LIST OF ABSTRACTS 2017

2017/01

Two-stage supply chain design with safety stock placement decisions

Matias Schuster, Stefan Minner and Jean-Sébastien Tancrez

In this paper, we propose a supply chain design model that integrates facility location with safety stock placement and delivery strategy decisions, to reflect their interdependence and ultimately improve the resulting supply chain design. Safety stock placement decisions are presented as an extended version of the guaranteed-service model, with differentiated service times quoted from distribution centres to retailers. We also consider two customer classes that differ with respect to their delivery time preferences at the retailers. We also consider two customer classes that differ with respect to their delivery time preferences at the retailers. The resulting non-linear model is formulated as a conic quadratic mixed-integer program, which can be solved to optimality. The computational experiments capture the trade-offs between location and safety stock placement decisions, between demand variability pooling and proximity to retailers, and between lead times and service times. We show that, when the distribution centres have short lead times to the retailers, both of them tend to hold safery stocks, and the retailers offer express deliveries. Conversely, when lead times are long, only the retailers hold safery stocks and they tend to offer regular deliveries.

Keywords: location-inventory; safety stock placement; risk pooling; service times; customer classes

2017/02

An intermediary's optimal geographical expansion choice under uncertainty

Mélanie Lefèvre and Joe Tharakan

High transport costs to reach markets and obtaining low prices on these markets make it difficult for small-scale farmers in developing countries to market their production. Geographically isolated farmers therefore often have to rely on intermediaries to transport and sell their output on markets. To collect output from farmers, these intermediaries have to make investments while facing uncertainty due to the volatility of agricultural prices on world markets. Using real options, we establish the optimal investment strategy for an intermediary in terms of when to invest and with how many geographically dispersed farmers to contract with. We also establish how, after the initial investment, the intermediary should optimally further its collection area. We determine what public authorities could do to encourage the emergence of intermediaries who collect production from isolated farmers. Finally, we apply our framework to analyze investment decisions made by intermediaries in the milk sector in Senegal.

Keywords: intermediary; transport costs; real options
JEL codes: O18, Q13, R42

2017/03

Working time regulation, unequal lifetimes and fairness

Marie-Louise Leroux and Gregory Ponthiere

We examine the redistributive impact of working time regulations in an economy with unequal lifetimes. It is shown that uniform working time reductions, when uncompensated (i.e. constant hourly wage), can reduce inequalities in realized lifetime well-being between short-lived and long-lived persons with respect to the laissez-faire, but at the cost of making the short-live worse off. When compensated (i.e. constant labour earnings), uniform working time reductions make the short-live better off, but at the cost of raising inequalities between short-lived and long-lived. The, we characterize the ex post egalitarian optimum, where the realized lifetime well-being of the worst off is maximized, and show that this social optimum involves an increasing age profile in terms of worked hours. We examine the decentralization of that social optimum, and we provide a second-best egalitarian argument for age-dependent working time regulation, which can make the short-lived better off and reduce inequalities in realized lifetime well-being.

Keywords: working time regulations; longevity; inequalities; labor supply; premature death
JEL codes: J10, J18, J22

2017/04

How to license a downstream technology when upstream firms are capacity constrained?

Eva-Maria Scholz

In this paper, we study the relationship between capacity constraints and licensing strategies. To do so, we focus on the licensing strategy of an outside innovator who licenses a process innovation to the downstream sector of a vertical Cournot oligopoly. Downstream firms source an essential production factor from a capacity constrained upstream sector. In this setting, we show that the innovator optimally licenses large innovations via per-unit royalty contracts and small innovations via fixed fee contracts. Moreover, an increase in the strength of the capacity constraints makes it more likely that the optimal licensing contract includes a strictly positive per-unit royalty rate. As a final point, we discuss the relationship between capacity constraints and the social optimality of the innovator's licensing strategy as measured by aggregate welfare or the diffusion of the innovation on the downstream market.

Keywords: capacity constraints; licensing constracts; vertical Cournot oligopoly
JEL codes: D43, L13, O31, O34

2017/05

Corporate social responsibility and supplier development

Eva-Maria Scholz

We study final good producers' incentives and capabilities for implementing corporate social responsibility (CSR) activities with their input suppliers via supplier codes of conduct (SCoC). In this context, we first analyze the implications of SCoC on the market equilibrium outcome in terms of the competition among final good producers as well as their supply relationships. We then derive the conditions under which SCoC are successfully implemented in the industry's supply chains and clarify their implicaitons for consumer welfare. In this context, we study endogenous as well as exogenous standards and further contrast two scenarios in which the input supplier either price discriminates or sets a uniform input price. In the case of endogenous standards, SCoC are set to maximize final good producers' profits and, in equilibrium, are adopted in all supply chains. When standards are exogenous, either no, some or all final good producers successfully implement a SCoC. Here, the equilibrium may be characterized by an underprovision of SCoC, in the sense that not all final good producers that have incentives to adopt a SCoC also succeed to do so. In this context, we study the effectiveness and desirability of public and private initiatives that aim at overcoming this underprovision. In terms of the input supplier's pricing policy, we observe that input price discrimination may provide firms with greater incentives to adopt SCoC and, as a corollary, may maximize consumer surplus.

