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SPILLOVERS

BANCO DE PORTUGAL
EUROSYSTEM

Research in Economics at Banco de Portugal • Biannual • Year XI • February 2023

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Overview

Etymologically the word "economy" derives from Latin and Greek ancestors meaning "household management". One of the challenges of virtually all households is to choose between alternatives, given the available budget: "Should I spend my hard-earned money in that long-delayed trip, or buy new furniture?" In one way or another, all fields of economics put tradeoffs – that is, the need to choose between two desirable alternatives – in the forefront of the analysis. This was precisely the theme of the talk given by Luís Cabral, from the New York University Stern School of Business, at the 11th Banco de Portugal Conference on Portuguese Economic Development. In addressing the analysis of public policies, Luís Cabral highlighted the pervasiveness of tradeoffs and how often policymakers and scholars alike fail to take them into consideration. This is especially so when trying to empirically evaluate policies, as the opportunity cost of the policy is often unclear or difficult to isolate. We have all seen papers making positive statements about a certain policy without assessing its costs. Luís Cabral urged all policymakers and scholars to keep tradeoffs in mind when researching any economic topic; such advice sits well with the etymology of economics.

Tradeoffs can be difficult to identify. Take carbon dioxide emissions. Fossil fuels have certain advantages relative to non-fossil alternatives that make them an important source of energy. Beyond immediate disadvantages like air pollution, the main problem with their use – global warming and the associated costs – will only be obvious long after their use. This point is nicely illustrated in one article on climate change published in Banco de Portugal Economic Studies. From an individual point of view, there is no tradeoff to carbon dioxide emissions, but the global negative externality requires worldwide carbon taxation, which, as the article shows, will generate losers and winners.

Even if a tradeoff can be easily spotted, it can be hard to quantify. In the economics literature there is no question that the return on investment in primary and secondary education is high. But how should we compare strategies with different pros and cons? As one study published in our working paper series finds, when low performing students are retained in the same grade, learning outcomes at the end of secondary studies improve, but the dropout rate increases. To quantify this type of tradeoff, economists have long resorted to quantitative models. Even then, the policy prescription will depend on the outcome decisionmakers value the most, be it lifetime earnings, individual utility, or other measures. Models help, but ultimately someone will have to settle the tradeoff.

These are three examples where tradeoffs play a significant role. Looking carefully, the reader will find tradeoffs in almost all other items that we have the pleasure to offer in this edition of Spillovers.

António Antunes
Deputy Head of the Economics and Research Department

Talks with our researchers

Talks with our researchers is a new section that has been introduced this year with the objective of introducing work developed by researchers of the Economics and Research Department of Banco de Portugal. The talk that follows with José Miguel Cardoso da Costa and Nuno Silva is the first of this series and focuses on their recent paper on "A novel decomposition of national central bank's profits".

Paulo: José and Nuno, tell us how you first started working on this project?

Nuno: We started working on this topic in 2019, when we were called to join an internal working group led by the Accounting Department on the evaluation of Banco de Portugal's (BdP) financial buffers. We were asked to develop a new quantitative toolkit to evaluate central banks' financial risks from a long-term perspective. During this project, it became clear that an important part of BdP's income, though not all, was determined by monetary policy decisions taken at an aggregate level. Despite widely known, the distinction between income drivers related and not related with monetary policy decisions is not completely explicit as the accounting disclosures are not produced with this objective. Our first task was thus to identify the direct channels through which monetary policy decisions affect national central bank (NCB) income.

José: While traditionally most of NCBs' income is driven by Eurosystem's decisions and distributed among them in a proportional manner, since 2009 not all this monetary income is shared. There is a non-shared component, which has played an increasing role. This mainly stems from the large-scale purchases of public debt securities through Public Sector Purchase Programme since 2015 and then the Pandemic Emergency Purchase Programme since 2020. These large-scale asset purchases also leave central banks exposed to interest rate risk, which is actually materialising in a very striking manner as we speak.

Paulo: So, Nuno, please guide us through the main takeaways of the paper you have published in the January edition of Banco de Portugal Economic Studies.

Nuno: Our work contributes to the understanding of NCBs results in two ways. First, we propose a new way of looking at NCBs' profits that disentangles the income driven from monetary policy decisions taken at the Eurosystem level from that driven by NCB's specific decisions. We show that, in the case of BdP, during the last two decades monetary income represented close to 0.3% of GDP, while the income not related with monetary policy corresponded to 0.1%, slightly above administrative costs. There have been however important changes in the composition of monetary income following the implementation of non-standard monetary policy measures, which we discuss in the article. Second, we define all contributions to NCBs' income as the difference between the income or cost generated by assets and liabilities vis-à-vis the marginal funding cost of the Eurosystem. This type of analysis is very common in the banking sector but we had never seen it applied to central banks. We think that it brings us a valuable tool to understand what drives central banks' results.

Paulo: It is interesting to notice that you have started a long time before monetary policy stance shifted and before policy rates hikes had a detrimental impact on central banks' profits. Do you think your work can help in better preparing central banks and other decision makers for future risks?

José: Central banks in advanced economies are in general well prepared to handle these risks. Some have specific mechanisms that provide a kind of automatic financial backstop. For example, in the case of the Bank of England asset purchases were explicitly guaranteed by the Treasury who is directly liable to cover any losses. In the case of the Fed, any capital needs are shielded by the promise to retain any future earnings until all losses are actually covered in the form of a deferred asset. Others, such as some of the NCBs of the Eurosystem, certainly including BdP, have raised general risk provisions and reserves in advance to guard against interest rate and credit risks, which leaves them able to cope with income losses (at least for some years) without the need of recapitalisation. In a different work (https://www.bportugal.pt/sites/default/files/anexos/papers/re202211_en.pdf) I reviewed the literature and concluded that the risk of something terrible happening in a central bank in an advanced economy is negligible, mainly because the ability to print money in an environment of stable inflation ensures a relatively safe source of future income that will in all likely scenarios be more than enough to cover any potential short-term losses. As Nuno said, we are nevertheless working on a new quantitative tool to measure those risks and the decomposition proposed in this article is instrumental to that purpose. We believe that our work can be helpful in communicating the drivers of central banks' profits and any existing risks in an even more transparent manner.

