2005/1 Puzzling over sustainability: an equilibrium analysis.
Thierry BRECHET and Stéphane LAMBRECHT

In this paper we model an overlapping generations economy in which individuals are endowed with a renewable resource. This resource can be exploited at no cost by the young households and provided to production. A joy-of-giving bequest motive motivates the transfer of the unexploited resource to the heirs. The study of intertemporal equilibrium reveals three puzzles neglected by the literature on sustainability. First, the existence of a bequest motive does not automatically guarantee a sustainable future. Second, human exploitation may preserve the resource in equilibrium but at a sub-optimal rate; in this case, both those who exploit too much and those who do not exploit enough should run a capital stock lower than the golden rule level. Third, there exist fluctuating transitions to a sustainable future in which some generations are worse off than both their ascendants and their descendants.
JEL Classification: D91, Q20, D64
Keywords: overlapping generations, sustainability, altruism, natural resource.

2005/2 Preference aggregation versus truth-tracking: asymptotic properties of a related story
Ines LINDNER

This paper is concerned with the asymptotic behavior of some global quantities relating to weighted decision rules when the number of small voters tends to infinity. First, voting is assumed to be motivated by interests, so that the collective decision is ‘preference aggregation’. Here the quantity whose asymptotic behavior is analyzed is the ‘complaisance’ of the decision-making body which was introduced by Coleman in 1971 as the ‘power of a collectivity to act’. Second, decision-making is assumed to the ‘truth-tracking’, so that there is a right answer but voters only have a partial information and imperfect competence for detecting the truth. The quantity considered here is the collective competence of the decision-making body: the probability of its arriving at the correct decision. This is the problem considered by Condorcet’s Jury Theorem. The paper provides a generalization of this celebrated theorem by reinterpreting complaisance in terms of errors in a statistical sense.
JEL Classification: C71, D71
Keywords: majority games, weighted voting games, complaisance, Condorcet’s Jury Theorem.

2005/3 Imperfect competition and congestion in the city
André DE PALMA and Stef PROOST

This paper presents a spatial model to study imperfect competition with congestion. The model is used to examine the price and wage setting of subcenters of a city. Residents live in a city while they shop and work in subcentres. Each subcenter offers one differentiated product and one differentiated workplace. Shopping and commuting from the city to the subcenter requires the use of transport infrastructure that can be congested. We show the existence of a Nash equilibrium in prices and wages and analyse the welfare impacts of congestion charging and infrastructure policies. This paper generalised the literature on imperfect competition with differentiated products as well as the literature on congestion pricing with imperfect competition.
JEL Classification: L13, D43, R41, R3
Keywords: road pricing, product differentiation, location theory, new economic geography, congestion.

2005/4 Illusionary finance and trading behavior
Malika HAMADI, Erick RENGIFO and Diego SALZMAN

One important aspect of financial markets is that there might be some traders that intentionally mislead other market participants by creating illusions in order to obtain a profit. We call this new concept illusionary finance. We present an analysis of how illusions can be created and disseminated in financial markets based on certain psychological principles that explain agents' decisions under time pressure and polysemous signals. We develop a simple model that incorporates the illusions in the price formation process. Furthermore, using powerful simulations, we show how illusions can be incorporated, directly or indirectly, in the expected prices of the traders.
JEL Classification: C32, C35, G10
Keywords: illusionary finance, behavioral finance, evolutionary finance, neuroeconomics.

2005/5 How to win twice at an auction. On the incidence of commissions in auction markets
Victor GINSBURGH, Patrick LEGROS and Nicolas SAHUGUET

We analyze the welfare consequences of an increase in the commissions charged by intermediaries in auction markets. We argue that while commissions are similar to taxes imposed on buyers and sellers the question of incidence deserves a new treatment in auction markets. We show that an increase in commissions makes sellers worse off, but buyers may strictly gain. The results are therefore strikingly different from the standard result that *all* consumers weakly lose after a tax or a commission increase. Our results are useful for evaluating compensation in price fixing conspiracies; in particular they suggest that the method used to distribute compensations in the class action against auction houses Christie's and Sotheby's was misguided.
JEL Classification: L120, L400, D440
Keywords: auction, intermediation, commissions, welfare.

