. A fractal approach*
Belval, Université du Luxembourg, Luxembourg, February 2016 (Erasmus course)
- ▶ *Big data et géographie urbaine: premiers résultats sur Bruxelles*
Université Paris 1 Panthéon-Sorbonne, February 2016

Sonia TRABELSI

- ▶ *Green urban areas: a spatial perspective on meaning, identification and measurement. An example in Namur*
6th Belgian Geography Days, Université libre de Bruxelles, Belgium, November 2015

Tom TRUYTS

- ▶ *Noise-proofness in signaling games with a continuum choice set*
CEREC Workshop in Economics, Université Saint-Louis, Bruxelles, Belgium, September 2015

Henry TULKENS

- ▶ *Internal vs. core coalitional stability in the environmental externality game: a tentative reconciliation*
University of Bath, United Kingdom, November 2015

Dirk VAN DE GAER

- ▶ *Measurement of inequality of opportunity based on counterfactuals*
Annual Meeting of the Association of Southern European Economic Theorists (ASSET 2015), Universidad de Granada, Spain, November 2015
Workshop “Risk, Fairness and Well-being in Collective Choice”, KU Leuven, Belgium, May 2016
Equality of Opportunity Conference, Duke University, Durham (NC), USA, May 2016
Workshop “Equality of Opportunity and Social Mobility Towards an International Database”, Università degli Studi di Bari, Italy, June 2016
13th Meeting of the Society for Social Choice and Welfare, Lunds Universitet, Sweden, June-July 2016
- ▶ *Did progress reduce inequality of opportunity for school-re-enrollment?*
Université de Namur, Belgium, December 2015
Université de Toulon, France, April 2016
University of Sheffield, United Kingdom, May 2016
- ▶ *Equality of opportunity and project evaluation*
Universitat Autònoma de Barcelona, Spain, January 2016

Mathieu VAN VYVE

- ▶ *Fixed-charge transportation on trees*
20th Combinatorial Optimization Workshop, Aussois, France, January 2016

Wouter VERGOTE

- ▶ *Imperfect competitive targeting*
Workshop “Digital Economy: Data Privacy, Taxation, Competition”, Paris School of Economics, France, June 2016

Frédéric VRINS

- ▶ *Conic martingales and the term structure of default probabilities*
Imperial College London, United Kingdom, February 2016

Laurence WOLSEY

- ▶ *Optimal convex sets in 2-D*
Universität Bonn, Germany, September 2015
- ▶ *On simple mixed integer sets and extended formulations*
Benelux MC16, Amsterdam, The Netherlands, March 2016



5

CORE@50

- ▶ BRIDGING GAPS: CORE@50 CONFERENCE
- ▶ 50 DAYS@CORE
- ▶ BRIDGING GAPS BETWEEN OR AND ECONOMICS

CORE@50

BRIDGING GAPS. LET'S CELEBRATE CORE'S 50TH ANNIVERSARY

CORE celebrated its 50th anniversary in 2016. Founded in 1966 in association with the Katholieke Universiteit Leuven, CORE has become a leading interdisciplinary research institute in the fields of economics, operations research, and econometrics.

The 50th anniversary celebrations entailed scientific and community events spanning the entire 2016 year, under the motto **BRIDGING GAPS**: bridging gaps between the first 50 years of CORE and its next 50 (and more) years; between generations; between scientific disciplines; as well as gaps within societies and economic systems; and between countries and between world regions.

These celebratory events were grouped under the umbrella 50 DAYS@ CORE, and their centerpiece were the CORE@50 CONFERENCE held from May 23 to May 27, 2016 in Louvain-la-Neuve. Former and present CORE members and CORE visitors, friends of CORE, and other interested persons, were invited to participate in the conference and celebratory events. No less than 280 persons attended the conference.

BRIDGING GAPS: CORE@50 CONFERENCE

As the centerpiece of the 50th anniversary celebrations, the CORE@50 CONFERENCE featured:

- ▶ The award of UCL/IMMAQ/CORE **HONORARY DOCTORS** (DHC) degrees to three distinguished former CORE members, Professors Marc FLEURBAEY (Princeton), Michel GOEMANS (MIT, USA) and George NEMHAUSER (Georgia Tech, USA).
- ▶ Four **PLENARY LECTURES** given by the three DHC recipients and by Professor Victor CHERNOZHUKOV (MIT, USA).
- ▶ Nine **INVITED SCIENTIFIC SESSIONS** on Social networks, theories and methods; Personal income tax; Integer non-linear optimization; Corporate income tax; Financial constraints, productivity, and growth; Cooperation and resource sharing for supply chain management; Computational challenges in energy; and Environmental and natural resources economics.
- ▶ **CONTRIBUTED SCIENTIFIC SESSIONS**, on the following subjects:
 - ▶ Economics and Game Theory, in particular: General equilibrium, Industrial organization, Public economics, Political economy, Environmental economics, Welfare economics and social choice theory,
 - ▶ Econometrics, in particular: Financial econometrics, Time Series econometrics, Complex data analysis and stochastic models, and Bayesian methods;
 - ▶ Operations Research, in particular: Linear and nonlinear optimization, Discrete optimization, Modelling and solution of industrial economics problems, and Supply chain management;
 - ▶ Human and Economic Geography, in particular: Locational-location models, Spatial data quantitative analyses, Transport geography in a sustainable mobility context, and Models in spatial analysis.
- ▶ **CULTURAL AND SOCIAL EVENTS**, including cocktails and a conference banquet.

PROGRAM

MAY 23, 2016

CORE SCIENTIFIC SESSION: SOCIAL NETWORKS: THEORIES AND METHODS

Chairs: Isabelle THOMAS, CORE, UCL, Belgium and Jean-Charles DELVENNE, ICTEAM, Belgium

- ▶ Rein AHAS, University of Tartu, Estonia
Challenges of using mobile positioning data in geographical studies
- ▶ Céline ROZENBLAT, Université de Lausanne, Switzerland
Addressing urban challenges in a complex world with network approaches
- ▶ Michele COSCIA, Harvard University, Cambridge (MA), USA
The wiring of a country and its economic consequences
- ▶ Mariano BEGUERISSE DÍAZ, University of Oxford, United Kingdom
Using structure and content to reveal the evolution of narratives in social media

CONTRIBUTED SESSION: INTEGER PROGRAMMING

Chair: Laurence WOLSEY, CORE, UCL, BELGIUM

- ▶ Gérard CORNUÉJOLS, Carnegie Mellon University, Pittsburgh (PA), USA
Cut-generating functions for integer variables
- ▶ Amitabh BASU, John Hopkins University, Baltimore (MD), USA
The lifting problem in cut-generating functions

- ▶ Chen CHEN, Columbia University, New York (NY), USA
Intersection cuts and S -free sets for polynomial programming
- ▶ Michele CONFORTI, Università di Padova, Italy
Facet separation with one linear program
- ▶ Martim JOYCE-MONIZ, Université libre de Bruxelles, Belgium
Models for piecewise linear unsplittable multicommodity flow problems
- ▶ Stefan WIESBERG, Universität Heidelberg, Germany
Evaluating the quality of image graphs for complex networks

CORE SCIENTIFIC SESSION: OPTIMAL TAXATION (sponsored with generous support of PoRESP)

Chair: François MANIQUET, CORE, UCL, Belgium

- ▶ Matthew WEINZIERL, Harvard Business School, Boston (MA), USA
Popular acceptance of morally arbitrary luck and widespread support for classical benefit-based taxation
- ▶ Robin BOADWAY, Queen's University, Kingston, Canada
A critical appraisal of optimal income tax methodology
- ▶ John WEYMARK, Vanderbilt University, Nashville (TN), USA
Voting over selfishly optimal nonlinear income: tax schedules with a minimum-utility constraint
- ▶ Marie-Louise LEROUX, Université du Québec à Montréal, Canada
The political choice of social long term car transfers when family gives time and money
- ▶ Lancelot HENRY DE FRAHAN, University of Chicago (IL), USA
Poverty reduction, responsibility and optimal income tasks

CONTRIBUTED SESSION: ALGORITHM CONVEX OPTIMIZATION

Chair: François GLINEUR, CORE, UCL, Belgium

- ▶ François GLINEUR, CORE, UCL, Belgium
Convergence of first-order algorithms for convex optimization using inexact information
- ▶ Andreas THEMELIS, KU Leuven, Belgium
A globally and superlinearly convergent algorithm for finding fixed points of nonexpansive operators
- ▶ Adrien TAYLOR, INMA, UCL, Belgium
Exact worst-case performance of first-order methods in convex optimization
- ▶ Roland HILDEBRAND, Weierstrass Institute, Berlin, Germany
Barriers on symmetric cones
- ▶ Yurii NESTEROV, CORE, UCL, Belgium
Universal Newton method

CONTRIBUTED SESSION: ECONOMIC NETWORKS

Chair: Vincent VANNETELBOSCH, CORE, UCL, Belgium

- ▶ Rabah AMIR, University of Iowa, Iowa City (IA), USA
Network effects and oligopolistic competition
- ▶ Filomena GARCIA, Indiana University, Bloomington (IN), USA
Dynamic monopoly pricing of environmental goods
- ▶ Stef LEMMENS, KU Leuven, Belgium
Design of a responsive vaccine chain under supply and demand uncertainty
- ▶ Ana MAULEON, CORE, UCL, Belgium and Université Saint-Louis, Bruxelles, Belgium
Stability of networks under level- K farsightedness

PLENARY TALK

- ▶ Michel GOEMANS, Massachusetts Institute of Technology, Cambridge (MA), USA
Combinatorial optimization: the first 50 years and beyond

MAY 24, 2016

CORE SCIENTIFIC SESSION: INTEGER NON-LINEAR OPTIMIZATION

Chair: Jon LEE, University of Michigan, Ann Arbor (MI), USA

- ▶ Pietro BELOTTI, FICO, San Jose (CA), USA
Introduction to MINLP and its applications; mixed integer conic programming

- ▶ Robert WEISMANTEL, ETH Zürich, Switzerland
Integer polynomial optimization
- ▶ Jon LEE, University of Michigan, Ann Arbor (MI), USA
Relaxing kindly and efficiently
- ▶ Andrea LODI, Polytechnique Montréal, Canada
Nonlinear chance-constrained problems with applications to hydro scheduling

CONTRIBUTED SESSION: INDUSTRIAL ORGANIZATION I - TRADE - VOTING

Chair: Paul BELLEFLAMME, CORE, UCL, Belgium

- ▶ In KYUNG KIM, Nazarbayev University, Astana, Republic of Kazakhstan
Do MSRPs decrease prices?
- ▶ Andrea MANTOVANI, Università di Bologna, Italy
Price competition in the presence of a web aggregator
- ▶ Samuel STANDAERT, Universiteit Gent, Belgium
Disentangling the effect of trade agreements on trade
- ▶ Dimitri PAOLINI, CORE, UCL, Belgium and Università degli Studi di Sassari, Italy
New media platforms, copyright owners and advertising
- ▶ Alessandro FEDELE, Libera Università di Bolzano, Italy
Wrong politicians
- ▶ Margherita NEGRI, University of St Andrews, United Kingdom
A political economy model of immigration

CORE SCIENTIFIC SESSION: CORPORATE INCOME TAX

Chair: Jean HINDRIKS, CORE, UCL, Belgium

- ▶ Ben LOCKWOOD, Warwick University, United Kingdom
VAT notches
- ▶ Andreas HAUFLE, Ludwig-Maximilians-Universität München, Germany
Optimal policies against profit shifting: the role of controlled-foreign-company rules
- ▶ Thomas GRESİK, University of Notre-Dame (IN), USA
Immobilizing corporate income shifting: should it be safe to strip in the harbor?
- ▶ Nadine RIEDEL, Ruhr-Universität Bochum, Germany
Corporate taxes and firm behavior - evidence from South Africa
- ▶ Gaetan NICODEME, European Commission, Directorate-General Taxation and Custom Union, Bruxelles, Belgium
Patent boxes design, patents location and local R&D

CONTRIBUTED SESSION: FINANCIAL ECONOMETRICS

Chair: Luc BAUWENS, CORE, UCL, Belgium

- ▶ Elisa OSSOLA, Università della Svizzera Italiana, Lugano, Italy
A diagnostic criterion for approximate factor structure
- ▶ Stefano SOCCORSI, Université libre de Bruxelles, Belgium
Forecasting stock returns with large dimensional factor models
- ▶ Genaro SUCARRAT, BI Norwegian Business School, Oslo, Norway
Models of financial return with time-varying zero-probability

CONTRIBUTED SESSION: QUANTITATIVE AND ECONOMIC GEOGRAPHY - INTEGER PROGRAMMING II

Chairs: Isabelle THOMAS and Laurence WOLSEY, CORE, UCL, Belgium

- ▶ Rémi LEMOY, Université du Luxembourg, Luxembourg
Land use and density in the European city: monocentric analysis and scaling
- ▶ Guy ENGELEN, Flemish Institute for Technological Research, Mol, Belgium
Spatial development potential in Flanders based on transit node value and service level
- ▶ Geoffrey CARUSO, Université du Luxembourg, Luxembourg
Back to the future: infrastructure and landscape feedbacks in urban simulation models
- ▶ Michael BALL, University of Maryland, College Park (MD), USA
A novel approach to group decision-making: applying majority judgment over polyhedral sets
- ▶ Daniele CATANZARO, CORE, UCL, Belgium
Optimizing over unrooted binary trees
- ▶ Luciano PORRETTA, Université libre de Bruxelles, Belgium
A branch-and-price algorithm for the parsimonious loss of heterozygosity problem

PLENARY TALK

- ▶ Victor CHERNOZHUKOV, Massachusetts Institute of Technology, Cambridge (MA), USA
Double machine learning for causal and treatment effects

MAY 25, 2016

CORE SCIENTIFIC SESSION: CYCLES, GROWTH, AND CAPITAL ACCUMULATION

Chair: Julio DÁVILA, CORE, UCL, Belgium

- ▶ Jan ECKHOUT, University College London, United Kingdom
Unemployment cycles
- ▶ Leonor MODESTO, Universidade Católica Portuguesa, Lisbon, Portugal
Endogenous credit and investment cycles with asset price volatility
- ▶ Miguel LEÓN-LEDESMA, University of Kent, United Kingdom
Undervaluation, social optimum, and growth
- ▶ Julio DÁVILA, CORE, UCL, Belgium
On private capital falling into public domain

CONTRIBUTED SESSION: THERORETICAL ECONOMETRICS

Chair: Luc BAUWENS, CORE, UCL, Belgium

- ▶ Masayuki HIRUKAWA, Setsunan University, Osaka, Japan
Consistent estimation of linear regression models using matched data
- ▶ Hi Thu Hien PHAM, KU Leuven, Belgium
Limited information maximum likelihood estimation of the random coefficients demand model
- ▶ Cindy WANG, CORE, UCL, Belgium and National Tsing Hua University, Republic of China
Is the pearson sample correlation coefficient as feasible as you think?

CONTRIBUTED SESSION: FAMILY ECONOMICS - PUBLIC ECONOMICS

Chair: François MANIQUET, CORE, UCL, Belgium and Pierre PESTIEAU, CORE, UCL and Université de Liège, Belgium

- ▶ Véronique GILLE, Institut de Recherche pour le Développement, Paris, France
Does the identity of leaders matter for education? Evidence form the first black governor in the US
- ▶ Marion LETURCO, Institut National d'Etudes Démographiques, Paris, France
Fertility and labor supply: new evidence using time-to-conception
- ▶ Philipp KETZ, Paris School of Economics, France
Sex-selective abortion: measuring the who, how many & how often
- ▶ Frits SPIEKEMA, KU Leuven, Belgium
Revealed preference tests of collective models of consumption behavior
- ▶ Vicky BARHAM, University of Ottawa, Canada
Strategic philanthropy
- ▶ Chiara CANTA, Norwegian School of Economics, Bergen, Norway
The role and design of social long term care insurance when informal care is uncertain
- ▶ Kevin SPIRITUS, KU Leuven, Belgium
The rate of return allowance
- ▶ Dirk NEUMANN, CORE, UCL, Belgium
Well-being poverty and labor income taxation: theory and application to Europe and the US

CORE SCIENTIFIC SESSION: COOPERATION AND RESOURCE SHARING FOR SUPPLY CHAIN MANAGEMENT

Chair: Philippe CHEVALIER, CORE, UCL, Belgium

- ▶ Guillaume ROELS, University of California at Los Angeles (CA), USA
Win-win capacity allocation contracts in co-production and co-distribution alliances
- ▶ Jan VAN MIEGHEM, Northwestern University, Evanston (IL), USA
Collaboration and multitasking in processing networks: humans versus machines
- ▶ Aadhaar CHATURVEDI, Université de Namur, Belgium
Supplier cutting corners: can excessive competition compromise quality?