Paulo: Thank you José and Nuno for this very insightful talk on this important topic addressed in your paper.

By Paulo M. M. Rodrigues

In every issue, we ask experts to briefly present and discuss two papers written by staff members. In this issue, the guest is Prof. Vasco Gabriel.

Vasco Gabriel is Full Professor and Department Chair of the Department of Economics at the University of Victoria, Canada. His research interests are quite broad, ranging from Econometrics and Applied Macroeconomics to Empirical Finance. Vasco co-founded the Centre for International Macroeconomic Studies (CIMS).

Featured published paper

Brinca, P., Iskrev, N. and Loria, F. 2022 "On identification issues in business cycle accounting models." ***Essays in Honour of Fabio Canova*. Vol. 44, 55-138.**

Business Cycle Accounting (BCA) methods should be part of the toolkit of the modern macroeconomist, but have perhaps not received the attention they deserve. The departing point is usually a standard business cycle model, used to quantify to what extent equilibrium conditions hold by decomposing macroeconomic time series into different factors related to particular shocks that drive business cycle fluctuations. The resulting "wedges" can be traced to frictions featuring in richer models and this allows the researcher to document the role of various policy instruments over the business cycle. This suggests that BCA (and some of its more recent spillovers) should be used as a screening device, allowing the researcher to determine which type of models is more likely to adhere to the data for particular episodes of interest.

Given that BCA involves the estimation of latent variable processes (usually specified as a VAR), it is possible that identification issues may arise and, if present, may therefore lead to erroneous inferences about the structural shocks. Identifiability challenges in the empirical implementation of Dynamic Stochastic General Equilibrium (DSGE) models have received a great deal of attention in the literature (Canova and Sala, 2009; Iskrev, 2010; Komunjer and Neg, 2011), so it is natural to employ similar approaches to gauge the extent of identification problems with BCA methods.

The authors of this paper have good news and bad news: on the one hand, they find that both the BCA and the Monetary BCA approaches are relatively immune to strict identification if estimation is focused only on recovering the processes for the latent variables; on the other hand, if one wishes to learn about deep parameters in the model, then identification issues, including of the weak kind as described in Canova and Sala (2009), kick in, which complicates estimation accuracy. These can, to a certain extent, be prevented by the imposition of restrictions on selected structural parameters, but the problems are not dissimilar to those encountered in the DSGE framework, i.e. a failure of problematic parameters impacting significantly the likelihood function of interest. Not all is doom and gloom: the main conclusions of the BCA approach hold, and identification strength does not deteriorate significantly with sample size.

Overall, this is a much needed study that sheds light on an important issue hitherto unexplored in the context of BCA models. If anything, it reinforces the idea that identifiability is to not be ignored, whether you are a DSGE modeller or a BCA practitioner, particularly when tools are available that aid the researcher in such a vital stage of macroeconomic analysis.

Featured article from *Banco de Portugal Economic Studies*

Júlio, Paulo and Maria, José R. (2022), "Pandemic Shocks", ***Banco de Portugal Economic Studies*, Vol. 8(3), 49-68.**

The COVID-19 pandemic was an exceptional event that presented policymakers with unique challenges. Amongst the difficulties was a lack of tools that allowed for the analysis of different policy scenarios in face of the need to support households and businesses severely impacted by the sudden standstill in economic activity. The pandemic was also unusual from a macroeconomic perspective, as it was simultaneously a supply and demand shock.

To disentangle the idiosyncratic macro effects pandemic lockdowns, one must do so in a dynamic setting and in the context of models that consider general equilibrium spillovers. That is exactly the purpose of this paper: to identify so-called 'pandemic shocks' from otherwise traditional shocks, using a dynamic stochastic general equilibrium (DSGE) framework. Doing this for a small-open economy adds a layer of complexity to the model, but allows for a much richer and more nuanced analysis of the sources of fluctuations in production and prices during the COVID pandemic.

In the case of Portugal, the authors argue that pandemic shocks should incorporate domestic demand-side effects (forced savings from households' inability to spend), external demand-side repercussions (decline in tourism and decreased exports penetration), as well as supply-side outcomes resulting from forced closures and lockdowns. Julio and Maria argue that the latter should reflect global supply chain disruptions and is therefore approximated as an MA(2) process of the worldwide technology growth rate.

Quantifying the effects of thusly identified pandemic shocks for the Portuguese economy is not a straightforward task, but the authors circumvent the pandemic-generated structural break by estimating the model for the pre-COVID sample period (imposing zero variance for the pandemic shocks), then using a piecewise linear Kalman filter for the subsequent period to recover the lockdown shocks. Tellingly, Julio and Maria find that these shocks are significantly larger than non-pandemic shocks and explain the bulk of uncertainty in GDP (90% for the first year, 80% for up to three years after). Their results suggest that the supply-side effect drove most of the perturbations during the first shutdown, due to the suppression of the ability of firms to produce and trade, while subsequent confinements caused more significant demand-side issues due to constraints in households' ability to spend. The model is also able to capture well the rebound in economic activity that followed the lifting of lockdowns.

Interestingly, the pandemic played a small role in explaining the dynamics of inflation, with most of its variation being attributed to non-pandemic disturbances. Naturally, the estimation focused on the onset of the pandemic and its immediate aftermath, therefore not including the ongoing inflationary surge. It would be interesting to document its sources and the authors' framework is certainly a good place to start.

