



## **ANNUAL RESEARCH ACTIVITY REPORT 2018**

March 2019

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<https://twitter.com/ResearchRem>



## REM - Research in Economics and Mathematics

- 6** research groups
- 75** integrated members
- 50** collaborators
- 3** doctoral programmes
- 443** articles in international journals,  
2012 - 2019 (highly ranked in Web of Science, Scopus, ABS, and FT)
- 11** recently funded FCT research projects
- 77** REM WPs 2017 - 2019

## 1. Introduction

REM - Research in Economics and Mathematics is a research consortium hosted by ISEG, the School of Economics and Management of Universidade de Lisboa, which is the largest and most reputed Portuguese University. The consortium was formed in the middle of 2017 by bringing together two research centres:



Mathematics Applied to Forecasting and Economic Decision



Research Unit on Complexity and Economics

REM produces original research in Economics and Mathematics, both theoretical and applied, taking a multidisciplinary stance at complex problems in economies and societies. The consortium encompasses several areas of research covering economics, mathematics and finance, behavioural and political economy. The research produced is a useful instrument for the formulation and the critical analysis of public policy in connection with industry stakeholders. Moreover, REM bears strong cooperation ties with governmental institutions, Central Banks (notably Banco de Portugal), and international organisations (IMF, OECD, and ECB), and regulators to drive an updated agenda of research into economic and societal challenges.

REM's researchers are organized in six groups: Econometrics; Mathematical Analysis and Computational Finance; Macroeconomics; Mathematics of Complex Systems; Microeconomics; and Statistics and Actuarial Science. At the end of 2018, there were 71 integrated members (4 other members entered already in 2019) and around 50 collaborators encompassing research associates and Ph.D. students.

REM hosts and coordinates three doctoral programmes at ISEG, being committed to research-based advanced teaching. Ph.D. students are integrated members of research teams, often in international consortia, and M.Sc. students prepare their dissertations in close articulation with ongoing research lines.

Regarding impact, REM ranks high in publication records according to international standards. There is an active policy for promoting publication in excellent scientific journals and books published by international publishers. Nonetheless, we are also strongly committed to make our research outputs freely available via working papers and open-access publications. Indeed, REM members have published more than 430 articles in international peer-reviewed journals in the period 2012-18, with more than 20% of them placed in the first quartile of Web of Science (or Scopus). These publications are also highly ranked in the ABS and FT journal rankings. In addition, REM has its own Working Paper series indexed in IDEAS/RePEc, with 77 published WPs between 2017 and the beginning of 2019.

REM is a member of the **EconPol Europe** – the European network for economic and fiscal policy research – a network of 14 policy-oriented university and non-university research institutes across 12 countries (Czech Republic, the Netherlands, Portugal, Spain, Switzerland, Germany, France, the UK, Finland, Austria, Italy and Belgium).



**EconPol Europe** was founded by:

- ifo Institute – Leibniz Institute for Economic Research at the University of Munich e. V. (ifo; Munich, Germany)

with

- Centre d'Études Prospectives et d'Informations Internationales (CEPII; Paris, France)
- Centre for European Policy Studies (CEPS; Brussels, Belgium)
- CERGE-EI (Prague, Czech Republic)
- CPB Netherlands Bureau for Economic Policy Analysis (The Hague, Netherlands)
- Institut für Höhere Studien (IHS; Vienna, Austria)
- Instituto Universitario de Economía at Universidad Carlos III de Madrid (Madrid, Spain)
- KOF Swiss Economic Institute at ETH Zurich (Zurich, Switzerland)
- REM at the Lisbon School of Economics and Management of the Universidade de Lisboa (Lisbon, Portugal)
- Toulouse School of Economics (Toulouse, France),
- Università di Trento (Department of Economics and Management) (Trento, Italy),
- University of Oxford (Centre for Business Taxation) (Oxford, Great Britain),
- VATT Institute for Economic Research (VATT; Helsinki, Finland)
- ZEW – Leibniz-Zentrum für Europäische Wirtschaftsforschung GmbH Mannheim (ZEW; Mannheim, Germany)

## Participating Institutions



REM also participates in, and manages the **XLAB**, a laboratory for scientific research and data collection whose main goal is the study of decision-making processes and economic, political, and social behaviour. This infrastructure conducts experimental studies, surveys about economic and social behaviour, and measurement tests. **XLAB** is located at the Lisbon School of Economics & Management of the University of Lisbon.