Keywords: corporate social responsibility; Cournot oligopoly; supply chains
JEL codes: D43, L13, L15, M14

2017/06

Towards and equitable and sustainable points system

Erik Schokkaert, Pierre Devolder, Jean Hindriks and Frank Vandenbroucke

We describe the points sytem that has been proposed by the Belgian Commission for Pension Reform 2020-2040. Intragenerational equity can be realised in a flexible and transparent way through the allocation of points within a cohort. The intergenerational distribution is determined by fixing the value of a point for the newly retired and a sustainability parameter for the actual retirees. The value of the point links future pensions to the future average living standard of the population in employment. This implies that credible promises can be made to tye younger contributing generations. To keep the system economically sustainable, we propose an automatic adjustement mechanism, in which a key role is played by the career length. This adjustment mechanism implements the Musgrave rule by stating that the ratio of pensions over labour earnings net of pension contributions should remain constant. This induces a balanced distribution of the burden of demographic and economic shocks over the different cohorts and can be seen as a transparent mechanism of intergenerational risk sharing.

Keywords: retirement; pension reform; Musgrave rule; intergeneraitonal risk sharing
JEL codes: H55, J38, J18, J26

2017/07

Content acquisition by streaming platforms: premium vs freemium

Elias Carroni and Dimitri Paolini

We analyse the optimal decision of a monopolistic streaming platform. The platform obtains contents from copyright owners (artists) who are paid with a per-user royalty. Advertisers pay a per-user fee to display their commercials. Users value the variety of contents and are heterogeneously bothered by ads. We show that when commercials generate an intermediate nuisance and the size of the potential market is large, the platform finds it optimal to ffer only a paying subscription without displaying any ads. In contrast, a small potential market results in the offer of a menu of subscriptions, with ad-intolerant users paying a positive price and moderately-averse users opting for a free-of-charge solutions. The second (first) solution is always preferred when commercials generate a strong (weak) nuisance. We also show that there may emerge a misalignment of the platform's and artists' interest.

2017/08

A new measure of income poverty for Europe

Benoit Decerf, Karel Van den Bosch and Tim Goedemé

In Europe poverty is usually measured with the at-risk-of-poverty indicator which defines the poverty threshold as 60 per cent of national median income. With this indicator, poverty seems to be lower in some 'poor' EU countries than in some of the richest EU Member States. Also, when the median income changes quickly, the evolution of poverty as shown by the indicator can be counterintuitive, for instance resulting in stagnation or even a decrease in poverty when median incomes fall and living conditions of the poor deteriorate. In this article we propose a new poverty indicator, the Poverty Gap Ratio with priority to the pan-European poor (PGR-PAN) which is not subject to these limitations. The indicator is based on two lines: a hybrid poverty line which increases with national average income and a pan-European poverty line which is fixed in real terms across time and across countries. We use reference budgets to identify a set of useful poverty thresholds. On the basis of EU-SILC data we show that our indicator results in results that are in better agreement with intuitive notions about poverty within the EU and captures more adequately changes as well as cross-national differences in living standards. Furthermore, we contend that the use of our indicator can lead to a more consistent evaluation of poverty in comparison with other indicators of poverty and social exclusion.

Keywords: European Union, income poverty, inequality, pan-European poverty, PGR-PAN
JEL codes: D63, I32

