15 SPILLOVERS

BANCO DE PORTUGAL
EUROSYSTEM

Research in Economics at Banco de Portugal • Biannual • Year IX • january 2021

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Overview

This issue of Spillovers is being published in a peak of the pandemic in Portugal. Over the past months, the Economics and Research Department of Banco de Portugal has aimed at understanding the economic implications of this pandemic and the ensuing policy responses, both at a national and supranational levels. Research has been key in anchoring the debate on solid foundations and bridging current debates with future challenges. This issue of Spillovers reflects many of these bridges, which are continuously being built.

The new year starts with extraordinary challenges for research at Banco de Portugal. We are all working remotely but together on this mission. There are so many interesting issues to address: the recovery from the current pandemic and the reallocation of resources at a micro level; the optimal monetary and fiscal policy responses; the role of financial stability and the financial situation of households and firms; the structural constraints on growth in the Portuguese economy; the distribution of resources across agents; the institutional deepening at a European level; the long-run trends of the economy, including ageing, digitalization and climate change; and the development of new monitoring and forecasting tools in the aftermath of the pandemic. The ongoing review of the monetary policy strategy of the ECB is also central in our research priorities.

Agents adapted to the constraints imposed by the containment of the pandemic. One important trend has been the digitalization of the workplace, which accelerated abruptly. Given the clear upsides and downsides of such technologies, no one knows how the new steady state will look like. The 10th Conference on the Portuguese Economic Development in the European Context – this year devoted to inequality – and the Workshop on Data Visualization were testimony of how these virtual events enhance the dissemination of knowledge and expand the audience without geographical bounds. You can find more details of these events in this issue of Spillovers.

The energy and commitment of the research community worldwide has been remarkable. History shows that unprecedented economic turmoil is typically followed by the creation of new research fields, novel models and paradigm shifts. This time should be no different. We are thus looking forward to all the new ideas this year will bring.

Nuno Alves
Head of the Economics and Research Department

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

João F. Cocco is Professor of Finance at London Business School and a Research Fellow of the CEPR. He is a financial economist with research interests in household finance, including mortgages and pensions. João's research has appeared in top finance and economics journals. His recent research focuses on how best to structure mortgages to improve macroeconomic stability. João is a founding member of the CEPR Network on Household Finance.

Featured published paper

Bonfim, Diana, Gil Nogueira and Steven Ongena. 2020. "Sorry, We're Closed: Bank Branch Closures, Loan Pricing, and Information Asymmetries". ***Review of Finance.***

In recent years, there has been a significant number of brank branch closures, the impact of which is not yet fully understood. This very interesting paper uses high quality administrative data to study the impact of the branch closures that were forced upon Portuguese banks. What makes the setting particularly informative is that even after the branch closures a very large number of them remained in place. This allows the authors to focus on the disruption to firm-bank relationship as the channel for the effects, and to rule out other possible channels such as limited access to financial services and lack of local market competition.

In a first step, the authors identify those firms that were affected by the closure of a nearby branch of their credit granting bank, and that as a result transferred their loans to another bank. These are the so called "transfer firms." The authors calculate the interest rate that they receive on their first loan from the new lender and find it to be equal to the interest rate that other similar firms contemporaneously receive on similar loans from similar lenders. This might lead us to conclude that there is no loss to firms from transferring their loans to a new lender following a branch closure.

However, as the authors explain, such a conclusion would be premature. A more appropriate comparison group may be those firms that switch lenders during regular times, i.e., not following a bank closure. This group of firms are called the "switching firms." In an interesting twist in the analysis, the authors show that the switching firms are able to reduce their cost of borrowing by an average of 63 basis points when they take their business to a new lender. This discount is not available to transfer firms in their first loan with the new lender, but it does appear when they subsequently switch lenders. The value of the discount is economically very meaningful, and it requires further investigation, that the authors undertake.

The decision of firms to switch lenders during regular times is an endogenous one, and it may be the case that switching firms are better credit quality than the typical firm. This could potentially explain why they receive better prices than those received by the transfer firms. However, the authors show that the default rate is actually higher for the switching firms than the transfer firms, by a full percentage point. This makes the discount that switching firms are able to achieve even more puzzling.

The authors undertake several analyses, guided by theory, to understand their source. They find support for informational holdup models. In these models, private information gathered by incumbent banks creates a holdup problem, and an interest rate discount for those firms that switch their loans to a new lender. This explains the discount for the switching firms. For the transfer firms, the discount is not available since the forced bank closures, in a short space of time, led to a devaluation of the stock of private information. However, later on, new private information is collected by the new lender, and the holdup problem and the interest rate discount re-appear.

Featured article from *Banco de Portugal Economic Studies*

Robert Hill, Rita Lourenço and Paulo M. M. Rodrigues, 2020. "House price forecasting and uncertainty: Examining Portugal and Spain". *Banco de Portugal Economic Studies*.

