Research in Economics at Banco de Portugal • Biannual • Year III • Spring 2015

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Overview

It's my pleasure to welcome you again to a new issue of *Spillovers*. I would like to spend this overview with someone who visited us in the beginning of October and is interviewed in this issue: Neil Wallace. Neil came to the department last Fall to spend some days with us and give a seminar. It was a breath of fresh air and for a number of reasons I consider Neil to be a unique person and economist.

First, there is the question of why Neil has not won a Nobel prize. In the early 70's a group of young economists, inspired by the groundbreaking work of Bob Lucas, changed the landscape of economics. Tom Sargent, Chris Sims, Neil Wallace and Ed Prescott were known as the "Four Horsemen" at the Department of Economics of the University of Minnesota due to their innovative work in macroeconomics. Why is Neil the only member of this group of 5 outstanding economists (including Lucas) who has failed to win a Nobel prize?

In a 2005 interview (well worth reading), Sargent himself sheds some light on the puzzle. It seems that Wallace asked Sargent to remove his name from almost all of the papers they wrote together because he didn't think they were good enough! As Sargent himself says, "When I think of Neil, one word comes to mind: integrity."

Neil is considered the father of money's micro foundations, believing firmly that to understand the essence of money you could not abandon these foundations. Following his work, we can see why he is the precursor of most of the monetary questions which are on the table these days. It touches subjects from the irrelevance theorems and their relation to quantitative easing to the discussion of whether the independence of central banks could achieve independence of monetary policy from fiscal policy, the unpleasant monetary arithmetic, deposit insurance and the need for banking regulation, and the question of whether money should pay interest. Neil has dedicated his whole career to building bridges between microeconomic and macroeconomic theory, with money as the main actor.

A second and less developed aspect of Neil's biography is his role, with Tom Sargent, as adviser of the Federal Reserve Bank of Minneapolis at the end of the 70's. As we can imagine the research group they created had a significant impact on the way academics interact with policy-making at a Central Bank. We can say that the existence of *Spillovers*, or the importance of research at the Banco de Portugal is a result of the influence forged by the group that Neil and Tom formed almost 40 years ago. We can say that Antonio Borges and Sergio Rebelo understood in the 90's that Banco de Portugal was ready for a similar experience, given its relative dimension.

Last, a more personal testimony. The hour spent attending Neil's seminar made me very happy to be an economist. I was struck by the serious and crystal clear way Neil thinks and teaches. His seminar brought us back to the basics and reminded us of how far we are from complete understanding but also how far have we come since the "Four Horsemen" began.

I hope you too can experience a professional lifetime dedicated to asking profound, fascinating and original questions which can have a real impact on our everday lives.

Isabel H. Correia

Head of the Economics and Research Department (DEE)

Also in this issue

Links

Economists | Publications

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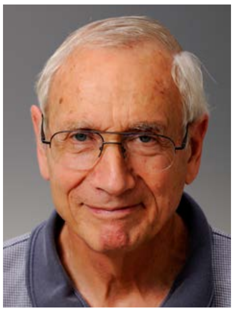


Professor Neil Wallace, currently at Penn State University, graduated from Columbia University in 1960 and earned his PhD from the University of Chicago four years later. He has produced major contributions in macroeconomics, with a strong focus on issues related to the rationality of economic agents and the role of money in the economy. He was one of the authors of the proposition that, if an economy is populated by agents with rational expectations, monetary policy is not effective in consistently changing the levels of output and employment. Recently, Prof. Wallace has been active in studying the microeconomic foundations for the use of money and deriving their implications in terms of the welfare of agents. He was elected Distinguished Fellow of the American Economic Association in 2012.

Interview

You attribute to what we call money at least two essential purposes. First, it has to solve the "double coincidence problem", which states that people who meet for a trade rarely have complementary interests. Second, it has to solve the problem of "imperfect monitoring", in which goods or services are exchanged at different times, but somehow the implied arrangement can only be imperfectly monitored. You argue that even if an object solves these two problems, it can't immediately be called money. Are there more candidate necessary conditions for an object to be called money?

I meant to say that in order for something that resembles monetary trade to play a beneficial role, there must be double-coincidence problems and some imperfect monitoring in the sense that the past actions of everyone cannot be common knowledge. The first of these has been discussed for more 1,500 years; the second is relatively new. The second is consistent with the notion that one trades using money with strangers and trades in other ways with people you know. As I use the word money here, it is a currency-like object which is valuable only because people expect to be able to trade it for something valuable in the future. Of course, it is also helpful if this currency-like object has other properties: is portable, is divisible and is recognizable.

What about privacy, the idea that for an object to be called "money" it has to have the property that it can be hidden under a mattress?

I don't see privacy as a decisive feature, but I expect that many people view it as desirable. It is interesting that few, if any, economic models make privacy a goal of people.

You seem somewhat negative about the models of monetary economies with heterogeneous agents produced so far. They are not general enough to allow a meaningful role for policy. Is it because it's very hard to set up and solve these models? Could computational economics help here?

What I meant to say is that many models that people use do not have a meaningful role for heterogeneity because that allows them easily deduce the implications of their models. My point is that doing that eliminates one of the main roles for policy and, therefore, gives misleading answers about what are desirable policies. In the models I favour, computational economics is the only tool that allows us to deduce a model's implications. Therefore, yes, it can definitely be helpful.