The XLAB is a component of PASSDA (*Production and Archive of Social Science Data*) is the Portuguese infrastructure for the collection, archive and dissemination of data about social and political attitudes, values, and behaviours. It is the national node of several international research networks and infrastructures that collect these types of data through surveys applied to representative samples of the population, such as the European Social Survey-ERIC or the Comparative Study of Electoral Systems, as well as of the Consortium of European Social Science Data Archives (CESSDA-ERIC).

PASSDA is integrated in the [Portuguese Roadmap of Research Infrastructures](#) supported by the Foundation for Science and Technology, and was instituted as a partnership between research centres and units of the University of Lisbon, ISCTE-IUL, the University of Coimbra and the University of Porto.



## 2. Research Groups

### 2.1. Econometrics

The **Econometrics group** consists of 14 researchers who are also full-time lecturers at public universities (13 lecturers and professors at ISEG and one lecturer at Beira Interior University). The group is heterogeneous and conducts research in distinct areas of Econometrics. While some members exclusively conduct empirical research, others focus on theory. The majority, however, combine these two strands of research.

We highlight three principal areas of research: i) microeconometrics, more specifically, panel data, discrete choice models, fractional regression models, sample selection, quantile regression (mostly on cross-section analysis), conditional moments constraints, missing data, attrition, discrete-continuous choice models, endogeneity in nonlinear models and spatial econometrics; ii) time series, in particular, clustering and classification, multivariate Markov chain, regression-based tail index estimation, double unit roots and value-at-risk and expected shortfall; iii) applied economics on poverty, social exclusion, income distribution and social policy.

On top of these main areas, our group occasionally conduct research in areas close to statistics such as nonparametric estimation (e.g., density forecast based on time- and state-domain, expected time to cross a threshold, and structural change test in duration).

### 2.2. Economics and Mathematics of Complex Systems

The **Economics and Mathematics of Complex Systems group** is a multidisciplinary group that consists of 7 mathematicians and 6 economists who contribute to tackling human problems using their modelling expertise. Many of these contributions rely on the feedback of social phenomena, which, in addition to material constraints, are also a result of human decision processes.

We believe that modelling can only be relevant to the society if it addresses real and actual problems. Therefore, the joint expertise from mathematics and social sciences is needed. The members of this group have different backgrounds and diverse scientific training and work together in a true interdisciplinary spirit.

The group comprises four main research lines: i) non-linear dynamical systems (theory and applications), including computational economics and finance; ii) innovation studies, which includes modelling and reconstruction of innovation processes; iii) bibliometric and scientometric research, and iv) network structure and dynamics.

### 2.3. Macroeconomics

The **Macroeconomics Group** has 14 members, some of them also with links with Banco de Portugal. Several topics of research include fiscal policy, monetary policy alongside macro econometric modelling and DSGE modelling.

Other lines of research deal with macroeconomic dynamics, macro prudential policies and household indebtedness, government efficiency analysis, and international economic and financial integration, euro area long-term sovereign bond yields, macroeconomics of imperfect



competition, firm dynamics and macroeconomic dynamics or on the mathematics of macroeconomic dynamics, measuring the output gap, and the relevance of public investment for economic activity.

Members of the group organise a regular workshop on macro issues that takes place around the economics' schools in Lisbon.

## 2.4. Mathematical Analysis and Computation Finance

The **Mathematical Analysis and Computation Finance group** consists of 8 researchers whose expertise relies on a strong quantitative background that allows tackling open questions in a set of diversified pure and applied domains that nowadays require an exigent mathematical framework.

In mathematical finance: nonlinear Black-Scholes equation and option pricing with transaction costs; stochastic analysis, control theory and optimal stopping problems, and applications to portfolio theory, option pricing, and real options; risk measures in complex markets; numerical and mathematical analysis of partial integro-differential equations and delay differential equations in option pricing with memory effects; parallel solution methods for linear systems that enable to overcome the curse of dimensionality in financial applications.

In mathematical analysis with applications to Economics, Finance, Medicine and Physics: combinatorial game theory concerning impartial games and the generation of all complete lattices with a well-chosen initial set of combinatorial games; approximation of parabolic PDEs arising in finance; evolution equations associated with strongly continuous Markov processes and controlled versions of such equations, with optimal control problems in view; numerical and mathematical analysis of partial differential equations of elliptic/parabolic type; parallel solution methods for linear systems arising in the solution of partial differential and integro-differential equations with biomedical applications; dispersive differential equations with quantum mechanics and dynamics of wave propagation in dispersive media in view.