CONTRIBUTED SESSION: SOCIAL CHOICE, AXIOMATIC APPROACH - INDUSTRIAL ORGANIZATION II

Chairs: Bram DE ROCK, Université libre de Bruxelles, Belgium and Florian MAYNERIS, CORE and IRES, UCL, Belgium

- ▶ Koen DECANCO, CORE, UCL, Belgium, Universiteit Antwerpen, Belgium and Princeton University (NJ), USA
Non-parametric well-being comparisons
- ▶ Paolo PIACQUADIO, Universitetet i Oslo, Norway
A fairness justification of utilitarianism
- ▶ Rafael TREIBICH, University of Southern Denmark, Odense, Denmark
Co-authorship and the measurement of individual productivity
- ▶ Stéphane ZUBER, Paris School of Economics, France
Fair intergenerational decision making: ex ante and ex post approaches
- ▶ Emanuele BACCHIEGA, Università di Bologna, Italy
Contract contingency in vertically related markets
- ▶ Vladyslav NORA, Nazarbayev University, Republic of Kazakhstan
Vertical integration and consumer welfare under non-price competition in the movie theater industry
- ▶ Luca PANACCIONE, Università degli Studi di Roma "Tor Vergata", Italy
Marshall without calculus
- ▶ Baris VARDAR, CORE, UCL, Belgium and Université Paris-1 Panthéon-Sorbonne, France
The role of capacity building on technology: adoption under imperfect competition

CONTRIBUTED SESSION: GENERAL EQUILIBRIUM

- ▶ Anton BELYAKOV, Lomonosov Moscow State University, Russia
Necessary conditions for infinite horizon optimal control problems revisited
- ▶ Agustin PEREZ BARAHOMA, INRA and Ecole Polytechnique, Paris, France
On the uniqueness of solution to spatial dynamic problems
- ▶ Alain DE CROMBRUGGHE, Université de Namur, Belgium
Incentive-compatible debt restructuring
- ▶ Constantin SOROKIN, Higher School of Economics, Moscow, Russia
Multi-dimensional free-mobility equilibrium: Tiebout revisited

PLENARY TALK

- ▶ Marc FLEURBAEY, Princeton University (NJ), USA
Whither social choice?

MAY 26, 2016

CORE SCIENTIFIC SESSION: INFORMATION ECONOMICS AND GAMES

Chair: Claude D'ASPREMONT, CORE, UCL, Belgium

- ▶ Andrea ATTAR, Toulouse School of Economics, France and Università degli Studi di Roma "Tor Vergata", Italy
Multiple contracting in insurance markets
- ▶ Rodolphe DOS SANTOS FERREIRA, Université de Strasbourg, France
Playing the game the others want to play: Keynes' beauty contest revisited
- ▶ Shmuel ZAMIR, The Hebrew University of Jerusalem, Israël
The strategic use of seller's information in first-price auction
- ▶ Olivier GOSSNER, Ecole Polytechnique, Paris, France
Dynamic bank runs

CONTRIBUTED SESSION: APPLIED ECONOMETRICS

Chair: Luc BAUWENS, CORE, UCL, Belgium

- ▶ Benoît MULKAY, Université de Montpellier, France
The effectiveness of the R&D tax credit at the extensive margins in France
- ▶ Abdel BITAT, Université Saint-Louis, Bruxelles, Belgium
Environmental regulation and eco-innovation: insights from diffusion of innovations theory

CONTRIBUTED SESSION: ENERGY ECONOMICS

Chair: Anthony PAPAVALIOU, CORE, UCL, Belgium

- ▶ H el ene LE CADRE, ENSTA ParisTech, France
Competition and coalition for smart energy supply
- ▶ Daniel DE WOLF, Universit e du Littoral C te d'Opale, Dunkerque, France
Optimal design and time development of new hydrogen transmission pipeline networks
- ▶ Anthony PAPAVALIOU, CORE, UCL, Belgium
Remuneration of flexibility using operating reserve demand curves: a case study of Belgium

HONORARY DOCTORS AWARD CEREMONY

- ▶ Marc FLEURBAEY, Princeton University (NJ), USA
An economist and a philosopher, Professor Fleurbaey is considered a world leader in **welfare economics**
- ▶ Michel GOEMANS, Massachusetts Institute of Technology, Cambridge (MA), USA
Professor Goemans is a recognized scholar working on **discrete algorithms** and **combinatorial optimization**
- ▶ George NEMHAUSER, Georgia Institute of Technology, Atlanta, GA, USA
A former CORE Research Director, Professor NEMHAUSER is a leading scholar in **operations research**

MAY 27, 2016

CORE SCIENTIFIC SESSION: COMPUTATION CHALLENGES IN ENERGY (sponsored with generous support of the ENGIE Chair)

Chair: Anthony PAPAVALIOU, CORE, UCL, Belgium

- ▶ Alex SHAPIRO, Georgia Institute of Technology, Atlanta (GA), USA
Risk neutral and risk averse approaches to multistage stochastic programming
- ▶ Mario PEREIRA, Brazilian Academy of Sciences, Rio de Janeiro, Brazil
Stochastic programming models for energy planning
- ▶ Andy SUN, Georgia Institute of Technology, Atlanta (GA), USA
Large-scale optimization in electric energy systems: dealing with nonconvexity, dynamics, and uncertainty
- ▶ Anthony PAPAVALIOU, CORE, UCL, Belgium
Solving stochastic unit commitment at industrial scale through parallel computing: a case study of Central Western Europe

CONTRIBUTED SESSION: GAME THEORY

- ▶ Peter HAMMOND, University of Warwick, United Kingdom
A notion of statistical equilibrium for games with many players
- ▶ Dmitry LEVANDO, National Research University, Higher School of Economics, Moscow, Russia
Non-cooperative equilibrium with multiple deviators
- ▶ Andrea PIRRONE, CORE, UCL, Belgium
Common knowledge in correlated equilibria and global games

CONTRIBUTED SESSION: ENVIRONMENTAL ECONOMICS

Chair: Bernard CORNET, Paris School of Economics, France and University of Kansas, Lawrence (KS), USA

- ▶ Valeria FORLIN, CORE, UCL, Belgium
The missing link: leveraging consumers' recycling incentives in a circular economy
- ▶ Nicolas GONNE, Universit e de Namur, Belgium
Environmental taxation and firm selection
- ▶ Maria-Eugenia SANIN, Universit e d'Evry-Val d'Essonne and Ecole Polytechnique, Paris, France
Assessing the impact of environmental taxation and green technology competition
- ▶ Motohiro SATO, Hitotsubashi University, Tokyo, Japan
Natural resource and growth in a federation

CORE SCIENTIFIC SESSION: ENVIRONMENTAL AND NATURAL RESOURCES ECONOMICS (sponsored with generous support of the

Lhoist Berghmans Chair)

Chair: Henry TULKENS, CORE, UCL, Belgium

- ▶ Ingmar SCHUMACHER, Institut de Pr epration   l'Administration et   la Gestion and Ecole Polytechnique, Paris, France
The role of conflict for optimal climate and immigration policy
- ▶ Mirabelle MU LS, Imperial College, London, United Kingdom
The transmission of localised productivity and weather shocks in a globalised world

- ▶ François GÉRARD, Columbia University, New York (NY), USA
Hysteresis and the social cost of corrective policies: evidence from a temporary energy saving program
- ▶ Johan EYCKMANS, KU Leuven, Belgium
How far should EPR reach? Exports of used goods to developing countries
- ▶ Christian GOLLIER, Toulouse School of Economics and Université de Toulouse-Capitole, France
Evaluation of long-dated assets: the role of parameter uncertainty

CONTRIBUTED SESSION: MECHANIS DESIGN - STRATEGY AND SUPPLY CHAIN MANAGEMENT

Chair: Victor GINSBURGH, CORE, UCL and Université libre de Bruxelles, Belgium

- ▶ Efthymios ATHANASIOU, New Economic School, Moscow, Russia
Revisiting the problem of procurement of a pure public good: beyond VCG mechanism
- ▶ Martijn HUYSMANS, KU Leuven, Belgium
The right to secede: the political economy of exit clauses
- ▶ Antonin MACÉ, Aix-Marseille School of Economics, France
Choosing when to delegate: endogenous cooperation and optimal voting rules
- ▶ Juan D. MORENO-TERNERO, Universidad Pablo de Olavide, Spain
Sharing the proceeds from a hierarchical venture
- ▶ Barbara CRESTI, PSP, UCL and Haute Ecole Francisco Ferrer, Bruxelles, Belgium
Firm's financialization vs. profit maximization
- ▶ Wenli PENG, CORE, UCL, Belgium
Order sequencing with unreliable forecasts to minimize cash lead time

PLENARY TALK

- ▶ Goerge NEMHAUSER, Georgia Institute of Technology, Atlanta (GA), USA
Integer programming: the global impact

50 DAYS @ CORE

During the academic year 2015-2016, 50 DAYS@CORE events included:

- ▶ ORBEL 30 Conference
- ▶ Nobel Talk Lars Peter HANSEN (2013 Nobel Prize Laureate in Economics)
- ▶ 1st Belgo-Japan Public Finance Workshop
- ▶ 2nd Workshop on Industrial Organization in the Digital Economy
- ▶ Defuse the Energy Future
- ▶ Conference on "Are our Emotions Rational?"
- ▶ Belgian Financial Research Forum
- ▶ Debate on Social Justice
- ▶ WIC/IEEE Symposium
- ▶ CORE Lecture Series Alfred GALICHON: "Optimal Transport And Economic Applications: Modelling and Estimation"
- ▶ Nobel Talk Christopher A. SIMS (2011 Nobel Prize Laureate in Economics)
- ▶ StochMod 2016 Conference

ORBEL 30 CONFERENCE

ORBEL 30, the 30th edition of the Belgian Operational Research Society's annual conference was the opening event for the celebrations of the 50th anniversary of CORE. It took place in Louvain-la-Neuve, on January 28 and 29, 2016.

As part of CORE's 50th anniversary celebrations, ORBEL 30 featured three plenary speakers: an international Health OR scientist, Professor Eva K. LEE, the Director of the Center for Operations Research in Medicine and HealthCare, at Georgia Tech; and two of the best-known Belgian OR academics, Professors Yurii NESTEROV and Laurence WOLSEY, both of CORE. About 125 participants attended the conference.

Philippe CHEVALIER, François GLINEUR, Anthony PAPAVALIOU and Maurice QUEYRANNE were the members of the Organizing Committee. The event was sponsored by UCL, CORE, N-SIDE, OM Partners, and LocalSolver.

PROGRAM

January 28, 2016

PLENARY SESSION 1

- ▶ Eva K. LEE, Georgia Institute of Technology, Atlanta (GA), USA
Optimizing and transforming the healthcare system

PARALLEL SESSION: OPTIMIZATION 1

- ▶ Anne-Sophie CRÉLOT, Université de Namur, Belgium
Surrogate management in mixed-variable derivative-free optimization
- ▶ Sascha VAN CAUWELAERT, ICTEAM, UCL, Belgium
A "what-if analysis" visual tool to compare optimization approaches
- ▶ Renaud DE LANDTSHEER, CETIC Research Center, University of Wales, United Kingdom
Towards the complexity of differentiation through lazy updates in local search engines
- ▶ Tias GUNS, KU Leuven, Belgium
Mining sequential data using constraint programming

PARALLEL SESSION: HEALTHCARE AND BIOINFORMATICS

- ▶ Julie CONINGS, Universiteit Hasselt, Belgium
The impact of strategic alliances on the configuration of healthcare supply chains
- ▶ Luciano PORRETTA, Université libre de Bruxelles, Belgium
An integer programming formulation for the polymorphic alu insertion recognition problem
- ▶ Wim VANCROONENBURG, KU Leuven, Belgium
Surgical case scheduling under generalized resource constraints
- ▶ Daniele CATANZARO, CORE, UCL, Belgium
A branch-price-and-cut algorithm for the minimum evolution problem

PARALLEL SESSION: SCHEDULING AND TIMETABLING 1

- ▶ Bart VANGERVEN, KU Leuven, Belgium
Conference scheduling - a personalized approach
- ▶ Wart PASSCHYN, KU Leuven, Belgium
No-wait scheduling for locks with parallel chambers
- ▶ Sam HESHMATI, KU Leuven, Belgium
A continuous-time model for scheduling gantry cranes in storage yards
- ▶ Pieter SMET, KU Leuven, Belgium
Stepping horizon models for personnel rostering in integer programming

PARALLEL SESSION: VEHICLE ROUTING 1

- ▶ Florian ARNOLD, Universiteit Antwerpen, Belgium
The multiple-product multiple-depot vehicle routing problem with inventory restrictions
- ▶ Mehmet Rifat KAMBER, Yildiz Technical University, Turkey
A literature review on the open vehicle routing problem
- ▶ Jeroen CORSTJENS, Universiteit Hasselt, Belgium
Experimental analysis of metaheuristic algorithm for the VRPTW
- ▶ Nguyen Thi Thanh DANG, KU Leuven, Belgium
A study on the off-line tuning problem of a local search algorithm for the swap-body vehicle routing problem

PLENARY SESSION 2

- ▶ 2016 ORBEL and WOLSEY awards ceremony

PARALLEL SESSION : OPTIMIZATION 2

- ▶ Adrien TAYLOR, ICTEAM, UCL, Belgium
Exact worst-case performance of first-order methods in convex optimization
- ▶ Thibaut CUVÉLIER, Université de Liège, Belgium
Optimisation and uncertainty: comparing stochastic and robust programming
- ▶ Pavel DVURECHENSKY, Weierstrass Institute for Applied Analysis and Stochastics, Berlin, Germany
Random gradient-free methods for ranking algorithm learning
- ▶ Sebastian STICH, CORE, UCL, Belgium
Efficient methods for a class of truss topology design problems

PARALLEL SESSION: OR APPLICATIONS

- ▶ Jens VAN ENGELAND, KU Leuven, Belgium
An optimization model for allocation of municipal solid waste in Flanders
- ▶ Dorien HERREMANS, Queen Mary University of London, United Kingdom
Music generation with structural constraints: an operations research approach
- ▶ Carlos VAQUERO PATRICIO, Universiteit Amsterdam, The Netherlands
Application of hidden Markov models to music performance style classification via timing and loudness features
- ▶ Djamel REBAINE, Université du Québec à Chicoutimi, Canada
Metaheuristics as a solving approach for the infrared heating in the thermoforming process

PARALLEL SESSION: SCHEDULING AND TIMETABLING 2

- ▶ Hendrik VERMUYTEN, KU Leuven, Belgium
Developing compact course timetables with optimized student flows
- ▶ Sofie BURGGRAEVE, KU Leuven, Belgium
Integration of railway line planning and timetabling
- ▶ Sofie VAN THIELEN, KU Leuven, Belgium
Heuristic for solving detected train conflicts
- ▶ Roel LEUS, KU Leuven, Belgium
An efficient procedure for parallel-machine scheduling with conflicting jobs

PARALLEL SESSION: VEHICLE ROUTING 2

- ▶ Stef MOONS, Universiteit Hasselt, Belgium
Integrating order picking process and vehicle routing problem
- ▶ Hanne POLLARIS, Universiteit Hasselt, Belgium
The capacitated vehicle routing problem with sequence-based pallet loading and axle weight constraints
- ▶ Kenneth SÖRENSEN, Universiteit Antwerpen, Belgium
A critical look at Pichpibul & Kawtummachai's "improved Clarke and Wright savings algorithm"
- ▶ Thomas VAN DEN BOSSCHE, KU Leuven, Belgium
Iterated local search for the PDPTW: improved benchmarks and a container transportation case

PARALLEL SESSION: OPTIMIZATION 3

- ▶ Annette FICKER, KU Leuven, Belgium
Balanced optimization with vector costs
- ▶ Hans DEGROOTE, KU Leuven, Belgium
Active learning of the best algorithm
- ▶ Elisabeth RODRIGUEZ HECK, HEC, Université de Liège, Belgium
Tightening linearizations of non-linear binary optimization problems