Recently published

Our economists publish in a wide range of economic and finance journals and scholarly books.

Mathematical and Quantitative Methods

- Brinca, P., Iskrev, N. and Loria, F. (2022). "On identification issues in business cycle accounting models." *Essays in Honour of Fabio Canova*. Vol. 44, 55-138. JEL Codes C32, C51, C52, E27, E32, E37.
- Hill, R. A., and Rodrigues, P.M.M. (2022). "Forgetting approaches to improve forecasting." *Journal of Forecasting*, 41(7), 1356-1371. JEL Codes: C22, C51, C53.

Forthcoming

- Demetrescu, M., Rodrigues, P.M.M., and Taylor, A. M. R. (2022). "Transformed regression-based long-horizon predictability tests." *Journal of Econometrics*. JEL Codes: C12, C22, G17.
- Nicolau, J., Raposo, P., and Rodrigues, P.M.M. (2022). "Measuring wage inequality under right censoring." *Economic Inquiry*. JEL Codes: C18, C24, E24, J11, J31.

Macroeconomics and Monetary Economics

- Valle e Azevedo, J., Teles, P., and Ritto, J. (2022). "The Neutrality of Nominal Rates: How Long is the Long Run?". *International Economic Review*, 63(4): 1745-1777. JEL Codes: E31, E32, E52, E58

International Economics

- Esteves, P.S., Portela, M. and Rua, A. (2022). "Does Domestic Demand Matter for Firms' Exports?", *Open Economies Review*, 33, 311–332. JEL Codes: F14, F41, C23, C26, D21, D22.

Health, Education, and Welfare

- Carneiro, P., Das, J. and Reis, H. (2022). "The Value of Private Schools: Evidence from Pakistan". *Review of Economics and Statistics*. JEL Codes: I20, I21

Other Publications

Work published by our economists in other institutions' outlets.

- Barrios, S., Reut, A., Riscado, S., and van der Wielen, W., (2022). "Dynamic Scoring of Tax Reforms in Real Time", *European Commission, Seville, JRC Working Papers on Taxation and Structural Reforms No 14/2022*. JRC132068. JEL Codes: E62, H24, H30, H68.

New titles in the *Occasional Papers* series

An economic estimate of capital stock at the firm level for Portugal • Ana Fontoura Gouveia, Manuel Coutinho Pereira

In this paper, we propose a methodology to compute series for the tangible capital stock of Portuguese firms along with consistent flows in the period 2006-2020. We benefit from the richness of the accounting data at the micro level, which encompass detailed information about flows and stocks by asset category, making use of a modified version of the Perpetual Inventory Method to take into account the specificities of the data. In particular, given the change in the accounting standards in 2010 with the switchover from POC to SNC, we develop a strategy to overcome this break in the balance sheet data. We conclude with a comparison of our derived measure with the accounting series, and provide a brief overview of the evolution of capital stocks and flows of Portuguese firms over the period covered.

The Banco de Portugal balance sheet expansion during the last two decades: a monetary policy perspective • Joana Sousa-Leite, Diana Correia, Cristina Coutinho, Carmen Camacho

This paper analyses the evolution dynamics of the Banco de Portugal balance sheet since the beginning of the Stage III of the EMU. Following the global financial crisis, the evolution of the Banco de Portugal balance sheet was initially driven by an increase in liabilities, namely in intra-Eurosystem liabilities related to TARGET and current accounts, reflecting the liquidity provided through monetary policy refinancing operations, which was either deposited in the central bank or transferred to euro area banks outside of Portugal. Since 2015, broader monetary policy decisions regarding the asset side of the balance sheet were designed to support economic growth and bring inflation back to the 2% target. Between 1999 and 2021, the Banco de Portugal balance sheet expansion was mostly driven by the asset purchase programmes and significant increases in central bank funding to banks and in intra-Eurosystem claims, the latter aggregate being explained by the inflow of banknotes related to the tourism activity in Portugal.

New titles in the *Working Papers* series

Technical working papers intended for publication in leading finance and economic journals. Find here the complete list of working papers.

Real effects of imperfect bank-firm matching • Luísa Farinha, Sotirios Kokas, Enrico Sette, Serafeim Tsoukas

Using granular bank-firm level credit data, we show that the characteristics of bank-firm matches affect firms' access to credit and real outcomes during crises. We identify a set of potential matches in pre-crisis years, and we use them to predict match formation in crisis times. We generate a measure of "imperfect matches" given by the difference between realized and predicted matches. In crisis times, imperfect matches deteriorate firm outcomes. The effects are economically important. A one standard deviation worsening in the index is associated with a drop in firms' employment, tangible assets, and survival by 0.9%, 2.7%, and 4.2%, respectively.

The solvency and funding cost nexus - the role of market stigma for buffer usability • Helena Carvalho, Lucas Avezum, Fátima Silva

In this paper, we investigate the relationship between the banks' solvency ratio and their funding costs using a proprietary dataset from Banco de Portugal for 21 Portuguese banks from 2006 to 2020. In light of the discussion on impediments to capital buffer usability by banks, we focus on the importance of market discipline to this relationship. Our results suggest that the relationship between solvency and funding costs is negative and state-dependent, i.e. market participants become more sensitive to changes in solvency during economic downturns. The relationship is stronger for market-based financing sources in comparison to deposits. Finally, we use a breakpoint analysis and find that investors are more likely to penalize the same absolute deterioration in solvency levels when banks are already in a fragile position. Our findings support the hypothesis that fear of market stigma may make banks reticent to use buffers in times of stress.