## 2.5. Microeconomics

The **Microeconomics group** consists of 13 researchers, 9 of whom are also full-time lecturers at public universities. We conduct both theoretical and applied research using lab and field experimental methods and non-experimental survey data. Three research areas have been particularly productive.

In Urban Economics, with focus on transport (efficiency and distributional effects of transportation policies on urban form and mode choices; linkages between transport investment, agglomeration economies, and economic performance) and on regional development (causes of spatial disparities in regional development and socio-economic outcomes). Previous work resulted in an extensive list of publications and in the near future, we aim at examining the relationship between the expansion of the road network and the urban spatial structure in Portugal over the last 30 years.

In the field of Behavioural and Experimental Economics, previous work dealt with testing matching mechanisms in the lab, as well as investigating the role of information in coordination, cooperation, and competition games. Also, field and lab experiments investigate gender differences in economic decision-making and explore various institutional and policy interventions that possibly reduce the gender gap inefficiencies in labour markets. For the near

future, we aim at linking overconfidence to other aspects of decision-making and real world outcomes, with a focus on information processing and group dynamics. These experiments will be conducted at ISEG's new XLAB (an experimental laboratory financed by PASSDA).

At last, International Trade, whose main contributions focus on multi-country dynamic trade models to study entry and exit from export markets, on the relevance of geography for multinational production, on exporters' strategies, and on the effects of managers' mobility on trade performance. For the near future, we aim at quantifying the effects of trade and labour market integration in the context of economic integration.

## 2.6. Statistics and Actuarial Science

The **Statistics and Actuarial Science group** is composed of 8 researchers, 7 of whom are also full-time lecturers at ISEG, and 4 Ph.D. students.

In this group, we explore a variety of themes, such as uncertainty quantification and model selection/hypotheses testing using a Bayesian approach. Current projects in this line involve the application of uncertainty quantification techniques to economic models and Bayesian hypotheses testing in the context of proportions. In another ongoing project, we focus on bivariate counting distributions with the objective of modelling dependence of risks in actuarial science and its implications on ratemaking. Yet another research topic focuses on the optimal reinsurance strategy from the cedant's point of view when the risks for which reinsurance is sought are dependent. In this topic, we consider several optimization criteria, from single to multi-period models, and use approaches related to the theory of stochastic control. Finally, there are several ongoing projects in the area of ruin theory.

## 3. Publications

### a) Articles

In 2018, considering also some forthcoming articles, REM published 53 articles in peer reviewed journals.

<u>Hysteresis due to irreversible exit: Addressing the option to mothball</u> Guerra, M.; Kort, P.M.; Nunes, C.; Oliveira, C. <u>Journal of Economic Dynamics and Control</u> , 92, 69–83 (2018).
<u>Scattering theory for the Schrödinger-Debye System</u> Oliveira, F., Correia S. <u>Nonlinearity</u> , vol. 31, no. 7, pp. 3203-3227 (2018).
<u>Short and long-term interest rate risk: The Sovereign Balance-Sheet Nexus</u> Afonso, A., Alves, J. <u>Finance Research Letters</u> , In Press (2018).
<u>The changing economic regimes and expected time to recover of the peripheral countries under the euro: a nonparametric approach</u> Damásio, B., Louçã, F., Nicolau, J. <u>Physica A: Statistical Mechanics and its Applications</u> , Vol. 507, Pages 524-533 (2018).
<u>Useful Exergy Is Key in Obtaining Plausible Aggregate Production Functions and Recognizing the Role of Energy in Economic Growth: Portugal 1960-2009</u> Santos, J, Domingos, T., Sousa, T., St. Aubyn, M, <u>Ecological Economics</u> , 148(C), 103-120 (2018).