The Great Recession of 2007-2009 showed the importance of housing and of house prices for aggregate economic performance and for macro-financial stability. This is not surprising since housing is the most important asset for the vast majority of households. Fluctuations in house prices can lead to large fluctuations in household wealth, particularly among those who hold a mortgage and consequently a levered position in real estate. These fluctuations may have, through a wealth channel, an impact on household consumption and aggregate economic activity.

Furthermore, real estate is an asset that can be used as collateral for a loan, so that increases in house prices are likely to enhance credit access and be a source of finance for consumption increases by borrowing constrained households. On the other hand, house price declines may trigger a wave of mortgage defaults, and significant losses for the financial system, forcing governments to intervene to ensure its stability. Therefore, it is of paramount importance to understand the determinants of house prices, and to be able to forecast their future evolution. In the article, the authors apply dynamic model averaging techniques to forecasting Portuguese and Spanish house prices.

One particularly novel aspect of the analysis is the focus on role of uncertainty for the evolution of house prices. A recent literature has studied the role of uncertainty for several economic outcomes (such as consumption and stock market performance), but less attention has been devoted to its role in housing and house prices. As the authors acknowledge, there are several possible channels. The purchase of a house is, for most households, a significant commitment and it has large transaction costs. At times of heightened uncertainty households may defer their purchase for precautionary reasons. It may also be the case that at such times credit access becomes more restricted, further reducing the demand for housing, not only by homebuyers but also by property investors.

Importantly, the dynamic model averaging technique that the authors use is fairly flexible, and it allows them to incorporate in the analysis both model and parameter uncertainty, as well as to consider a wide range of predictors for the future evolution of house prices, that includes the more traditionally used macro variables (such GDP, unemployment, interest rates) and other variables such as housing investment, consumer confidence and financial market stability. The comparison of Spain and Portugal is in itself interesting given the local geographic proximity between the two countries and the degree of integration in their respective economies. In spite of this, and interestingly, the authors find that different predictors have varying inclusion probabilities for both Portugal and Spain. And the volatility measures used appear to be more important for forecasting house prices in Portugal than in Spain. In the future, it would be interesting to investigate the source of the differential importance of the volatility measures.

Recently published

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

Mathematical and Quantitative Methods

- Hassler, Uwe, Paulo M. M. Rodrigues and Antonio Rubia (2020). "Testing for Long Memory Using LAD Estimators". in *Estudos de Homenagem a João Sousa Andrade*, Ed. António Portugal Duarte, Marta Simões, Pedro Bação, Rita Martins, Almedina. JEL Codes: C12, C22.
- Iskrev, Nikolay. 2020. "On the Sources of Information in the Moment Structure of Dynamic Macroeconomic Models". *Journal of Business & Economic Statistics*, Published online: 14 Sep. 2020. JEL Codes: C32, C51, C52, E32.

Forthcoming

- Zsurkis, Gabriel, João Nicolau and Paulo M. M. Rodrigues (2020). "A re-examination of inflation persistence dynamics in OECD countries: A new approach". *Oxford Bulletin of Economics and Statistics*. JEL Codes: C12, C22.

- Zsurkis, Gabriel, Nicolau, João, Rodrigues, Paulo M.M. (2021). "The expected time to cross a threshold and its determinants: a simple and flexible framework". *Journal of Economic Dynamics and Control*. JEL Codes C32; C41; C51; E63.
- Cruz, João, João Nicolau and Paulo M. M. Rodrigues (2020). "Structural Changes in the Duration of Bull Markets and Business. Cycle Dynamics". *Asia-Pacific Financial Markets*. JEL Codes: C12, C22.

Macroeconomics and Monetary Economics

- Adão, Bernardino and André Silva. "Government financing, inflation, and the financial sector". *Economic Theory (2020)*. Published: 13 August 2020. JEL Codes: E52 - E62 - E63 - H21.
- Adão, Bernardino and André Silva. "The effect of firm cash holdings on monetary policy". *European Economic Review*, Volume 128, September 2020, 103508. JEL Codes: E40, E50, G12, G31.
- Chari, V. V., Juan Pablo Nicolin, and Pedro Teles. 2020. "Optimal Capital Taxation Revisited". *Journal of Monetary Economics* 116: 147-165. JEL Codes: E60, E61, E62.
- Correia, Isabel, Fiorella De Fiore, Oreste Tristani, and Pedro Teles. 2020. "Credit Subsidies". *Journal of Monetary Economics*. E31, E40, E44, E52, E58, E62, E63.

