

Economics Internal PhD Conference 2023

ALB Boardroom

9:10 a.m. – 4:35 p.m. (UK Time Zone)

Friday May 19, 2023

General Format: All presenters except the keynote have 25 minutes to present (including questions).

9:10 – 9:20 Welcome Address by Nuno Palma

Session I: Applied 1

9:20 – 9:45 Yue Yu

9:45 – 10:10 Adrian Nicholas Gachet

10:10 – 10:35 Giorgio Maarraoui

10:35 – 10:45 Coffee Break

Session II: Theory 1

10:45 – 11:10 Maria Plakhtieva

11:10 – 11:35 Lucas Morissette

11:35 – 12:00 Hao Bai

12:00 – 1:00 Lunch Break

1:00 – 2:00 Keynote talk: **Professor Monica Costa-Dias** (University of Bristol)

2:00 – 2:10 Break

Session III: Applied 2

2:10 – 2:35 Lucia Contreras

2:35 – 3:00 Jinghan Chen

3:00 – 3:25 Louis Brijmohun

3:25 – 3:35 Coffee Break

Session IV: Theory 2

3:35 – 4:00 Mohammad Javad Vanaei

4:00 – 4:25 Angus Leong

4:25 – 4:35 Break

4:35 – 6:00 Individual meetings of PhD students with Monica Costa-Dias

6:30 Dinner (Kro Bar) - restricted to the keynote, organizers, and presenters.

Session I: Applied 1

9:20 – 9:45 Yue Yu

Environmental Regulation, Energy Price and Innovation: Empirical Evidence from Manufacturing Sectors Across OECD Countries.

The evidence about how the industry responds to tighter environmental regulation trends is ambiguous. Several studies have identified a positive correlation between environmental regulation and innovation. However, the observed correlation does not necessarily imply a causal relationship. This study investigates such a relationship by extending a multiplicative interaction model. We distinguish two complementary measures of environmental regulation: the OECD Environmental Policy Stringency (EPS) indicator and energy prices, and interact them with pollution and energy intensity as industry characteristics separately. We investigate how industries respond to increased environmental policy stringency using data from the OECD manufacturing sector during 2000–2019. The results indicate that increases in energy prices have a negative and statistically significant impact on innovation, especially for energy-intensive sectors. In contrast, the increase in EPS could offset the negative effect and spur innovation. We demonstrate that these results are unlikely to be influenced by omitted variables or reverse causality by using the generalised method of moments (GMM) estimation methods.

9:45 – 10:10 Adrian Nicholas Gachet

Property Rights, Future Orientation, and Development: Evidence from Public Land Distributions

I study the long-run implications of a policy that affected the quality of property rights in a developing country. I use as a setting the public land transfer program in the coastal region of Ecuador between the 1960s and 1970s, which was characterised for allocating well-defined property rights to its beneficiaries. I find that 20 years later, areas that were intervened are more productive and more dedicated to growing permanent crops rather than transitory ones. I document that in the long run, areas that benefited from the program are associated with better land care and more rapid structural transformation, which are effects commonly associated with property rights. The distribution of public lands also resulted in the emergence of a new elite that attracted public goods provisions, challenging the notion that elites prevent the state from intervening, and suggesting that, in some cases, elites attract the state.

10:10 – 10:35 Giorgio Maarraoui

Weather Shocks and Adaptation of Nigerian Farmers

Understanding the response and adaptation strategies of farmers in Sub-Saharan Africa following weather shocks is important to understand the impact of climate change on agricultural production, productivity, food security, and other outcomes such as deforestation. This paper aims at exploring the impact of weather shocks on production, productivity, and adaptation behaviour of farmers. It also aims to disentangle short term and medium term behavioural responses to weather shocks, which is important for agricultural policy. We use the 4 panel waves of the General Household Survey in

Nigeria extending between 2010 and 2019, in conjunction with gridded daily weather data from the 5th generation ECMWF atmospheric reanalysis time series data between 1970 and 2019. The latter is used to construct temperature and precipitation shocks, as well as level weather data. The datasets are matched using the Local Government Area geographic identifier (there are 774 of those in Nigeria).