Kenneth Rogoff proposed recently to abolish physical money in advanced economies, so that all money holdings would have to be electronic. That "money" would seem to solve the two problems above and eliminate the zero lower limit on interest rates. Because it solves the imperfect monitoring problem effectively, this would seem to go in the direction of the first best as you define it in a monetary economy. On the other hand, that would also damage characteristics inherent to money as we know it today, such has anonymity and universality. What are your thoughts on this?

Unfortunately, I am not familiar with Rogoff's proposal. There are many forms of electronic money. One goal might be to inhibit illegal activity in which the use of currency plays a big role. Another may be to eliminate the zero lower bound

António Antunes (the interviewer) has been an economist in the Economics and Research Department at Banco de Portugal since 2002 and Deputy Head of the Department since 2015. He holds a PhD in Economics from Universidade Nova de Lisboa (Portugal). His research interests include macroeconomics (with an emphasis in models of heterogeneous agents and occupational choice) and empirical methods applied to firm and credit data. He is also interested in quantitative finance. His research has been published in outlets such as Journal of Mathematical Economics, Journal of Monetary Economics and Journal of the European Economic Association.

which arises because people can store currency. Another may be to eliminate the costs to governments of providing paper money and coins. The lower bound on interest rates could be tackled in other ways. In his blog, Mankiw noted that that there could be a lottery that rendered currency items with certain serial numbers worthless. Indeed, because people like lotteries, there could be a version with both positive and negative prizes, but with a negative expected return. That would eliminate the zero lower bound and might not arouse much opposition. People seem to like lotteries – even those with negative expected returns.

What is your view about Bitcoins? Do you think they can be a viable alternative to physical money?

Bitcoins seem to solve two problems that must be confronted by issuers of any unbacked money: counterfeiting and uncertainty about its current and future supply. That is what I find interesting about bitcoins. However, like any unbacked money, the value of bitcoins could be anything. There could be any number of potential substitutes for it. John Kareken and I once wrote a paper (Quarterly Journal of Economics, 1980) suggesting that exchange rates are indeterminate because the currencies of different countries are perfect substitutes. Our theory certainly applies to different versions of bitcoins – of which, I am told, there are many.

Would you subscribe to the Quantitative Easing programs followed in the US, Japan, the UK and now the Eurozone, as a means to overcome the Great Recession? What is the best exit strategy for QE?

I have not been very active in research in this field. I think QE operates almost exclusively through expectations and signalling effects and not through the purchases themselves.

What is your view on the architecture of the financial system in the West, where large, systemic banks are deemed "too big to fail"? Would you favour the current type of regulation, or a regulation aimed at limiting the systemic importance of banks, or any other type of policy?

Your questions raise many important issues. Based on "invisible-hand" type propositions, many economists think that private markets do a good job allocating resources – labour, materials and capita-among industries. However, no such proposition applies to an economy with a sizable amount of resources devoted to transacting – namely, the sector called finance, insurance and real estate and some of the retailing sector. In the models in which an "invisible-hand" type proposition holds, those activities do not exist. Hence, there is no presumption that the financial sector is the right size. Second, moral hazard concerns must be weighed against the desirable role of financial-sector illiquidity identified in the work of Diamond and Dybvig (*Journal of Political Economy*, 1983). I do not know how to determine whether the size of the financial sector is efficient or whether it has an efficient degree of illiquidity.

Lisbon, October 2014

In every issue, we ask an expert to briefly present and discuss two papers written by staff members. In this issue, the guest is Prof. António Afonso.

António Afonso is a Full Professor at the Department of Economics of ISEG/UL – University of Lisbon. He is the President of the Executive Board of UECE – Research Unit on Complexity and Economics, a research centre of ISEG/UL. He is also coordinator of the Master in Monetary and Financial Economics and coordinator of the PhD in Economics.

Before going back to academia, António spent many years at the European Central Bank where he was Principal Economist. He has worked also at CGD, IGCP, BNU, UAP and was Adviser and Consultant at the Ministry of Finance.

His research interests include fiscal policy, applied economics, macroeconomics and financial economics.

António has published in academic journals such as: Applied Economics, the Journal of Macroeconomics, the Journal of Banking and Finance, the Journal of International Money and Finance, Manchester School, Public Choice, Regional Studies, the Portuguese Economic Journal and the Review of World Economics. He has also co-authored books on introductory financial economics, economics and public finances and monetary and financial economics.

Featured published paper

A review of Portugal, Pedro, Anabela Carneiro and José Varejão (2014)
"Catastrophic Job Destruction During the Portuguese Economic Crises", *Journal of Macroeconomics*, 39: 444-457.

Following the economic and financial crisis that unfolded in 2008-2009, and the European Union and the International Monetary Fund financial rescue of Portugal, the unemployment statistics reported rather high unemployment rates in Portugal notably still in 2013 and in 2014. Although the data used in this paper does not go so far ahead in time, the paper concludes notably that the severe credit constraints "played a significant role in the current job destruction process" in the case of Portugal during economic and financial crises. In addition, the paper also reports the relevance of nominal wage downwards rigidity in terms of hampering some possible adjustments in the labour market during the crisis.

According to the paper's results, and regarding the "credit crunch", the increasing financing costs of the firms (firm-specific interest rates) during the crisis, in terms of the new attributed loans, have negatively impinged on firms' net job creation, a noticeable effect for the years 2010 and 2011. The same implication can be observed for the increase in the probability of firm closure that rises with financing costs, particularly in 2009 and in 2010. On the other hand, the paper also reports that wage rigidity is detrimental to the level of total employment.

These are naturally policy relevant implications in a context of financial constraints in Portugal, the need for productivity gains, the excessive burden of taxation already in place, which limits revenue rising measures, and the somewhat sticky public sector wage bill.