Forthcoming

- Rua, António. 2020. "Modelling currency demand: The case of the Euro". *Empirical Economics*. JEL Codes: E41, E50, C32.
- Zsurkis, Gabriel, João Nicolau and Paulo M. M. Rodrigues (2020). "The expected time to cross a threshold and its determinants: A simple and flexible framework". *Journal of Economic Dynamics and Control*. JEL Codes: E63, C32, C41, C51.

International Economics

Forthcoming

- Cabral, Sónia, Pedro S. Martins, João Pereira dos Santos and Mariana Tavares. 2020. "Collateral Damage? Labour Market Effects of Competing with China – at Home and Abroad". *Economica*. JEL code: F66.

Financial Economics

Forthcoming

- Benlemlih, Mohammed, Jingwen Ge, and Sujiao Zhao. 2020. "Undervaluation and Non-Financial Disclosure: Evidence from Voluntary CSR News Releases". *Journal of Business Finance and Accounting*. JEL Codes: G30; G32; D03; D22.
- Bonfim, Diana, Gil Nogueira and Steven Ongena. 2020. "Sorry, We're Closed: Bank Branch Closures, Loan Pricing, and Information Asymmetries". *Review of Finance*. JEL Code: G21.
- Fontaine, Patrice, Sujiao Zhao. 2021. "Suppliers as financial intermediaries: Trade credit for undervalued firms". *Journal of Banking & Finance*. JEL Codes: G3; G30; G32; D2; D21.

Public Economics

- Guerreiro, João, Sérgio Rebelo, and Pedro Teles. 2020. "What is the Optimal Immigration Policy? Migration, Jobs and Welfare". 2020. *Journal of Monetary Economics* 113: 61-87. JEL Codes: H2, F2.

Industrial Organization

- Caliendo, Lorenzo, Giordano Mion, and L. D. Opromolla, and Esteban Rossi-Hansberg, 2020. "Productivity and Organization in Portuguese Firms". *Journal of Political Economy*, 128(1): 4211-4257. JEL Code: L20.

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.

To change or not to change: the impact of the law on mortgage origination • Ana Isabel Sá

Differences in mortgage law have significant effects on loan characteristics at origination. Borrower-friendly laws impose higher costs and risks for lenders and, thus, induce effects on mortgage pricing and leverage. However, not all borrower-friendly laws have the same effects. This finding is established using loan-level data for the U.S. mortgage market between 2001 and 2011. Judicial foreclosure requirements imply higher mortgage interest rates due to higher recovery costs and activate the price channel. Recourse restrictions imply higher loan collateralization to compensate for the fewer recovery opportunities and activate the collateral channel.

Heterogeneous response of consumers to income shocks throughout a financial assistance program • Nuno Alves, Manuel Coutinho Pereira and Fátima Cardoso

This paper studies the impact on consumption of the large changes in public wages in Portugal arising in the context of the economic and financial assistance program (2011-2014). We uncover the effects of exogenous public wage changes by exploiting the heterogeneous characteristics of public servants by municipality. The initial wage cuts triggered a marked reduction of private consumption, while the reinstatements in the later years gave rise to an increase, albeit of a smaller magnitude. The consumption response was larger for employees with relatively lower wages. Households smoothed the impact on consumption of negative income shocks by drawing down their deposits. Consumer credit did not play such a role, as households deleveraged as a response to those negative shocks.

Climate Change Mitigation Policies: Aggregate and Distributional Effects • Tiago Cavalcanti, Zeina Hasna, and Cezar Santos

We evaluate the aggregate and distributional effects of climate change mitigation policies using a multi-sector equilibrium model with intersectoral inputoutput linkages and worker heterogeneity calibrated to different countries. The introduction of carbon taxes leads to changes in relative prices and inputs reallocation, including labor. For the United States, reaching its Paris Agreement pledge would imply at most a 0.6% drop in output. This impact is distributed asymmetrically across sectors and individuals. Workers with a comparative advantage in dirty energy sectors who do not reallocate bear relatively more of the cost but constitute a small fraction of the labor force.

Assessing the Scoreboard of the EU Macroeconomic Imbalances Procedure: (Machine) Learning from Decisions • Tiago Alves, João Amador and Francisco Gonçalves

This paper uses machine learning methods to identify the macroeconomic variables that are most relevant for the classification of countries along the categories of the EU Macroeconomic Imbalances Procedure (MIP). The random forest algorithm considers the 14 headline indicators of the MIP scoreboard and the set of past decisions taken by the European Commission when classifying countries along the macroeconomic imbalances categories. The algorithm identifies the current account balance, the net international investment position and the unemployment rate as key variables, mostly to classify countries that need corrective action, notably through economic adjustment programmes.