Stayin' alive? Government support measures in Portugal during the Covid-19 pandemic • Márcio Mateus, Katja Neugebauer

During the Covid-19 crisis, the Portuguese government has provided a plethora of different support measures for firms. These included state-guaranteed loans and a public moratorium for existing loans. This paper examines the access to and uptake of these measures. What were the characteristics of firms being granted state-guaranteed loans? Were they different for firms accessing the moratorium? Did state-guaranteed loans potentially lead to an increase in zombie lending? We try to answer these questions using highly granular bank-, firm- and loan-level data for Portugal. We find that guaranteed loans went mostly to firms operating in the sectors most severely hit by the pandemic and to firms that previously had a credit relation and/or benefitted from a state guarantee. Furthermore, the Portuguese public guarantee scheme seems to mainly have supported lower-credit-risk firms. In addition to that, riskier firms also paid higher interest rates and obtained smaller guaranteed loans than more viable firms. However, in contrast to our results for the state guarantees, we find that riskier firms were more likely to benefit from the public moratorium.

Cross-Sectional Error Dependence in Panel Quantile Regressions • Matei Demetrescu, Mehdi Hosseinkouchack, Paulo M. M. Rodrigues

This paper shows that cross-sectional dependence (CSD) is an indicator of misspecification in panel QR rather than just a nuisance that may be accounted for with panel-robust standard errors. This motivates the development of a novel test for panel QR misspecification based on detecting CSD. The test possesses a standard normal limiting distribution under joint N; T asymptotics with restrictions on the relative rate at which N and T go to infinity. A finitesample correction improves the applicability of the test for panels with larger N. An empirical application illustrates the use of the proposed cross-sectional dependence test.

Multinationals and services imports from havens: when policies stand in the way of tax planning • Joana Garcia

We study the extensive and intensive margins of services imports by multinational groups from tax havens, and investigate to what extent those imports may have profit shifting motives. Drawing on rich data covering the universe of multinational groups with a presence in Portugal, we show that in a high-tax country where policies strongly discourage transactions with tax havens, multinational groups do not have an excess propensity to import intra-group from those countries. For the havens directly targeted by the policies, there is even a negative excess propensity to do so. This notwithstanding, we document the existence of an excessive value of intra-group imports from a set of targeted havens.

Identification and Estimation of Continuous-Time Job Search Models with Preference Shocks • Attila Gyetvai, Ekaterina Jardim, Arnaud Maurel, Peter Arcidiacono

This paper applies some of the key insights of dynamic discrete choice models to continuoustime job search models. We propose a novel framework that incorporates preference shocks into search models, resulting in a tight connection between value functions and conditional choice probabilities. Including preference shocks allows us to establish constructive identification of all the model parameters. Our method also makes it possible to estimate rich nonstationary job search models in a simple and tractable way, without having to solve any differential equations. We apply our framework to rich longitudinal data from Hungarian administrative records, allowing for nonstationarities in offer arrival rates, wage offers, and in the flow payoff of unemployment. Longer unemployment durations are associated with substantially worse wage offers and lower offer arrival rates, which results in accepted wages falling over time.

Coworker Networks and the Role of Occupations in Job Finding • Attila Gyetvai, Maria Zhu

Which former coworkers help displaced workers find jobs? We answer this question by studying occupational similarity in job finding networks. Using matched employer-employee data from Hungary, this paper relates the unemployment duration of displaced workers to the employment rate of their former coworker networks. We find that while coworkers from all occupations are helpful in job finding, there is significant heterogeneity in effects by occupation skill-level. For workers in low-skill jobs, coworkers in the same narrow occupation as the displaced worker are the most useful network contacts. For workers in high-skill jobs, coworkers from different occupations help the most.

What's Driving the Decline in Entrepreneurship? • Nicholas Kozeniauskas

Why has there been a steady decline in entrepreneurship in the US in recent decades? To answer this question, I develop a general equilibrium occupation choice model and combine it with data on these choices. Skill-biased technical change can account for much of the decline in the relative entrepreneurship rate of more educated people, but cannot explain the decline in the aggregate level of entrepreneurship. The major factors in the decline in the share of people who are entrepreneurs, the firm entry rate, and the size of the entrepreneur sector are rising entry costs and outsized productivity gains by large non-entrepreneur firms.

The labor share and the monetary transmission • Bernardino Adão, João Gama, André Silva

We show that the effectiveness of monetary policy changes with the labor income share. We do this in the context of a continuous time cash-in-advance model with heterogeneous agents and market segmentation. It turns out that the current price level depends on future interest rates through an integral equation. The solution of this integral equation reveals that, after an increase in interest rates, a larger income share implies larger reductions in money, prices and inflation. Monetary policy is more powerful in countries with a higher labor income share.

Human Capital Spillovers and Returns to Education • Hugo Reis, Paulo Guimarães, Pedro Portugal, Ana Rute Cardoso

In this paper, we quantify the impact of co-workers' human capital on a worker's productivity and, more specifically, the spillovers of co-workers' education within the workplace. We identify the impact of peer quality and provide an unambiguous decomposition of the impact of unobserved heterogeneity on the estimated returns to education. We find that peer effects are quite sizeable. A one standard deviation increase in the measure of peer quality leads to a wage increase of 2.1 percent. We also unveil that an additional year of average education of co-workers yields a 0.5 percent increase in the individual own wage.

Learning Through Repetition? A Dynamic Evaluation of Grade Retention in Portugal • Hugo Reis, Petra E. Todd, Emilio Borghesan

High grade retention rates are a matter of much worldwide debate. Although some students learn more with extended school time, others get discouraged and drop out. This paper develops and implements a dynamic modeling approach for estimating retention effects in Portuguese high schools where over 40% of students were retained. The estimated model is used to simulate academic achievement under existing and alternative retention policies. Results show that the current policy's average impact on 12th grade math and Portuguese test scores is positive (0.2-0.5 s.d.), but it substantially increases dropout. We solve for the optimal policy to maximize lifetime earnings.