<p><u>Determinants of the income velocity of money in Portugal: 1891–1998</u> Nunes, A. B., St. Aubyn, M., Valério, N, Sousa, R. <i>Portuguese Economic Journal</i>, 17(2), pp 99-115 (2018).</p>
<p><u>Ordinal sums of impartial games</u> Carvalho, A., Neto, J.P., Santos, C.P. <i>Discrete Applied Mathematics</i>, 243, Pages 39-45 (2018).</p>
<p><u>Assessing Static and Dynamic Response Variability due to Parametric Uncertainty on Fibre-Reinforced Composites</u> Carvalho, A., Silva, T., Loja, M. <i>Journal of Composites Science</i>, 2(1), 6 (2018).</p>
<p><u>Toward Variability Characterization and Statistic Models' Constitution for the Prediction of Exponentially Graded Plates' Static Response</u> Carvalho, A., Rosa, R., Loja, M. <i>Journal of Composites Science</i>, 2(4), 59 (2018).</p>
<p><u>Determinants of banks' profitability in Angola</u> Garcia, M.T., Trindade; M.J. <i>African Journal of Economic and Management Studies</i>, to appear (2018).</p>
<p><u>Evaluating the causal economic impacts of transport investments: evidence from the Madrid–Barcelona high speed rail corridor</u> Melo, P.C., Carbo JM, DJ Graham, Anupriya, D Casas <i>Journal of Applied Statistics</i>, pp. 1-10 (2018).</p>
<p><u>Does home-based telework reduce household total travel? A path analysis using single and two worker British households</u> Melo, P.C., de Abreu e Silva, J. <i>Journal of Transport Geography</i>, 73, pp. 148-162 (2018).</p>
<p><u>Home telework, travel behaviour, and land use patterns: A path analysis of British single-worker households</u> Melo, P.C., de Abreu e Silva, J. <i>Journal of Transport and Land Use</i>, Vol.11, No 1, pp. 419-441 (2018).</p>
<p><u>Income elasticities for food, calories and nutrients across Africa: A meta-analysis</u> Melo, P.C., Colen, L., Abdul-Salam, Y. Roberts, D., Mary, S., Gomez Y Paloma, S. <i>Food Policy</i>, Vol.77, pp.116-132 (2018).</p>
<p><u>Transport-Induced Agglomeration Effects: Evidence for US Metropolitan Areas</u> Melo, P.C. and Graham, D.J. <i>Regional Science, Policy and Practice</i>, Vol. 10, pp.37-47 (2018).</p>
<p><u>The effect of income on the energy mix: Are democracies more sustainable?</u> Ramalho, E.A., T.N. Sequeira, M.S. Santos <i>Global Environmental Change</i>, 51, 10-21 (2018).</p>
<p><u>Exponential regression of fractional-response fixed-effects models with an application to firm capital structure</u> Ramalho, E.A., J.J.S. Ramalho, L.M.S. Coelho <i>Journal of Econometric Methods</i>, 7(1) (2018).</p>
<p><u>Impact of long term care and mortality risk in community care and nursing homes populations</u> Rosati, N., Lopes, H., Mateus, C. <i>Archives of Gerontology and Geriatrics</i>, 76, 160-168 (2018).</p>
<p><u>Does acute myocardial infarction kill more people on weekends? Analysis of in-hospital mortality rates for weekend admissions in Portugal.</u> Rosati, N., Fiorentino F., Ascensão R. <i>Journal of Health Services Research &amp; Policy</i>, 23, 87-97 (2018).</p>
<p><u>Differential effect of university entrance score on first-year students' academic performance in Portugal</u> Ferrão, M. E., Almeida, L. S. <i>Assessment &amp; Evaluation in Higher Education</i>, to appear (2018).</p>