In that vein, making a link to a more aggregate dimension, for instance Afonso and Gomes (2014), when assessing the interactions between public and private sector wages per employee in OECD countries, have reported that the growth of public sector wages and of public sector employment positively affects the growth of private sector wages. It would be interesting to see whether that conclusion also holds true for the case of Portugal, and if a so-called public wage premium or gap (difference between public and private sector wages) does exist.

Afonso, António e Pedro M. Gomes. 2014. "Interactions Between Private and Public Sector Wages". *Journal of Macroeconomics*, 39: 97-112.

Featured bulletin article

A review of Gomes, Sandra (2014)
"Structural Reforms in the Euro Area", Banco de Portugal *Economic Bulletin*, October.

The possible effects of structural reforms are essentially long-run and are usually considered in most analysis for the labour market and/or for the services market. The relevance of the question became more acute in the last 3-4 years particularly in the Euro area, given the focus that they received in the context of the financial support that was asked by several countries from the international organizations.

Some studies have found evidence that markups are pro-cyclical with productivity and counter-cyclical with government spending (Rotemberg and Woodford, 1999, and Afonso and Costa, 2013). However, this article focuses on the link between structural reforms and monetary policy, highlighting that monetary policy cannot substitute, or should we say, cannot deliver the same level of support to the economy, as the implementation of structural reforms.

More specifically, the article reviews results in the DSGE related literature regarding the gains attributed to structural reforms, building notably on the papers of the author. The article reports the macro effects of structural reforms in the Euro area, modelled as permanent changes in the markups, which, before the reforms, are higher in the Euro than in the US. One interesting result of the simulations is the fact that reducing the services' markup increases long-run growth for Germany and also for Portugal. Similar findings are reported for the case of the labour market. Another relevant piece of evidence implies that closer euro area coordination of reforms may push growth in the right direction, by means of simultaneous decreases in markups.

As in most DSGE models, one needs calibration assumptions, and what we have learned so far in the literature hints, for instance, to the relevance of the share of rationed and non-rationed consumers. We can probably guess that some 25-35% of consumers might be assumed to be financially constrained, as is usually assumed for the euro area. On the other hand, looking at the literature at large, the share of non-Ricardian households is, for instance, assumed at around 35-50% for the United States. Some additional future discussion on the relevance of these assumptions can be interesting since the so-called "non-keynesian" effects are believed to be rather illusive once credit constrained households become more relevant, as one would expect under financial duress.

Afonso, António e Luís Costa. 2013. "Market Power and Fiscal Policy in OECD Countries". Applied Economics, 45(32): 4545-4555.

Rotemberg, Julio J. and Michael Woodford. 1999. "The Cyclical Behavior of Prices and Costs". In: Taylor, J. and Woodford, M., (Eds.) *Handbook of Macroeconomics*, Elsevier, Amsterdam, 1051-1135.

Recently published

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

Mathematical and quantitative methods

Ferreira, F., P. M. M. Rodrigues, S. P. Santos, and R. Spahr. 2014. "How to Create Indices for Bank Branch Financial Performance Measurement Using MCDA Techniques: An Illustrative Example", *Journal of Business Economics and Management*, 15(4): 708-728.

Ferreira, F., P. M. M. Rodrigues, S. P. Santos, and R. Spahr. 2014. "Evaluating Retail Banking Service Quality and Convenience with MCDA Techniques: A Case Study at the Bank Branch Level", *Journal of Business Economics and Management*, 15(1): 1-21.

Hassler, Uwe, P. M. M. Rodrigues and Antonio Rubia. 2014. "Persistence in the Banking Industry: Fractional Integration and Breaks in Memory", *Journal of Empirical Finance*, vol. 29(C): 95-112.

Nunes, L. C., P. M. M. Rodrigues, and Sobreira, N.. "Characterizing Economic Growth Paths Based on New Structural Change Tests", Economic Inquiry, 52(2): 845-861.

Rodrigues, Paulo M. M. and Nazarii Salish. 2015. "Modeling and Forecasting Interval Time Series with Threshold Models", *Advances in Data Analysis and Classification*, 9(1): 41-57.

Forthcoming

Dias, Francisco, Maximiano Pinheiro and António Rua. "Forecasting Portuguese GDP with Factor Models: Pre- and Post-crisis Evidence". *Economic Modeling*.

Castro, T. B., P. M. M. Rodrigues and A. M. R. Taylor. "On the Behaviour of Phillips-Perron Tests in the Presence of Persistent Cycles". *Oxford Bulletin of Economics and Statistics*.

Macroeconomics and monetary economics

Adao, Bernardino, Isabel Correia, and Pedro Teles. 2014. "Short and Long Interest Rate Targets", *Journal of Monetary Economics*, 66: 95-107.

Antunes, António, Tiago Cavalcanti and Anne Villamil. 2015. "The Effects of Credit Subsidies on Development" *Economic Theory*, 58(1): 1-30

Cuerpod, Carlos, Inês Drumond, Julia Lendvai, Peter Pontuch, Rafal Raciborski. 2015. "Private Sector Deleveraging in Europe", *Economic Modelling*, 44: 372-383.

Gomes, Sandra, Pascal Jacquinot, Ricardo Mestre and João Sousa. 2015. "Global Policy at the Zero Lower Bound in a Large-scale DSGE model". *Journal of International Money and Finance*, 50: 134-153.

Júlio, Paulo. 2014. "The Politics of Growth: Can Lobbying Raise Growth and Welfare?", *Journal of Macroeconomics*, 42: 263-280.