Slums and Pandemics • Luiz Brotherhood, Tiago Cavalcanti, Daniel da Mata and Cezar Santos

This paper studies the role of slums in shaping the economic and health dynamics of pandemics. Using data from millions of mobile phones in Brazil, an event-study analysis shows that residents of overcrowded slums engaged in less social distancing after the outbreak of Covid-19. We develop a choice-theoretic equilibrium model in which individuals are heterogeneous in income and some people live in high-density slums. The model is calibrated to Rio de Janeiro. Slum dwellers account for a disproportionately high number of infections and deaths. In a counterfactual scenario without slums, deaths increase in non-slum neighborhoods. Policy simulations indicate that: reallocating medical resources cuts deaths and raises output and the welfare of both groups; mild lockdowns favor slum individuals by mitigating the demand for hospital beds, whereas strict confinements mostly delay the evolution of the pandemic; and cash transfers benefit slum residents to the detriment of others, highlighting important distributional effects.

An economic model of the Covid-19 pandemic with young and old agents: Behavior, testing and policies •
Luiz Brotherhood, Philipp Kircher, Cezar Santos and Michèle Tertilt

This paper investigates the importance of the age composition in the Covid-19 pandemic. We augment a standard SIR epidemiological model with individual choices on work and non-work social distancing. Infected individuals are initially uncertain unless they are tested. We find that older individuals socially distance themselves substantially in equilibrium. Confining the old even more reduces their welfare. Confining the young extends the duration of the epidemic, with negative consequences on the old if the epidemic cannot be controlled after confinement. Testing and quarantines save lives, even if conducted just on the young, as does separation of activities by age. Combining policies can increase the welfare of both the young and the old.

The importance of deposit insurance credibility • Diana Bonfim and João A. C. Santos

The success of deposit insurance arrangements at eliminating bank runs is likely closely tied to their credibility. We investigate this hypothesis building on two episodes which tested the insurance protection offered by the Portuguese arrangement in the midst of the country's sovereign debt crisis. Our results show that Portuguese depositors responded to foreign banks' decision to convert their subsidiaries into branches by relocating their deposits into the latter. We find a similar response following the announcement that insured depositors in Cyprus would lose part of their savings. On both instances responses are concentrated on household deposits. Given that foreign banks' branches offer the insurance protection of these banks' home countries, rather than that granted by their host country arrangement, our findings confirm that the credibility of the deposit insurance arrangement is critical for the protection it offers banks against the risk of depositor runs. These results show that sovereign-bank links can be detrimental to financial stability through a novel channel: the credibility of deposit insurance.

The DEI: tracking economic activity daily during the lockdown • Nuno Lourenço and António Rua

The SARS-CoV-2 outbreak has spread worldwide causing unprecedented disruptions in the economies. These unparalleled changes in economic conditions made clear the urgent need to depart from traditional statistics to inform policy responses. Hence, the interest in tracking economic activity in a timely manner has led economic agents to rely on high-frequency data as traditional statistics are released with a lag and available at a lower frequency. Naturally, taking on board such a novel data involves addressing some of the complexities of highfrequency data (e.g. marked seasonal patterns or calendar effects). Herein, we propose a daily economic indicator (DEI), which can be used to assess the behavior of economic activity during the lockdown period in Portugal. The indicator points to a sudden and sharp drop of economic activity around mid-March 2020, when the highest level of alert due to the COVID-19 pandemic was declared in March 12. It declined further after the declaration of the State of Emergency in the entire Portuguese territory in March 18, reflecting the lockdown of several economic activities. The DEI also points to an unprecedented decline of economic activity in the first half of April, with some very mild signs of recovery at the end of the month.

Dream jobs • Giordano Mion, Luca David Opromolla and Gianmarco I.P. Ottaviano

Understanding why certain jobs are 'better' than others and what implications they have for a worker's career is clearly an important but still relatively unexplored question. We provide both a theoretical framework and a number of empirical results that help distinguishing 'good' from 'bad' jobs in terms of their impact on a worker's lifetime wage income profile through wage jumps occurring upon changing job ('static effects') or through increases in the wage growth rate ('dynamic effects'). We find that the distinction between internationally active firms and domestic firms is a meaningful empirical dividing line between employers providing 'good' and 'bad' jobs. First, in internationally active firms the experience-wage profile is much steeper than in domestic firms, especially for managers as opposed to blue-collar workers. Second, the higher lifetime wage income for managers in internationally active firms relies on the stronger accumulation of experience that these firms allow for and on the (almost) perfect portability of the accumulated dynamic wage gains to other firms. Static effects are instead much more important for blue-collar workers. Finally, the distinction between internationally active and domestic firms is relevant also at a more aggregate level to explain cross-sectional differences in wages among workers and spatial differences in average wages across regions within a country.