<p><u>Multilevel modelling of persistence in higher education</u>  Ferrão, M. E., Almeida, L. S.  Ensaio: Avaliação e Políticas Públicas em Educação, 26(100), 664-683 (2018).</p>
<p><u>A Variant of the Method of Step Algorithm for a Delay Differential Equation</u>  Fátima Fabião, Paulo B. Brito, António St. Aubyn  Memoirs on Differential equations and Mathematical Physics - EMIS, 73 (2018), pp. 65-82 (2018).</p>
<p><u>Sociopolitical values, attitudes and behaviors of Portuguese economics students</u>  Graça, J., Correia, R. G. and Caiado, J.  Sociologia, Problemas e Práticas, to appear (2018).</p>
<p><u>Static versus Dynamic Deferred Acceptance in School Choice: Theory and Experiment</u>  Pais, J., Klijn, F., Vorsatz, M.  Games and Economic Behavior, to appear (2018).</p>
<p><u>How biased is the behavior of the individual investor in warrants?</u>  Abreu, M.  Research in International Business and Finance, to appear (2018).</p>
<p><u>The Policy Mix in the US and EMU: Evidence from a SVAR Analysis</u>  Afonso, A., Gonçalves, L.  The North American Journal of Economics and Finance, In Press (2018).</p>
<p><u>Economic Volatility and Sovereign Yields' Determinants: a Time-Varying Approach</u>  Afonso, A., Jalles, J.  Empirical Economics, pp. 1-25 (to appear) (2018).</p>
<p><u>Sovereign Credit Rating Mismatches</u>  Afonso, A., Albuquerque, A.  Notas Económicas, 46 (July 2018), pp. 49-70 (2018).</p>
<p><u>Whatever it takes" to resolve the European sovereign debt crisis? Bond pricing regime switches and monetary policy effects</u>  Afonso, A., Arghyrou, M., Gadea, M., Kontonikas, A.  Journal of International Money and Finance, 86, 1-30 (2018).</p>
<p><u>Are scientific memes inherited differently from gendered authorship?</u>  Araújo, T., Fontinha, E.  Scientometrics, to appear (2018).</p>
<p><u>Do sentiments influence market dynamics? A reconstruction of the Brazilian stock market and its mood</u>  Araújo, T., Eleutério, S., Louçã, F.  Physica A: Statistical Mechanics and its Applications, 505 (1139-1149) (2018).</p>
<p><u>Individual Satisfaction and Economic Growth in an Agent-Based Economy</u>  Araújo, T., Silvestre, J., St. Aubyn, M.  Computational Economics, 1-11 to appear (2018).</p>
<p><u>The role of infrastructure efficiency in economic development—The case of underused highways in Europe</u>  Pais, J. Pontes, J.  Journal of Infrastructure, Policy and Development, 2(2), 1-9 (2018).</p>
<p><u>Effects of euro area monetary policy on institutional sectors: the case of Portugal</u>  Afonso, A., Silva, J.  Cuadernos de Economía, to appear (2018).</p>
<p><u>Financial crisis, banking sector performance and economic growth in the European Union</u>  Ferreira, C.  Economia Internazionale/International Economics, to appear (2018).</p>
<p><u>Multinomial method for option pricing under Variance Gamma</u>  Cantarutti, N. Guerra, J.  International Journal of Computer Mathematics, to appear (2018).</p>

<u>Ordinal sums of impartial games</u> Carvalho, A., Neto, J.P., Santos, C.P <u>Discrete Applied Mathematics</u> , 243, 39-45 (2018).
<u>Assessing Static and Dynamic Response Variability due to Parametric Uncertainty on Fibre-Reinforced Composites</u> Carvalho, A., Silva, T.A.N., Loja, M.A.R. <u>Journal of Composite Science</u> , 2(1), 6 (2018).
<u>Barrier option pricing under the 2-hypergeometric stochastic volatility model</u> Guerra, M., Sousa, R.A., Cruzeiro, A.B. <u>Journal of Computational and Applied Mathematics</u> , 328(15), 197-213 (2018).
<u>Impact of long term care and mortality risk in community care and nursing homes populations</u> Rosati, N., Lopes, H., Mateus, C. <u>Archives of Gerontology and Geriatrics</u> , 76 (160-168) (2018).
<u>Does Acute Myocardial Infarction kill more people on weekends? Analysis of in-hospital mortality rate of patients admitted during weekends in Portugal</u> Rosati, N., Fiorentino, F., Ascensão, R. <u>Journal of Health Services Research &amp; Policy</u> , 23(2), 87-97 (2018).
<u>Children and the dynamics of poverty and social exclusion. Empirical evidence from Portugal</u> Bastos, A., Machado, C. <u>International Journal of Social Economics</u> , 45(9), 1385-1404 (2018).
<u>Workers' Compensation Insurance Prices: Evidence from Portugal</u> Garcia, M.T., Cortegano, J. <u>International Journal of Manpower</u> , 39(2), 240-253 (2018).
<u>Central bank independence and stock market returns in developed countries</u> Garcia, M.T., Costa, P. <u>International Review of Applied Economics</u> , to appear (2018).
<u>Why Do Tourists Spend Extravagantly in Portugal? A Binary Logistic Regression by Quartiles</u> Gonçalves, F., Correia, A., Kozak, M. <u>Tourism Planning &amp; Development</u> , 15(4), 458-472 (2018).
<u>The Investor in Structured Retail Products: Marketing Driven or Gambling Oriented?</u> Abreu, M., Mendes, V. <u>Journal of Behavioral and Experimental Finance</u> , 17 (March 2018), 1-9 (2018).
<u>The alchemy of gold: interest rates, money stock, and credit in the eighteenth-century Lisbon</u> Costa, L.F., Rocha, M.M., Brito, P.B. <u>Economic History Review</u> , 71(4), 1147-1172 (2018).
<u>A matrix approach to the socioeconomic activity of a country</u> Santos, S. <u>Theoretical Economics Letters</u> , 8(5), 1083-1135 (2018).
<u>Euro Area Sovereign Yields and the Power of Unconventional Monetary Policy</u> Afonso, A., Kazemi, M. <u>Finance a úvěr-Czech Journal of Economics and Finance</u> , 68(2), 100-119 (2018).
<u>Debt crisis and 10-year sovereign yields in Ireland and in Portugal</u> Afonso, A., Silva, J. <u>Applied Economics Letters</u> , 25(4), 217-222 (2018).
<u>Does Work-life Balance Affect Pro-environmental Behaviour? Evidence for the UK Using Longitudinal Microdata</u> Melo, P.C., Ge, J., Craig, T., Brewer, M. J., Thronicker, I. <u>Ecological Economics</u> , 145, 170-181 (2018).
<u>Fiscal developments and financial stress: a threshold VAR analysis</u> Afonso, A., Baxa, J., Slavik, M. <u>Empirical Economics</u> , 54(2), 395-423 (2018).