Mendicino, Caterina and Maria Teresa Punzi. 2014. "House Prices, Capital Inflows and Macroprudential Policy". *Journal of Banking and Finance*, 49: 337-355.

Forthcoming

Castro, Gabriela, Ricardo Félix, Paulo Júlio and José R. Maria. "Unpleasant Debt Dynamics: Can Fiscal Consolidations Raise Debt Ratios". *Journal of Macroeconomics*.

Clerc, Laurent, Stephan Moyen, Alex Derviz, Caterina Mendicino, Kalin Nikolov, Livio Stracca, Javier Suarez and Alexis Vardoulakis. "Assessing Capital Regulation in a Macroeconomic Model with Three Layers of Defaults". *International Journal of Central Banking*.

Dias, Daniel, Carlos Robalo Marques, Fernando Martins and João Santos Silva. "Understanding Price Stickiness: Firm-level Evidence on Price Adjustment Lags and their Asymmetries". *Oxford Bulletin of Economics and Statistics*.

International economics

Forthcoming

Amador, João and Sónia Cabral. "Global Value Chains: A Survey of Drivers and Measures". *Journal of Economic Surveys*.

Esteves, Paulo Soares and António Rua. "Is There a Role for Domestic Demand Pressure on Export Performance?". *Empirical Economics*.

Financial economics

Panetti, Ettore. 2014. "Financial Liberalization and Contagion with Unobservable Savings", *International Review of Financial Analysis*, 36: 20-35.

Mattana, Elena and Ettore Panetti. 2014. "Bank Liquidity, Stock Market Participation, and Economic Growth" *Journal of Banking & Finance*, 48: 292-306.

Forthcoming

Karmakar, Sudipto and Junghwan Mok. "Bank Capital and Lending: An Analysis of Commercial Banks in the United States". *Economics Letters*.

Portugal Pedro, and José Mata. "The Termination of International Joint Ventures: Closure and Acquisition by Domestic and Foreign Partners". *International Business Review*.

Labor and demographic economics

Cabral, Sónia and Cláudia Duarte. 2014. "Nominal and Real Wage Rigidity: Does Nationality Matter?" *IZA Journal of European Labor Studies*, 3:13.

Carneiro, Anabela, Pedro Portugal, and José Varejão. 2014. "Catastrophic Job Destruction during the Portuguese Economic Crisis". *Journal of Macroeconomics*, 39 (Part B): 444-457.

Portugal Pedro, John T. Addison and José Varejão. 2014. "Labor Demand Research: Toward a Better Match between Better Theory and Better Data". *Labour Economics*, 30(C): 4-11.

Forthcoming

Dias, Daniel, Marques, Carlos R. and Fernando Martins. "A Replication Note on Downward Nominal and Real Wage Rigidity: Survey Evidence from European Firms". Forthcoming in *Empirical Economics*.

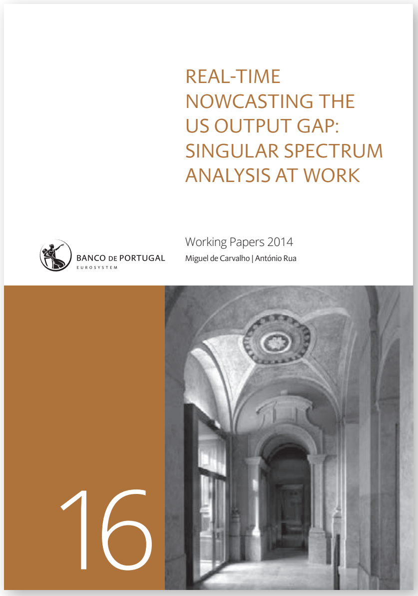
New titles in the *Working Papers* series

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

Mathematical and quantitative methods

Real-Time Nowcasting the US Output Gap: Singular Spectrum Analysis at Work • Miguel de Carvalho and António Rua – BP WP 16/2014

In this paper we explore a new approach for nowcasting the US output gap based on singular spectrum analysis. We find that multivariate singular spectrum analysis provides a more reliable assessment of the cyclical position of the economy in real-time than other well known alternatives.



Macroeconomics and monetary economics

Unpleasant Debt Dynamics: Can Fiscal Consolidations Raise Debt Ratios? • Gabriela Castro, Ricardo M. Félix, Paulo Júlio, and José R. Maria – BP WP 1/2015

Using PESSOA, a DSGE model for a small euro-area economy, we show that fiscal adjustments may entail an increase in the public debt-to-GDP ratio in the short run. Financial turmoils, hikes in risk premia, coupled with high indebtedness levels and stiff fiscal measures, amplify this impact.

A Dynamic Quantitative Macroeconomic Model of Bank Runs • Elena Mattana and Ettore Panetti – BP WP 13/2014

This paper develops a dynamic macroeconomic model with a microfounded banking system, where sunspot-driven runs can happen in every period and distort the provision of credit to the real economy. In equilibrium, a shock to the probability of a run leads to a GDP drop of up to 5.6 percentage points.

International economics

Global Value Chains: A View from the Euro Area • João Amador, Rita Cappariello and Robert Stehrer – BP WP 12/2014

This paper describes the main features of Global Value Chains in the euro area taken as a whole and compares with US, China and Japan in the period 2000-2011. In addition, the perspective of individual euro area countries is considered, with a focus on intra euro area linkages.