Retrieving the Returns to Experience, Tenure, and Job Mobility from Work Histories • Pedro Portugal, Pedro Raposo, John T. Addison

Using a unique linked employer-employee dataset Portuguese dataset, the Quadros de Pessoal, 1986-2020, this paper offers an extension of the standard Mincerian model of wage determination by allowing for different returns to experience and tenure in the sequence of jobs that constitute a career of up to ten jobs. In addition to such heterogeneity, we also allow for the possibility of a distinct wage hike each time workers change jobs. We report that workers achieve the highest returns to experience on the second job. For its part, the returns to tenure are sizable, most notably on the first job. The sequence of wage uplifts attendant upon job changes reflects the returns to job search investments over the life cycle. They shape the curvature of the earnings profile, with the returns to job mobility tending to decline over the sequence of jobs. Further, the ability to distinguish the order of the jobs held by the worker enabled us to disentangle the returns to experience from those to tenure in a model with a job match fixed effects in a more satisfactory manner than the conventional routes followed in the literature. In a final application, we investigate how worker, firm, and job match heterogeneity influence the returns to mobility, experience, and tenure. The returns to job mobility were found to partially reflect sorting into better job matches and into firms offering more generous wage policies. Also, the estimated returns to experience are upwardly biased because more productive worker tend to be more experienced. However, none of the three components of the job match fixed effect had a clear impact on the returns to tenure.

From the *Banco de Portugal Economic Studies*

Banco de Portugal *Economic Studies* aims to publish theoretical and applied studies prepared by economists at Banco de Portugal, often co-authored with external researchers. All articles are signed and are of the sole responsibility of their respective authors. The articles aim to contribute to an informed and high-quality debate on the Portuguese economy. The journal intends to be a reference publication in that debate, and is directed to a relatively specialized public on economic issues.

July 2022

Corporate insolvency and restructuring during COVID-19 • Gil Nogueira

On the aggregate and distributional effects of carbon taxation in Portugal • Zeina Hasna, Nuno Lourenço and Cezar Santos

Pandemic shocks • Paulo Júlio and José R. Maria

Economic synopsis | On the solvency and credibility of a central bank • José Miguel Cardoso da Costa

October 2022

The role of family social transfers in reducing child poverty in Portugal • Edlira Nazarini, Sara Riscado, Lara Wemans

A multidimensional poverty indicator for Portugal • Nuno Alves

Firm lifecycles • Nicholas Kozeniauskas, Pedro Moreira, António R. dos Santos, Laszlo Tetenyi

A circular business cycle clock for Portugal • Nuno Lourenço, António Rua

Seminars

2022

Aug. 11 **The return on everything and the business cycle in production economies** • Daniel Fehrle (Universidade Católica Portuguesa)

19 **Inflation Expectations and Term Premium** • Elizaveta Lukmanova (KU Leuven)

Sep. 2 **Cyclical Earnings, Career and Employment Transitions** • Carlos Carrillo-Tudela (University of Essex)

14 **The Economics of Legal Uncertainty** • David Schoenherr (Princeton University)

15 **Monetary/Fiscal Interactions with Forty Budget Constraints** • Marco Bassetto (Federal Reserve Bank of Minneapolis)

19 **Aggregate Implications of Belief Disagreement: Business Cycles and the Design of Fiscal Policy** • João Guerreiro (Northwestern University)

21 **Strategic Complementarities in a Dynamic Model of Fintech Adoption** • Fernando Alvarez (Kenneth C. Griffin Department of Economics - University of Chicago)

Oct. 4 **Imagining the Future: Memory, Simulation and Beliefs about Covid** • Andrei Shleifer (Harvard University)

10 **Dynamic Mirrlees Taxation with Non-Separable Preferences** • Christian Hellwig (Toulouse School of Economics)

12 **Money Markets and Bank Lending: Evidence from the Tiering Adoption** • Mariassunta Giannetti (Stockholm School of Economics)

17 **Firm Heterogeneity, Market Power and Macroeconomic Fragility** • Francisco Queirós (University of Naples Federico II)

26 **Sovereign swaps and sovereign default: Fundamental versus confidence risk** • Mark Aguiar (Princeton University)

28 **Optimal monetary policy with heterogeneous agents: a timeless ramsey approach** • Andreas Schaab (Toulouse School of Economics)

Nov. 2 **Structural Change in Innovation** • Martí Mestieri (Federal Reserve Bank of Chicago)

9 **Exorbitant Privilege? Quantitative Easing and the Bond Market Subsidy of Prospective Fallen Angels** • Tim Eisert (Erasmus University Rotterdam)

14 **The Distribution of Crisis Credit: Effects on Firm Indebtedness and Aggregate Risk** • Joseph Kaboski (University of Notre Dame)

28 **Who Pays For Your Rewards? Redistribution in the Credit Card Mark** • André Silva (Federal Reserve Board)

30 **Judge Bias and in Labor Courts and Firm Performance** • Pierre Cahuc (Sciences Po, Institut Universitaire de France)

Dec. 2 **Women's Liberation, Household Revolution** • Moshe Hazan (Tel-Aviv University)

9 **Bonus Question: How Does Incentive Pay Affect Wage Rigidity?** • Jonathon Hazell (London School of Economics and Political Science)

13 **Equilibrium Sorting and the Gender Wage Gap** • Pengpeng Xiao (Duke University)

16 **Evergreening** • Miguel Faria e Castro (St Louis Fed)

Courses

2022

Jul. 18/22 **Dynamic Programming** • John Leahy • University of Michigan

John Leahy taught a short course this July on dynamic programming, including theory, application, and numerical implementation. The course covered applications to search theory, consumption, investment and asset pricing. John Leahy is the *Allen Sinai Professor of Macroeconomics and Public Policy* at the University of Michigan. He received his Ph.D. from Princeton, and has held positions at Harvard, Boston University and New York University before joining the faculty at Michigan. He has consulted at the Federal Reserve Banks of New York, Philadelphia and Kansas City, and has served as Editor of the American Economic Journal: Macroeconomics and the American Economic Review.