2017/09

Trading under asymmetric information: positive and normative implications

Andrea Attar and Claude d'Aspremont

We study trading situations in which several principals on one side of the market compete to serve privately informed agents on the other side. In such 'generalized screening' settings, competitors may post mechanisms instead of prices, and the enforceability and the efficiency of the contractual relationships become difficult to evaluate. We revisit these issues, focusing on three applicaitons: bilateral (or multilateral) trade, where all traders have private information, auctions and insurance, where incomplete information is one-sided.
In the first part, as a benchmark, we focus on the standard mechanism design approach with only one principal, the «mechanism designer», and we rely on the revelation principle as a device to characterize equilibrium outcomes. Even then, first-best optimality, combiend with Bayesian incentive compatibility and interim individual raitonality migh be difficult to obtain, as illustrated by Myerson and Satterthwite (1983) impossibility result, formulated for risk-neutral traders with independent beliefs. In auctions, if the buyers types are correlated à la Crémer and McLean (1985, 1988), this impossibility can be bypassed and the seller can extract the whole surplus. In the more general multilateral trade setting, a simple modificaiton of a condition provided by d'Aspremont and Gérard-Varet (1982) allows to impliment any distribution of the surplus (Kosenok and Severinov, 2008). However, under risk-aversion, only second-best outcomes can be implemented, as originally shown by Stiglitz (1977) for the monopolistic case, and by Crocker and Snow (1985) for the competitive one.
In the second part, we consider a class of extensive form games in which several principals (with no private information) compete over mechanisms in the presence of privately informed agents. Applying the standard revelation principle becomes problematic, as first pointed out by Peck (1997): there exist equilibrium outcomes that can be supported by general communication mechanisms, but not by simple direct ones. We revisit a relevant implication of this impossibility, i.e. the recent folk-theorem-like result of Yamashita (2010): if there are at least three agents, a large set of incentive compatible allocations can be supported at equilibrium. For the result to hold, principals have to rely on message spaces that are larger than the corresponding agents' type spaces. In the single agent (or common agency) case, the equilibrium analysis can be further simplified using the delegation principle (Peters, 2001, Martimort and Stole, 2002). In this context, we stress the key role played by the possibility to enforce exclusivity clauses. In standard exclusive competition settings (as Rotchild and Stiglitz, 1976), if a pure strategy equilibrium exists, it is second-best efficient (Crocker and Snow, 1985). This is no longer true under nonexclusive competition. In this case, the possibility to complement his rivals' offers, creates new strategic opportunities for selelrs, and crucially modifies equilibrium outcomes: Attar et al. (2014) establish that, in any pure strategy equilibrium, at most one type of agent is actively trading. The impossibility to enforce exclusive trading may further restrict the set of incentive feasible allocations. The recent work of Attar et al. (2016b) characterizes the constraints faced by a planner does not have access to agents' private information, and cannot prevent agent's from engaging in further traders with sellers. They show that this side-trading opportunity dramatically restricts the set of allocations that are available to a planner. As a matter of fact there is only one incentive compatible allocation that is robust to the possibility of sellers' side trades. This prevents any redistribution between different types of (privately informed) buyers.

Keywords: mechanism design, bilateral trade, competing mechanism, constrained efficiency, adverse selection
JEL codes: D43, D82, D86

2017/10

Leveraging consumers' recycling in a circular economy

Valeria Forlin and Eva-Maria Scholz

We study rms' incentives for supporting the transition to a Circular Economy via the choice of their business model, accounting for consumers' recycling preferences and policy makers' Extended Producer Responsibility (EPR) initiatives. Our analysis focuses on take-back programs (TBPs) that reward consumers for dropping o previous purchases at collection points. Results suggest that the uptake of TBPs is primarily driven by the revenue opportunities of firms' collecting and recycling activities and the EPR policy design. Recycling subsidies provide firms with greater incentives than disposal fees or take-back requirements; stricter policies may increase firms' incentives only under take-back requirements or recycling subsidies. From an environmental and consumer welfare perspective, the introduction of TBPs should be encouraged in most cases; regarding producer welfare and the costs of policy makers' initiatives, the result varies with the EPR policy design. In this context, we also identify the trade-os policy makers face when designing their initiatives.

Keywords: circular economy, extended producer responsibility, optimal policy, recycling, take-back programs, waste reduction

2017/11

Implementation in undominated strategies with partially honest agents

Saptarshi Mukherjee, Nozomu Muto and Eve Ramaekers

We consider implementation in undominated strategies by bounded mechanisms. We provide a complete characterization of the class of social choice correspondences that are implementable when agents are partially honest, in the sense that they have strict preferences for being sincere when truthfulness does not result in a worse outcome. As an application, we show that the Pareto correspondence is implemented by a finite mechanism.

Keywords: Implementation in undominated strategies, Partial honesty, Bounded mechanism, Pareto correspondence
JEL codes: D82, D71, D01

2017/12

Optimal income taxation theory and principles of fairness

Marc Fleurbaey and François Maniquet

The achievements and limitations of the classical theory of optimal labor-income taxation based on social welfare functions are now well known. Even though utili-tarianism still dominates public economics, recent interest has arisen for broadening the normative approach and making room for fairness principles such as desert or responsibility. Fairness principles sometimes provide immediate recommendations about the relative weights to assign to various income ranges, but in general require a careful choice of utility representations embodying the relevant interpersonal com-parisons. The main message of this paper is that the traditional tool of welfare economics, the social welfare function framework, is flexible enough to incorporate many approaches, from egalitarianism to libertarianism.

Keywords: Optimal taxation, fair social orderings
JEL codes: H21, D63

2017/13

Dual subgradient method with averaging for optimal resource allocation

Yurii Nesterov and Vladimir Shikhman

A dual subgradient method is proposed for solving convex optimization problems with linear constraints. As novelty, the recovering of primal solutions can be avoided. Instead, the optimal convergence rate for the whole sequence of primal-dual iterates is obtained. This is due to the primal-dual averaging strategies which are incorporated into the itera-tive scheme. We apply our dual subgradient method with averaging to optimal resource allocation within a multi-agent environment. The proposed dual subgradient method nat-urally corresponds to a distributed process of production/price adjustments and effectively leads to a market equilibrium.