2005/6 Cultural voting. The Eurovision Song Contest
Victor GINSBURGH and Abdul NOURY

We analyze the voting behavior and ratings of judges in a popular song contest held every year in Europe. The dataset makes it possible to analyze the determinants of success, and gives a rare opportunity to run a direct test of vote trading, or logrolling. Though the votes cast may appear as resulting from logrolling, we show that they are rather driven by linguistic and cultural proximities between singers and voting countries.
JEL Classification: D72, Z10
Keywords: logrolling, voting behavior, popular music, contests.

2005/7 Bundling by competitors and the sharing of profits
Victor GINSBURGH and Israel ZANG

We discuss the welfare effects of bundling two products offered by two symmetric firms. We first show that, in terms of welfare, a monopoly does better than a duopoly in which each firm sell its good and that a monopoly selling the bundle does better than if it sells the bundle and the two goods separately. We also show that the choice of the mechanism for sharing the profits, obtained from the sales of the bundle, might have dramatic positive or negative effects – even when the various optional mechanisms yield equal splits. In particular, the use of the Shapley value yields the highest total and consumer surpluses and the lowest producer surplus, while the weighted Shapley value totally reverses the outcome and yields profits which are very close (over 99%) to the full monopoly profits. Hence, as in the case of bundling by a monopolist, when competitors bundle they assist each other in deterring entry. However, in addition when competitors bundle, they can implicitly cooperate via the setting of the profit sharing rule and increase their profits at the expense of customers. This issue calls for some further attention by regulators.
JEL Classification: L13, L51
Keywords: Bundling, Shapley value, weighted Shapley value, sharing of profits.

2005/8 A market microstructure rationale for the S&P game.
Paolo COLLA

We develop a dynamic trading game in which fundamental insiders coexist with non-fundamental speculators. Non-fundamental speculators possess superior information about the future noise trades and are able to make sharper inference about the fundamental value with respect to the market maker. We show that non-fundamental speculators decrease market depth as well as the insider's ex-ante gains. We study inclusions in the S&P 500 after October 1989 as an example in which non-fundamental speculation may arise due to the preannouncement practice in index replacements. Evidence on the trading activity and the bid-ask spread pattern is consistent with our theoretical analysis.

2005/9 Regional inequality and product variety
Kristian BEHRENS and Jacques-François THISSE

We investigate how differences in set-up costs of various types affect the trade-off between global efficiency and spatial equity and show that the standard assumption of symmetry in fixed costs masks the existence of an interesting effect: the range of available varieties varies depends on the spatial distribution of firms. In such a setting, even when the market outcome leads to excessive agglomeration under symmetric fixed costs, a planner opts for asymmetric fixed costs and more agglomeration. The reason is that the losses induced by more agglomeration are offset by the gains due to additional product variety.
JEL Classification: F12; F15; R12; R38
Keywords: fixed costs; set-up costs; market size; international trade; home market effect.

2005/10 Dynamic asset allocation between stocks and bonds using the Bond-Equity Yield Ratio
Pierre GIOT and Mikael PETITJEAN

We put forward the Bond-Equity Yield Ratio (BEYR) as a criterium to dynamically allocate capital between equities and bonds on a short-term basis. Relying upon 30 years of monthly data for a large collection of countries, we use the cointegration, regime-switching and ARMA-GARCH type methodologies to model and forecast the BEYR. While no model systematically beats the random walk from a statistical point of view, the out-of-sample forecasts show that the regime-switching model based on the forecasted probability generates the best and most consistent trading performance. A strategy based on the distribution percentiles is also consistent in its ability to outperform the buy-and-hold strategies. All in all, the BEYR is a remarkable relative market pricing tool in the US as it delivers higher risk-adjusted returns than the equity yield on a short-term basis.