PARALLEL SESSION: LOCATION

- ▶ Renata TURKES, Universiteit Antwerpen, Belgium
Budget-constrained pre-positioning of emergency relief supplies to minimize unmet demand
- ▶ Tulio A.M. TOFFOLO, KU Leuven, Belgium
Geographically grouping youth teams into football leagues
- ▶ Hatice CALIK, Université libre de Bruxelles, Belgium
Location, allocation, and routing decisions in an electric car sharing system

PARALLEL SESSION: NETWORKS

- ▶ Martim JOYCE-MONIZ, Université libre de Bruxelles, Belgium
On the piecewise linear unsplittable multicommodity flow problem
- ▶ Jérôme DE BOECK, Université libre de Bruxelles, Belgium
Hop-constrained electricity network design problems
- ▶ Christine TAWFIK, HEC, Université de Liège, Belgium
Service network design and pricing for intermodal freight transport

PARALLEL SESSION: VEHICLE ROUTING 3

- ▶ Yves MOLENBRUCH, Universiteit Hasselt, Belgium
Horizontal cooperation in dial-a-ride services
- ▶ Stefano MICHELINI, HEC, Université de Liège, Belgium
Combining acceleration techniques for pricing in a VRP with time windows
- ▶ Samuel DELEPLANQUE, Université libre de Bruxelles, Belgium
A fast heuristic for the dial-a-ride with transfers

January 29, 2016

PLENARY SESSION 3

- ▶ Yurii NESTEROV, CORE, UCL, Belgium
Convergent subgradient methods for nonsmooth convex minimization

PARALLEL SESSION: MULTI CRITERIA DECISION ANALYSIS

- ▶ Zhor CHERGUI, Université des Sciences et de la Technologie Houari Boumedienne, Bab Ezzouar, Algeria
New test for the assessment of some MCDA methods
- ▶ Jean ROSENFELD, Université libre de Bruxelles, Belgium
An extension of PROMETHEE II to hierarchical clustering
- ▶ Nguyen Anh Vu DOAN, Université libre de Bruxelles, Belgium
Multicriteria-enriched representations of evaluation table using the PROMETHEE methods
- ▶ Raymond BISDORFF, Université du Luxembourg, Luxembourg
HPC ranking big performance tableaux with multiple incommensurable criteria

PARALLEL SESSION: OR AND ENERGY

- ▶ Aurélien CRUCIFIX, N-side, Louvain-la-Neuve, Belgium
Advanced analytics to capture the full value of demand response and energy flexibility in industrial sites
- ▶ Olivier DEVOLDER, N-Side, Louvain-la-Neuve, Belgium
Microgrid becomes more and more an opportunity. How advanced analytics can help in the optimal design and operation of eco-zoning
- ▶ Cyrille DEJEMEPPE, ICTEAM, UCL, Belgium
Forward-checking filtering for nested cardinality constraints: application to an energy cost-aware production planning problem for tissue manufacturing
- ▶ Jeoren BELIËN, KU Leuven, Belgium
Advanced OR/MS education using case studies and educational games

PARALLEL SESSION: SUPPLY CHAIN

- ▶ Floor VERBIEST, Universiteit Antwerpen, Belgium
Impact of plant configuration on capital costs and asset efficiency: study of a chemical blending plant
- ▶ Gilles MERCKX, Université de Namur, Belgium
Buyer-supplier relationship and resiliency from supply disruptions
- ▶ Stijn DE VUYST, Universiteit Gent, Belgium
Optimal inventory management in case of fluctuating market conditions
- ▶ Wouter LEFEVER, Universiteit Gent, Belgium
A convex reformulation for the cyclic inventory routing problem

PARALLEL SESSION : TRANSPORTATION 1

- ▶ Lotte VERDONCK, Universiteit Hasselt, Belgium
Analyzing the impact of coalition characteristics on the performance of carrier collaborations
- ▶ Eline ESPIRT, KU Leuven, Belgium
Multi-drop vehicle routing problem with safety constraints
- ▶ Christof DEFERN, Universiteit Antwerpen, Belgium
Horizontal co-operation and courier companies: a clustered approach
- ▶ Trivikram DOKKA, Lancaster University Management School, United Kingdom
On toll-setter's gain when network user faces uncertainty

PARALLEL SESSION: LINEAR ALGEBRA AND GRAPHS

- ▶ Charlotte TANNIER, Université de Namur, Belgium
Using spectral information to precondition saddle-point systems
- ▶ Arnaud VANDAELE, Université de Mons-Hainaut, Belgium
Coordinate descent methods for positive semidefinite factorization
- ▶ Pierre HAUWEELE, Université de Mons-Hainaut, Belgium
PHOEG helps obtaining extremal graphs
- ▶ Keno MERCKX, Université libre de Bruxelles, Belgium
On the shelling antimatroids of split graphs

PARALLEL SESSION: DECISION, RISK AND OR

- ▶ Valérie BRISON, Université de Mons-Hainaut, Belgium
Assessing risk in geographic contexts: formal models
- ▶ Mustafa AKAN, Dogus University, Istanbul, Turkey
A dynamic model of a non-life insurance company
- ▶ Eric DELMELLE, University of North Carolina at Charlotte (NC), USA
Controlling excess travel and assignment switches in school location
- ▶ Bart SMEULDERS, KU Leuven, Belgium
A test for single-peaked preferences

PARALLEL SESSION: LOGISTICS

- ▶ Teun VAN GILS, Universiteit Hasselt, Belgium
Improving order picking efficiency by analyzing the combination of storage, batching, zoning, and routing policies in a 2-block warehouse
- ▶ Evert-Jan JACOBS, KU Leuven, Belgium
Truck dispatching in a tank terminal
- ▶ José Miguel QUESADE PÉREZ, LSM, UCL, Belgium
Flexible hub assignment of flows for the air express shipment service network design
- ▶ Celia PAQUAY, HEC, Université de Liège, Belgium
A best fit decreasing algorithm for the three dimensional bin packing problem with transportation constraints

PARALLEL SESSION: TRANSPORTATION 2

- ▶ Hilde HEGGEN, Universiteit Hasselt, Belgium
Train load planning optimization: state-of-the-art and opportunities for future research
- ▶ Tomas AMBRA, Universiteit Hasselt, Belgium
A decision support system for synchromodal transport
- ▶ Pavel DVURECHENSKY, Weierstrass Institute for Applied Analysis and Stochastics, Berlin, Germany
Equilibriums in multistage transport problems
- ▶ Jannes VERSTICHEL, KU Leuven, Belgium
Modelling traffic dependent lock capacity with combinatorial Benders' decomposition

PLENARY SESSION 4

- ▶ Laurence WOLSEY, CORE, UCL, Belgium
MIP reformulations: from lot-sizing to inventory routing

CORE NOBEL TALK: LARS PETER HANSEN, 2013 NOBEL PRIZE LAUREATE IN ECONOMICS

CORE and CeSAM organized a CORE Nobel Talk with Lars Peter HANSEN (University of Chicago). The title of the presentation was “**Confronting Uncertainty**”. About 150 persons attended the talk.

Lars Peter HANSEN is an internationally known leader in economic dynamics who works at the boundary of economics and statistics. He is a recipient of the 2013 Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel. Hansen is recognized for making fundamental advances in our understanding of how economic agents cope with changing and risky environments. He has contributed to the development of statistical methods designed to explore the interconnections between macroeconomic indicators and assets in financial markets. These methods are widely used in empirical research in financial economics. Before receiving the Nobel Prize in Economic Sciences, he received several other awards and honors. Professor HANSEN won the 2010 BBVA Foundation Frontiers of Knowledge Award in the Economics, Finance and Management “for making fundamental contributions to our understanding of how economic actors cope with risky and changing environments.” He also received the CME Group-MSRI Prize in Innovative Quantitative Applications in 2008 and the Erwin Plein Nemmers Prize in Economics from Northwestern University in 2006.

Lars Peter HANSEN’s recent work focuses on uncertainty and its relationship to long run risk in the macroeconomy. He explores how models that incorporate ambiguities, beliefs, and skepticism of consumers and investors can explain economic and financial data and reveal the long-term consequences of policy options. HANSEN, Thomas J. SARGENT, and coauthors have recently developed methods for modeling economic decision-making in environments in which uncertainty is hard to quantify. They explore the consequences for models with financial markets and characterize environments in which the beliefs of economic actors are fragile. SARGENT and HANSEN coauthored ‘*Robustness*’, which explores implications of robust control theory for macroeconomic modeling when the decision maker is skeptical of any single statistical model’s ability to capture how decisions are linked to outcomes.

1ST BELGO-JAPANESE PUBLIC FINANCE WORKSHOP

Jean HINDRIKS (CORE, UCL, Belgium) and Pierre PESTIEAU (CORE, UCL and Université de Liège, Belgium), together with Yuki NISHIMURA (Osaka University, Japan) have organized the first edition of the Belgo-Japanese Public Finance Workshop at CORE on March 4-5, 2016. Almost 30 persons attended the workshop. The objective is to build a bridge and to promote collaboration between European and Japanese economists, notably in the area of public economics in which CORE has a long standing reputation. A delegation of 5 professors from Osaka University attended the workshop. The topic this year was **Taxation in a Global Economy**. Increased international mobility of economic activity and profits via FDI, profit shifting, tax fiscal ruling, trade, and migration has resulted in a tax environment that requires decision makers to consider their choices in a global context. In particular, the mobility of tax bases and the shifting of profits pose serious questions for the implementation of tax policy and the sustain questions.

PROGRAM

MARCH 4, 2016

- ▶ Nobua AKAI, Osaka University, Japan
The role of matching grants as a commitment device in the federation model with a repeated soft budget setting
- ▶ Marie-Laure BREUILLÉ, INRA, Université Bourgogne Franche-Comté, Dijon, France
Optimal territorial design and decentralization
- ▶ Kazuki ONJI, Osaka University, Japan
A nation without a corporate income tax: evidence from nineteenth century Japan
- ▶ Mathieu PARENTI, Université libre de Bruxelles, Belgium
Knocking on tax haven’s door: multinational firms and transfer pricing
- ▶ Noriaki MATSUSHIMA, Osaka University, Japan
Exclusive contracts with complementary inputs
- ▶ Skerdilajda ZANAJ, Université du Luxembourg, Luxembourg
Commodity taxation and regulatory competition

MARCH 5, 2016

- ▶ Yutaro HATTA, Osaka University, Japan
Inefficiency in fiscal policy: a political economy of the Laffer curve
- ▶ Susana PERALTA, Nova School of Business and Economics, Lisboa, Portugal
I like the way you move: tax competition in Portuguese municipal corporate income tax
- ▶ Yukihiro NISHIMURA, Osaka University, Japan
Follow you, follow me in tax and investment competition models
- ▶ Grégoire ROTA-GRAZIOSI, International Monetary Fund, Washington (DC), USA
The supermodularity of the tax competition game

2ND WORKSHOP ON INDUSTRIAL ORGANIZATION IN THE DIGITAL ECONOMY

On March 18-19, 2016, CORE co-organized with the Liège Competition and Innovation Institute (LCI) and HEC, Université of Liège the second edition of a two-day workshop on industrial organization of the digital economy. This two-day workshop was targeted at Ph.D. students and young postdoctoral scholars with an interest in the industrial organization of the digital economy.

Paul BELLEFLAMME (CORE, UCL, Belgium), Axel GAUTIER (CORE, UCL and LCII, Université de Liège, Belgium), Marc BOURREAU (Telecom ParisTech, France), Alain STROWEL (UCL and Université Saint-Louis, Bruxelles, Belgium), Eric TOULEMONDE (Université de Namur, Belgium) and Xavier WAUTHY (CORE, UCL and Université Saint-Louis, Bruxelles, Belgium) were the organizers of this workshop.

PROGRAM

MARCH 18, 2016

KEYNOTE LECTURE 1

Chair: Paul BELLEFLAMME, CORE, UCL, Belgium

- ▶ Marc BOURREAU, Telecom ParisTech, France
Digital platforms, advertising and taxation

SESSION 1: NET NEUTRALITY

Chair: Axel GAUTIER, CORE, UCL and LCII, Université de Liège, Belgium

- ▶ Armando J. GARCIA PIRES, Norwegian School of Economics, Bergen, Norway
Net neutrality and content provision
- ▶ Slobodan SUDARIC, Humboldt Universität zu Berlin, Germany
Interconnection and prioritization

SESSION 2: DIGITAL ADVERTISING

Chair: Dimitri PAOLINI, CORE, UCL, Belgium and Università degli Studi di Sassari, Italy

- ▶ Hamid AGHADADASHLI, ECARES, Université libre de Bruxelles, Belgium
Advertising and price competition in online markets
- ▶ Sébastien BROOS, LCII, Université de Liège, Belgium
Targeted advertising and consumer information

KEYNOTE LECTURE 2

Chair: Jorge MARCOS RAMOS, LCII, Université de Liège, Belgium

- ▶ Alain STROWEL, Université Saint-Louis, Bruxelles, Belgium
Data regulation in the digital/platform economy

SESSION 3: ONLINE PRIVACY

Chair: Wouter VERGOTE, Université Saint-Louis, Bruxelles and CORE, UCL, Belgium

- ▶ Sebastian DENGLE, Universiteit Tilburg, The Netherlands
Consumers' privacy choice in the big data era
- ▶ Nessrine OMRANI, Paris School of Economics, France
Privacy policy of online website

SESSION 4: CONSUMER MYOPIA IN ICT MARKETS

Chair: Eric TOULEMONDE, U Namur and CORE, UCL, Belgium

- ▶ Esma KOCA, Imperial College, London, United Kingdom
Managing digital rollovers and product hype with myopic and strategic consumers
- ▶ Ambre NICOLLE, Université Nice Sophia Antipolis, France
Are consumers myopic? Evidence from handset and mobile services choices

MARCH 19, 2016

SESSION 5: PROVIDING CONTENT ONLINE

Chair: Xavier WAUTHY, Université Saint-Louis, Bruxelles and CORE, UCL, Belgium

- ▶ Elias CARRONI, Università di Bologna, Italy
The economics of multi-sided content providers
- ▶ Dainis ZEGNERS, Ludwig-Maximilians-Universität München, Germany
Voluntary disclosure of product information: the case of e-book samples

SESSION 6: ADVANCED PRICING IN ONLINE MARKETS

Chair: Wing Man WYNNE LAM, LCII, Université de Liège, Belgium

- ▶ Andreia AMORIM, Universidade do Minho, Braga, Portugal
Retention strategies in a switching cost model
- ▶ Carlotta MARIOTTO, Université Paris 2 Panthéon-Assas, France
Add-on services, bundling and exclusive contracts in platform markets

SESSION 7: EMPIRICAL ANALYSIS OF DIGITAL MARKETS

Chair: Marc BOURREAU, Telecom, ParisTech, France

- ▶ Yutec SUN, Telecom, ParisTech, France
Market entry and fighting brands: the case of the French mobile telecommunications market
- ▶ Jordana VIOTTO, Université Paris 13 Nord, France
Beyond financing: crowdfunding as a marketing device
- ▶ Annette SCHMINKE, KU Leuven, Belgium
Does one price fit all? An analysis of price divergence in dual-channel markets

DEFUSE THE ENERGY FUTURE (AND DISCUSS TOMORROW'S ELECTRICITY SYSTEM)

This event took place on April 22, 2016. Nine renowned experts on energy discussed tomorrow's electricity system:

- ▶ Eric DRUENNE, Engie, Bruxelles, Belgium, James MATTHYS, Elia, Bruxelles, Belgium and Paul KREUTZKAMP, Next Frahtwerke Belgium, Bruxelles, Belgium
Tomorrow, we shave gratis. Get the market ready for renewables
- ▶ Damien ERNST, Université de Liège, Belgium, Alexandre TORREELE, Elia, Bruxelles, Belgium and Bruno GOUVERNEUR, Synergrid, Bruxelles, Belgium
The super, the micro and the smart. What kind of electricity network do we want?
- ▶ Ronnie BELMANS, KU Leuven, Belgium, Grégoire WALLENBORN, Université libre de Bruxelles, Belgium and Laurent CERCRUYSE, Viessman, Zaventem, Belgium
Revamping the concept of energy efficiency: flexibility versus sobriety

BELGIAN FINANCIAL RESEARCH FORUM

The 15th meeting of the Belgian Financial Research Forum (BFRF) took place at the National Bank of Belgium in Brussels on May 10, 2016. For the first time this research forum was jointly organized by HEC-Liège, Katholieke Universiteit Leuven, Université catholique de Louvain, Universiteit Antwerpen, Universiteit Gent, Université Libre de Bruxelles, Université de Mons, Université de Namur, Vlerick Business School, Vrije Universiteit Brussel. This forum provided unique opportunity to discuss ongoing research in one of the parallel sessions and in a more informal way during the breaks or over lunch.