Exports and Domestic Demand Pressure: A Dynamic Panel Data Model for the Euro Area Countries • Elena Bobeica, Paulo Soares Esteves, António Rua and Karsten Staehr – BP WP 15/2014

The paper investigates the link between domestic demand pressure and exports by considering an error correction dynamic panel model for 11 euro area countries over the last two decades. The results suggest that there is a negative link between domestic and foreign sales and which is asymmetric.

Fiscal Devaluation in the Euro Area: A Model-Based Analysis • S. Gomes, P. Jacquinot and M. Pisani – BP WP 14/2014

We analyse a fiscal devaluation in Spain/Portugal in a euro area model (1% of GDP cut in firms' social contributions for 4 years financed with the consumption tax). In both cases the trade balance improves and real the exchange rate depreciates. Coordination leads to lower trade balance improvement.

Economic development, innovation, technological change and growth

Misallocation and Productivity in the Lead Up to the Eurozone Crisis • By Daniel A. Dias, Carlos Robalo Marques and Christine Richmond – BP WP 11/2014

Using Portuguese firm-level data, we find that within-industry misallocation almost doubled between 1996 and 2011, shaving around 1.3 percentage points off the annual GDP growth. Allocative efficiency deterioration was significantly higher in the service sector.

From the *Economic Bulletin*

Each issue of the *Economic Bulletin* carries articles whose titles and abstracts are listed below.

Economic Bulletin, October 2014

Resource Allocation, Productivity and Growth in Portugal • Daniel A. Dias, Carlos Robalo Marques and Christine Richmond

According to our estimates, allocative efficiency deterioration in the Portuguese economy may have shaved, on average, about 1.3 percentage points off the annual GDP growth during the 1996-2011 period, contributing significantly to the economic stagnation faced by the Portuguese economy after 2001.

The Cyclicality of the Portuguese Labour Market: A Macroeconomic Perspective in the OECD Context • Pedro Amaral

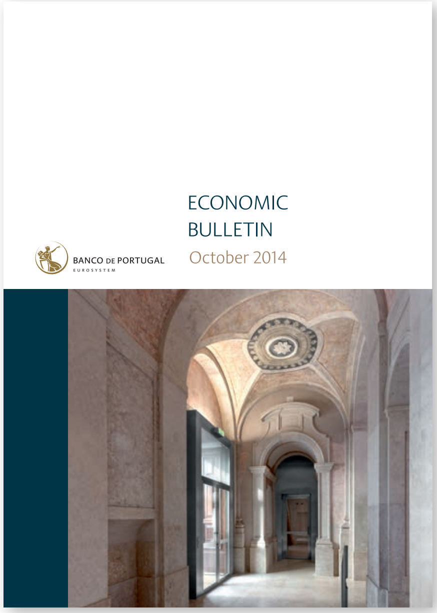
Compared to its OECD peers, the Portuguese labour market shows little correlation with the business cycle. In turn, the business cycle tends to be less persistent in Portugal. This article argues that such facts have important implications for macroeconomics models of the labour market.

A Review of the Pharmaceutical Market in Portugal • Manuel Coutinho Pereira and Hugo Vilares

This article examines the main developments of the pharmaceutical market in Portugal over the last decade. There has been a growth in the quantities traded and a reduction in retail prices. We find a small price-sensitivity of quantities consumed and a weakening of resistance to the prescription of generics.

Structural Reforms in the Euro Area • Sandra Gomes

The article is about structural reforms i.e. policy measures to enhance an economy supply side capacity. It overviews the results in the literature using structural models about the impact of reforms and discusses the link between structural reforms and monetary policy namely at the zero bound.



Economic Bulletin, December 2014

The Dynamics and Contrast of House Prices in Portugal and Spain • Rita Fradique Lourenço and Paulo M. M. Rodrigues

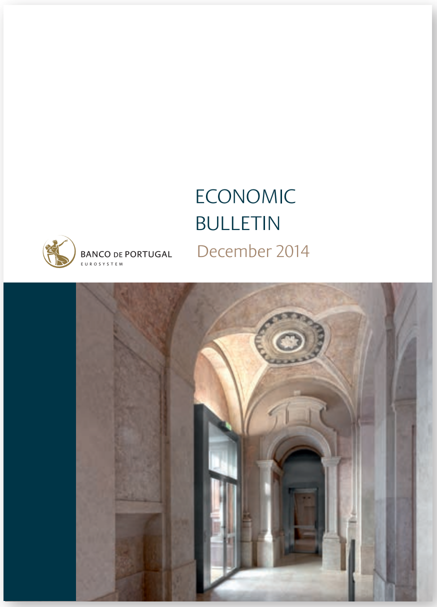
Following the European Union accession, the housing market has evolved differently in Portugal and Spain. This article provides evidence on these differences and explains house prices dynamics including an analysis of the existence of speculative bubbles using three different approaches.

Sovereign Debt Crises • Pedro Teles

Sovereign debt crises can be triggered by high default probabilities induced by high interest rates. This is more likely if debt is relatively large. In this context, the intervention of a large lender with deep pockets, such as the European Central Bank (ECB), can help coordinate on low interest rates. The article is based on the work of Navarro, Nicolini and Teles (2014).

Wage Adjustments During a Severe Economic Downturn • Fernando Martins and Pedro Portugal

We present the recent developments of the wage distribution in Portugal. The behaviour of wages reflects the severe contraction of economic activity which translated into a marked increase in the proportion of zero nominal wage changes. The consequences of the pent-up wage deflation may decisively influence the future wage developments.