A General Class of Non-nested Test Statistics for Models Defined through Moment Restrictions  
 Parente, P.M.D.C.  
*Econometric Theory*, 34 (2), 477-507 (2018).

In 2019, several papers have already been published as well.

<u>Pricing American Call Options by the Black-Scholes Equation with a Nonlinear Volatility Function</u> M. R. Grossinho, Y. F. Kord and D. Sevcovic <i>Journal of Computational Finance</i> (in press).
<u>On the product formula and convolution associated with the index Whittaker transform</u> Sousa, R.; Guerra, M.; Yakubovich, S. <i>Journal of Mathematical Analysis and Applications</i> , to appear (2019).
<u>On a nonlinear Schrödinger system arising in quadratic media</u> Adan J. Corcho, Simão Correia, Filipe Oliveira, Jorge D. Silva <i>Communications in Mathematical Sciences</i> , to appear (2019).
<u>A note on Inflation Dynamics, Price Volatility and Fiscal Activism</u> Afonso, A., Jalles, J. <i>Macroeconomic Dynamics</i> , to appear (2019).
<u>Fiscal Reaction Functions Across the World: a Battle of Statistical (In-)Significance</u> Afonso, A., Jalles, J. <i>FinanzArchiv</i> , to appear (2019).
<u>Interactions between Monetary and Fiscal Policies</u> Afonso, A., Alves, J., Balhote, R. <i>Journal of Applied Economics</i> , to appear (2019).
<u>The Fiscal Consequences of Deflation: Evidence from the Golden Age of Globalization</u> Afonso, A., Jalles, J. <i>Quarterly Review of Economics and Finance</i> , to appear (2019).
<u>Assessing the Sustainability of External Imbalances in the European Union</u> Afonso, A., Huart, F., Jalles, J., Stanek, P. <i>The World Economy</i> , 42(2), pp. 320-348 (2019).
<u>Fiscal Rules and Government Financing Costs</u> Afonso, A., Jalles, J. <i>Fiscal Studies</i> , to appear (2019).
<u>Decomposing and Analysing the Determinants of Current Accounts' Cyclicity: Evidence from the Euro Area</u> Afonso, A., Jalles, J. <i>Open Economies Review</i> , 30(1), pp. 133-156 (2019).
<u>Quantitative Easing and sovereign Yield spreads: Euro-Area Time-Varying Evidence</u> Afonso, A., Jalles, J. <i>Journal of International Financial Markets, Institutions &amp; Money</i> , 58, pp. 208-224 (2019).
<u>Economic Growth, Public, and Private Investment Returns in 17 OECD Economies</u> Afonso, A., St. Aubyn, M. <i>Portuguese Economic Journal</i> , 18(1), pp 47-65 (2019).
<u>Evaluation of volatility models for forecasting Value-at-Risk and Expected Shortfall in the Portuguese stock market</u> Sobreira, N., Louro, R. <i>Finance Research Letters</i> , to appear (2019).
<u>The inversion of the spatial lag operator in binary choice models: Fast computation and a closed formula approximation</u> Proença, I., Silveira Santos, L. <i>Regional Science and Urban Economics</i> , to appear (2019).