PROGRAM

PARALLEL SESSION: CORPORATE FINANCE

Chair: Marc DELOOF, Universiteit Antwerpen

- ▶ Cornell DEFRANCO, Vlerick Business School, KU Leuven, Belgium
How does acquirer board structure impact M&A returns? Evidence from European acquirers
- ▶ Joao CUNHA, London School of Economics, United Kingdom
Lobbying in U.S. financial regulation

- ▶ László SÁNDOR, Harvard University, Cambridge (MA), USA
Does liquidity substitute for unemployment insurance? Evidence from the introduction of home equity loans in Denmark

PARALLEL SESSION: FINANCIAL ECONOMICS

Chair: Catherine FUSS, Banque Nationale de Belgique, Bruxelles, Belgium

- ▶ Hung LY-DAI, Université Paris 1 Panthéon-Sorbonne, France
Endogenous interest rate wedge and capital flows in an integrated world
- ▶ Robert KOLLMANN, Université libre de Bruxelles, Belgium
Uncertainty, the exchange rate and international capital flows
- ▶ Jean-Stéphane MÉSONNIER, Banque de France, Paris, France
Banks' foreign currency funding and exporters' performance

PARALLEL SESSION: ASSET PRICING 1

Chair: Anouck CLAES, Université Saint-Louis, Bruxelles, Belgium

- ▶ Ferdinand DREHER, Universiteit Groningen, The Netherlands
Current risk premia and the monetary policy stance
- ▶ Hannes STIEPERARE, Universiteit Gent, Belgium
Price anchoring in the US stock market
- ▶ Kelbesa MEGERSA, Universiteit Antwerpen and Université de Namur, Belgium
Currency and debt dynamics in the era of quantitative easing

PARALLEL SESSION: BANKING 1

Chair: Hans DEGRYSE, KU Leuven, Belgium

- ▶ Egle JAKUCIONYTE, Universiteit Amsterdam, The Netherlands
Shifting currency mismatch losses: effects on corporate debt overhand and leveraged banks
- ▶ Jonathan SMITH, European Central Bank, Frankfurt, Germany
The leverage ratio, risk-taking and bank stability
- ▶ Orkun SAKA, Cass Business School, London, United Kingdom
Domestic banks as lightning rods? Home bias during eurozone crisis

KEYNOTE SESSION

- ▶ John CAMPBELL, Harvard University (MA), USA
Restoring rational choice: the challenge of consumer financial regulation

PARALLEL SESSION: FINANCIAL ECONOMETRICS 1

Chair: Kris BOUDT, Vrije Universiteit Brussel, Bruxelles, Belgium

- ▶ Federico PLATANIA, Université de Liège, Belgium
Hedge fund styles and macroeconomic uncertainty
- ▶ Hassouni AFRAE, Solvay Business School of Economics, Bruxelles, Belgium
Assessing the contribution of hedge funds to portfolio management beyond the mean-variance framework
- ▶ Strajit MUKHERJEE, Universiteit Gent, Belgium
Noisy information and expectation formation in the foreign exchange market

PARALLEL SESSION: FINANCIAL ECONOMETRICS 2

Chair: David VEREDAS, Vlerick Business School, Universiteit Gent, Belgium

- ▶ Leopoldo CATANIA, Università degli Studi di Roma "Tor Vergata", Italy
Dynamic adaptive mixture models
- ▶ Baele LIEVEN, Universiteit Tilburg, The Netherlands
Cumulative prospect theory and the variance premium financial

PARALLEL SESSION: MARKET MICROSTRUCTURE 1

Chair: Mikael PETITJEAN, CORE and LSM, UCL, Belgium

- ▶ Vincent FARDEAU, National Research University, Higher School of Economics, Moscow, Russia
Trading in a rational market

- ▶ Kevin LAMPAERT, Universiteit Gent, Belgium
Intraday momentum in FX markets: disentangling informed trading from liquidity provision
- ▶ Stephanie HECK, Université de Liège, Belgium
US corporate bond market microstructure: new insights from repat-sales indices

PARALLEL SESSION: BANKING 2

Chair: Jan ANNAERT, Universiteit Antwerpen, Belgium

- ▶ Klaas MULIER, Universiteit Gent, Belgium
Some borrowers are more equal than others: bank funding shocks and credit reallocation
- ▶ Sanja JAKOVljeVIC, KU Leuven, Belgium
The impact of bank shocks on firm-level outcomes and bank risk-taking
- ▶ Mike MARIATHASAN, KU Leuven, Belgium
Fire sales bank recapitalizations

PARALLEL SESSION: ASSET PRICING 2

Chair: Bruno DE BACKER, Banque Nationale de Belgique, Belgium

- ▶ Bertsch CHRISTOPH, University College London, United Kingdom
Fed Liftoff and subprime loan interest rates: evidence from the peer-to-peer lending market
- ▶ Roberto DE SANTIS, European Central Bank, Frankfurt, Germany
Malfunctioning and fragmentation of sovereign bond markets
- ▶ Cen JASON, Cambridge Judge Business School, United Kingdom
Switching risk off FX correlations and risk premia

PARALLEL SESSION: MARKET MICROSTRUCTURE 3

Chair: Catherine D'HONDT, ILSM, UCL, Belgium

- ▶ Jasmin GIEDER, Universität Bonn, Germany
High-frequency trading and fundamental price efficiency
- ▶ Matthias SAERENS, KU Leuven, Belgium
The activity of HFTs in the order book: anatomy and information content
- ▶ Hans DEGRYSE, KU Leuven, Belgium
Limit order book information and return: predictability in a fragmented market

PARALLEL SESSION: NETWORK

Chair: Jean-Yves GNABO, Université de Namur, Belgium

- ▶ Marco GERACI, Université de Namur, Belgium
Measuring interconnectedness between financial institutions with Bayesian time-varying vector autoregressions
- ▶ Tarik ROUKNY, Université libre de Bruxelles, Belgium
Interconnectedness as a source of uncertainty in systemic risk
- ▶ Dan H. TAN, Université de Bordeaux, France
Shock diffusion in financial networks

PARALLEL SESSION: BANKING 4

Chair: Koen INGHELBRECHT, Universiteit Antwerpen, Belgium

- ▶ Tijmens DANIELS, De Nederlandsche Bank, The Netherlands
Note on funding risk and the increase in collateralized lending
- ▶ Abhik MUKHERJEE, Ecole Polytechnique Fédérale de Lausanne, Switzerland
Is bank capital regulation costly for firms? Evidence from syndicated loans
- ▶ Saleem BAHAJ, Bank of England, United Kingdom
The residential collateral channel

CONFERENCE ON “ARE OUR EMOTIONS RATIONAL?”

On 17 May 2016, Eyal WINTER (Hebrew University of Jerusalem, Israël), author of “Feeling smart. Why our emotions are more rational than we think” (*Public Affairs*, 2014) gave a lecture on **emotions and rationality**.

It was followed by a round table chaired by Pierre DEHEZ (CORE, UCL, Belgium), with the participation of Olivier LUMINET (FNRS-UCL, Belgium), Arno RIEDL (Universiteit Maastricht, The Netherlands) and Valérie Rosoux (FNRS-UCL, Belgium). Almost 120 persons attended the event.

DEBATE ON SOCIAL JUSTICE: FAIR ALLOCATION VERSUS REAL FREEDOM FOR ALL

This meeting organized by CORE and the Chaire Hoover aimed at a better understanding of the similarities and differences between the approaches to social justice articulated respectively by Philippe VAN PARIJS in *Real Freedom for All* (Oxford University Press, 1995) and Marc FLEURBAEY in *Fairness, Responsibility and Welfare* (Oxford University Press, 2008). The debate moderated by Erik SCHOKKAERT (CORE, UCL and KU Leuven, Belgium) took place at CORE on May 18, 2016. About 32 participants registered to the debate.

37TH WIC SYMPOSIUM ON INFORMATION THEORY IN THE BENELUX

The symposium took place on May 19, 2016. It was organized under the auspices of the Werkgemeenschap voor Informatie- en Communicatietheorie (WIC) and of the IEEE Benelux Signal Processing Chapter.

François GLINEUR (CORE, UCL, Belgium) and Jérôme LOUVEAUX (ELEN, UCL, Belgium) were the organizers of this Symposium.

PROGRAM

MAY 19, 2016

INVITED KEYNOTE TALK

- ▶ Xavier MESTRE, Telecommunications Technological Center of Catalonia, Barcelona, Spain
Random matrix theory for signal processing

ORAL SESSION T1

- ▶ Jeremy VAN DEN EYNDE, Universiteit Antwerpen, Belgium
Delay performance enhancement for DSL networks through cross-layer optimization
- ▶ Steven CLAESSENS, KU Leuven, Belgium
Analysis of modulation techniques for SWIPT with software defined radios
- ▶ Nafiseh JANATIAN, ICTEAM, UCL, Belgium
Joint multi-objective transmit precoding and receiver time switching design for MISO SWIPT systems
- ▶ Osama MAHFOUDIA, Royal Military Academy, Bruxelles and Université libre de Bruxelles, Belgium
Target detection for DVB-T based passive radars using pilot subcarrier signal
- ▶ Jean-François DETERME, Université libre de Bruxelles and ICTEAM, UCL, Belgium
Noise stabilization with simultaneous orthogonal matching pursuit

ORAL SESSION T2

- ▶ Bart KOFOED, Technische Universiteit Eindhoven, The Netherlands
Camera motion for deblurring
- ▶ Cheng LI, Technische Universiteit Eindhoven, The Netherlands
Person-independent discomfort detection system for infants
- ▶ Antoine BERNAS, Stichting Kempenhaeghe, Heeze, The Netherlands
Wavelet-based coherence between large-scale resting-state networks: neurodynamics market for autism?
- ▶ Jona BEYSENS, KU Leuven, Belgium
Touchspeaker, a multi-sensor context-aware application for mobile devices
- ▶ Valerio CAMBARERI, ICTEAM, UCL, Belgium
A non-convex approach to blind calibration from linear sub-Gaussian random measurements

POSTER SESSION

- ▶ Steve BLANDINO, IMEC, Leuven, Belgium
Effect of power amplifier nonlinearity in massive MIMO: in-band and out-of-band distortion
- ▶ Ning PAN, KU Leuven, Belgium
Bandwidth impacts of a run-time multi-sine excitation based SWIPT

- ▶ François ROTTENBERG, ICTEAM, UCL, Belgium
Generalized optimal pilot allocation for channel estimation in multicarrier systems
- ▶ Jeevan SHRESTHA, ICTEAM, UCL, Belgium
Co-existence of cognitive satellite uplink and fixed-service terrestrial
- ▶ Trung-Hien NGUYEN, Université libre de Bruxelles, Belgium
Low-complexity laser phase noise compensation for filter bank multicarrier offset-QAM optical fiber systems
- ▶ Boris SKORIC, Technische Universiteit Eindhoven, The Netherlands
8-state unclonable encryption
- ▶ Taras STANKO, Technische Universiteit Eindhoven, The Netherlands
Optimizing the discretization in zero leakage helper data systems
- ▶ Lieneke KUSTERS, Technische Universiteit Eindhoven, The Netherlands
Zero-leakage multiple key-binding scenarios for SRAM-PUF systems based on the XOR-method
- ▶ Hazem SALLOUHA, KU Leuven, Belgium
Localization in long range communication networks based on machine learning
- ▶ Gamze TILLEM, Technische Universiteit Delft, The Netherlands
Privacy-preserving alpha algorithm for software analysis
- ▶ Attila PARA, Universitatea Politehnica din Bucuresti, Bucharest, Romania
A framework for processing cardiac signals acquired by multiple unobtrusive wearable sensors
- ▶ Thijs VEUGEN, Technische Universiteit Delft, The Netherlands
Proof of the median paths
- ▶ Kris Shrishak SRIDARAN, Technische Universiteit Delft, The Netherlands
Enhancing privacy of users in eID schemes

MAY 20, 2016

ORAL SESSION F1

- ▶ Chibuïke UGWUOKE, Technische Universiteit Delft, The Netherlands
A privacy-preserving GWAS computation with homomorphic encryption
- ▶ Helena BRUYNINCKX, Royal Military Academy, Bruxelles, Belgium
Security analysis of the authentication of classical messages by an arbitrated quantum scheme
- ▶ Taras STANKO, Technische Universiteit Eindhoven, The Netherlands
Fighting asymmetry with asymmetry in reverse fuzzy extractors

ORAL SESSION F2

- ▶ Daniël BODDEN, KU Leuven, Belgium
Linear cryptanalysis of reduced-round speck
- ▶ Majid NATEGHIZAD, Technische Universiteit Delft, The Netherlands
An efficient privacy-preserving comparison protocol in smart metering systems
- ▶ Karel DOMIN, KU Leuven, Belgium
Security analysis of the drone communication protocol: fuzzing the MAVlink protocol

INVITED KEYNOTE TALK

- ▶ Tiji DE BIE, Universiteit Gent, Belgium
Exploratory data mining: an information-theoretic perspective

ORAL SESSION F3

- ▶ Benoît LEGAT, ICTEAM, UCL, Belgium
Parallel optimization on the entropic cone
- ▶ Shokoufeh MARDANIKORANI, Universiteit Twente, The Netherlands
Compute-and-forward on the multiple-access channel with distributed CSIT
- ▶ Jiani LIU, Technische Universiteit Delft, The Netherlands
Autoregressive moving average graph filter design
- ▶ Jie ZHANG, Technische Universiteit Delft, The Netherlands
Greedy gossip algorithm with synchronous communication for wireless sensor networks

CORE LECTURE SERIES ALFRED GALICHON: OPTIMAL TRANSPORT AND ECONOMIC APPLICATIONS: MODELLING AND ESTIMATION

The CORE Lecture Series on “**Optimal Transport And Economic Applications: Modelling and Estimation**” was given by Professor Alfred GALICHON (Economics Department and Courant Institute, New York University, USA) from June 6 to June 8. About 30 persons attended the lecture.

The method of optimal transport yields new perspectives and insights on economics and econometrics, connecting several research areas at CORE. Alfred GALICHON showed how connections between economics and optimal transport lead to profound results. The lectures covered selected topics on matching theory, discrete choice models, and quantile estimation. The lectures brought together economists who are interested in efficient modelling and estimation for compute-intensive problems and mathematicians who are intended to apply optimal transport theory to economics. The research profile of the participants was diverse, including data science, economic theory, econometrics, operations research, partial differential equations and probability. Participants were from universities and research institutes in Belgium, France, and the U.S. Given the variety of interests, Professor GALICHON covered a wide spectrum of topics, themes and issues and suggested directions for future research in economics. The lectures enhanced the understanding of the usefulness of optimal transport theory with several contemporary applications in economics.

PROGRAM

JUNE 6, 2016

- ▶ Monge-Kantorovich theory: Monge-Kantorovich duality; the optimal assignment problem

JUNE 7, 2016

- ▶ Models of choices and matching
 - ▶ Optimal transport and convex analysis
 - ▶ Models of choice
 - ▶ Matching models with transferable utility

JUNE 8, 2016

- ▶ Estimation of matching models and empirical applications
 - ▶ Estimation of matching surplus
 - ▶ Matching function equilibria: theory and estimation

CORE NOBEL TALK: CHRISTOPHER A. SIMS, 2011 NOBEL PRIZE LAUREATE IN ECONOMICS

CORE and CeSAM organized a CORE Nobel Talk with Professor Christopher A. SIMS (University of Princeton). The title of the presentation was “**The Precarious Fiscal Foundations of EMU: A Reassessment after 17 Years**”. 75 persons attended the talk.