Seminars

DEE regularly invites experts in various fields of economics to present their latest research. Banco de Portugal staff, as well as researchers from other central banks, Portuguese and foreign universities are invited to attend. The following is a list of the seminars that were organized during the last six months. See the seminars' webpage for a list of past and future seminars.

November 3rd | 2014

Financial Distress and Endogenous Uncertainty

François Gourio • Federal Reserve Bank of Chicago

November 10th | 2014

Bank Liabilities Channel

Vincenzo Quadrini • University of Southern California

November 27th | 2014

Bank Liquidity and Capital Regulation in General Equilibrium

Francisco B. Covas • Federal Reserve Board

December 3rd | 2014

Jump-Starting the Euro Area Recovery: Would a Rise in Core Fiscal Spending Help the Periphery?

Jesper Lindé • Sveriges Riksbank

December 18th | 2014

Macroeconomic Dynamics near the ZLB: A Tale of Two Countries

Frank Schorfeide • University of Pennsylvania

January 26th | 2015

Safe-Haven CDS Premia

David Lando • Copenhagen Business School

February 5th | 2015

Wealth and Volatility

Jonathan Heathcote • Federal Reserve Bank of Minneapolis

February 9th | 2015

Bank Bias in Europe: Effects on Systemic Risk and Growth

Marco Pagano • University of Naples Federico II

February 11th | 2015

Skill-Biased Structural Change and the Skill-Premium

Francisco J. Buera • Federal Reserve Bank of Chicago

March 18th | 2015

Regime Switching Model with Endogenous Autoregressive Latent Factor

Yoosoon Chang • Indiana University

March 19th | 2015

Understanding Regressions with Observations Collected at High Frequency over Long Span

Joon Park • Indiana University

March 30th | 2015

A Downside Risk Puzzle

A. Craig Burnside • Duke University

April 13th | 2015

Speculative Runs on Interest Rate Pegs

Marco Bassetto • University College London & Federal Reserve Bank of Chicago

Courses

DEE regularly organizes Ph.D-level one week courses taught by experts on several topics in economics. Banco de Portugal staff, researchers from other central banks, and from Portuguese and foreign universities are invited to attend. The courses also provide an additional opportunity for our staff to get feedback on the research in-progress.

November 17th-21st | 2014

Financial Crises and Business Cycles

Patrick Kehoe • University of Minnesota

Lessons from a course on currency unions, financial repression, consumer debt and the great contraction

Hugo Reis, Banco de Portugal, DEE

In the third week of November, Banco de Portugal invited Professor Patrick Kehoe for a course on currency unions, financial repression, consumer debt, and the great contraction. During the same week economists from the Economics and Research Department presented their work-in-progress to Patrick Kehoe, getting a very detailed and helpful discussion that worked mainly as a referee-in-advance. Patrick Kehoe is the Frenzel Professor of International Economics at the University of Minnesota.

The first part of the course discussed the empirical literature on gains from trade and currency unions, and covered the debate on optimal currency areas. The classic optimal currency area criterion is that countries with more correlated shocks are better candidates to form a union. Patrick Kehoe's recent work provides a modified optimal currency area criterion showing that symmetric countries gain credibility when joining the union but only when the shocks affecting credibility are not highly correlated. Chari, Dovis, and Kehoe (2013) emphasized the need of rethinking the massive amount of empirical work on optimal currency areas.

On the second day Patrick Kehoe reviewed the empirical literature on the financial repression and discussed the optimality of financial repression. Financial repression is defined as regulation imposed by government to banks and other financial intermediaries to force them to hold more government bonds than they would in the absence of such regulation, and has been widely practiced throughout history. In particular, it is more likely when government debt is high or when governments want to issue a lot of debt. In the context of a standard model with a financial sector constrained by a collateral constraint, Patrick Kehoe emphasized that, under commitment, financial repression is not optimal but without commitment it may be (Chari, Dovis, and Kehoe, 2014).

On the last day Patrick Kehoe talked about consumer debt and the great recession. Over this period, we witnessed a large fall in household debt-to-income ratio. At the same time, regions of the United States that experienced the largest declines in household debt-to-income also experienced the largest drops in consumption and employment. Patrick Kehoe discussed his search and matching model that reproduces such patterns (Kehoe, Midrigan, and Pastorino, 2014). Tighter debt constraints raise workers' and firms' discount rates, thus reducing match surplus, vacancy creation, and employment. On-the-job human capital accumulation and worker debt constraints, greatly amplify the drop in employment. The model reproduces the salient cross-sectional features of the U.S. data, including the comovement between consumption, house prices, debt-to-income as well as tradable and non-tradable employment.

Chari, Varadarajan V., Alessandro Dovis, and Patrick Kehoe. 2013. **"Rethinking Optimal Currency Areas"**. Mimeo.

Chari, Varadarajan V., Alessandro Dovis, and Patrick Kehoe. 2014. **"On the Optimality of Financial Repression"**. Mimeo.

Kehoe, Midrigan, and Elena Pastorino. 2014. **"Debt Constraints and Employment"**. Mimeo.

March 16^{th}-20^{th} | 2015

Bank Industry Dynamics

Dean Corbae • Wisconsin School of Business

Lessons from a course on bank industry dynamics

Ettore Panetti, Banco de Portugal, DEE

On March 16^{th}, the Economics and Research Department of Banco de Portugal hosted professor Dean Corbae for a three-day minicourse on "Bank Industry Dynamics". During the remaining days of the week Dean Corbae met with some of the economists of Banco de Portugal to discuss on-going research. Dean Corbae is professor of Economics and professor of Finance, Banking and Investment at the University of Wisconsin, and a research associate at the National Bureau of Economic Research (NBER). He has extensively written on banking, household finance and monetary economics.