Session II: Theory 1

10:45 – 11:10 Maria Plakhtieva

Measuring the Gains of the Participation of Compatible Pairs in Kidney Exchange Program at the Level of a Single Centre

We propose to improve existing Kidney Exchange Programs by including compatible pairs in the exchange. We aim to estimate welfare gains of such an improvement, and see if this change is beneficial for different type of pairs, participating in the exchange. At the level of a single transplant centre we show that compatible pairs may find a better quality graft, which will result in a longer graft survival, half-compatible pairs are able to avoid desensitisation by getting a compatible kidney, and incompatible pairs can find a graft instead of being assigned to a waiting list for a deceased donor kidney or being sent to the international exchange program. We have conducted computer simulations of proposed Kidney Exchange Program with the real donor-patient data available from a transplant centre in Italy. Under the assumption of full participation we have shown that if compatible pairs are included in exchange, it will result in average expected graft survival improvement of 233 days for them; 38 % of half-compatible pairs would avoid desensitisation; and 40 % of incompatible pairs would be able to find a transplant. Based on these results, available data, and additional simulations, we aim to construct a rule, which should help to distinguish (ex-ante) which pairs may benefit from the exchange, and thus, be offered to participate, and which pairs have such low chances for an improvement that they should be transplanted straightaway.

11:10 – 11:35 Lucas Morissette

Bargaining and Bilateral Environmental Agreements: Suppressing Greening Electorates

Recent empirical literatures find that, as global warming and its associated damages become readily observable, green vote shares and public support for mitigative policies are rising. On the one hand, this increase in public engagement is often heralded as a necessary step to achieve the societal transformation required to avoid a climate catastrophe. On the other hand, there may be political economy implications for the negotiation of international environmental agreements (IEAs). I specify a dynamic bargaining game to explore the strategic incentives implicit in these ‘greening’ electorates. In the first period, national leaders may choose a political platform that undervalues the benefits of reducing carbon emissions -- in order to protect their bargaining power in IEA negotiations and earn a valence advantage in domestic elections. In the second period, first period emissions proxy the severity of the climate problem and political platforms are ineffective in assuaging voter concern. I study how the equilibrium platform choice and emission levels vary by regime type (democratic vs. non-democratic) and relative to the first best IEA that fully internalizes the externality in the absence of political distortions.

11:35 – 12:00 Hao Bai

Dynamic Preference Foundations of Expected Dichotomic Discounting

We study dynamic preferences over lotteries in which both outcomes and their receiving times are uncertain. Such lotteries over time are defined as timed risks. This research paper is primarily concerned with how present-biased, time-inconsistent decision makers evaluate timed risks in dynamic contexts. This paper combines dichotomic discounting, an extension of quasi-hyperbolic discounting to continuous time that captures present bias and time inconsistency simultaneously, and expected exponential discounting, the most extensively used model for risky choice over time, thereby developing a new model called expected dichotomic discounting, where time is divided into two pieces. Expected exponential discounting holds within each period of time, but not necessarily across both periods. It can be essentially regarded as an extension of continuous quasi-hyperbolic discounting to risky contexts, with the aim of providing a more robust approach to modelling present-biased, time-inconsistent preferences under risk. Based on an axiomatic analysis, this study also provides dynamic preference foundations for our brand-new model, as applied to dynamic choice over timed risks in particular.

Session III: Applied 2

2:10 – 2:35 Lucia Contreras

Notches vs. Kinks: Distortion and Complexity in Non-Linear Tax Systems

How does lowering tax distortion and adding tax complexity affect behaviour and welfare? We examine this question by leveraging on the 2019 firm profit tax reform in Costa Rica, which lowered distortion but added complexity into the system by replacing a notched tax schedule with a kinked one. It is known that non-linear tax systems are optimal when pursuing progressivity and efficiency objectives. Nonetheless, perfectly non-linear schedules are difficult and costly to implement, therefore policy makers have turned to using piece-wise linear schedules. In practical terms, piece-wise linear schedules appear either in the form of kinks, where discontinuities occur at the marginal tax rate, or in the form of notches, where discontinuities are at the average tax rate. Even if systems with notches are clearly more distortionary than ones with kinks, they are also less complex as agents only need to know one tax rate to calculate their tax liability, and thus avoid common behavioural mistakes that arise with kinks like agents linearising their tax schedule. Perhaps for this reason, notched structures are still common notwithstanding the inefficiency they create, particularly in developing countries. The growing bunching literature has exploited the behavioural responses created by discontinuities in incentives to estimate structural parameters separately in schedules with kinks and with notches. However, to our knowledge there is still no research studying both designs within a same context. Moreover, the above stated trade-off between distortion and complexity has not been yet examined. Thus, this paper will try to fill these gaps. Using administrative data from Costa Rica's Annual Firms' Profit Tax Declarations between 2008 and 2011, we start by estimating reduced forms of the revenue and costs elasticities, and the behaviour and public revenue effects of the 2019 reform that replaced notches with kinks in the firms' profit tax schedule. Second, we analyse whether the increased complexity introduced with the kinks affected perceptions of tax liability and behaviour. Thirdly, we combine the previous two results in a welfare framework to evaluate if the reform was welfare improving. As preliminary