Christopher SIMS earned his A.B. in mathematics from Harvard University magna cum laude in 1963 and his Ph.D. in Economics from Harvard in 1968 under supervision of Hendrik S. Houthakker. He has held teaching positions at Harvard, Yale University and, since 1999, Princeton. He spent the longest portion of his career at the University of Minnesota, teaching there from 1970 to 1990. Professor SIMS is a Fellow of the Econometric Society (since 1974), a member of the American Academy of Arts and Sciences (since 1988) and a member of the National Academy of Sciences (since 1989). In 1995 he was president of the Econometric Society; in 2012, he was president of the American Economic Association. Professor SIMS has published numerous important papers in his areas of research: econometrics and macroeconomic theory and policy. Among other things, he was one of the main promoters of the use of vector autoregression in empirical macroeconomics. He has also advocated Bayesian statistics, arguing for its power in formulating and evaluating economic policies. Professor SIMS has been an outspoken opponent of the rational expectations revolution in macroeconomics, arguing that it should be thought of as a “cautious footnote” to econometric policy analysis, rather than “a deep objection to its foundations.” He has been similarly skeptical of the value of real business cycle models. He also helped develop the fiscal theory of the price level and the theory of rational inattention.

BAYESIAN VAR WORKSHOP

This workshop was organized by Luc BAUWENS (CORE, UCL, Belgium) with the participation of Christopher A. SIMS (2011 Nobel Prize Laureate in Economics). Around 50 participants attended the workshop.

PROGRAM

JUNE 22, 2016

- ▶ Dimitris KOROBILOS, University of Glasgow, United Kingdom
Bayesian compressed vector autoregressions
- ▶ Roberto CASARIN, Università Ca' Foscari di Venezia, Italy
Modelling contagion and systemic risk
- ▶ Christopher A. SIMS, Princeton University (PA), USA
Can credit growth be a problem? An application of panel data VARs

STOCHMOD 2016

From July 10 to July 13, CORE hosted Stochmod16, the 6th edition of the bi-annual conference of the EURO workgroup on **Stochastic Modelling**. This meeting brings together applied probabilists, operation researchers, engineers, computer scientists and statisticians with a main or side interest in stochastic modelling. Almost 40 participants attended the conference.

The aim of the meeting is facilitate the exchange of ideas on the latest advances both in the theory of stochastic processes and queueing as well as in applications in different domains such as healthcare, telecommunication systems, operations management, revenue management, and so forth. We had over 40 attendants coming mostly from different European countries but also from Turkey, Canada, USA, and even Australia.

Two plenary sessions were held by Professor Stephen DISNEY (Cardiff University, United Kingdom) and Professor Chung Piaw TEO (National University of Singapore, Singapore).

PROGRAM

JULY 11, 2016

PLENARY TALK

- ▶ Chung Piaw TEO, National University of Singapore, Singapore
Real time allocation flexibility: breaking the square root law barrier

PARALLEL SESSION: MODELLING

- ▶ Julia AMADOR PACHECO, Universidad Complutense de Madrid, Spain
A stochastic epidemic model with latent and quarantine periods
- ▶ Apostolos BURNETAS, University of Athens, Greece
Strategic equilibria and optimal admission policies in an unobservable Markovian queue with batch arrivals
- ▶ Marijn TEN THIJ, Vrije Universiteit Amsterdam, The Netherlands
Modelling trends from a network perspective

PARALLEL SESSION: QUEUEING THEORY I

- ▶ Eleonara DEIANA, Université de Namur, Belgium
Fluid flows with jumps at the boundary
- ▶ Peter BRAUNSTEINS, University of Melbourne, Australia
A pathwise approach to capacity value in M/M/1/C queues
- ▶ Sophie HAUPHENNE, University of Melbourne, Australia
The lost revenue function of MAP/PH/1/C queues

PARALLEL SESSION: CALL CENTER

- ▶ Odysseas KANAVETAS, Sabanci Üniversitesi, Istanbul, Turkey
A call center problem of M(n)/G/c+G approximation
- ▶ Raik STOLLETZ, Universität Mannheim, Germany
Integrated staffing and scheduling in call centers
- ▶ Oualid JOUINI, CentraleSupélec, Châtenay-Malabry, France
Routing strategies for multi-channel call centers: should we delay the call rejection?

PARALLEL SESSION: REVENUE MANAGEMENT

- ▶ Miray ÖNER-KÖZEN, Technische Universität München, Germany
Simultaneous optimization of dynamic pricing, lead time quotation and due-date based priority dispatching decisions
- ▶ Ad RIDDER, Vrije Universiteit Amsterdam, The Netherlands
Simulation-based markdown optimization across multiple countries
- ▶ Ruben VAN DE GEER, Vrije Universiteit Amsterdam, The Netherlands
Optimal pricing under mixed logit choice

JULY 12, 2016

PLENARY TALK

- ▶ Stephen DISNEY, Cardiff University, United Kingdom
The bullwhip effect in supply chains

PARALLEL SESSION: OPERATIONS MANAGEMENT I

- ▶ Axel FRANZ, Universität Mannheim, Germany
Performance approximation of drop swap operations in on-site logistics
- ▶ Wenli PENG, CORE, UCL, Belgium
Managing the flexibility in rolling demand planning to improve capable-to-promise
- ▶ Riccardo MOGRE, Durham University, United Kingdom
Paying more to get it faster: when should it be considered

PARALLEL SESSION: QUEUEING MODELS

- ▶ Roula IBRAHIM, University College London, United Kingdom
Staffing queues with a random number of servers
- ▶ Mihalis G. MARKAKIS, Universitat Pompeu Fabra, Barcelona, Spain
Learning and hierarchies in service systems with unknown customer types
- ▶ Guillaume ROELS, University of California at Los Angeles (CA), USA
Pooling with work-averse servers

PARALLEL SESSION: OPERATIONS MANAGEMENT II

- ▶ Felix PAPIER, Essec Business School, Cergy-Pontoise, France
Fleet management for humanitarian development programs with uncertain budget
- ▶ Stef LEMMENS, KU Leuven, Belgium
Performance measurement of a rotavirus vaccine supply chain design by the integration of production capacity into the guaranteed service approach

PARALLEL SESSION: STOCHASTIC PROCESSES

- ▶ Antonio COSMA, Université du Luxembourg, Luxembourg
Valuing American options using fast recursive projections
- ▶ Joann JASIAK, York University, United Kingdom
Robust analysis of the martingale hypothesis
- ▶ Nasrin YOUSEFI, Koç Üniversitesi, Istanbul, Turkey
Robust optimization of optimal stopping problems

PARALLEL SESSION: HEALTH CARE

- ▶ Siqiao LI, Shanghai Jiao Tong University, Minhang Qu, China
Adaptive waiting time factor based policy for multi-types patients admission problem in radiotherapy treatment process
- ▶ Elena ALMARAZ LUENGO, Universidad Complutense de Madrid, Spain
Markov-modulated approach in the study of SIR epidemic model

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PARALLEL SESSION: DYNAMIC MODELS

- ▶ Krishna IYER, Symbiosis Institute of Telecom Management, Maharashtra, India
Modeling aggregate bandwidth and its fluctuation in wireless broadband networks using stochastic point processes
- ▶ Jannik VOGEL, Universität Mannheim, Germany
Optimizing time-dependent processing rates in stochastic environments

PARALLEL SESSION: BEHAVIORAL MODELS

- ▶ Karaesmen ZEYNEP ASKIN, Koç Üniversitesi, Istanbul, Turkey
How experienced aits drive queue behavior in the lab
- ▶ Dieter FIEMS, Universiteit Gent, Belgium
Rationality in joining processor sharing queues
- ▶ Athanasia MANOU, Koç Üniversitesi, Istanbul, Turkey
The effects of information in transportation systems with heterogeneous strategic customers

PARALLEL SESSION: QUEUEING THEORY II

- ▶ Hendrik BAUMANN, Universität Hamburg, Germany
Computing stationary expectations or QBDs with an application to tandem queues
- ▶ Floske SPIEKMA, Universiteit Leiden, The Netherlands
Stationary distribution of a preemptive priority queueing system: explicit formulae
- ▶ Giang NGUYEN, University of Adelaide, Australia
Markov-modulated Brownian motions and the flip-flop fluid queues: a symbiotic relationship

BRIDGING GAPS BETWEEN OR AND ECONOMICS

- ▶ October 1, 2015. Joe THARAKAN, CORE, UCL and Université de Liège, Belgium and Dominique PEETERS, CORE, UCL, Belgium
*On the internal structure of cities (Robert E. Lucas, Jr. and Esteban Rossi-Hansberg, *Econometrica*, Vol.70(4), July, 2002)*
- ▶ October 15, 2015. Valeria FORLIN and Ignacio ARAVENA, CORE, UCL, Belgium
Mechanism design: a linear programming approach (Chapter 5: Auctions) (Rakesh V. Vohra (ed.), Cambridge University Press, 2011)
- ▶ November 19, 2015. Zhengyuan GAO, CORE, UCL, Belgium
*Empirical likelihood methods in econometrics (Yuichi Kitamura, in *Econometric Society Monographs (No. 43), Advances in Economics and Econometrics Theory and Applications, Ninth World Congress, Volume 3*, Eds. Richard Blundell, Whitney Newey, Torsten Persson, Cambridge University Press, 2007)*
- ▶ November 26, 2015. Manuel HERRERA, CORE, UCL, Belgium
*Liner ship fleet deployment with container transshipment operations (Shuaian Wang and Qiang Meng, *Transportation Research Part E: Logistics and Transportation Review*, Volume 48(2), 470–484, 2012)*
- ▶ December 10, 2015. Sebastian STICH, CORE, UCL, Belgium
*Cooperative facility location games (Michel Goemans and Markin Skutella, *Journal of Algorithms* 50, 194–214, 2004)*
- ▶ February 4, 2016. Vladimir SHIKHMAN, CORE, UCL, Belgium
*Price-taking equilibrium in economics and games (Joseph M. Ostroy, and Joon Song, *XXIV European Workshop on General Equilibrium Theory*, Naples, 2015)*
- ▶ February 18, 2016. Mehdi MADANI, ILSM, UCL, Belgium and Jonas TEUSCH, CORE, UCL, Belgium
*Spatial price equilibrium and linear programming (Paul A. Samuelson, *American Economic Review*, Vol. 42(3), 283-303, 1952).*
- ▶ March 3, 2016. Maurice QUEYRANNE, CORE, UCL, Belgium
*Manipulation-resistant reputation systems (Eric Friedman, Paul Resnick and Rahul Sami, Chapter 27 in: Nisan et al., eds., *Algorithmic Game Theory*, Cambridge University Press, 2007).*
- ▶ March 17, 2016. Paul CHÂTELAIN, LSM, UCL, Belgium
*The price of fairness (Dimitris Bertsimas, Vivek F. Farias and Nikolaos Trichakis, *Operations Research*, Volume 59(1), 17-31, 2011).*



6

PEOPLE

- ▶ MANAGEMENT
- ▶ FACULTY
- ▶ ADMINISTRATIVE STAFF
- ▶ ADMINISTRATIVE COLLABORATORS
- ▶ TEMPORARY STAFF

PEOPLE

MANAGEMENT



Philippe CHEVALIER
President



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Per AGRELL
Co-Director
Operations Research



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Co-Director
Economics



Sophie BÉREAU
Co-Director
Econometrics



Francisco SANTANA FERRA
Executive Director

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During the 2015-2016 academic year, Board members of CORE consisted of *Faculty Members* of Université catholique de Louvain, Université libre de Bruxelles, Université Saint-Louis, KU Leuven, Université de Liège, Université du Luxembourg and the University of British Columbia.



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- ▶ **SUPPLY CHAIN MANAGEMENT, ENERGY ECONOMICS, OPERATIONS RESEARCH.**
- ▶ Ph.D. (production economics), Linköping University, Sweden, 1995.
- ▶ Researcher, International Institute for Applied Analysis (IIASA), Laxenburg, Austria, 1993–1994; Postdoctoral Researcher, University of Georgia, Athens (GA), USA, 1996–1997; Visiting Associate Professor in operations research, Copenhagen University, Denmark, 1997–1998; Associate Professor in managerial economics, Copenhagen University, Denmark, 1998–2001; Part-time Senior Researcher, Fondazione Eni Enrico Mattei (FEEM), 2005–2011; Senior Researcher, Universitat Autònoma de Barcelona, Spain, 2008; President of the Louvain School of Management Research Institute, UCL, Belgium, 2010–2011; Adjunct Professor, Norwegian School of Economics, Department of Management Science, 2012–to date.
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- ▶ Consultant at the World Bank Washington (DC), USA, 1983–1984; Senior Researcher at Facultés universitaires catholiques de Mons, Belgium, 1984–1987; Senior Lecturer at Ecole des Hautes Etudes en Sciences Sociales (EHESS), Marseille, France, 1987–1991; Chairman, Département des sciences économiques, Université catholique de Louvain, Belgium, 2000–2003; Research Director, CORE, Université catholique de Louvain, Belgium, 2006–2009; President, CORE, Université catholique de Louvain, Belgium, 2010–2013.
- ▶ **Prizes & Awards:** Leonard J. Savage Thesis Award, 1984; Francqui Chair, Facultés universitaires Notre-Dame de la Paix, Namur, Belgium, 2005–2006; Fellow of the Society for Financial Econometrics.
- ▶ **Previous Editorial Activities:** Associate Editor, *Computational Statistics and Data Analysis (Annals of Financial Econometrics)*, *Computational Statistics*, and *Empirical Economics*.
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- ▶ **MICROECONOMICS, INDUSTRIAL ORGANIZATION, AND INNOVATION**
- ▶ Docteur en sciences économiques, Université de Namur, Belgium, 1997.
- ▶ Research Fellow, Université de Namur, Belgium, 1997–1999; Lecturer in economics, Queen Mary College, University of London, United Kingdom, 1999–2002.
- ▶ **Prizes & Awards:** Prix du Fonds International WERNAERS for scientific research and knowledge diffusion, 2012, Francqui Chair, Université de Liège, 2013, Louvain School of Management Research Award 2014, Louvain School of Management Best Education Award, 2014.
- ▶ **Previous Editorial Activities:** Associate Editor, *Information Economics and Policy*.
- ▶ **Current Editorial Activities:** Associate Editor, *Economics*, *the Open-Access, Open Assessment E-Journal* and *Review of Networks Economics*. Member of the editorial board of *Regards Economiques*.



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- ▶ **APPLIED ECONOMETRICS, FINANCE (EXCHANGE RATES AND ASSET PRICES DYNAMICS, FINANCIAL NETWORK MODELING).**
- ▶ Ph.D. in Economics, Université Paris 10 Ouest Nanterre, 2010.
- ▶ Associate researcher, KU Leuven, 2009–2011; research scholar, CREST-INSEE, 2010–2011.
- ▶ **Prizes & Awards:** Fondation Banque de France Prize for the Best Ph.D. in Monetary, Financial and Banking Economics, 2011.



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- ▶ **ENVIRONMENTAL ECONOMICS.**
- ▶ Docteur en sciences économiques, Université Paris 1 Panthéon-Sorbonne, France, 2000.
- ▶ Expert for the European Commission, Belgium, 1992–1994; expert for the Bureau Fédéral du Plan, Belgium, 1994–2000; Holder of the Chair Lhoist Berghmans in Environmental Economics and Management, 2002–2011; Invited Professor, Université Lille 1, France, 2010–2011; Visiting Professor, European University of St Petersburg, Russia, 2009–2015; Associate Research Fellow, Grantham Institute for Climate Change, Imperial College London, 2011–2012; Scientific Director at the Climate Economics Chair, Paris.



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- ▶ Ph.D. (operations research), Massachusetts Institute of Technology, Cambridge (MA), USA, 1992.
- ▶ Associate Professor, Universidad de Chile, 1992–1994.
- ▶ **Previous Editorial Activities:** Member of the editorial board, *Manufacturing and Service Operations Management*.



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- ▶ **Prizes & Awards:** Fellow of the Econometric Society, 1984; Francqui Prize, 1995; Doctor *Honoris Causa*, Université Louis Pasteur, Strasbourg, France, 2002; Founding Fellow of the Society for the Advancement of Economic Theory (SAET), 2011, President-elect of the Society for Social Choice and Welfare, 2016–2018.
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- ▶ Chargé de Recherches, Directeur de Recherches, CNRS, Paris, France, 1998– (on leave); Assistant Professor, University of Pennsylvania (PA), USA, 1999–2004; Profesor titular, Universidad Autónoma de Barcelona, Spain, 1994–1998; Visiting Professor, ECARES-Université libre de Bruxelles and Solvay Business School, Brussels, Belgium, 2005–2008; Visiting Professor, Universidad Carlos III de Madrid, Spain, 2006, Co-director, CORE, Université catholique de Louvain, Belgium, 2012–2014; .
- ▶ **Current Editorial Activities:** Associate Editor, *Economics Bulletin*.