The aim of the minicourse was to introduce Dean Corbae's latest research (joint with Pablo D'Erasmo) on quantitative structural models of banking, and to show how these models can be employed for policy analysis. To this end, Dean Corbae documented a number of stylized facts about the U.S. banking system, emphasizing its concentration and the non-competitive behavior of its main operators. Moreover, he reported statistics on the business-cycle properties of sectoral entry and exit, of bank loans and deposits, and of loan returns and interest margins. The empirical evidence highlights the importance of understanding the complete dynamics of the banking system, in an environment where some banks hold considerable market power, and the structure of the market is constantly evolving. However, the current research frontier takes the structure of the banking system as given (Allen and Gale, 2004; Boyd and De Nicoló, 2005), or analyzes dynamic stochastic general-equilibrium models of banking, where the structure of the market is endogenous, but all banks have the same size (Cuciniello and Signoretti, 2014). Thus, the aim of Dean Corbae's work is to develop a dynamic structural model of banking, where both the number of banks and their size change through time. Moreover, by calibrating the model parameters to match some relevant features of the data, he showed how to use these tools to conduct policy counterfactuals.

More specifically, Dean Corbae develops an environment where banks act as intermediaries between households, who provide funds in the form of deposits, and firms, who borrow to undertake risky projects. The banks take as given the loan interest rate, which is a function of their cross-sectional distribution, and diversify their risk by lending to a large number of borrowers. However, some banks also hold market power, and strategically take into account how their financing decisions affect the loan supply of the other "fringe" banks. At each point in time, all operating banks choose their investment strategy and, after being hit by some bank-specific shocks, decide whether to exit the market or not, by comparing the future expected value of staying versus leaving. Finally, the banks have limited liabilities and deposit insurance, which implicitly justify the imposition of a capital requirement: the bank equity ratio, calculated with some given risk weights, must be larger than a certain threshold. This threshold, together with the asset risk weights, is the policy parameter of the model.

Dean Corbae uses this framework to answer some fundamental policy questions. In his first work on the topic (Corbae and D'Erasmo, 2013), he shows that a commitment to bailing out big banks during insolvency would contribute to increasing bank risk taking in regions with high downside risk. Moreover, under commitment, the aggregate loan supply would rise by 6 percent, the loan interest rate drop by 50 basis points, and the economy-wide default rate drop by 2 percent. However, these would come at the costs of a "spillover effect" – as the loan supply of the fringe banks would drop by around 15 percent – and of a tax rise of around 10 percent.

In his following work (Corbae and D'Erasmo, 2014a), Dean Corbae, instead, analyzes the effects of a 50 percent increase in the bank capital requirement, and shows that it would yield lower loan supply (-8 percent), higher interest rates (+50 basis points), higher markups (+11 percent), and lower intermediated output (-9 percent). Moreover, the default rate and the exit rate (relative to entry) would both increase, thus leading to a more concentrated banking system.

Finally, in his most recent work (Corbae and D'Erasmo, 2014b), Dean Corbae asks how much the restrictions on the entry of foreign banks can affect the domestic loan rates and the welfare of a small open economy. After calibrating the model to

Mexico, he finds that lowering the entry costs for foreign banks would result in a higher supply of loans (+32 percent), lower default rates (-2.85 percent), higher output (+30 percent) and higher welfare, for both households (+0.79 percent) and entrepreneurs (+5.53 percent).

These are only three examples of the issues that can be analyzed in the environment proposed by Dean Corbae. In fact, in his future research agenda, he plans to address topics such as the role of interbank markets, mergers and acquisitions in the banking system, and banking specialization. Moreover, we can use this framework to answer different policy questions: for example, it may be helpful to run stress tests, and evaluate how the bank exit rate changes in response to various shocks to the fundamentals of the economy. This procedure, albeit based on a stylized model, would allow us to solve the endogeneity of the stress tests based on a reduced-form approach (Hirtle *et al.*, 2014) and provide a useful benchmark for regulators and policy makers alike.

Allen, Franklin and Douglas Gale. 2004. "Competition and Financial Stability". *Journal of Money, Credit and Banking*, 36(3): 453-480.

Boyd, John H. and Gianni De Nicoló. 2005. "The Theory of Bank Risk-Taking and Competition Revisited". *Journal of Finance*, 60(3): 1329-1343.

Corbae, Dean and Pablo D'Erasmo. 2013. "A Quantitative Model of Banking Industry Dynamics". Mimeo.

Corbae, Dean and Pablo D'Erasmo. 2014a. "Capital Requirements in a Quantitative Model of Banking Industry Dynamics". Mimeo.

Corbae, D. and P. D'Erasmo. 2014b. "Foreign Competition and Banking Industry Dynamics: An Application to Mexico". Mimeo.

Cuciniello, Vincenzo and Federico M. Signoretti. 2014. "Large banks, loan rate markup and monetary policy". *Banca d'Italia Temi di Discussione* No. 987.

Hirtle, Beverly, Anna Kovner, James Vickery, and Meru Bhanot. 2014. "Assessing Financial Stability: The Capital and Loss Assessment under Stress Scenarios (CLASS) Model". *Federal Reserve Bank of New York Staff Report* No. 663.

Other activities

Research grants

José Tavares (NOVA SBE) • "Fiscal Adjustment, Default and Government Systems: Theory and Implications for the Euro System" (from September 2014 to March 2015).

Geraldo Cerqueiro (Católica SBE) • "Evergreening and the misallocation of credit in Portugal" (from September 2014 to November 2014).