Keywords: Convex programming, dual subgradient methods, rate of convergence, averaging, resource allocation

2017/14

Matching with myopic and farsighted players

P. Jean-Jacques Herings, Ana Mauleon and Vincent Vannetelbosch

We study stable sets for marriage problems under the assumption that players can be both myopic and farsighted. We introduce the new notion of the myopic-farsighted stable set, which is based on the notion of a myopic-farsighted improving path. A myopic-farsighted stable set is the set of match-ings such that there is no myopic-farsighted improving path from any match-ing in the set to another matching in the set (internal stability) and there is a myopic-farsighted improving path from any matching outside the set to some matching in the set (external stability). For the special cases where all players are myopic and where all players are farsighted, our concept pre-dicts the set of matchings in the core. When all men are myopic and the top choice of each man is a farsighted woman, we show that the singleton consist-ing of the woman-optimal stable matching is a myopic-farsighted stable set. The same result holds when all women are farsighted. We present examples where this is the unique myopic-farsighted stable set as well as examples of myopic-farsighted stable sets consisting of a core element different from the woman-optimal matching or even of a non-core element..

Keywords: Marriage problems, stable sets, myopic and farsighted players
JEL codes: C70, C78

2017/15

Least squares estimation for GARCH (1,1) model with heavy tailed errors

Arie Preminger and Giuseppe Storti

Summary GARCH (1,1) models are widely used for modelling processes with time varying volatility. These include financial time series, which can be particularly heavy tailed. In this paper, we propose a novel log-transform-based least squares approach to the estimation of GARCH(1,1) models. Within this approach the scale of the estimated volatility is dependent on an unknown tuning constant. By means of a backtesting exercise on both real and simulated data we show that knowledge of the tuning constant is not crucial for Value at Risk prediction. However, this does not apply to many other applications where correct identification of the volatility scale is required. In order to overcome this difficulty, we propose two alternative two-stage least squares estimators (LSE) and derive their asymptotic properties under very mild moment conditions for the errors. In particular, we establish the consistency and asymptotic normality at the standard convergence rate of «sqrt n» for our estimators. Their finite sample properties are assessed by means of an extensive simulation study.

Keywords: GARCH (1,1), least squares estimation, heavy tails, consistency, asymptotic normality, two-step esti-mator.
JEL codes: C12, C13, C15, C22, C53, C58

2017/16

Premature mortality and poverty measurement in an OLG economy

Mathieu Lefèbvre, Pierre Pestieau and Gregory Ponthiere

Following Kanbur and Mukherjee (2007), a solution to the «missing poor» problem (i.e. selection bias in poverty measures due to income-differentiated mortality) consists in computing hypothetical poverty rates while assigning a ctitious income to the prematurely dead. However, in a dynamic general equilibrium economy, doing «as if» the prematurely dead were still alive is likely to a¤ect wages, output and capital accumulation, with an uncertain effect on poverty. We develop a 3-period OLG model with income-differentiated mortality, and compare actual poverty rates with hypothetical poverty rates that would have prevailed if everyone faced the survival conditions of the top income class. Including the prematurely dead has an ambiguous impact on poverty, since it affects income distribution through capital dilution, composition effects and horizon effects. Our results are illustrated by quantifying the impact of income-differentiated mortality on poverty measures for France (1820-2010).

Keywords: income-differentiated mortality, poverty measures, missing poor, OLG models, capital accumulation.
JEL codes: E13, E21, I32

2017/17

Enlarging the collective model of household behaviour: a revealed preference analysis

Claude d'Aspremont and Rodolphe Dos Santos Ferreira

We use a comprehensive model of strategic household behaviour in which the spouses' expenditure on each public good is decomposed into autonomous spending and coordinated spending à la Lindahl. We obtain a continuum of semi-cooperative regimes parameterized by the relative weights put on autonomous spending, by each spouse and for each public good, nesting full cooperative and non-cooperative regimes as limit cases. Testing is approached through revealed preference analysis, by looking for rationalisability of observed data sets, with the price of each public good lying between the maximum and the sum of the hypothesized marginal willingnesses to pay of the two spouses. Once rationalised, an observed data set always allows to identify the sharing rule, except when both spouses contribute in full autonomy to some public good (a situation of local income pooling).

Keywords: semi-cooperative household behaviour, revealed preference analysis, rationalisability, sharing rule identification.
JEL codes: D11, C72, H41

2017/18

The prosumers and the grid

Axel Gautier, Julien Jacqmin and Jean-Christophe Poudou

Prosumers are households that are both *producers* and *consumers* of electricity. A prosumer has a grid-connected decentralized production unit (DPU) and makes two types of exchanges with the grid: energy imports when the local production is insuffi- cient to match the local consumption and energy exports when local production exceeds it. There exists two systems to measure the exchanges : a net metering system that uses a single meter to measure the balance between exports and imports and a net purchasing system that uses two meters to measure separately power exports and im- ports. Both systems are currently used for residential consumption. We build a model to compare the two metering systems. Under net metering, the price of exports paid to prosumers is implicitly set at the price of the electricity that they import. We show that net metering leads to (1) too many prosumers, (2) a decrease in the bills of prosumers, compensated via a higher bill for traditional consumers, and (3) a lack of incentives to synchronize local production and consumption.