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DAVID DE LA CROIX

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

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- ▶ **Prizes & Awards:** Francqui Chair, Université de Liège, Belgium, 1992–1993; President of the International Association of Cultural Economics, 2002–2004.
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Jean HINDRIKS

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- ▶ **Current Editorial Activities:** Associate Editor, *Journal of Public Economic Theory.*



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- ▶ **Prizes & Awards:** dean, Faculté des sciences économiques et politiques, Université Saint-Louis, Bruxelles, Belgium, 1993–1996; President of SOGESCI (2004–2006), director of the Doctoral School of Management, UCL, Brussels campus, Belgium, 2007–2011, member of INFORMS, SIAM, SOGESCI, and Mathematical Programming Society.



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- ▶ **POVERTY, PUBLIC ECONOMICS AND WELFARE ECONOMICS.**
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- ▶ **Prizes & Awards:** SCW Prize, 2004, best paper in Review of Economic Design, 2004; Chercheur qualifié honoraire, Fonds National de la Recherche Scientifique (FNRS), Belgium; Francqui Chair 2009–2010, Université Saint-Louis, Bruxelles, Belgium; Francqui Prize, 2010; ERC grant laureate 2010.
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Ana MAULEON

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- ▶ **Current Editorial Activities:** Associate Editor, *Journal of Regional Science*.



Michel MOUCHART

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- ▶ Ph.D. in applied mathematics, Institute of Control Sciences, Moscow, Russia, 1984.
- ▶ Research Associate, Central Economic and Mathematical Institute of the Russian Academy of Sciences, Moscow, Russia, 1987–1992; Visiting Professor, Université de Genève, Switzerland, 1992–1993; Invited Professor, CORE, Université catholique de Louvain, Belgium, 1993–2000.
- ▶ **Prizes & Awards:** Dantzig Prize, 2000; John Von Neumann Theory Prize, 2009; Best Paper Award, Optimization Methods and Software, 2010; EUROPT fellow, 2010; Francqui Chair 2012, Université de Liège, Belgium; Honorable Simon Stevin Lecture on Optimization in Engineering, KU Leuven, Belgium, 2013; SIAM Outstanding paper award, 2014, EURO Gold Medal 2016.
- ▶ **Previous Editorial Activities:** Associate Editor, *Mathematical Programming*, *Foundation of Computational Mathematics*.

- ▶ **Current Editorial Activities:** Associate Editor, *Journal of Optimization Theory and Applications*, *Optimization and Engineering*, and *Optimization Methods and Software*.



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- ▶ Ph.D. in Industrial Engineering and Operations Research, University of California at Berkeley, USA, 2011.
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- ▶ Best publication in Energy, INFORMS, 2015.
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- ▶ **Previous Editorial Activities:** Co-editor, *Journal of Population Economics*.
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USA, 2002; Operations Research Center, MIT, USA, 2000; Università di Bologna Sede di Rimini, Italy, 1997-1998; De La Salle University, and Asian Institute of Management, Manila, Philippines, 1993; Université Claude Bernard, Villeurbanne, France, 1992; Università di Pisa, Italy, 1992. Visiting scientist, LAAS-CNRS, Toulouse, France, 1987-1988.

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- ▶ **COMPUTATIONAL ECONOMICS AND RISK MANAGEMENT IN THE ELECTRICITY AND GAS INDUSTRIES.**
- ▶ Ingénieur Physicien, Université de Liège, 1967, Master of Science (industrial administration), 1971, Ph.D. (operations research), Carnegie-Mellon University, Pittsburgh (PA), USA, 1972, Licencié en sciences économiques, Université catholique de Louvain, Belgium, 1973.

- ▶ Prizes & Awards: INFORMS Fellow, 2012.
- ▶ Previous Editorial Activities: European editor, *Energy Journal*.



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- ▶ Docteur en sciences économiques, Université de Liège, Belgium, 1975.
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- ▶ Prizes & Awards: Fellow of the Econometric Society, 1992; Fellow of the Regional Science Association International, 2003; Fellow of the European Economic Association, 2004; William Alonso Memorial Prize, 2004; Prix scientifique quinquennal Ernest-John Solvay (FNRS), 2005; European Prize in Regional Science, 2007; Doctor **Honoris Causa**, 4 universities including Université Jean Monet, Saint-Etienne, France, 2011.
- ▶ Previous Editorial Activities: Associate Editor, *Geographical Analysis*, *International Journal of Industrial Organization*, *Journal of the European Economic Association*, *Journal of Industrial Economics* and *Journal of Regional Science*.
- ▶ Current Editorial Activities: Associate Editor, *International Journal of Economic Theory*, *Japanese Economic Review*, *Journal of Economic Geography*, *Journal of Economics and Management Strategy* and *Regional Science and Urban Economics*.



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- ▶ Visiting positions (teaching and/or research) held at: University of Chicago 1963–1964; University of California; Berkeley (CA), USA, 1964–1965; Université d'Aix-Marseille II, France, 1971; Université libre de Bruxelles, Belgium, 1971–1972 and 1973–1974; 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 12 (Val de Marne), France, 1978; Université de Montréal, Canada, 1985; Beijer Institute of Ecological Economics, Stockholm, Sweden, 1992 and 1993; Fondazione ENI Enrico Mattei, Milan, Italy, 1993; Ecole Nationale de la Statistique et de l'Administration Economique, Paris, France, 1995; International Monetary Fund, Washington (DC), USA, 1997 and 2004; Université de Paris 1 Panthéon-Sorbonne, France, 2003; University of the South Pacific, Suva, Fiji, 2004; National University of Singapore, Singapore, 2002, 2007 and 2008; Università Ca' Foscari Venezia, Italy, 2011 and 2013; Dean, Faculté des sciences économiques, sociales et politiques, Université Saint-Louis, Bruxelles, 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.



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- ▶ Docteur en sciences statistiques, Université catholique de Louvain, Belgium, 2003.
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- ▶ Prizes & Awards: Prix Marie-Jeanne Laurent-Duhamel, 2005.
- ▶ Current Editorial Activities: Associate Editor, *Journal de la Société Française de Statistique*, *International Econometrics Review*.



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- ▶ **GAME THEORY, BARGAINING AND MATCHING THEORY, GROUP FORMATION AND NETWORK THEORY, AND INDUSTRIAL ORGANIZATION.**
- ▶ Docteur en sciences économiques, Université catholique de Louvain, Belgium (European Doctoral Program in Quantitative Economics), 1996.
- ▶ Extramural Fellow of METEOR, Universiteit Maastricht, The Netherlands, 2003–to date; Associate Fellow of CEREC, Université Saint-Louis, Brussels, Belgium, 2005–to date; Director of the European Doctoral Program in Quantitative Economics, 2004–to date.
- ▶ Current Editorial Activities: Associate Editor, *Social Choice and Welfare*



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- ▶ Ph.D. (mathematics), Massachusetts Institute of Technology, Cambridge (MA), USA, 1969.
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- ▶ Prizes & Awards: Orchard-Hays Prize (with R.J. Van Roy) awarded by the Mathematical Programming Society, 1988; Lanchester Prize (with G.L. Nemhauser) awarded by the Operations Research Society of America, 1989; Euro Gold Medal awarded by the European Association of Operations Research Societies, 1994; Dantzig Prize of the

Mathematical Optimization Society, 2012; John von Neumann Theory Prize (INFORMS) with G.L. NEMHAUSER, 2012; Glover-Klingman Prize (with A. AGRA, H. ANDERSON and M. CHRISTIANSEN) for the best paper of the year published in Networks, 2013

- ▶ **Previous Editorial Activities:** Editor-in-Chief, *Mathematical Programming Series A*, 1999-2003; Associate Editor, *Operations Research Letters*, 1985-1989; *Operations Research*, 1987-1995

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- ▶ **FINANCIAL MARKETS, MONEY AND INTEREST RATES, MONETARY POLICY, CENTRAL BANKING, AND THE SUPPLY OF MONEY AND CREDIT**
- ▶ Ph.D in Econometrics, Universiteit Amsterdam, The Netherlands, 2012.
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7

SUPPORT

- ▶ FSR PROJECTS
- ▶ FNRS PROJECTS
- ▶ ARC SUPPORTED BY THE FÉDÉRATION WALLONIE-BRUXELLES
- ▶ IAP RESEARCH PROJECTS SUPPORTED BY THE BELGIAN SCIENCE POLICY
- ▶ RESEARCH PROJECTS SUPPORTED BY THE BELGIAN SCIENCE POLICY
- ▶ EUROPEAN COMMISSION PROJECTS
- ▶ BELGIAN PUBLIC INSTITUTIONS PROJECTS
- ▶ INTERNATIONAL PUBLIC INSTITUTIONS PROJECTS
- ▶ PROJECTS UNDER PRIVATE FUNDINGS
- ▶ CHAIRS

SUPPORT

FSR PROJECTS

A SPATIAL ECONOMETRICS APPROACH TO FINANCIAL COMPLEXITY

The research project aims to develop econometric models that are relevant to exploring financial complex phenomena in general and properly account for the implications of individual interconnections in the understanding of risk dynamics in financial markets in particular. While a vast literature has intended to shed light on contagion and spillovers in a financial market, the recent financial crisis has revealed that globalization and the resulting intensification of the interconnectedness of financial markets contributed to a drastic increase in risk. This evolution calls for a rethinking of both the models and the empirical methods used for the assessment of risk dynamics. To this end, we propose first to develop a synthetic and consistent framework to proper model individual interdependencies and their impact on aggregated dynamics by combining elements from two different literatures. On the one hand, graph theory and network statistics help to assess and model how interdependencies are structured and characterized among a set of individuals. On the other hand, spatial econometrics provides solutions to identify and estimate regression models assuming some functional form for individual interdependences. Combining the two approaches should thus provide an innovative way to model financial interdependencies as well as contagion phenomena. One key contribution will be to assess in what respect relaxing the assumption of exogenous fixed predetermined distance matrix in standard spatial specifications impacts the identification of the parameters of the model as well as the statistical properties of the estimators. Second, based on those theoretical explorations, we will propose relevant estimation methods of the model and compare their performances. Finally, a further step will be to extend our previous model to a nonlinear one, which calls again for both proper specification and estimation methods.

Cyrille DOSSOUGOIN (CORE, UCL) works under the scope of this FSR project supervised by Sophie BÉREAU (CORE and ILSM, UCL).

APPLICATION OF HIGH PERFORMANCE COMPUTING IN THE SHORT-TERM SCHEDULING OF ELECTRIC POWER SYSTEMS UNDER UNCERTAINTY

The purpose of this project is to develop parallel algorithms for the short-term scheduling of electric power systems under uncertainty caused by the large-scale integration of renewable energy sources and demand response. This project responds to an increasing need for the improvement of day-ahead and real-time power systems scheduling and market clearing by leveraging parallel computation.

Ignacio ARAVENA (CORE, UCL) works under the scope of this FSR project supervised by Anthony PAPAVALIIOU (CORE, UCL).

FNRS PROJECTS

BEYOND INCENTIVE REGULATION

Traditionally, public authorities implement separate policies to regulate the financial and quality performance of network utilities. In addition, governmental policies put more emphasis on the former than on the latter. The trade-off between service level and cost efficiency is implicit, and its properties are poorly examined. Moreover, new developments in these industries – e.g. smart grids in electricity distribution and environmental concerns in water distribution – stress even more the need for a new holistic approach to regulation.

It is customary to evaluate the performance of network utilities based on the amount of output provided or total number of customers served. In essence, the current regulation concentrates on the quantity dimension of service provision. One of our goals is to develop models where network operators' performances are assessed using a quality normalized multi-output perspective. In this alternative context, quality features correspond to these additional dimensions included in the analysis. In particular, we expect to elaborate empirical studies that analyze the regulation of quality for energy (electricity, gas) water and railways infrastructure provision. Our aspiration is to contribute to policy-making with the development of a family of optimal incentive mechanisms defined simultaneously by service quality and financial performance.

Per AGRELL (CORE, UCL), Axel GAUTIER (CORE, UCL and Université de Liège) and Sergio PERELMAN (Université de Liège) are the promoters of this project. Mehdi BOUGNOUCH (HEC, ULg) and Jonas TEUSCH (CORE, UCL) work under the scope of this project.

CONTROL AND OPTIMIZATION OF NETWORKED SYSTEMS WITH POORLY UNDERSTOOD COUPLINGS

The deployment of wind turbines has experienced a dramatic increase over the recent years, and wind power is expected to represent a significant part of electricity production in the future. For practical and economical reasons, it is often advantageous to deploy several wind turbines in the same location, on a “wind farm”. Certain of these farms contain up to 100 turbines.

The complex couplings and interactions between turbines on these farms create new challenges in control and optimization (and indeed in fluid dynamics): In order to produce electricity, a turbine takes energy from the wind, which may decrease the strength of the wind arriving at some of the other turbines and create complex perturbations and turbulences. In this context, nothing guarantees that selfish maximization of the production of each turbine is globally optimal, and indeed current simulation results show that it is not. Similar problems arise when one is trying to stabilize the production of the wind farm under varying conditions in order to avoid sharp variations on the electricity network. Understanding exactly how to control or optimize the production of these farms is challenging as the coupling between the turbines involves very complex fluid dynamics phenomena, the accurate simulation of which is already an important research subject on its own. In particular, it appears that an accurate simulation of the interferences taking place on a large farm will be beyond reach for long and would be extraordinarily costly from a computation point of view. On the other hand, a range of simplified models are available, but it is unclear how their (in)accuracy may affect the performances of the control laws relying on them. On the one hand, the control law should not be able to take all dynamical effects into account (wind speed is a very fast-varying input, and pitch actuators have a very limited speed), and on the other hand, the model should be accurate enough to allow the controller to be robust to its prediction faults.

Our research goal is to develop control and optimization methods for such networked systems with unknown or poorly understood coupling, which is thus directly related to wind farms.

This FRIA project is coordinated by Julien HENDRICKX (INMA, UCL) and François GLINEUR (CORE and INMA, UCL). Adrien TAYLOR (INMA, UCL) works under the scope of this project.

DEVELOPMENT OF A TOOL FOR PLANNING AND OPTIMIZING ACTIVE AUTONOMOUS ELECTRICAL DISTRIBUTION GRIDS

This research project is intended to develop a tool for the planning of active low-voltage distribution networks. The active nature covers four aspects: the presence of distributed generation, the flexibility of the load, the storage capacities and the active management of the grid thanks to an increased level of automation. Furthermore, this study will focus on the case of autonomous networks in a context of rural electrification for developing countries. Those autonomous grids are self-sufficient in terms of production capability and may have the possibility to be connected to a higher voltage level.

The development of the planning tool will occur in two steps. First, it is necessary to model the load, the distributed generation, the storage and the grid with appropriate models. In particular, a fraction of the load and the dispersed generation based on renewables have a stochastic nature. Probabilistic provisional models need to be used at this level. Then, multi-objective optimization must be carried out based on a set of predefined technico-economic criteria and constraints such as the reliability of the supply, the minimization of the losses in the lines or the optimal location of storage elements. The integration of a set of models for the aspects above and an optimization tool, along with a process of decision support, should lead to a flexible and built-in tool. This tool will work by making a comparison with the traditional planning methods and will be tested on real study-cases in order to make the necessary adjustments.

This research is coordinated by Emmanuel DE JAEGER (EPL, UCL) and François GLINEUR (CORE and INMA, UCL). Benoît MARTIN (ICTEAM, UCL) works under the scope of this project.

FRONTIER ANALYSIS UNDER UNCERTAINTY

The aim of this project is to work on advanced non-parametric models for multi-level systems, imprecise information and uncertainty in structure, data and preferences.

Per AGRELL (CORE, UCL) is the promoter of this project. Adel Hadami-Marbini (CORE, UCL) works under the scope of this project.