Banks' complexity and risk: agency problems and diversification benefits • Diana Bonfim and Sónia Félix

Bank complexity is often associated with risk, due to moral hazard and agency problems. At the same time, complexity may be linked to diversification and scale economies, thus leading to less risk. In this paper, we provide empirical evidence on the relationship between bank complexity and risk-taking. We find a positive relationship between geographical complexity and bank risk. Banks that operate in more countries, both through banks and non-banks, have riskier balance sheets and more non-performing loans. Further, banks that operate in Africa have higher risk levels due to larger volatility of returns. The link between structural complexity and bank risk is weaker, but generally negative. Our results suggest that moral hazard and agency problems may be more acute when banks operate in many geographies and in emerging market economies. In contrast, the results are consistent with diversification and scale benefits arising from operating in more business areas.

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 2020

The effect of corporate bond purchases by the ECB on firms' borrowing costs • Diana Bonfim, André Capela.

The relation between PD and LGD: an application to a corporate loan portfolio • António R. dos Santos.

The capital surcharge on banks offering 'superdeposits': An early example of macroprudential policy measure in Portugal • Paulo Soares Esteves, Maximiano Pinheiro.

Economics synopsis **Deposit interest rate ceilings** • Maximiano Pinheiro, Paulo Soares Esteves.

October 2020

Business owners in Portugal and the euro area: characteristics and exposure to the pandemic • Sónia Costa, Luísa Farinha, Luís Martins and Renata Mesquita.

Rise and fall of the largest firms in Portugal • João Amador, Mário Lourenço, Cloé Magalhães and Ana Catarina Pimenta.

House price forecasting and uncertainty: Examining Portugal and Spain • Robert Hill, Rita Lourenço and Paulo M. M. Rodrigues.

Inputs, technology and efficiency: The Portuguese economy in the last three decades • João Amador and António R. dos Santos.

Seminars

2020

Jul. 2 **Epidemics in the Neoclassical and New Keynesian Models** • Martin Eichenbaum • Northwestern University.

8 **The Role of Government and Private Institutions in Credit Cycles in the U.S. Mortgage Market** • Manuel Adelino • Duke University.

20 **Supply and Demand in Disaggregated Keynesian Economies with an Application to the Covid-19 Crisis** • David Baqaee • UCLA.

22 **A new long-run growth paper about what happens when population growth is negative** • Chad Jones • Stanford University.

Sep. 4 **The Economic Ripple Effects of COVID-19** • Andy Neumeyer • Universidad Torcuato Di Tella.

23 **The Great Lockdown and the Big Stimulus: Tracing the Pandemic Possibility Frontier for the U.S.** • Ben Moll • London School of Economics.

30 **Owe a Bank Millions, the Bank Has a Problem: Credit Concentration in Bad Times** • Bernardo Morais • Federal Reserve Board.

Oct. 12 **To syndicate or not to syndicate: that's the question** • Christa Bouwman • Mays Business School at Texas A&M University.

14 **The Gender Pay Gap: Micro Sources and Macro Consequences** • Christian Moser • Columbia University.

19 **Nonbanks, Banks, and Monetary Policy: U.S. Loan-level Evidence since the 1990s** • Ralf Meisenzahl • Chicago FED.

21 **From Population Growth to Firm Demographics: Implications for Concentration, Entrepreneurship and the Labor Share** • Hugo Hopenhayn • UCLA.

23 **How do People Respond to Small Probability Events with Large, Negative Consequences?** • Sergio Rebelo • Northwestern University.

28 **Income Growth and the Distributional Effects of Urban Spatial Sorting** • Erik Hurst • Chicago Booth.

Nov. 9 **New-Keynesian Trade: Understanding the Employment and Welfare Effects of Trade Shocks** • Andrés Rodríguez-Clare • University of California, Berkeley.

18 **Trade, Robots, and Luddism: A Sufficient Statistic Approach to Optimal Technology Regulation** • Arnaud Costinot • MIT.

25 **Big Push in Distorted Economies** • Francisco | Buera • Paco | Washington University at St. Louis.

Dec. 4 **Dominant Currencies: How firms choose currency invoicing and why it matters** • Oleg Itskhoki • Princeton University.

7 **Job Search Behavior among the Employed and Non-Employed** • Aysegul Sahin • University of Texas.

9 **The Geography of Unemployment** • Adrien Bilal • Harvard University.

11 **Suboptimal Climate Policy** • Per Krusell • Stockholm University.

Courses

2020

Sep. 7/11 Structural Estimation in Corporate Finance • Toni Whited • Ross School of Business, University of Michigan

Professor Toni Whited (Ross School of Business, University of Michigan) taught the first online course of the Economics and Research Department, from September 7th to 11th 2020. The course focused on the use of structural estimation in corporate finance and banking. The main goal was to lower barriers to entry into these estimation techniques, offering insights on the conceptual tools, as well as on coding.