By Pedro Teles

Dec. 5/6 **Structural Estimation in Finance and Financial Intermediation** • Nicola Pavanini • Tilburg University

On December 5-6, Nicola Pavanini gave a course on Structural Estimation in Finance and Financial Intermediation. Nicola is an Associate Professor in the Finance Department of Tilburg University. His research has been published in top journals such as the American Economic Review, Review of Economic Studies, or Journal of Financial Economics. The course focused on Nicola's area of research: the application of structural methods from the new empirical industrial organization literature to topics in financial intermediation. The structural approach is anchored on the estimation of parameters guided by economic theory. Structural estimation has been used widely in industrial organization, labor economics, health economics, but only more recently in finance. This approach allows to simulate equilibrium outcomes under alternative counterfactual policies. This is especially relevant for policymakers, in central banks and elsewhere, as this approach allows to go beyond ex-post policy evaluation by simulating counterfactual policy scenarios and quantifying their welfare effects.

By Diana Bonfim

Conferences and Other Events

2022

Nov. 14 **11th Banco de Portugal conference on Portuguese economic development in the European context, Lisboa**

The 11th Banco de Portugal conference on Portuguese Economic Development in the European Context was held on November 14th and brought together over 150 participants from various fields, including economists, policymakers, and academics.

The theme of this year's conference was the importance of public policy analysis, with a focus on social justice. Vice-Governor Clara Raposo opened the conference highlighting the importance of thorough analysis that informs policy making from its design to its implementation, as well as the role of universities and institutions, such as the Banco de Portugal, in this process.

Keynote speaker Luís Cabral, from NYU, discussed the key areas where an economic perspective can effectively contribute to improving public policy analysis. These included: 1) the trade-offs involved in policy decisions; 2) regulatory leakage, which refers to the unintended consequences that can occur when regulations are implemented; 3) incentives, which play a crucial role in shaping behavior and can be used to design effective policies; 4) distributive effects, which consider how policies impact different groups in society; and 5) modeling, which allows for a systematic and quantitative analysis of policy options. Overall, he emphasized the importance of ex-ante and ex-post analysis to inform public policy decisions and achieve better outcomes for society.

The second session focused on the role of public policies in promoting social justice. Lara Wemans (Banco de Portugal) presented a study on the role of family benefits in reducing child poverty in Portugal. The policy instruments analyzed in this study are crucial for boosting the incomes of the most vulnerable families. In terms of redistribution, without these supports, the disposable income of the bottom 10% of the income distribution would fall by nearly 15%. João Cerejeira (Universidade do Minho) presented a study on the impact of minimum wages. The results suggest that increasing minimum wages reduces employment growth and profitability for the companies most affected, while at the same time, it can contribute to a reallocation of resources in the economy due to an increase in the number of firms exiting the market. This session ended with a roundtable on equity in the access to public services, moderated by Vera Gouveia Barros. The panel featured experts in the fields of health (Céu Mateus, Lancaster University), education (Eduardo Marçal Grilo, Ex-Minister of Education) and justice (Susana Videira, Faculdade de Direito da Universidade de Lisboa), who shared valuable insights on the progress achieved over the last decades, the remaining challenges in achieving equity in these areas and the potential solutions to address them.

The conference also featured the attribution of Banco de Portugal's José da Silva Lopes award to the best Master's thesis in Economics and Management in partnership with the Fundação Francisco Manuel dos Santos. Two juries, composed of highly renowned Portuguese scholars, assessed 58 thesis in Economics and 36 thesis in management, from 14 Universities in Portugal. The purpose of this award is to promote high quality work on the Portuguese economy and the Banco de Portugal is thankful to the participating universities, to the entire jury and presidents, Rui Albuquerque (Boston College) and Teresa da Silva Lopes (York University), for making this possible. The winners this year were Martim Leitão (Católica Lisbon Business & Economics) with a thesis entitled "And Yet, They Last: The Employment and Productivity Effects of Crises on Firms in Portugal" and Sofia Canada (Faculdade de Economia da Universidade do Porto) with a thesis on the "The Role of Business and Innovation Strategies in Company Competitive Performance in an Uncertain Context".

The conference concluded with remarks from Governor Mário Centeno who highlighted the role of education as a key factor to drive inclusive economic growth and the need to rethink our social, political and judicial institutions within the European context. Overall, the conference provided valuable discussions on the importance of public policy analysis, on the role of policies in promoting social justice and on the important contribution economists should give to this debate. The conference's video and all presentations are available on the Banco de Portugal *website* for those who were not able to attend.

By Sharmin Sazedj

2022

Dec. 19/20 **Workshop "Empirical Research with Large Datasets"**

This year the Microdata Research Laboratory of Banco de Portugal (BPLIM) organized its annual workshop on the general topic of "Empirical Research with Large Datasets". The workshop functioned in a hybrid format (with presential and online participation) and took place on the premises of the Porto Business School in Porto. The workshop started on the afternoon of December 19 and extended through the morning of the following day. It consisted of seven presentations as well as a round table. The invited presenters were experts in the field and addressed the topic from different perspectives.

The first presentation was by Lars Vilhuber. Lars is the Executive Director of Cornell University's Labor Dynamics Institute and the Data Editor of the American Economic Association (AEA). He is also the Managing Editor of the Journal of Privacy and Confidentiality. Lars presentation was titled "Reproducibility and collaboration when your data is really large or confidential" and, as suggested by the title, focused on the question of reproducibility when data are large and confidential. He discussed several considerations both in terms of documentation and in terms of computational setup that allow for reproducible and accessible research in such situations.