HIGH DIMENSIONAL ECONOMETRICS

High dimensional models arise today in a lot of economic studies. In a linear regression model, for instance, it corresponds to the situation where the number of covariates is large, i.e. close or larger than the sample size. In a multivariate time series setting, high dimensionality refers to the high number of time series that are studied jointly. Due to the ease of data collection today, the empirical researcher faces more frequently such large data sets. High dimensionality also appears in linear models when the covariate is not a random variable but a random function.

Examples are given by the spot electricity prices that are observed continuously over time, or fertility curves used in development economics to measure the density of birth rate over mother's age.

The wide availability of large data sets has increased the hope to address empirically major substantive questions. In the two cited examples, they are, for instance, the impact of electricity spot prices on future contracts or the impact of the shift in fertility curve on economic growth. However, these new promising directions of research are also hampered by several major methodological obstacles. Classical methods of modeling and inference (such as, e.g. estimation by GLS) are not robust to a large increase in the dimension of the econometric model.

The goal of the present research program is to address a number of those methodological obstacles with a view to providing workable and theoretically justified econometric methods and efficient inferential tools. In particular, the program is organized around three interlocking aspects: the failure of stationarity in time series collection, the modelling of large dimensional covariance matrices and the endogeneity of covariates in high dimensional regression.

This FRESH project is coordinated by Sébastien VAN BELLEGEM (CORE, UCL), Joniada MILLA and Monalisa SEN (CORE, UCL) work under the scope of this project.

INFORMATION AND (DIS)INTEGRATION OF FINANCIAL MARKETS

We analyze two aspects related to information extraction and market functioning, namely the extraction of market expectations in the bond market and the interdependence between the bond and stock markets. By extracting market expectations from the bond markets and identifying the transmission of shocks from the bond to the equity markets, we aim to better understand the dynamics of financial contagion which is likely to hit again the real economy in the years to come.

Leonardo IANIA (CORE, UCL) is the promoter of this FNRS CDR (Crédit de Recherche).

OPTIMAL FERTILITY, HEALTH AND EDUCATION IN MARKET ECONOMIES

The proposed research aims at identifying policies that allow improving the steady state efficiency and welfare upon the laissez-faire market outcome. This is achieved exploiting the externalities existing between households' decisions on savings, fertility, health, and education on their own incomes at the aggregate level. Such externalities are disregarded by households at the market equilibrium under laissez-faire, which creates room for improvement through policy intervention.

Julio DAVILA (CORE, UCL) is the promoter of this project. Francesco Andrea PIRRONE works on it.

SOCIAL PREFERENCES AND THE PERSISTENCE OF POVERTY

This project aims at exploring the role that non-self-centered aspects of individual preferences (so-called social preferences) such as identity aspects and social norms can play in the persistence of poverty.

François MANIQUET (CORE, UCL) is the promoter of this project.

STABILITY OF NETWORKS UNDER LIMITED FARSIGHTEDNESS

The objective of the research project is twofold. First, we plan to provide a new stability concept in order to study which networks are likely to emerge if individuals are neither myopic nor farsighted but have limited ability to forecast the future. Second, we will analyze the role of limited thinking in different economic settings (the formation of networks of bilateral free trade agreements, the formation of social networks, the formation of R&D networks) that have been studied assuming that agents were either myopic or farsighted.

Ana MAULEON (Université Saint-Louis, Bruxelles and CORE, UCL) is the promoter of this project.

UNCERTAINTY, ASSET PRICING AND THE MACROECONOMY

This project studies the relationship between uncertainty, macroeconomic fluctuations, financial markets and asset prices. In particular, we are interested at answering of questions such as: how does uncertainty influences macroeconomic variables such as aggregate level of prices levels or aggregate economic activity? Does the impact of uncertainty change in bad times? Is the relationship between macroeconomic and financial variables time dependent? What is the impact of uncertainty on asset prices?"

Leonardo IANIA (CORE, UCL) is the promoter of this research project.

UNCERTAINTY AND MONETARY POLICY

This project will study how uncertainty and market fragmentation can impact the transmission of monetary policy to real activity and financial markets. We will be interested in uncertainty surrounding both economic conditions and the conduct of monetary policy itself.

Leonardo IANIA (CORE, UCL) is the promoter of this project.

THREE-DIMENSIONAL URBAN MORPHODYNAMICS

Under the supervision of Dominique PEETERS (CORE, UCL) and Isabelle THOMAS (CORE, UCL), this FRESH grant aims at studying the socio-economic determinants of urban built-up morphology. Scientific contribution lies in the introduction of buildings verticality in a dynamic setting using different modelling tools such as microeconomics, stochastic methods and agent-based simulations.

Justin DELLOYE (CORE, UCL) works under the scope of this project.

ARC SUPPORTED BY THE FÉDÉRATION WALLONIE-BRUXELLES

FINANCIAL COMPLEX SYSTEMS (FIXS)

The recent financial crisis has emphasized the crucial role of financial institutions in general and of banks in particular for the proper functioning of modern economies. It also revealed their fragility, urging for an effective regulatory framework to be set up. Against this background, the research programme we propose intends to reach two major objectives.

(A) In the short and medium term, we plan to conduct a set of specific research projects that should contribute to tackling the formidable intellectual challenges posed by the financial crisis to the academic community. Our research agenda will specifically concur to provide a rationale for understanding contemporaneous financial systemic fragility that would be both theoretically based and supported by empirical validation, in order to help policy makers designing an efficient set of macro-prudential rules. With that aim, we will specifically concentrate on questions regarding (i) the understanding of contagion mechanisms among increasingly interdependent financial entities, (ii) the description of individual behaviors and their interactions in financial markets that may foster instability and damage the entire financial system. To address them, we propose a research agenda that gathers various disciplines of hard and social sciences and consists in developing jointly theoretical models related to the broad class of complex systems methods as well as empirical techniques that properly take into account individual interdependences characterizing current banking and financial systems. More specifically, our theoretical approach will be based on network analysis and multi-agent frameworks to better apprehend how complex interconnections between financial agents or institutions may foster financial instability at the global level, as well as heterogeneous agent models (HAM) to explore how nonlinear asset prices dynamics may result from the confrontation of heterogeneous individual behaviors and impact the overall system. From the empirical side, we propose to rely on several econometric models ranging from static to dynamic panel data models with spatial interactions.

(B) In the medium and long term, we aim to establish an original pole of expertise in financial complex systems within the "Académie Universitaire Louvain" which would materialize in high-quality research, regular scientific events (workshops, conferences) and teaching activities (doctoral courses, summer schools).

Sophie BÉREAU (CORE and LSM, UCL), Oscar BERNAL (Université de Namur), Annick CASTIAUX (Université de Namur) and Jean-Yves GNABO (Université de Namur) coordinate this project.

SOCIAL AND ECONOMIC NETWORK FORMATION UNDER LIMITED FARSIGHTEDNESS: THEORY AND APPLICATIONS

The global objective of our research project is to deepen our understanding of social and economic networks by bridging the gap between two approaches to network economics: the social networks approach and the Industrial Organization (IO) approach. The research activities will be articulated around the following three axes :

1. Limited farsightedness in network formation
2. Networks in the knowledge economy
3. Group symbols and conventions in networks.

Ana MAULEON and Wouter VERGOTE (Université Saint-Louis, Bruxelles and CORE, UCL) are the promoters of this project.

STOCHASTIC MODELLING OF DEPENDENCE: SYSTEMS UNDER STRESS

The project concerns fundamental research on statistical and econometric models for dependence. The aim of the project is to construct new ways of measuring and modelling risks in systems with intricate dependence structures. Particular attention is to be paid to such systems upon the arrival of shocks, after structural breaks or when comovements between risk factors are higher than usual.

Johan SEGERS (ISBA, UCL) is the promoter of this project also coordinated by Luc BAUWENS (CORE, UCL), Michel DENUIT (ISBA, UCL), Christian HAFNER (ISBA, UCL), Sébastien VAN BELLEGEM (CORE, UCL) and Rainer VON SACHS (ISBA, UCL). Manuela BRAIONE (CORE, UCL), Emanuela PUSCAS (ISBA, UCL) and Michal WARCHOL (ISBA, UCL) work under the scope of this project.

IAP RESEARCH PROJECTS SUPPORTED BY THE BELGIAN SCIENCE POLICY

COMBINATORIAL OPTIMIZATION: METAHEURISTICS AND EXACT METHODS (COMEX)

The main objectives of this project are:

- ▶ Bring together the available Belgian expertise on combinatorial optimization problems, exploit synergies between the partner research groups, and create a network with a sufficient mass to attract young and experienced top-level scientists in Belgium, and further financing for research in the field.
- ▶ Train young researchers in the field of combinatorial optimization. These profiles are in high demand, both in academic research centers worldwide and in private organizations.
- ▶ Develop new models, algorithmic techniques and implementations for complex, large-scale combinatorial optimization problems.
- ▶ Develop new international collaborations with other large teams working in the field of combinatorial optimization. An active and recognized Belgian network would facilitate international collaborations, in particular in the framework of large-scale international projects.

Successful achievement of these objectives will lead to (i) a number of important, fundamental research contributions, (ii) a significant impact on the different sectors where combinatorial optimization problems arise, and (iii) to considerable added value for the Belgian economy.

Bartosz FILIPECKI (CORE, UCL) works under the scope of this project (IAP P7/36) coordinated by Bernard FORTZ (Université libre de Bruxelles) and Mathieu VAN VYVE (CORE, UCL).

EXACT NONNEGATIVE MATRIX FACTORIZATION: ALGORITHMS, BOUNDS AND APPLICATIONS TO OPTIMIZATION

Many combinatorial optimization problems can be formulated as the optimization of a linear objective over a polytope. However, this polytope may have a very large number of facets, possibly growing exponentially with the dimension. Because of the high number of facets, computing the optimal solution can be very time-consuming. However, if one can find an extension of this polytope with a moderate number of facets, one can solve the optimization problem over the extension efficiently and project the optimal solution on the original polytope. Finding an extension for a convex polytope can be done with exact nonnegative matrix factorization. The goals of this research are (i) the development of algorithms that compute exact nonnegative factorizations and (ii) the development of lower bounds (optimality guarantees for the algorithms) on the minimum inner dimension of such factorizations.

Julien DEWEZ (CORE, UCL) works under the scope of this project (IAP P7/19) coordinated by François GLINEUR (CORE, UCL).

RESEARCH PROJECT SUPPORTED BY THE BELGIAN SCIENCE POLICY

INTEGRATED ECONOMIC MODELING OF MATERIAL FLOWS (IECOMAT)

The IECOMAT project develops complementary numerical and analytical tools designed to study a particular aspect of sustainable material management, the circular economy. The models to be employed and to be developed range from input-output models over partial, computable and general equilibrium models as well as analytical industrial organisation models of economic incentives. The project will deliver different modeling frameworks, scenario analyses, a wide variety of policy analyses and ultimately an assessment of the potential of a more circular economy model for Belgium.

The IECOMAT project brings together a multidisciplinary team of experienced scientists from material and environmental engineering, environmental economics, industrial organisation and stakeholder consultation practice. This multidisciplinary team from a leading Flemish research institute on sustainable material management (VITO) and two research universities (KU Leuven and UCL) will interact intensively. This will lead to an interdisciplinary analysis of key scenarios for the Belgian economy. Some specific areas of expertise will be subcontracted to national and international specialists in their domain. In all approaches, three fundamental perspectives will be included: physical material flows, environmental effects and socio-economic impacts, and business incentives. Therefore, the IECOMAT project is about integrated assessment models for the transition towards a circular economy. In order to strengthen a transdisciplinary dimension, the input of policy makers, practitioners and business stakeholders will be actively sought.

Johan EYCKMANS and Sandra ROUSSEAU (KU Leuven) are the coordinators of this project. Thierry BRÉCHET (CORE, UCL) is partner of this project.

MEASURING EQUIVALENT INCOMES: THE IMPLEMENTATION OF INDIVIDUAL WELL-BEING MEASURES FROM BELGIAN DATA (MEQIN)

This project is dedicated to the production, the analysis and the diffusion of a socio-economic database of Belgian households; the database is constructed in such a way that individual well-being levels can be measured according to several concepts of well-being, with a particular focus on equivalent income.

Béa CANTILLON (Universiteit Antwerpen), Bram DE ROCK (Université libre de Bruxelles), François MANIQUET (CORE, UCL) and Erik SCHOKKAERT (CORE and KU Leuven) are the promoters of this project. Eve RAMAKAERS works under the scope of this project.

IMPACT OF GREEN/BLUE SPACES ON SPECIFIC MORBIDITY AND CAUSE-SPECIFIC MORTALITY IN BELGIUM

Living in green/blue areas is associated with better health. This may be due to low air and/or noise pollution, opportunities for physical activity, facilitation of social contacts, and promotion of recovery from fatigue and stress. Yet, socio-economic (SE) factors also explain inequalities in health and access to green/blue spaces. The GRESP-HEALTH project evaluates the associations between living in/close to a green/blue area on morbidity and mortality in Belgium. It assesses all-cause and cause-specific mortality, specific morbidities and perceived health, considering environmental pollutants and SE factors.

The project includes individuals registered in the Belgian censuses of 1991 and/or 2001. Three levels of observation are studied: individual, statistical sector (SS) and group of SS, following individual and ecological designs. Mortality information is based on the National Mortality Database (a linkage between cause-specific mortality (2001-2010), perceived health (2001 census) and SE factors (1991 and 2001 censuses). Morbidity information (2004-2012) is derived from the IMA (Intermutualistisch Agentschap) database, which contains reimbursement data of prescriptions. For green/blue spaces, the surface, shape, accessibility and type are calculated for each SS. Residential area-specific exposure to air pollutants is obtained from satellite images. Traffic noise databases are used whenever possible. We will consider SE factors such as material deprivation, education, and occupation. The analyses will be conducted separately in different age specific populations and types of area (urban, sub-urban, rural). We will use multilevel models for clustered data within geographical areas. Interactions of green/blue spaces with air pollution and SE factors will be evaluated and stratified analyses in areas with similar SE and environmental characteristics will be performed. Moreover, specific population groups (gender, employment status) will be considered.

The GRESP-HEALTH project will improve the scientific knowledge about the hitherto uncertain associations between living close to green/blue spaces and health.

The coordinator of the project is Benoît NEMERY (KU Leuven). The other promoters are Isabelle THOMAS (CORE, UCL), Tim NAWROT (Universiteit Hasselt), Catherine BOULAND (Université libre de Bruxelles), Patrick DEBOOSERE (Vrije Universiteit Brussels) and An VAN NIEUWENHUYSE (Institut de Santé Publique, Bruxelles). Sonia TRABELSI works under the scope of this project.

EUROPEAN COMMISSION PROJECTS

ERASMUS MUNDUS

European Doctorate in Economics Erasmus Mundus (EDEEM)

EDEEM is a research-oriented programme and aims to produce top-quality researchers, who will gain international experience working within the research units with some of Europe's leading researchers in economics. Students are trained for positions in academia at the international level as well as for responsible positions in government, research organizations, and business enterprises. High focus is made on research work, publication and presentation, with dedicated jamborees and summer schools being an integral part of the training. This

programme gathers the following universities: Universiteit Amsterdam, Universität Bielefeld, Universidade Nova de Lisboa, Université catholique de Louvain, Université Paris 1 Panthéon-Sorbonne, Ecole des Hautes Etudes en Sciences Sociales (Paris), Università Ca'Foscari Venezia.

Frédéric DOCQUIER (IRES, UCL) coordinates this project at UCL. Sinem BAS, Benoit DECERF, Aditi DIMRI and Risa PAVIA are currently enrolled in this programme at CORE.

EUROPEAN RESEARCH COUNCIL (ERC)

Poverty, Resource Equality, and Social Policies (PoRESP)

This project is dedicated to theoretical and empirical research on the measurement of poverty, the determinants of poverty, the design of policies aimed at alleviating poverty and the individual responses to anti-poverty policies.

Sinem BAS (CORE, UCL), Benoit DECERF (CORE, UCL), Aditi DIMRI (CORE, UCL), Mery FERRANDO (CORE, UCL), Véronique GILLE (CORE, UCL) and Dirk NEUMANN (CORE, UCL) work under the scope of this project coordinated by François MANIQUET.