Keywords: decentralized production unit, grid regulation, solar panel, grid tariff storage.
JEL codes: D13, L51, L94, Q42

2017/19

Intergenerational mobility, school inequality and social segregation

Andreu Arenas and Jean Hindriks

We study the role of school inequality and social segregation for human capital accu-mulation, inequality and intergenerational mobility. We augment the Becker-Tomes-Solon model of intergenerational mobility, introducing a regime switch model of social segrega-tion at school. Depending on the social background of their parents, children have different probability of access to different school quality. We obtain that segregation and school inequality increase inequality in parental investment with ambiguous effect on the aver-age level. However, we also find that segregation and school inequality increases average educational attainment and income levels. This is due to the complementarity between parental investment and school quality. We show that segregation and school inequality reduce intergenerational mobility if the variance of log parental income above the median is at least as high as the variance below the median. Lastly, we calibrate the model to the US income distribution and simulate the effects of changing segregation and school in-equality on average human capital and intergenerational mobility. Our baseline simulation shows that de-segregation or school equalization policies would increase intergenerational mobility by 42%, while reducing average human capital by 0.13%, compared to current levels.

Keywords: intergenerational mobility; education, school system; equality of opportunity; segregation
JEL codes: D13, L51, L94, Q42

2017/20

Tax evasion by domestic and foreign-owned Portuguese firms: a bunching analysis

Risa Pavia

In this paper I examine whether firms report zero profits as a tax evasion strategy by testing the effects on bunching at zero of an exogenous shock to the cost of evasion in Portugal. I develop a unique identification strategy by exploiting the targeting of the reform to only certain sectors of economic activity. The results suggest that firms' reporting of zero profits is affected by the tax environment. However, the full effect of the reform is likely not observed in the empirical analysis because of firms' additional option to evade taxes by operating on the informal market, as suggested by a greater observed decrease among foreign-owned firms.ion of parental income.

Keywords: taxation, firms, bunching, Portugal
JEL codes: H25, H26

2017/21

Convex hull results for the warehouse problem

Laurence A. Wolsey and Hande Yaman

Given an initial stock and a capacitated warehouse, the warehouse problem aims to decide when to sell and purchase to maximize profit. This problem is common in revenue manage-ment and energy storage. We extend this problem by incorporating fixed costs and provide convex hull descriptions as well as tight compact extended formulations for several variants. For this purpose, we first derive unit flow formulations based on characterizations of extreme points and then project out the additional variables using Fourier-Motzkin elimination. It turns out that the nontrivial inequalities are flow cover inequalities for some single node flow set relaxations.

Keywords: warehouse problem, integer programming, convex hull, extended formulation, Fourier-Motzkin elimination, single node flow set, flow cover inequalities
AMS 2010 Mathematics Subject Classification: 90C27, 90C57

2017/22

Constitutions and groups

Ana Mauleon, Nils Roehl and Vincent Vannetelbosch

We develop a general theoretical framework that allows us to study the group structures that are going to emerge at equilibrium when individuals are allowed to engage in several groups at the same time. We introduce the notion of constitution in order to model for each group the rules governing both the composition of the group and the conditions needed to leave the group and/or to become a new member of the group. We then propose the concept of constitutional stability to study the group structures that are going to emerge at equilibrium in overlapping coalition settings. This concept generalizes previ-ous stability concepts in the literature in which the constitutional rules were exogenously given or not explicitly considered. We combine requirements on constitutions and preferences for guaranteeing both the existence and the emergence of constitutionally stable group structures. Furthermore, by em-bedding many-to-many matchings into our setting, we show how these results could be useful to identify the constitutionally stable group structures in this particular environment.

Keywords: overlapping coalitions, group structure, constitutions, stability, many-to-may matching
JEL codes: C72, C78, D85

2017/23

Joint dynamic pricing and lot-sizing under competition

Alejandro Lamas and Philippe Chevalier

We study the joint dynamic pricing and lot-sizing problem when firms operate in a competitive environ-ment. Bearing in mind that a dynamic pricing strategy is successful when customers understand it, we assume each firm selects prices from a discrete set. The problem corresponds to a Bertrand model, so the pricing strategies of the firms should constitute a Nash equilibrium. Given the combinatorial nature of the decisions, computing the equilibrium in a tractable time may not be feasible for larger instances. In order to compute the equilibrium efficiently, we propose a framework consisting of solving iteratively Mixed Integer Programming formulations. The framework reduces the complexity of the problem by using the fact that pricing and inventory planning remain stable to marginal variations in competitors' prices.

Keywords: production, dynamic pricing, competition, lot-sizing, joint production/marketing decisions

2017/24

Power method tâtonnements for Cobb-Douglas economies

Vladimir Shikhman, Yurii Nesterov and Victor Ginsburgh

We consider an economy with consumers maximizing Cobb-Douglas utilities from the algorithmic perspective. It is known that in this case finding equilibrium prices reduces to the eigenvalue problem for a particularly structured stochastic matrix. We show that the power

method for solving this eigenvalue problem can be naturally interpreted as a tâtonnement executed by an auctioneer. Its linear rate of convergence is established under the reasonable assumption of pairwise connectivity w.r.t. commodities within sub-markets. We show that the pairwise connectivity remains valid under sufficiently small perturbations of consumers' tastes and endowments. Moreover, the property of pairwise connectivity holds for almost all Cobb-Douglas economies.