2005/11 Commonalities in the order book
Helena BELTRAN, Pierre GIOT and Joachim GRAMMIG

Recent contributions to microstructure theory hint at commonalities in the price-depth pairs which constitute the open limit order book. In this paper we provide empirical evidence that indeed a small number of latent factors, two for each side of the book, capture most of the variation in the price-depth pairs. The results also indicate that a heterogenous trader population is active on the buy and sell sides. The respective latent factors explaining the buy and sell side variation exhibit specific dynamics. When we exploit results from microstructure theory to empirically assess whether the majority of the book variation is due to either informational effects or non-informational fluctuations of liquidity we obtain mixed results.
JEL Classification: G10, C32
Keywords: limit order book, commonalities, liquidity, market microstructure.

2005/12 Volatility regimes and the provision of liquidity in order book markets
Helena BELTRAN, Alain DURRÉ and Pierre GIOT

We analyze whether the liquidity provision in a pure order book market during normal market conditions (low volatility regime) differs from what is observed when the market is under stress (high volatility regime). We show that the static relationship between liquidity and volatility is resilient to regime changes in volatility. Nevertheless, we do find that it is more costly to trade when volatility is large. A VAR analysis shows that the liquidity dynamics is similar in the low and high volatility regimes, although the drop in liquidity subsequent to volatility shocks is larger in the high volatility regime. Finally, the market is more resilient to volatility or liquidity shocks in periods of turmoils.
JEL Classification: G10, C32
Keywords: order book, volatility, liquidity.

2005/13 IPOs, trade sales and liquidations: modelling venture capital exits using survival analysis
Pierre GIOT and Armin SCHWIENBACHER

Using a detailed sample made up of more than 20,000 investment rounds, we analyze the time to 'IPO', 'trade sale' and 'liquidation' for about 6,000 venture backed firms. We model these exit times using competing risks models. Biotech and internet firms have the fastest IPO exits. Internet firms are also the fastest to liquidate, while biotech firms are however the slowest. The conditional probability for IPOs are clearly non-monotonous with respect to time. As time flows, venture capital-backed firms first exhibit an increased likelihood of exiting to an IPO. However, after having reached a plateau, investments that have not yet exited have fewer and fewer possibilities of IPO exits as time increases. The bubble period from 1998 to 2000 was an 'easy money' period where venture capitalists gave much more money to firms, many of which did not offer outstanding growth potential as they tended to liquidate much faster than in normal times.

2005/14 Economic geography and endogenous determination of transportation technology
Takaaki TAKAHASHI

This paper studies the interdependence of economic geography and transportation technology. A two-region model is used to obtain the conditions for the modern transportation technology to be adopted in an economy. In particular, the impact of economic geography upon the adoption of the modern technology is examined. Furthermore, I discuss what combination of economic geography (symmetric or core-periphery pattern) and transportation technology (traditional or modern technology) is to be realized in an economy.
JEL Classification: F11, R13
Keywords: core-periphery pattern, lock-in-effect, modern transportation technology, symmetric pattern, traditional transportation technology, transportation cost.

2005/15 Strategic privatization and regulation policy in mixed markets
Denis CLAUDE and Jean HINDRIKS

In this paper we consider mixed oligopoly markets for differentiated goods where private and public firms compete either in prices or quantities. We then study the welfare effect of privatization interpreted as partial strategic delegation of the public firm to a private manager with profit concern. It is shown that partial privatization improves welfare with quantity competition when goods are substitutes, and with price competition when goods are complements. However full privatization (complete delegation to private manager) can never be optimal. It is also shown that the public firm can make more profit than the private firm in equilibrium, and that this possibility is more likely under quantity competition. Turning to market regulation policy, we find: (i) that public and private firms should be taxed the same; and (ii) that price regulation is better than quantity regulation.