After an introduction on structural estimation and numerical dynamic programming, Professor Whited talked about the role of influence functions and weight matrices. Once equipped with these tools, the course moved on to simulation estimators. To make sure everyone was on board, all the steps covered in the course were applied in a problem set. Participants were asked to code to solve the problem set using the tools discussed in class.

The course then moved on to discuss several papers in corporate finance and banking where structural estimation has been applied. We wrapped up with a discussion of avenues for future research using structural estimation.

By Diana Bonfim

Oct. 7/9 The Macroeconomics of Market Power • Jan Eeckhout • UPF Barcelona, ICREA and GSE

From the 7th to the 9th of October, Professor Jan Eeckhout (Universitat Pompeu Fabra) taught the course The Macroeconomics of Market Power at the Economics and Research Department. The main observation behind the course is the idea that there was a sharp rise in Market Power in the aggregate economy since 1980. The first part of the course analyzed the measurement of market power in the macroeconomy using the cost-based method and documented how the distribution of markups and profits has changed. We compared markups and profits to other measures such as concentration indices (e.g., Herfindahl–Hirschman Index, HHI).

Prof. Eeckhout then evaluated the consequences of market power on the economy as a whole and the labor market in particular. The aim was to explain a number of secular trends that coincide with the rise of market power: a decline in the labor share, wage stagnation, declining labor mobility, the decline of startups, and the rise of superstar firms. After this, the course built a macro model of the economy where firms have market power in their local markets. The model was used to quantify the role of market power and the possible causes, between the market structure and technological change.

Finally, the last part of the course evaluated the impact of market power on wage inequality, and on the skill premium in particular. The objective was to estimate these models using micro data, and back out the distribution of firm productivities, firm markups (markdowns) as well as the market structure. The idea is to treat the market structure as a residual in the way economists usually treat productivity as the residual.

By Cézar Santos

Conferences and Other Events

2020

Nov. 16 10th Banco de Portugal Conference on Portuguese Economic Development in the European Context, Lisbon

The 10th conference on the Portuguese Economic Development in the European Context was held on 16 November, for the first time fully on a virtual setting. Over 300 participants attended the conference. The video and all presentations are available at https://www.bportugal.pt/evento/10a-conferencia-do-banco-de-portugal-desenvolvimento-economico-portugues-no-espaco-europeu.

The conference was dedicated to inequality-related issues, with an emphasis on the current pandemic, and benefited from interventions by a set of distinguished scholars.

Professor Richard Blundell (University College London and Institute for Fiscal Studies), delivered the keynote speech. After outlining the work of the IFS-Deaton Review: Inequality in the 21st Century Professor Blundell provided evidence and reflections on how to best balance tax and welfare-benefit policy with other structural policies such as minimum wages, human capital policies, and competition policy. The changes in the structure of work and of families was central in the analysis. Professor Blundell also addressed the implications of the current pandemic on inequality and presented suggestions on the optimal policy mix going forward.

The roundtable on "Inequality and COVID-19" joined Mónica Costa-Dias (University of Bristol and Institute for Fiscal Studies), Miguel Gouveia (Católica Lisbon School of Business & Economics) and Pedro Magalhães (Instituto de Ciências Sociais da Universidade de Lisboa). **Mónica Costa-Dias** highlighted that the current crisis tends to reinforce pre-existing inequalities, in terms of income, education, gender, age and ethnicity. The impact on employment was shown to be particularly perverse and enduring. In the medium-term, it would be important to ensure labor reallocation towards viable and productive firms. **Miguel Gouveia** presented novel evidence on the distributive impact of the pandemic on health outcomes and underlined the generational inequality in the labor market. In this regard Miguel Gouveia proposed that wages for younger workers should have a relatively lower fixed component and relatively higher variable component, which would vary with the performance of the firm. This revenue sharing mechanism could improve the labor market equilibrium for the young. **Pedro Magalhães** highlighted empirical and theoretical work on the implications of inequality for the stability of democracy and for its quality – in terms of participation, polarization and capture. The evidence seems to suggest that economic inequality increases ideological polarization, decreases the electoral participation of the poorest and increases the political influence of the wealthiest.

After the intervention by Governor Mário Centeno, which focused on the role of economic policy, the conference ended with the attribution of Banco de Portugal's Silva Lopes award. This prize is awarded to the best Master's thesis in Economics and, for the first time this year, to the best Masters's thesis in Management. Two juries, composed of highly renowned Portuguese scholars, assessed 51 theses in Economics and 36 theses in Management, from 11 Universities in Portugal. Banco de Portugal deeply thanks the judges on both panels, notably their respective presidents, Rui Albuquerque (Boston College) and Teresa da Silva Lopes (York University).

The winners this year were Catarina Branco, from NOVA School of Business and Economics, with a thesis on "The Impact of Highway Tolls on Business Sector Performance Evidence from a Natural Experiment" and Fernando Silva, from Faculdade de Economia da Universidade do Porto, with a thesis on the "Determinants of export persistence with a focus on geographical location: a firm level analysis for Portugal". All finalist thesis are available at the above web link. Congratulation to all!