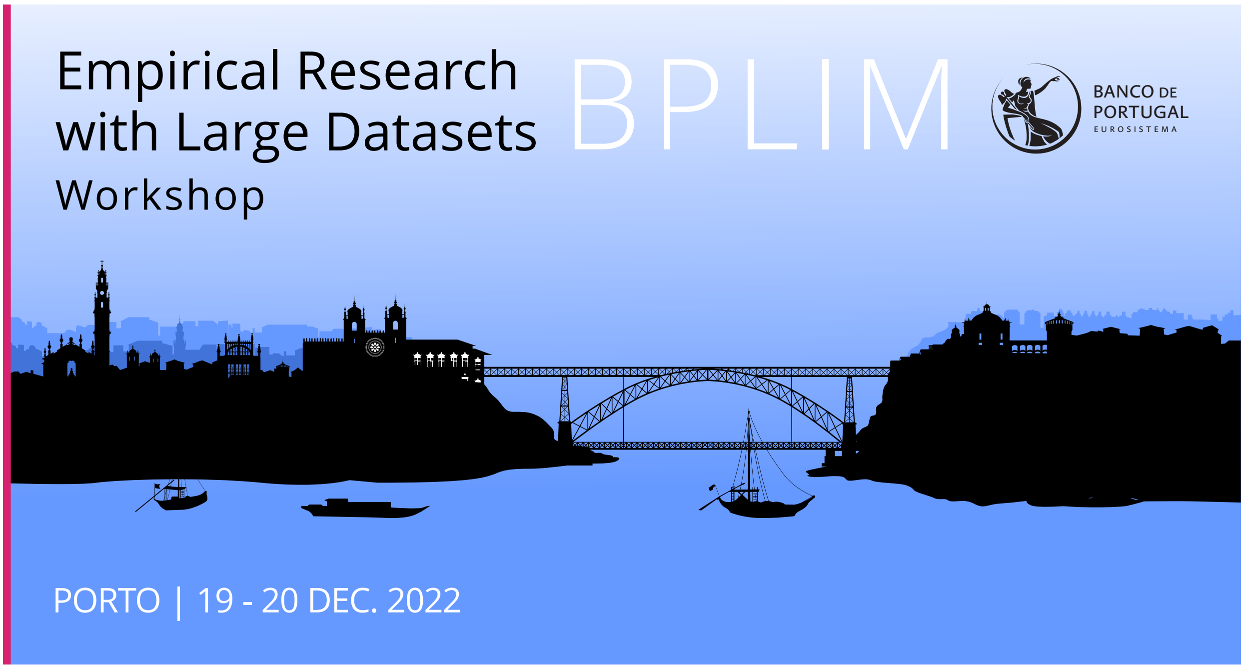
The second presentation was by Ulrich Matter from the University of St. Gallen in Switzerland. In this presentation, "Big Data Analytics: A guide to economists making the transition to Big Data", Ulrich built on familiar content from applied econometrics and business analytics to introduce basic concepts of Big Data to economists. He also provided examples of the practical application of the concepts using R and SQL.

Frauke Kreuter, from LMU Munich and the University of Maryland, was the next presenter. Her presentation, "Large surveys and other continuous data streams in statistics production", discussed the challenges and lessons learned from two case studies of surveys that collected very large amounts of data.

The final presentation of the day was by John Horton from MIT Sloan School of Management and NBER. In his talk, "Empirical Research with Large Datasets", John drew on his experience working with large datasets to provide practical advice and guidance for researchers at all stages of the research process.

The day ended with a round table that discussed the "Challenges of working with large empirical datasets in Research Data Centers". The discussants were Pedro Campos from the Portuguese National Statistics Institute (INE), Stefan Bender, head of the Research Data Center of the Bundesbank, and Lars Vilhuber.

The second day started with a presentation by Mauricio Cáceres from Brown University. With a presentation titled "How to work efficiently with large datasets", Mauricio gave practical advice on how to deal with some common issues that arise with large datasets and showed how to speed-up various operations focusing on *Stata* and the package *gtools* which he authored.



Miguel Portela and Nelson Areal, both from the University of Minho made a presentation on "Open source tools for really large data". They showed alternative ways of managing large data with *R* using the open-source *Arrow, DuckDB,* and *Spark* environments.

The final presentation was from Jannic Cutura from the European Central Bank. His presentation, "Why is my computer so slow? How distributed computing can help you with data intensive workloads", aimed at explaining what happens under the hood when the computer gets slow and showed how distributed computing can help to mitigate those issues.

Overall, there were 76 participants enrolled to participate in person and 291 to participate online. Most enrolled participants were from universities (155) but there was also significant number from central banks (131). About a quarter of the participants were affiliated with foreign entities.

For more information on the workshop, including the presentations and videos see:
https://github.com/BPLIM/Workshops/tree/master/BPLIM2022.

By Paulo Guimarães

2022

Dec. 21 Conference "Portuguese Around the World: Central Banking Edition"

On December 21, 2022, the Bank organized the conference "Portuguese Around the World: Central Banking Edition". The goal of this academic event was to promote the interaction between Portuguese researchers working in central banks and international institutions around the world with researchers from the Bank. The conference was organized by Diana Bonfim (Banco de Portugal and Católica Lisbon), Miguel Faria e Castro (Federal Reserve Bank of St. Louis), Nuno Paixão (Bank of Canada) and André F. Silva (Federal Reserve Board). During the day, 11 economists presented their ongoing research. A wide range of topics was covered, including bank capital regulation and lending, exporter dynamics, inequality, cash transfers, or technological change, just to name a few. The presenters came from the Federal Reserve Board, European Central Bank, Bank of England, World Bank, International Monetary Fund, and Banco de Portugal. We hope to repeat this initiative in coming years.