2005/16 On monopolistic competition and optimal product diversity: a comment on cost structure and workers' rents
Pierre M. PICARD and Eric TOULEMONDE

In the Dixit-Stiglitz model of monopolistic competition, entry of firms is socially too small. Other authors have shown that excess entry is also a possibility with other preferences for diversity. We show that the cost structure and workers's rents can also explain excess entry.

2005/17 A simple model of economic geography à la Helpman-Tabuchi
Yasusada MURATA and Jacques-François THISSE

This paper explores the interplay between commodities' transportation costs and workers' commuting costs within a general equilibrium framework à la Dixit-Stiglitz. Workers are mobile and choose a region where to work as well as an intraurban location where to live. We show that a more integrated economy need not be more agglomerated. Instead, low transportation costs lead to the dispersion of economic activities. This is because workers are able to alleviate the burden of urban costs by being dispersed, while retaining a good access to all varieties. By contrast, low commuting costs foster the agglomeration of economic activities.
JEL Classification: F12, R12
Keywords: commuting costs, urban costs, transportation costs, economic geography, agglomeration.

2005/18 Oligopolistic competition as a common agency game
Claude D'ASPREMONT and Rodolphe DOS SANTOS FERREIRA

In applying the common agency framework to the context of an oligopolistic industry, we want to go beyond the classical dichotomy between Cournot and Bertrand competition. We define two games, the oligopolistic game and the corresponding concept of oligopolistic equilibrium, and an associated auxiliary game that can be interpreted as a common agency game and that has the same set of equilibria. The parameterization of the set of (potential) equilibria in terms of competitive toughness is derived from the first order conditions of this auxiliary game. The enforceability of monopolistic competition, of price and quantity competition, and of collusion is examined in this framework. We then describe the (reduced) set of equilibria one would obtain, first in the nonintrinsic case and then in the case where a global approach would be adopted instead of partial equilibrium approach. Finally, we illustrate the use of the concept of oligopolistic equilibrium and of the corresponding parameterization by referring to the standard case of symmetric quadratic utility.

2005/19 Moral hazard in financial markets: Inefficient equilibria and monetary policies
Alessandro FEDELE

This paper presents a moral hazard model of financing in which borrowers adopt two modes of finance, either issuing bonds or applying for bank loans. The bond rate is set by the borrowers, while the loan rate is chosen by a monopolistic bank. Bank finance ameliorates the moral hazard problem by monitoring borrowers. Monetary interventions, which affect real economy through the bank lending channel, are justified on the basis of welfare considerations. When the informational problem is not severe, monitoring is wasteful and welfare is enhanced through a monetary tightening. When the moral hazard problem is severe, monitoring is useful and welfare is increased by a monetary expansion.
JEL Classification: D82, E44, E52
Keywords: moral hazard, monitoring, monetary policies, bank lending channel.

2005/20 Assessing strategic risk
Robert J. AUMANN and Jacques H. DREZE

In recent decades, the concept of subjective probability has been increasingly applied to an adversary's choices in strategic games. A careful examination reveals that the standard construction of subjective probabilities does not apply in this context. We show how the difficulty may be overcome by means of a different construction, and provide an axiomatic foundation for it.

2005/21 When all is said and done, how should you play and what should you expect ?
Robert J. AUMANN and Jacques H. DREZE

Modern game theory was born in 1928, when John von Neumann published his Minimax Theorem. This theorem ascribes to all two-person zero-sum games a value—what rational players may expect—and optimal strategies—how they should play to achieve that expectation. Seventy-seven years later, strategic game theory has not gotten beyond that initial point, insofar as the basic questions of value and optimal strategies are concerned. Equilibrium theories do not tell players how to play and what to expect; even when there is a unique Nash equilibrium, it it is not at all clear that the players "should" play this equilibrium, nor that they should expect its payoff. Here, we return to square one: abandon all ideas of equilibrium and simply ask, how should rational players play, and what should they expect. We provide answers to both questions, for all n-person games in strategic form.