By Nuno Alves

Dec. 17/18 **WORKSHOP - Data Visualization** • Porto

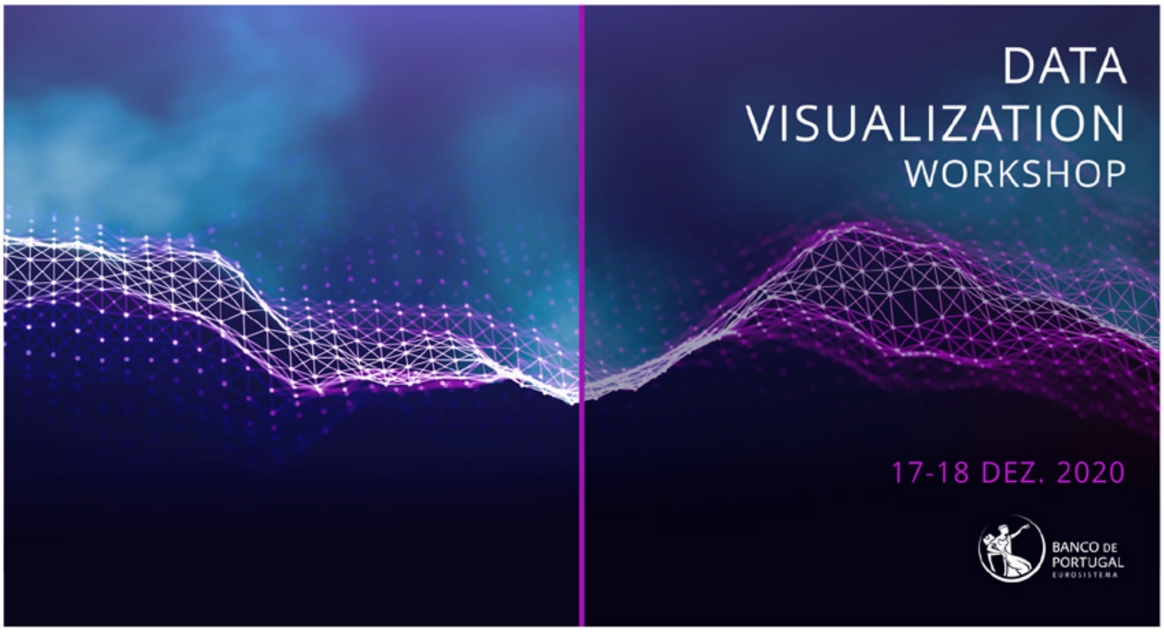
In partnership with the BdP Academy, the Microdata Laboratory of Banco de Portugal (BPLIM) organized a two-day online **Workshop on Data Visualization**. The workshop unfolded on the afternoons of December 17 and 18 and consisted of several presentations by experts in the area. **Ana Paula Serra**, a member of the board of BdP, opened the workshop on Thursday with a short talk highlighting the importance of the initiative and how it fits with the strategy of the recently created school of Data Science of BdP. Following that, **Alberto Cairo**, the keynote speaker, made a presentation on "How to make decisions in data visualization". Alberto, a well-recognized name on the field, is the Knight Chair in visual journalism at the University of Miami (UM). He is also director of visualization at UM's Institute for Data Science and Computing and the author of many books, the latest one being 'How Charts Lie: Getting Smarter About Visual Information'. Following his presentation, **Christophe Bontemps**, made a presentation titled "How to lie with Graphics". Christophe is a statistician lecturer for the United Nations, at the Statistical Institute for Asia and the Pacific (Chiba, Japan). Up until now he has devoted part of his time to the promotion of open data through data visualization and organized free conferences and courses on this topic. He was also responsible for the scientific content of this workshop and served as moderator for all presentations.

The second day of the workshop counted with three presentations. The first one, "From Data To Visualization", was by **Yan Holtz**. Yan is a software engineer specialized in data visualization and has developed several well-known websites like data-to-viz and the R, Python, and D3 graph galleries. **Chiara Sotis**, a doctoral student at the London School of Economics presented her work "The scale of COVID-19 graphs affects understanding, attitudes, and policy preferences". Finally, **Christophe Hurter** presented "Data-Driven Storytelling and data emerging presentation technologies" where he showcased novel approaches for data visualization. Christophe is a Professor working at the University of Toulouse, France and leads the Interactive Data Visualization group (DataVis) of the French Civil Aviation University (ENAC).

Along with the workshop, on Friday morning, a training session on Data Visualization took place. This session was restricted to BdP collaborators and was conducted by Edith Maulandi, an experienced trainer responsible for the "Introduction to Visualization" course at the engineering school EPF Montpellier (France).