Keywords: exchange economy, Cobb-Douglas utility, tâtonnement, power method, stochastic matrix, regular economy
JEL codes: C6, D5

2017/25

The domestic welfare loss of Syrian civil war: an equivalent income approach

Harun Onder, Pierre Pestieau and Gregory Ponthiere

This paper uses an equivalent income approach to quantify the domestic welfare loss due to the Syrian Civil War. Focusing on the (income, life expectancy) space, we show that the equivalent income has fallen by about 60 % in comparison to the pre-conflict level. We also nd that the differential between the equivalent income and the standard income for 2016 lies between $75 and $144. Although this low willingness to pay for coming back to pre-conflict survival conditions can be explained by extreme poverty due to the War, the small gap between standard and equivalent incomes tends to question the extra value brought by the latter for the measurement of standards of living in situations of severe poverty. We examine some solutions to that puzzle, including a more general specification of the utility function, the shift from an ex ante approach (valuing changes in life expectancy) to an ex post approach (valuing changes in dis-tributions of realized longevities), as well as considering population ethical aspects. None of those solutions is fully successful in solving the puzzle.

Keywords: Syrian War, conflict, mortality, welfare, equivalent income, measurement
JEL codes: I31, J17, N35

2017/26

Unconventional monetary policy: interest rates and low inflation. A review of literature and methods

Mariarosaria Comunale and Jonas Striaukas

In this paper, we review a range of approaches used to capture monetary policy in a period of Zero Lower Bound (ZLB). We concentrate here on methods closely linked to interest rates, which include: spreads, synthetic indices from principal component analysis, and different shadow rates. Next, we calculate these measures for the euro area, draw comparisons among different approaches, and look at the effects on main macroeconomic variables, with a special focus on inflation. By and large, the impact of unconventional monetary policy shocks on inflation is found to be significantly positive across studies and methods. Finally, we summarize the literature on the Natural Real Rate of Interest. This overview may help to assess how long low (real) interest rates in a ZLB stay in place, potentially leading to more accurate policy recommendations.

Keywords: Unconventional monetary policy; zero lower bound; shadow rates; natural interest rate; inflation
JEL codes: E43, E52, E58, F42

2017/27

To mix or not to mix? Diffusion in groups

Segismundo S. Izquierdo, Luis R. Izquierdo and Dunia Lopez-Pintado

The outbreak of epidemics, the rise of religious radicalization, or the motivational influence of fellow students in classrooms are some of the issues that can be described as diffusion processes in heterogeneous groups. Understanding the role that interaction patterns such as homophily, or segregation, play in the diffusion of certain traits or behaviors is a major challenge for contemporary societies. Here, we study the effects on diffusion processes of mixing (or segregating) two different groups –one group that is more sensitive or prone to "infection", and the other which is more resistant –. We find non-monotonic effects of mixing, and Pareto inefficient segregation levels, e.g., situations where an increase in mixing can benefit both groups. These findings have fundamental consequences for the design of inclusion policies.

Keywords: Diffusion, mixing, segregation, homophily, networks, SIS
JEL codes: C73, D85, L14, O33

2017/28

Causal attribution in block-recursive social systems. A structural modeling perspective

Guillaume Wunsch, Michel Mouchart and Federica Russo

One method for causal analysis in the social sciences is structural modeling. Structural mod-els, as used in this paper, model the (causal) mechanism for a social phenomenon by recursively decomposing the multivariate distribution of the variables of interest. Often, however, one does not achieve a complete decomposition in terms of single variables but in terms of 'blocks' of variables only. Papers giving an overview of this issue are nevertheless rare.

The purpose of this article is to categorize distinct types of block-recursivity and to ex-amine the implications of block-recursivity for causal attribution. A probabilistic approach to causality is firstly developed in the framework of a structural model. The paper then examines block-recursivity due to the presence of contingent conditions, of interaction, and of conjunctive causes. It also discusses causal attribution

when information on the ordering of the variables is incomplete. The paper concludes by stressing, in particular, the importance of properly specifying the population of reference.

Keywords: causality, block-recursivity, contintent conditions, interaction, conjunctive causes

2017/29

Public finances under lurality and proportional electoral systems. Evidence from Hungarian municipalities

András Gregor

In this paper I provide evidence on effects of plurality and proportional electoral systems on fiscal outcomes. In Hungary different voting regimes are applied to elect the members of local councils: in places where more than 10,000 people live a variant of proportional voting system, while below a variant of plurality voting system is used. The setting allows me to apply a regression discontinuity design to identify the causal effect of the electoral system on political and fiscal outcomes. Under the plurality system targeted money transfers are more present - in election years there is a higher tax break, while under the proportional system a higher level of public good provision occurs - in non-election years investment activity is higher. The overall spending is not significantly higher under the proportional system. Interestingly the political variables do not differ under the two voting regimes. The findings are in line with Lizzeri and Persico (2001) theoretical predictions and the results demonstrate that plurality vs. proportional systems per se influence public finances, not only indirectly.