2005/22 Repetitive risk aversion
Parkash CHANDER

This paper introduces and investigates the concept of repetitive risk aversion. The risk aversion of an increasing and concave utility function is repetitive if the fear of ruin, which measures agent's aversion to risking his entire income, is also increasing and concave. This is shown to be equivalent to the behaviorally meaningful condition that the risk premium is increasing at a non-increasing rate with the size of the bet. We find an additional justification for mixed risk aversion, which is known to be stronger than standard (and thus proper) risk aversion, in terms of this concept. We discuss several economic applications of repetitive risk aversion.
JEL Classification: D80, D81
Keywords: expected utility, risk aversion, risk premium, monotone function, multiple risks.

2005/23 Should developing countries participate in the Clean Development Mechanism under the Kyoto Protocol ? The low-hanging fruits and baseline issues.
Marc GERMAIN, Alphonse MAGNUS and Vincent VAN STEENBERGHE

Under the Kyoto Protocol, industrialized countries committed to emission reductions may fullfil part of their obligations by implementing emission reduction projects in developing countries. In doing so, they make use of the so-called Clean Development Mechanism (CDM). Two important issues surround the implementation of the CDM. First, if the cheapest abatement measures are implemented for CDM projects, developing countries may be left with only more expensive measures when they have to meet their own commitments in the future (the so-called low-hanging fruits issue). Second, a choice must be made on the type of baseline against which emission reductions are measured: an absolute baseline or a relative (to output) one (the baseline issue). The purpose of this paper is to study the interactions between these two issues from the point of view of the developing country. Two major results are obtained. First, when possible future commitments for developing countries and irreversibility of abatement measures are taken into account, we show that the industry where CDM projects are implemented enjoys larger profits under an absolute baseline than under a relative one. Second, concerning the low-hanging fruits problem, the financial compensation required by the developing country for implementing 'too many' CDM projects is larger under the relative baseline.

2005/24 The egalitarian sharing rule in provision of public projects.
Anna BOGOMOLNAIA, Michel LE BRETON, Alexei SAVVATEEV and Shlomo WEBER

In this note we consider a society that partitions itself into disjoint jurisdictions, each choosing a location of its public project and a taxation scheme to finance it. The set of public project is *multi-dimensional*, and their costs could vary from jurisdiction to jurisdiction. We impose two principles, *egalitarianism*, that requires the equalization of the total cost for all agents in the same jurisdiction, and *efficiency*, that implies the minimization of the aggregate total cost within jurisdiction. We show that these two principles always yield a core-stable partition but a Nash stable partition may fail to exist.
JEL Classification: C71, C72, D63, H41
Keywords: jurisdictions, stable partitions, public projects, egalitarianism.

2005/25 Forecasting exchange rates: a robust regression approach
Arie PREMINGER and Raphael FRANCK

The least squares estimation method as well as other ordinary estimation method for regression models can be severely affected by a small number of outliers, thus providing poor out-of-sample forecasts. This paper suggests a robust regression approach, based on the S-estimation method, to construct forecasting models that are less sensitive to data contamination by outliers. A robust linear autoregressive (RAR) and a robust neural network (RNN) models are estimated to study the predictability of two exchange rates at the 1-, 3- and 6-month horizon. We compare the predictive ability of the robust models to those of the random walk (RW), the standard linear autoregressive (AR) and neural networks (NN) models in terms of forecast accuracy and sign predictability measures. We find that robust models tend to improve the forecasting accuracy of the AR and of the NN at all time horizons, and even of the RW for forecasts carried out at the 1-month horizon. Robust models are also shown to have significant market timing ability at all forecast horizons.
JEL Classification: F31, C45, C53
Keywords: exchange rates, forecasting, neural networks, outliers, robust regression approach, S-estimation.