Almost 500 people enrolled on the workshop with about 2/3 from outside institutions. Participants came from 6 other central banks, several institutional partners of the Bank and most Portuguese universities. The full videos of the workshop are available in the BP DATA.go Teams channel and all other materials can be downloaded from https://github.com/BPLIM/Workshops/tree/master/BPLIM2020.

By Paulo Guimarães



Meet our researchers

In this issue we present two members of our research staff.

António Rua joined the Economics and Research Department of Banco de Portugal in 1999. He worked in the Monetary Policy Division before moving to the Portuguese Economy Division. He is also an associate professor (adjunct) at Nova SBE. He holds a M.A. in Economics from Nova SBE and a PhD in Economics from ISEG, University of Lisbon. He has published a number of peer-reviewed articles in several internationally renowned scientific journals, including *Journal of Business and Economic Statistics*, European Economic Review, *Journal of Money, Credit and Banking, Journal of Empirical Finance, International Journal of Forecasting and Journal of Forecasting*.

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

Over the last years, my research has focused on applied econometric topics in the areas of economics and finance. In this respect, I have relentlessly worked to bring on board new tools and approaches with the aim of enhancing knowledge in economics and finance.

To give an example, tools such as spectral and wavelet analysis can be particularly invaluable to unveil features otherwise overlooked with standard econometric approaches. The work I have conducted so far has shown this to be the case in several applications, namely related to monetary policy, labor market and stock market analysis as well as economic forecasting.

Another topic of major interest has been the development and application of methods able to take advantage of data rich environments in a forecasting context, such as factor models or more generally machine learning approaches.

I should also mention the work carried out in dating and tracking the business cycle, with the development of composite economic indicators and the daily economic indicator for Portugal recently put forward following the outbreak of the COVID-19 pandemic.

I am grateful to my colleagues at Banco de Portugal for promoting a highly thought-provoking research environment. Several research studies have resulted from joint work carried out in the department as well as with other national and international co-authors.

Hugo Reis is a research economist at the Economics and Research Department (DEE) of the Banco de Portugal and assistant professor (adjunct) at Católica Lisbon School of Business and Economics. He completed his PhD in Economics at University College London, UK. His research interests include Human Capital, Economics of Education, Microeconometrics, Program Evaluation, Labour Economics and Development Economics. He has published peer-reviewed articles in internationally renowned scientific journals, including the International Economic Review and Labour Economics. He is also a research member of CUBE – Católica-Lisbon Research Unit, a fellow of the Global Labor Organization (GLO), and a research affiliate at the Institute of Labor Economics (IZA), Germany.

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

My research has focused on applied work on relevant topics to the areas of labour economics, in particular related to human capital. The estimation methods include the use of high-dimensional fixed effects panel data models and the use of structural models, in particular dynamic discrete choice models, which are more appropriate to the analysis and simulation of counterfactual policy analysis.

Recent research includes the analysis of the role of peers in the labour market outcomes (individual and firms) and human capital accumulation, understanding the role of grade retention in students' behavior, the role of risk in the vocational educational choices, and educational intergenerational mobility.

I would like to emphasize the extremely friendly and stimulating research environment, and the intense exchange and discussion of ideas promoted and experienced in the department.

Visiting fellows 2020

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.

Consultants

Miguel Portela • University of Minho

Upcoming events and announcements

Seminars 2021

Jan. 11 Simon Rother • University of Bonn

12 Andrea Fabiani • Universitat Pompeu Fabra

13 Francesca Salvati • University College London

14 Angela Denis • University of Chicago

18 Inês Xavier • Universitat Pompeu Fabra

19 Roman Goncharenko • KU Leuven

20 Hugo Vilares • London School of Economics

21 Attila Gyetvai • Duke University

25 Victor Hernandez Martinez • University of Rochester

26 Romulo Alves • Rotterdam School of Management

27 Leonardo Elias • Massachusetts Institute of Technology

28 Thomas Krause • IWH Halle

Feb. 1 Matias Moretti • New York University

2 Gil Nogueira • New York University

4 Sebastian Merkel • Princeton University

24 George Alessandria • University of Rochester

Mar. 3 Pierre-Olivier Gourinchas • University of California, Berkeley

17 Mikhail Golosov • University of Chicago

24 Luigi Bocola • Stanford University

Apr. 7 Martin Beraja • MIT Economics

14 Mariacristina de Nardi • University of Minnesota

21 Simon Mongey • University of Chicago

28 Yongseok Shin • Washington University in St. Louis

May 19 Ludwig Straub • Harvard University

26 Corina Boar • New York University

Courses 2021

Courses under the Cooperation Plan

Jun. **Macroeconomic forecast and economic analysis course** • Analysis and forecast of inflation

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**.

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