Keywords: public finances, plurality vs. proportional system
JEL codes: H72, H77, D72, D78

2017/30

Screenning procrastinators with automatic-renewal contracts

Johannes Johnen

Automatic contract renewals are a common feature in consumer markets and a frequent concern among policy makers. They can be used to exploit consumer inertia when consumers forgo benefits from switching to better alternatives. I consider two sources for this inertia—limited attention and present bias—which can both lead to procrastination. In both cases, I study how firms can use contract renewal to price discriminate between consumers with dif-ferent inclinations to procrastinate. Monopolists optimally distort automatic-renewal contracts to exploit procrastination of consumers. However, the more a monopolist designs contracts to exploit procrastinators, the higher are the benefits to more sophisticated consumers who take advantage of these offers by not procrastinating. This adverse-selection problem forces monop-olists to focus less on exploiting procrastinating consumers, leading to fewer consumer mistakes. Adverse selection can induce monopolists to offer more efficient contracts. I show that adverse selection does not occur with competition, and that competitive firms focus more on exploita-tion. Competitive firms frequently offer less efficient contracts. Indeed, with limited attention, competition leads to larger renewal prices and more back-loaded pricing. I discuss implications for teaser rates and evaluate recent policies on automatic-renewal contracts in the USA and the UK, such as reminders and increased salience of automatic-renewal features.

Keywords: limited attention, automatic contract renewal, price discrimination, present bias, naiveté
JEL codes: D03, D18, D41, D42, D82

2017/31

Piecewise constant martingales and lazy clocks

Christophe Profeta and Frédéric Vrins

This paper discusses the possibility to find and construct *piecewise constant maratingales*, that is, martingales with piecewise constant sample paths evolving a a connected subset of R. After a brief review of standard ossible techniques, we propose a construction based on the sampling of latent martingales $\sim Z$ with lazy clocks θ. These θ are time-change processes staying in arrears of the true time but that can synchronize at random times to the real clock. This specic choice makes the resulting time-changed process $Z_t = \sim Z_{\theta t}$ a martingale (called a *lazy martingale)* without any assumptions on $\sim Z$, and in most cases, the lazy clock θ is adapted to the filtration of the lazy martingale Z. This would not be the case if the stochastic clock θ could be ahead of the real clock, as typically the case using standard time-change processes. The proposed approach yields an easy way to construct analytically tractable lazy martingales evolving on (intervals of) R.

Keywords: martingales with jumps, time changes, last passage times

2017/32

The Dixit-Stiglitz economy with a 'small group' of firms: A simple and robust equilibrium markup formula

Claude d'Aspremont and Rodolphe Dos Santos Ferreira

In a general version of Dixit-Stiglitz two-sector economy, we present three variants of the concept of oligopolistic equilibrium in price-quantity pairs (d'Aspremont and Dos Santos Ferreira, 2016) integrating income feedback effects in three different ways. For the first two variants (Ford effects ignored or restricted to profits), a single and simple equilibrium markup formula is derived involving, for each firm, a conduct parameter indicating its degree of competitive toughness. Different specifications of these conduct parameters lead to different oligopolistic equilibria in prices and/or in quantities. In particular in the standard Dixit-Stiglitz economy, we show, that the first order conditions of a symmetric oligopolistic price equilibrium correspond to a unique degree of competitive toughness in the general markup

formula, This degree is decreasing (and the markup increasing) as more feedback effects are taken into account by firms. On the contrary, for the third variant, introducing full Ford effects leads to lower markups and higher competitive toughness in the standard Dixit-Stiglitz economy and under conditions ensuring the equilibrium markup to remain in the right interval.

JEL codes: D43, D51, F12, L13

2017/33

Competition for leadership in teams

Ana Mauleon, Simon Schopohl and Vincent Vannetelbosch

We analyze a model of information centralization in teams where players can only exchange information through an endogenous network. Over several periods each player can either pass or not pass her information to her neighbors. Once one player has centralized all the information, all players receive some payoff. The winner who collects all the information gets an additional reward. Since each player discounts payoffs over time, she faces the dilemma of either letting another player centralizing all the information fast, or trying to collect all the information by herself and to overtake the leadership. We find that there is always a single winner who centralizes the information at equilibrium and that only minimally connected networks can be pairwise stable. We also characterize the winner and the duration for any network and for any discount factor. We show that the star network is always pairwise stable. More surprisingly, we find that even networks in which the centralization takes a long time can be pairwise stable.