COST ACTION PROJECTS

Social Networks and Travel Behavior

The past decade went through rapid ICT (Information and Communication Technologies) developments, which had wide societal impacts. ICT enhanced the shift from social groups defined by location to individually-based social networks. High-speed telecoms allow ad-hoc personalised networks that affect travel behaviour. Unfortunately, research has lagged behind ICT advances, as our understanding of current travel behaviour is limited and existing urban mobility solutions cater to population behaviour that no longer exists. The transport demand models used today are based on inadequate understanding of the new social structure. A new transport paradigm is needed for the ultra-urbanized smart city.

This action aims to initiate a new collaboration framework for various EU research groups that develop a new transport paradigm based upon ICT social networks and their subsequent travel behavior in the urban environment.

The goals are to explore ways in which social activities become mobilized in space, identify how social ties affect the integration of local public transport into urban patterns, and develop a rigorous conceptual framework for new ideas and methodologies. This work will be achieved by creating a joint discussions platform that includes seminars, thematic working groups, discussion sessions, workshops and published scientific results.

Pnina PLAUT (Technion - Israel Institute of Technology, Haifa, Israël) is the promoter of this project. Isabelle THOMAS (CORE, UCL) is partner of this project.

INITIAL TRAINING NETWORKS (ITN) PROJECTS

Mixed-Integer Nonlinear Optimization (MINO)

Complex decision making in enterprises should involve mathematical optimization methods because the best choice has to be made out of a huge number of feasible options. A mathematical description of such decision processes typically involves both continuous and discrete decisions. If the latter are present, the customary modelling approach is to use integer variables, which are also used to represent all possible nonlinearities, so that the remaining part of the model is linear. This leads to Mixed-Integer Linear Optimization (MILO) problems, which can be handled nowadays by many packages, but are often very difficult to solve.

The difficulty of MILO problems is often due to the fact that objective functions or constraints that are structurally nonlinear (e.g., quadratic) are linearized by introducing new integer variables. In many cases, it was observed that this is not the best way to proceed, as facing the nonlinearity directly without the new variables leads to much better results. Algorithmic technology for the resulting Mixed-Integer Nonlinear Optimization (MINO) problems is still at its early stage.

The present situation is such that enterprises facing a MINO problem generally give up due to the lack of efficient solvers, or try to convert it to a MILO one often too hard to be solved in practice. On the other hand, in the academia, there is now increasing expertise in MINO, which is, however, hardly exported outside due to the lack of interaction with the industrial world. It is the purpose of this project to help satisfy the increasing demand for highly qualified researchers receiving, at the same time, state-of-the-art scientific training from the academia and hands-on experience with real-world applications from the industry.

The researchers trained within this project, once recruited by an enterprise at the end of their training, will have the potential to apply all the available knowledge to optimize complex decision making in the real world.

Andrea LODI (Università di Bologna) is the coordinator of the project. The local coordinators at CORE are Mathieu VAN VYVE and Laurence WOLSEY. Abdelraham ALY (CORE, UCL) and Bartosz FILIPECKI (CORE, UCL) work under the scope of this project.

BELGIAN PUBLIC INSTITUTIONS PROJECTS

BRUSSELS REGION

INNOVIRIS: A New Look on the Inter-relationships within the Metropolitan Area of Brussels

The Bru-Net project aims at taking a new look at interactions within the Brussels metropolitan area. Our objective is to understand how people interact, work, move and entertain themselves within their living environments. We seek to develop new methodologies based on existing ones to allow a specific and objective understanding of the social, economic and morphologic organisation of the Brussels metropolitan area.

Jean-Charles DELVENNE (INMA, UCL) and Isabelle THOMAS (CORE, UCL) coordinate this project. Arnaud ADAM (CORE, UCL), Christophe CLOQUET (ICTEAM, UCL) and Adelyne DECUYPER (CORE, UCL) work under the scope of this project.

INTERNATIONAL PUBLIC INSTITUTIONS PROJECTS

ADVANCES IN BEHAVIORAL ECONOMICS, GENDER AND GROWTH

The objective of this research is twofold. First, we plan to develop a theoretical framework that allows us to study which networks and coalitions will be formed when individual and collective incentives could be in conflict. In addition, it is crucial to understand which networks and coalitions are likely to emerge if agents do not have full information about the network and coalition structure and are neither myopic nor farsighted but have limited ability to forecast the future. Will limited information lead to the persistence of networks and coalition structures that differ from those that would arise under full information? Does imperfect monitoring affect network and coalition formation differently than under incomplete information? We will test through different experiments alternative theories of behavior in situations where group and network effects play an important role. We will also run experiments in order to disentangle the role of imperfect monitoring and incomplete information in network and coalition formation problems. Second, we will study the efficiency of different forms of collaboration among heterogeneous agents in situations where agents are part of a network and belong to coalitions. We will also analyze the role of group and network effects in the design of optimal school choice mechanisms and of more effective policies to address persistent inequalities and mismatch in the labor market.

The project is financed by the Spanish Ministry of Economy and Competitiveness. Ana MAULEON (Université Saint-Louis, Bruxelles and CORE, UCL) and Vincent VANNETELBOSCH (CORE, UCL) work under this project.

ENDOGENOUS QUANTAL RESPONSE EQUILIBRIUM IN NORMAL FORM GAMES

The aim of this project is to develop an equilibrium concept coined endogenous quantal response equilibrium (EQRE) based on heterogeneous players and endogenous learning in a logistic quantal choice model. Each player has an asymptotically consistent estimate of his rival's rationality index and is able to choose his own rationality level according to a cost-benefit tradeoff.

The project is financed by the National Research Fund, Luxembourg. Oswaldo GRESSANI (CORE, UCL) works on this project coordinated by Pierre PICARD (Université du Luxembourg and CORE, UCL) and Vincent VANNETELBOSCH (CORE, UCL).

NETWORKS, INNOVATIONS, CULTURE, EMPLOYMENT AND GROWTH

It is well known that social structures, the position of individuals in these structures and social segregation determine the success of individuals, groups and societies as a whole. We will formally introduce social structures in the economic analysis in order to determine whether part of the difference in wages between men and women or between different socio-economic groups can be explained by their positioning in social structures and social segregation, and will also analyze their implications for professional success.

The project is financed by the Spanish Ministry of Economy and Competition. Ana MAULEON (Université Saint-Louis, Bruxelles and CORE, UCL) and Vincent VANNETELBOSCH (CORE, UCL) are external investigators of this project coordinated by Javier GARDEAZABAL and Maria Paz ESPINOSA (Universidad Del País Vasco, Bilbao, Spain).

PERFORMANCE ANALYSIS, COMPETITIVENESS AND ECONOMIC PROGRESS

The project aims at developing consolidated non-parametric efficient and productivity measures for the analysis of economic performance, both under regulation and competition.

The project is financed by the Spanish Ministry of Science and Education. Per AGRELL (CORE, UCL) and Emili GRIFELL-TATJE (Universitat Autònoma Barcelona) coordinate this project.

PROJECTS UNDER PRIVATE FUNDINGS

COLORPOWER

Although a substantial amount of demand response resides in the residential sector, the mobilization of residential demand response has fallen short of expectations. The participation of residential flexibility in wholesale electricity markets can have a disruptive impact on the industry. Inspired by our collaboration with MIT start-up Zome, we analyze the long-run impact of residential demand response on the profitability of various technologies through long-run equilibrium models of electricity markets.

This project is financed by ELECTRABEL and coordinated by Philippe CHEVALIER (CORE, UCL) and Anthony PAPAVALIOU (CORE, UCL). Yuting MOU (CORE, UCL) works under the scope of this project.

ENERGETIC TRANSITION

This project aims at shaping potential energy perspectives in Wallonia in the long run. The methodology is interdisciplinary, qualitative and quantitative. The objective is to scrutinize the impacts of such energy transitions on the society.

This project is financed by ELECTRABEL in collaboration with the Bureau Fédéral du Plan, l'Institut de Conseil et d'Etudes en Développement Durable (ICEDD), l'Institut pour un Développement Durable (IDD) and the LENTIC (Université de Liège). At CORE this project is coordinated by Thierry BRÉCHET (CORE, UCL).

HUGE-SCALE SPARSE OPTIMIZATION: THEORY, ALGORITHMS AND APPLICATIONS

The age of Big Data has begun. Data of huge sizes is becoming ubiquitous and practitioners unprecedented sizes, but with specific structure, in particular sparsity. For example, in many applications from machine learning, compressed sensing, social networks and computational biology, we can formulate sparse (quadratic) optimization problems with millions or billions of variables. Classical first or second order optimization algorithms are not designed to scale to instances of huge sizes. As a consequence, new mathematical programming tools and methods are required to solve efficiently these big data problems. The goal of this project is to develop new tools and optimization algorithms with low per-iteration cost and good scalability properties for solving sparse huge scale optimization problems. The project brings together researchers with expertise in optimization capable of dealing with the big and sparse data settings.

François GLINEUR (CORE, UCL) and Ion NECOARA (Politechnica University of Bucharest) are the investigators of this project initiated by the Romanian Academy of Sciences and funded by the World Bank Institute in Romania.

MODELING FLEXIBILITY AT SUB-HOURLY TIME SCALES

The large-scale integration of renewable energy sources is creating increasing needs for flexibility. The optimal dispatch of conventional resources at a sub-hourly time scale in order to prevent binding ramping constraints are increasing the challenges of short-term operations. This project aims at developing optimization models and algorithms that can support the optimal utilization of generator flexibility in short-term operations.

This project is financed by ELECTRABEL and coordinated by Anthony PAPAVALIOU (CORE, UCL).

PLANNING D'UNITÉS DE SOIN HOSPITALIÈRES MIXTES

This project involves the improvement of bed occupancy rates in a hospital. Two aspects were studied. On the one hand, the adaptation of the capacity by closing some wards during weekends and on the other hand, the optimization of the allocation of patients to the different models.

Philippe CHEVALIER (CORE, UCL) coordinates this project financed by Cliniques Universitaires Saint-Luc.

STUDY ON THE REMUNERATION OF CAPACITY IN CONDITIONS OF SCARCITY

Triggered by the resource adequacy problem that occurred in Belgium in 2014 due to the unplanned outage of nuclear capacity in the country, this project aims at analyzing the impact of operating reserve demand curves on energy and reserve prices in Belgium, as well as the implications for investment in generation capacity in Belgium.

The Belgian Electricity and Gas Regulatory Commission (CREG) awarded this research grant to Professors Anthony PAPAVALIOU (CORE, UCL), Yves SMEERS (CORE, UCL) and Mathieu VAN VYVE (CORE, UCL).

R&D STRATEGIES IN A GLOBAL ECONOMY: INTRAMURAL INVESTMENT, COMPETITION AND INTERNATIONAL BUSINESS PROFITABILITY

The recent global crisis has shaken the foundations of western economies, in many cases holding back the growth of productivity. Restoring competitiveness is vital for recovery, and this depends, among other factors, on R&D and innovation investment and the existence of a business fabric capable of translating this investment effort into innovative outcomes that confer a global innovation advantage at both national and enterprise level. In this context, which R&D strategies can help firms position themselves better in a global market? What criteria should guide public and private investment? What factors count most in confronting the international dimension of competition?

This project sets out to offer answers to these questions and to put forward recommendations both from a managerial standpoint and for those charged with implementing economic (industrial and commercial) policy. It will revolve around four lines of research, as defined below:

- Study the complementarity or substitutability between company R&D investment and technology acquisition strategies, the idea being to assess their impact on R&D returns in terms of productivity.

- Analyze the impact of lowering tariff barriers on the relationship between degree of competition and firms' incentives to innovate, and the effects of the interaction between the protection of industrial property and the strength of competition.

- Determine the role of the technological and geographical distance between Spanish and foreign firms in determining the existence and intensity of the spillovers generated by investment in foreign R&D.

- Analyze whether R&D activities can reduce or offset the negative impact of the crisis on company profit margins.

This project is financed by the BBVA Fundación and coordinated by Rafael MONER COLONQUES (Universitat de València, Spain). Vincent VANNETELBOSCH (CORE, UCL) participates to this project.

CHAIRS

GDF-SUEZ CHAIR: ENERGY ECONOMICS AND MANAGEMENT OF ENERGY RISK

Modern energy systems are facing substantial uncertainty in operations and planning. Focusing on the development of quantitative methods for analysing, the chair is operating and planning energy systems and energy markets under uncertainty.

Two researchers are supported under the GDF-SUEZ Chair: Ignacio ARAVENA and Dr Han. Ignacio ARAVENA, a Ph.D. candidate, is working on the assessment of the generation reserve requirements in the European power system in order to accommodate substantial amounts of renewable energy in the European electricity market. Mr ARAVENA was hosted as a visiting researcher at the University of California, Berkeley and the Lawrence Livermore National Laboratory in June and July 2015. Dr Han is working on the active control of transmission network assets and the optimal expansion of power grids. Eirgrid, the Irish transmission SYSTEM operator, has assigned a study for the optimal expansion of the Irish transmission network in order to integrate offshore wind power in the British Isles.

A number of events are planned under the framework of the GDF-SUEZ Chair in 2015 and 2016: a research workshop will be held in order to celebrate the 3rd anniversary of the Chair; the 4th research workshop of the Benelux Association for Energy Economics (BAEE) will be organized by the GDF-SUEZ Chair in October 2015 at CORE; and a panel session on *Computational Challenges in Energy* will be held at the opportunity of the 50th anniversary of CORE.

Anthony PAPAVALIOU (CORE, UCL) is the holder of this chair.

GSK BIOLOGICALS CHAIR IN STRATEGIC SOURCING AND PROCUREMENT

The chair covers research, applied research, teaching and outreach in the field dedicated to sourcing and procurement. Furthermore, the chair aims to establish an internationally visible center for researchers in the field.

Per AGRELL (CORE, UCL), Constantin BLOME (CORE, UCL and University of Sussex, United Kingdom) and Philippe CHEVALIER (CORE, UCL) coordinate this project sponsored by GSK Vaccine, Belgium.

LHOIST BERGHMANS CHAIR IN ENVIRONMENTAL ECONOMICS AND MANAGEMENT

It is a recognized fact that environmental issues are omnipresent in business today. This concern for the environment is quite rightly interpreted as the expression of collective aspirations for better quality of life. The Chair Lhoist Berghmans forms part of this framework and aims to underpin research likely to improve knowledge from three points of view:

- ▶ Evaluation of costs for an industry applying alternative technologies;
- ▶ Evaluation of benefits for a community applying these technologies;
- ▶ Evaluation of 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 is needed in order to integrate the 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 the overall wealth of these countries. Improving decision-making tools, both on an enterprise and community scale, is the main theme of this research. In addition to the research, the Chair is responsible for the following courses:

- ▶ A course on “Environment and Global Economy” mainly aimed at students of economics;
- ▶ A course on “Environment and Enterprise” mainly for civil engineering and management studies;
- ▶ A seminar on “Management of Environmental Issues”.

These courses aim to provide undergraduates with rigorous training in economic theory of the environment, as well as interdisciplinary and open training on economic policy issues.

Paul BELLEFLAMME (CORE, UCL) and Thierry BRÉCHET (CORE, UCL) coordinate this project sponsored by Lhoist Berghmans, Belgium.



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STATISTICS

STATISTICS

For the first 40 years of CORE, statistics are collected by 10 years. As of 2006, they are presented annually.

All details can be found on the CORE webpage (<https://uclouvain.be/en/research-institutes/immaq/core>)

Year	Discussion Papers	Books	Published Papers	Thesis	Seminars			Conferences	Contracts
					Economics	Operations Research	Econometrics		
1966-1976	320	6	244	25	275	156	196		40
1976-1986	472	14	526	25	485	247	212	23	57
1986-1996	621	49	686	56	846	256	267	45	138
1996-2006	817	42	1145	65	920	229	217	50	143
2006-2007	115	7	136	12	80	32	27	8	16
2007-2008	82	4	133	8	83	28	19	4	28
2008-2009	84	5	128	7	80	35	24	6	38
2009-2010	86	4	173	6	77	27	19	11	41
2010-2011	81	4	166	8	69	26	41	12	35
2011-2012	63	7	117	6	79	25	27	7	22
2012-2013	64	6	106	6	58	21	31	8	25
2013-2014	59	1	149	6	53	36	27	7	31
2014-2015	74	3	145	5	67	24	19	11	38
2015-2016	49	3	149	6	68	20	32	19	42
Total	2807	161	4922	237	3240	1173	1141	214	691