2005/26 Early literacy achievements, population density and the transition to modern growth
Raouf BOUCEKKINE, David DE LA CROIX and Dominique PEETERS

The transition from economic stagnation to sustained growth is often modelled thanks to "population-induced" productivity improvements, which are assumed rather than derived from primary assumptions. In this paper the effect of population on productivity is derived from optimal behavior. More precisely, both the number and location of education facilities are chosen optimally by municipalities. Individuals determine their education investment depending on the distance to the nearest school, and also on technical progress and longevity. In this setting, higher population density enables the set-up costs of additional schools to be covered, opening the possibility to reach higher educational levels. Using counterfactual experiments we find that one third of the rise in literacy can be directly attributed to the effect of density, while one sixth is linked to higher longevity and one half to technical progress. Moreover, the effect of population density in the model is consistent with the available evidence for England, where it is shown that schools were established at a high rate over the period 1540-1620.
JEL Classification: O41, I21, R12, J11
Keywords: human capital, population density, education investment, school location, technical progress.

2005/27 Capital accumulation and fiscal policy in an OLG model with family altruism
Stéphane LAMBRECHT, Philippe MICHEL and Emmanuel THIBAULT

The idea of family altruism is that parents care only about their children's income and not about the use of this income made by the children. First, we establish dynamical properties which place the OLG model with family altruism halfway between the model with pure life-cyclers (Diamond (1965)) and the one with dynastic altruism (Barro (1974)). Then, we show that this concept leads to interesting fiscal policy conclusions less clear-cut and more realistic than those obtained with the two previous standard OLG models: a pay as you go social security is neutral but not a public debt.
JEL Classification: C62, D64, D91
Keywords: altruism, fiscal policy, equilibrium.

2005/28 Forward markets may not decrease market power when capacities are endogenous
Frederic MURPHY and Yves SMEERS

This paper analyzes the properties of three capacity games in an oligopolistic market with Cournot players. In the first game, capacity and the operation of that capacity is determined simultaneously. This is the classic open-loop Cournot game. In the second game capacity is decided in the first stage and the operation of that capacity is determined in the second stage. The first stage decision of each player is contingent on the solution of the second-stage game. This is a two-stage, closed-loop game. We show that when the solution exists, it is the same as the solution in the first game. However, it does not always exist. The third game has three stages with a futures position taken between the capacity stage and the operations stage and is also a closed-loop game. As with the second game, the equilibrium is the same as the open-loop game when it exists. However, the conditions for existence are more restrictive once a futures market is added. When both games have an equilibrium, the solution values are identical. The results are very different from games with no capacity stage as studied by Allaz and Vila (1993), which have been used to argue that futures markets can ameliorate market power.

2005/29 On the shape of posterior densities and credible sets in instrumental variable regression models with reduced rank: an application of flexible sampling methods using neural networks
Lennart F. HOOGERHEIDE, Johan F. KAASHOEK and Herman K. VAN DIJK

Likelihoods and posteriors of instrumental variable regression models with strong endogeneity and/or weak instruments may exhibit rather non-elliptical contours in the parameter space. This may seriously affect inference based on Bayesian credible sets. When approximating such contours using Monte Carlo integration methods like importance sampling or Markov chain Monte Carlo procedures the speed of the algorithm and the quality of the results greatly depend on the choice of the importance or candidate density. Such a density has to be 'close' to the target density in order to yield accurate results with numerically efficient sampling. For this purpose we introduce neural networks which seem to be natural importance or candidate densities, as they have a universal approximation property and are easy to sample from. A key step in the proposed class of methods is the construction of a neural network that approximates the target density accurately. The methods are tested on a set of illustrative models. The results indicate the feasibility of the neural network approach.
JEL Classification: C11, C15, C45
Keywords: instrumental variables, reduced rank, importance sampling, Markov chain Monte Carlo, neural networks, Bayesian inference, credible sets.