Keywords: communication network; dynamic network game; information transmission; leadership; pairwise stability; team project
JEL codes: C72, C73, D83, D85

2017/34

Premature deaths, accidental bequests and fairness

Marc Fleurbaey, Marie-Louise Leroux, Pierre Pestieau, Gregory Ponthiere and Stephane Zuber

While little agreement exists regarding the taxation of bequests in general, there is a widely held view that accidental bequests should be subject to a confiscatory tax. We propose to reexamine the optimal taxation of accidental bequests in an economy where individuals care about what they leave to their offspring in case of premature death. We show that, whereas the conventional 100 % tax view holds under the standard utilitarian social welfare criterion, it does not hold under the ex post egalitarian criterion, which assigns a strong weight to the welfare of unlucky short-lived individuals. From an egalitarian perspective, it is optimal not to tax, but to subsidize accidental bequests. We examine the robustness of those results in a dynamic OLG model of wealth accumulation, and show that, whereas the sign of the optimal tax on accidental bequests depends on the form of the joy of giving motive, it remains true that the 100 % tax view does not hold under the ex post egalitarian criterion.

Keywords: mortality; accidental bequests; optimal taxation, egalitarianism; OLG models
JEL codes: D63, D64, D91, H31, J10

2017/35

Missing poor and income mobility

Mathieu Lefebvre, Pierre Pestieau and Gregory Ponthiere

Higher mortality among the poor leads to selection biases in poverty measures. Whereas existing attempts to deal with the «missing poor» problem assume the absence of income mobility and assign to the prematurely dead a fictitious income equal to the last income enjoyed, this paper relaxes that assumption in order to study the impact of income mobility on the size of the missing poor bias. We use data on poverty above age 60 in 12 countries from the EU-SILC database, and we compare standard poverty rates with the hypothetical poverty rates that would have prevailed if (i) all individuals, whatever their income, had enjoyed the same survival conditions (the ones of the highest income class), and if (ii) all individuals within the same income class had been subject to the same income mobility process. It is shown that taking income mobility into account has adverse effects on corrected poverty measures across countries, and that it affects international comparisons in terms of old-age poverty.

Keywords: poverty; measurement; mortality; missing poor; income mobility
JEL codes: I32

2017/36

Dynamic competition in deceptive markets

Johannes Johnen

In many deceptive markets, firms design contracts to exploit mistakes of naive consumers. These contracts also attract less profitable sophisticated consumers. I study such markets when firms compete repeatedly and gather usage data about their customers which is informative about the likelihood of a customer being sophisticated. I show in a benchmark model that firms do not benefit from private information in this setting when all consumers are rational. I find that in sharp contrast to a model with only rational consumers, this customer information mitigates competition and is of great value to its owner despite intense competition. I discuss several implications of the value of customer information on naiveté. Private information on customers' sophistication induces profits that are bell-shaped in the share of naive consumers. Firms prefer an even mix of both customer types. I also show that if firms can educate (some) naives about hid-

den fees, competition is already mitigated when firms compete for customers with initially symmetric information. I analyze a policy that discloses customer information to all firms and thereby increases consumer surplus. I discuss how the UK governments' midata program might induce crucial aspects of this policy, and illustrate the robustness of results through several extensions.

Keywords: Consumer mistakes; deceptive products; shrouded attributes; big data; targeted pricing; consumer data; add-on pricing; price discrimination; industry dynamics
JEL codes: D14, D18, D21, D99, D89

2017/37

Alonso and the scaling of urban profiles

Justin Delloye, Rémi Lemoy and Geoffrey Caruso

Urban characteristics scaling with total population has become an important urban research field since one needs to better understand the benefits and disadvantages of urban growth and further population concentration. Urban scaling research, however, is largely disconnected from the empirics and theory of intra-urban structure for it considers averaged attributes and ignores residential choice trade-offs between transport and housing costs within cities. Using this fundamental trade-off, the monocentric model of Alonso provides theory to urban density profiles. However, it is silent about how these profiles scale with population, thus preventing empirical scaling studies to anchor in a strong micro-economic theory. This paper fixes this gap by introducing power laws for land and for population density in the Alonso model. From an augmented model with land use, we derive the conditions at which equilibrium profiles match recent empirical findings about the scaling of urban land and population density profiles in European cities. We find that the Alonso model is theoretically compatible with the observed scaling of population density profiles and leads to a satisfactory representation of European cities. The conditions for this compatibility refine current understanding of wage and transport costs elasticities with population. Although they require a scaling power of the profile of the share of urbanised land that is different from what is observed, it is argued that alternatives specifications of transport cost functions could solve this issue. Thus our results call for revisiting theories about land development and housing processes as well as the empirics of agglomeration benefits and transport costs.

Keywords: Monocentric model, population density, scaling laws, agglomeration economies

2017/38

Countercyclical school attainment and intergenerational mobility

Andreu Arenas and Clément Malgouyres

We study how economic conditions at the time of choosing post-compulsory education affect intergenerational mobility. Exploiting local variation in birthplace unemployment rate at age 16 across 23 cohorts in France, we find that cohorts deciding on post-compulsory education in bad economic times are more educationally mobile – their level of education is less related to having a white-collar father. These cohorts are also more occupationally mobile; and a large fraction of this effect is explained by business cycle-induced differences in educational attainment. Accounting for differential spatial mobility between birth and age 16 by parental background confirms the results.

Keywords: intergenerational mobility, business cycle, human capital, occupational choice
JEL codes: J24, I21, E24