André Silva (NOVA SBE) • "Government Financing with Taxes or Inflation" (from March 2015 to August 2015).

Visiting researchers

The Economics and Research Department (DEE) regularly hosts researchers from other institutions that collaborate, exchange ideas and expertise with internal economists. Recently, we benefited from the presence of a number of distinguished visitors, including: Corrado Andini (Universidade da Madeira), Francisco J. Buera (Federal Reserve Bank of Chicago), Matei Demetrescu (Christian Albrechts University at Kiel), Filomena Garcia (Indiana University), Elena Mattana (Core – Université Catholique de Louvain), Giordano Mion (University of Surrey), Juan Pablo Nicolini (Federal Reserve Bank of Minneapolis).

Meet our researchers

In this issue we present one member of our research staff and a consultant visitor (Sep. 2014 – Aug. 2015).

Diana Bonfim is an economist in the Financial Intermediation Division of the Economics and Research Department at Banco de Portugal since 2002 and an invited lecturer at Católica Lisbon School of Business and Economics. She holds a PhD from the University of Groningen. Her research interests comprise empirical banking, corporate finance, financial stability and applied microeconometrics. She has published in Journal of Banking and Finance and in Empirical Economics.

Can you tell us a little bit about your current research at the DEE?

Most of my research is anchored in two areas of interest: risks in banking and firms' access to finance. I believe that these are fruitful areas for research, as the global financial crisis made clear that there are many gaps in the literature that still need to be addressed. The Economics and Research Department of Banco de Portugal offers a great environment to conduct this research, as there are unique datasets that may offer new insights into research, while allowing to keep the eyes set on research questions that may have relevant policy implications.

Recently, I have been looking at liquidity risk in banks, trying to identify peer effects in banks' strategies in the run up to the crisis. My results should be helpful in supporting the need for a systemic approach to liquidity risk regulation.

In another line of research, I am currently involved in several projects looking at different dimensions of credit risk. These include issues on what happens to firms after they default on their bank loans, on the analysis of strategic default choices when firms borrow from multiple banks and on incentives for loan forbearance for bad quality firms.

Finally, I have also been looking at the transmission of monetary policy through banks, trying to find out whether banks grant riskier loans when interest rates are lower. More recently, I have been working on an even more challenging topic: the analysis of transmission during the crisis.

Upcoming events and announcements

Seminars

April 20th | 2015
Dick van Dijk • Erasmus University Rotterdam

April 27th | 2015
Mark Aguiar • Princeton University

May 4th | 2015
Morten O. Ravn • University College London

May 11th | 2015
Iftekhar Hasan • Fordham University

May 18th | 2015
Testing for Identication in Structural Vector Autoregressions with GARCH Residuals
Helmut Luetkepohl • Freie Universität Berlin

June 1st | 2015
Chad Syverson • University of Chicago

July 20th | 2015
John G. Fernald • Federal Reserve Bank of San Francisco

September 28th | 2015
Neng Wang • Columbia University

October 5th | 2015
Harris Dellas • University of Bern

October 12th | 2015
Philip E. Strahan • Boston College

November 23rd | 2015
Mariacristina De Nardi • University College London and Federal Reserve Bank of Chicago

Pedro Amaral is visiting the Economics and Research Department of Banco de Portugal (DEE) from September 2014 to August 2015 as a consultant. He works at the Federal Reserve Bank of Cleveland since 2009, where he is a Senior Research Economist in the Macroeconomics group. He got his PhD in Economics in 2002 from the University of Minnesota and went on to teach at Southern Methodist University in Dallas, Texas until 2009. His work on informal markets, credit frictions and development and causes of the Great Depression has appeared in the Journal of Monetary Economics, International Economic Review and the Review of Economic Dynamics.

Can you tell us a little bit about your current research at the DEE?

In the last few years working at the Cleveland Fed I have developed an interest in search and matching models of the labour market and how they can help us better understand the business cycle dynamics of labour markets across countries. As economists we try to develop parsimonious models that distil the important features of the phenomena we are trying to capture, but as we move from one country's labour market to another, we find that institutional idiosyncrasies play a very important role in shaping outcomes. In my latest research I try to bring in this cross-country scrutiny to labour search and matching models. In a nutshell I try to use the cross-country variation in labour market outcomes to better distinguish between different models of the labour market.

In another project, I am looking at an event that has fascinated and confounded economists for decades: the Great Depression. A prominent line of research in this field has argued that a large fraction of the decline in output experienced by the US was caused by increases in real wages that resulted from deflationary shocks coupled with rigid nominal wages. I argue that once one takes into account sectoral linkages in the economy this explanation loses most of its power.

Courses

June 15th-19th | 2015

Policy in Models with Heterogeneous Agents

Gianluca Violante • New York University

September 21st-25th | 2015

Banking and Financial Crises

Anjan Thakor • Washington University in St. Louis

November 23rd-27th | 2015

On Public Debt

Deborah J Lucas • MIT Sloan School of Management

Conferences

May 9th | 2015

Conference Growth and Reform in Europe in the Wake of Economic Crisis

The conference encourages a reflection on the recent process of adjustment and reform in Europe, as well as on the prospects for growth and the institutional change needed to recover a sustained development path.

June 11th-13th | 2015

Conference on Monetary Economics

The conference aims at bringing together economists to discuss research on monetary theory and policy.

July 10th-11th | 2015

Conference on Financial Intermediation

The conference brings together academics and policy makers to present and discuss new research on bank regulation.

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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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