<p><u>What to expect when you're calibrating: Measuring the effect of calibration on the estimation of macroeconomic models</u></p> <p>Iskrev, Nikolay</p> <p><u>Journal of Economic Dynamics and Control</u>, 99 (2019): 54-81 (2019).</p>
<p><u>Inflation dynamics and adaptive expectations in an estimated DSGE model</u></p> <p>Iskrev, N., Gelain, P., Lansing, Kevin J., Mendicino, C.</p> <p><u>Journal of Macroeconomics</u>, 59 (2019): 258-277 (2019).</p>
<p><u>Dynamic Vector Mode Regression</u></p> <p>Parente, P.M.D.C., Kemp, G.C.R., Santos Silva, J.M.C.</p> <p><u>Journal of Business &amp; Economic Statistics</u>, to appear (2019).</p>
<p><u>Non-ignorable Attrition in Multi-wave Panel Data with Refreshment Samples</u></p> <p>Hoonhout, P., Ridder, G.</p> <p><u>Journal of Business &amp; Economic Statistics</u>, to appear (2019).</p>
<p><u>Estudo longitudinal sobre eficácia educacional no Brasil: Comparação entre resultados contextualizados e valor acrescentado</u></p> <p>Ferrão, M. E., Barros, G., Bof, A., Morais, A.</p> <p><u>Dados</u>, 61(4) (2019).</p>

b) Working papers

REM published 40 WPs in 2018, in its WP Series, and at the date of the Report published 13 WPs in 2019. (<https://rem.rc.iseg.ulisboa.pt/wps/>)

#### 4. Conferences, seminars and workshops

1. Grossinho, M. R.; Guerra, J.; Guerra, M.; Janela J. (2018) Workshop: Lisbon Financial Mathematics 2018. February, 19-20. ISEG/UL Lisbon, Portugal.  
URL: <http://cemapre.iseg.ulisboa.pt/events/event.php?id=177>
2. Gaivão, J. P.; Dias, J. L.; Peixe, T. (2018) LxDS – Lisbon Dynamical Systems Spring School 2018. May, 28-30. ISEG/UL Lisbon, Portugal.  
URL: <http://cemapre.iseg.ulisboa.pt/events/event.php?id=178>
3. Afonso, A., Ferreira, C., Pais, J., Opromolla, L. (2018) 12th Annual Meeting of the Portuguese Economic Journal. July, 6-8. ISEG/UL Lisbon, Portugal.  
URL: <https://www.pej2018.com/>
4. Garcia, F.; Pais, J., Opromolla, L., Resende, J. (2018) UECE Lisbon Meetings 2018: Game Theory and Applications. October 25-27. ISEG/UL Lisbon, Portugal.  
URL: <https://www.lisbonmeetings.com/>

#### Seminars

5. Smith, R. (2018) CEMAPRE SEMINAR: GEL-Based Inference with Unconditional Moment Inequality Restrictions. January, 10. ISEG/UL Lisbon, Portugal.  
URL: <http://cemapre.iseg.ulisboa.pt/seminars/cemapre/poster.php?id=498>
6. Vázquez Cendón, C. (2018) CEMAPRE SEMINAR: Pricing Swing options in electricity markets with jump-diffusion models and PDEs. January, 25. ISEG/UL Lisbon, Portugal.



URL: <http://cemapre.iseg.ulisboa.pt/seminars/cemapre/poster.php?id=503>

**7.** Ferreira, L. M. (2018) CEMAPRE SEMINAR: On the convergence to Walrasian prices in random matching Edgeworthian economies. February, 27. ISEG/UL Lisbon, Portugal.

URL: <http://cemapre.iseg.ulisboa.pt/seminars/cemapre/poster.php?id=500>

**8.** Nogueira, A. (2018) CEMAPRE SEMINAR: Rotation number of contracted rotations. March, 7. ISEG/UL Lisbon, Portugal.

URL: <http://cemapre.iseg.ulisboa.pt/seminars/cemapre/poster.php?id=502>

**9.** Ramalhete, M. (2018) CEMAPRE SEMINAR: A Programação Linear no apoio às Decisões Operacionais na Refinação de Petróleos. March, 14. ISEG/UL Lisbon, Portugal.