results, we document clear bunching on the notches before the reform (2008-2019). We also find that after the reform (2020-2021) the bunching disappears where notches were removed, and we do not identify any strong bunching in the new kinks. Additional years of data are necessary to evaluate if these results are due to lowered inefficiencies, or to limited time elapsed since the reform and the COVID-19 shock.

2:35 – 3:00 Jinghan Chen

Carbon Footprint, Healthiness Information and Food Choices

Changing current prevailing consumption to more sustainable food consumption will reduce greenhouse gas emissions and improve public health. However, achieving such a transformation necessitates the implementation of effective policy measures. This study explores the effectiveness of food labelling as a potential policy tool to promote sustainable and healthy food consumption. Specifically, this study uses a discrete choice experiment (DCE) to examine how carbon footprint and fat content labels interactively affect consumers' willingness to pay (WTP) for different food attributes. The study has two levels of randomization. Firstly, participants join in either hypothetical or consequential treatment. Secondly, they are randomly assigned to a treatment group where they will see either carbon footprint, fat content, or both labels in the choice sets. Results from the hypothetical DCE show that participants are willing to pay a premium for both low-carbon and low-fat options, with higher WTP for low-fat options. There was no crowd-out effect when both labels were provided. The further work of this study is comparing the results from hypothetical and consequential DCE to examine the scale of 'hypothetical bias' and whether it differs between health and environmental contexts.

3:00 – 3:25 Louis Brijmohun

Do Some UK Households Face a Choice Between 'Heating and Eating'?

I present a research design investigating the existence and magnitude of a 'heating vs eating' trade-off in the UK using food and energy consumption data from the Living Costs and Food (LCF) Survey. The project assesses the impact of cold weather, household energy efficiency, and energy prices on the ability of households to maintain adequate food and energy consumption. Inclusion of Energy Performance Certificate data in the analysis of the 'heating vs eating' trade-off is a novelty in the literature and permits estimation of the magnitude and distribution of welfare impacts that policy to improve the energy efficiency of the UK's housing stock might have. This research could improve targeting of government cost-of-living support and inform housing retrofitting programmes in climate and welfare policies.

Session IV: Theory 2

3:35 – 4:00 Mohammad Javad Vanaei

Evolutionary Finance: A Model with Endogenous Asset Payoffs

Evolutionary Finance (EF) explores financial markets as evolving biological systems. Investors pursuing diverse investment strategies compete for the market capital. Some "survive" and some "become extinct". A central goal is to identify evolutionary stable (in one sense or another) investment

strategies. The problem is analysed in a framework combining stochastic dynamics and evolutionary game theory. Most of the models currently considered in EF assume that asset payoffs are exogenous and depend only on the underlying stochastic process of states of the world. The present work develops a model where the payoffs are endogenous: they depend on the share of total market wealth invested in the asset.

4:00 – 4:25 Angus Leong

The Paradoxical Allais Paradoxes

We revisit the common ratio type Allais Paradox by looking at its dual version where the probability mixing of lotteries involves only the best outcome i.e., the “good news” Allais Paradox. This has led to the use of two simple and weaker axioms that together, imply the well-known and frequently used betweenness axiom that established many behavioural decision-making models. We also provide a clean and simple preference foundation for the classical, von Neumann and Morgenstern expected utility for simple lotteries that contain 3 outcomes. A laboratory experiment will follow to examine whether the common ratio type Allais paradox can be falsified and also for the axioms that we used in our approach.