By Diana Bonfim

Meet our researchers

Manuel Coutinho Pereira has been an economist at the Economics and Research Department of Banco de Portugal since 1996, but with some breaks to work in the Statistics Department of the European Central Bank and in the Portuguese Ministry of Finance. He holds a Master's degree in Statistics and Econometrics and a PhD in Economics from Instituto Superior de Economia e Gestão. His work has been published in Hacienda Publica Española and Studies in Nonlinear Dynamics & Econometrics.

Please, tell us about the research you are carrying on at DEE

In the recent period, my research has focused on the use of productive factors by Portuguese firms, in an effort to better understand their production function and shed light on the evolution of productivity. In this context, I have been working with microeconomic data which make it possible to take into account the enormous heterogeneity across businesses. My last contribution consisted in developing a methodology to derive capital stock and investment series for the Portuguese firms from accounting data. The ultimate goal of this work is to understand long-term economic dynamics and growth prospects in Portugal. Previously I worked in several other fields, for instance, empirical macroeconomics using structural VARs and the narrative approach, notably to estimate fiscal multipliers. I have done some work on economic justice too, covering supply and demand factors affecting the resolution of cases in Portuguese courts, in particular debt collection and insolvency cases. I also did some work on education economics using data from the PISA OECD program, mainly to study factors affecting the performance of Portuguese students.

Gabriela Castro works in the Portuguese Economy Division since she joined the Economics and Research Department of the Banco de Portugal in 1999. She holds a M.Sc. in Economics from Nova School of Business and Economics and a degree in Economics from Lisbon School of Economics and Management. Besides Banco de Portugal publications, her work has been published in journals such as Macroeconomic Dynamics, Journal of Macroeconomics, and International Journal of Central Banking. She also collaborated in the books "The Portuguese Economy in the Context of Economic, Financial and Monetary Integration" and "Econometric Models of the Euro-area Central Banks".

Please, tell us about the research you are carrying on at DEE

Since I joined the Economics and Research Department my focus has been on the development and improvement of macroeconomic tools to analyse and forecast the behaviour of the Portuguese economy. My main responsibility in the Portuguese Economy Division in the last few years has been the elaboration of the macroeconomic projections for the Portuguese economy published in a quarterly basis in the Banco de Portugal Economic Bulletins. When I joined the Department, I was involved in the development of the "M" model, which is the main tool used in the medium-term forecasts. Since then, I have collaborated extensively in improving and extending the model as well as in its regular re-estimation. I have also been involved in the construction and continued improvement of other forecasting tools, such as, the short-term forecasting model and the supply model developed during the pandemics. I have also conducted some research work in DSGE models, mainly I collaborated in the development of the PESSOA model for the Portuguese economy. In my work I have maintained regular interaction and collaboration with both national and international institutions. In this context, I highlight my participation as the Banco de Portugal's delegate in the "Short-Term Economic Prospects" meetings from the OECD, the "Experts' Group on Economic Forecasts" from the European Commission and the ECB Working Group on Forecasting where macroeconomic projections from national central banks and for the euro area are prepared and discussed. Finally, I would like to stress that the environment in the Economics and Research Department is very inspiring, with the continuous exchange of ideas and new projects and challenges.

Visiting fellows 2022

Banco de Portugal offers cash grants to support research projects in the field of Economics, with a view to promoting interchange between the scientific and academic communities and the Bank, and to contributing towards the improvement of theoretical and applied research in Portugal.

Applicants wishing to develop research projects in the Economics and Research Department must hold a Doctorate degree or be about to finalise their Doctorate degree. Preferred topics include monetary and labour economics, financial intermediation, banking, and studies on the Portuguese economy.

Application instructions are available. Applications are invited from all interested parties.

Further information may be obtained via email: conferences@bportugal.pt.

Visitors

Karol Mazur • Trinity College, University of Oxford
Valerio Ercolani • Banca d'Itália
Alessandro Toppeta • PhD at University College London
Oreste Tristani • European Central Bank
Mehdi Hosseinkouchack • EBS Universität
Ioan-Sebastian Buhai • Stockholms Universitet
Miguel Faria e Castro • St. Louis Fed

Consultants

Miguel Portela • University of Minho
David Lando • Copenhagen Business School

Upcoming events and announcements

Seminars 2023

Feb. 24 Ramon Marimon • Pompeu Fabra
Mar. 1 Neeltje van Horen • University of Amsterdam
Mar. 8 Ivan Fernandez-Val • Boston University
Mar. 13 David Argente • Penn State
Mar. 15 Xavier D'Haultfoeuille • CREST-ENSAE
Mar. 22 Çağatay Bircan • EBRD
Mar. 24 Juanpa Nicolini • Universidad Torcuato Di Tella
Apr. 3 Harald Uhlig • The University of Chicago
Apr. 19 Christopher Neilson • Yale University
Apr. 26 Fatih Guvenen • University of Minnesota
May 3 Dirk Krueger • University of Pennsylvania
May 8 Luigi Bocola • Stanford University
May 10 Hassan Afrouzi • Columbia University
May 17 Moritz Kuhn • University of Bonn
May 24 Mark Egan • Harvard Business School
May 31 Iourii Manovskii • University of Pennsylvania
Jun. 7 David Lagakos • Boston University

Conferences

Jun. 12/13 **11th Conference on Monetary Economics**
Jun. 22/23 **Monetary Policy Committe of the ECB external meeting**

Correspondence to the editor

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This newsletter, as well as other online information about Economic Research at Banco de Portugal is available **here**.

Spillovers 19 | Research in Economics at Banco de Portugal • **Banco de Portugal** Rua do Comércio, 148 | 1150-150 Lisboa • www.bportugal.pt • **Edition** Economics and Research Department • **Design** Communication and Museum Department | Design Unit • **ISSN (online)** 2183-3761 • Lisboa, 2023