URL: <http://cemapre.iseg.ulisboa.pt/seminars/cemapre/poster.php?id=507>

**10.** Suhang Dai (2018) CEMAPRE SEMINAR: Viscosity Solutions of the Optimal Stopping Problems for Feller Processes and their Applications. March, 28. ISEG/UL Lisbon, Portugal.

URL: <http://cemapre.iseg.ulisboa.pt/seminars/cemapre/poster.php?id=508>

**11.** Krvavych, Y. (2018) CEMAPRE SEMINAR: Insurance Enterprise Risk Management: Selected Topics. April, 10. ISEG/UL Lisbon, Portugal.

URL: <http://cemapre.iseg.ulisboa.pt/seminars/cemapre/poster.php?id=505>

**12.** Chesher, A. (2018) CEMAPRE SEMINAR: Incomplete Models of English Auctions. May, 14. ISEG/UL Lisbon, Portugal.

URL: <http://cemapre.iseg.ulisboa.pt/seminars/cemapre/poster.php?id=501>

**13.** Ballotta, L. (2018) CEMAPRE SEMINAR: Smiles & Smirks: a tale of factors. May, 17. ISEG/UL Lisbon, Portugal.

URL: <http://cemapre.iseg.ulisboa.pt/seminars/cemapre/poster.php?id=509>

**14.** Maume-Deschamps, V. (2018) CEMAPRE SEMINAR: Estimation of conditional risk measures for elliptic distributions. October, 17. ISEG/UL Lisbon, Portugal.

URL: <http://cemapre.iseg.ulisboa.pt/seminars/cemapre/poster.php?id=513>

**15.** Hoonhout, P. (2018) REM SEMINAR: Reproducible Research at REM. October, 30. ISEG/UL Lisbon, Portugal.

URL: <http://cemapre.iseg.ulisboa.pt/seminars/cemapre/poster.php?id=514>

**16.** Moura, A. (2018) OFICINA: Optimal Reinsurance of Dependent Risks. November, 7. ISEG/UL Lisbon, Portugal.

URL: <http://cemapre.iseg.ulisboa.pt/seminars/oficina/poster.php?id=517>

**17.** Peixe, T. (2018) OFICINA: From Lotka-Volterra systems to Polymatrix Replicators. November, 21. ISEG/UL Lisbon, Portugal.

URL: <http://cemapre.iseg.ulisboa.pt/seminars/oficina/poster.php?id=516>

**18.** Damásio, B.; Reis, D. (2018) OFICINA: Multivariate Markov Chains / Real Estate Time Series Forecasting under Bubble Regimes. December, 12. ISEG/UL Lisbon, Portugal.

URL: <http://cemapre.iseg.ulisboa.pt/seminars/oficina/poster.php?id=518>



## 5. Ph.D. programs

REM currently hosts together with ISEG several Doctoral programs, notably: Economics; Applied Mathematics for Economics and Management; and Development Studies.

The Coordination of these three programs is done by REM members while the teaching of the first two programmes is also mainly done by REM members. In addition, REM is also linked to the Ph.D. in Management and to the Ph.D. in Economic and Social History as one of the host institutions.

All the Ph.D. courses have been accredited again in 2015, for six years by the Portuguese national agency A3ES ("Agência de Avaliação e Acreditação do Ensino Superior", Agency for Assessment and Accreditation of Higher Education - A3ES).

### Ph.D. in Economics

The Ph.D. in Economics is designed for those who are looking for an advanced education and wish to carry out research in Economics, Macro or Micro related, in preparation for a highly qualified role in the public or private sector, university teaching and research, the leadership and management of national and international organizations, consulting, training, and research projects and studies. It is a research-focused plan that prepares for a profession that demands a high level of technical and scientific qualification, enabling graduates notably to pursue an international career.

### Ph.D. in Applied Mathematics for Economics and Management

The Ph.D. in Applied Mathematics for Economics and Management is designed to meet the needs of those who wish to enhance their proficiency of mathematical methods and techniques in order to make original contributions in the fields within the scope of knowledge of this Ph.D. Programme or to develop and implement solutions for problems in the areas of Economics and Management. It targets both those who want to pursue an academic career and professionals who want to develop the skills to devise and implement innovative quantitative approaches for real-world problems.

### Ph.D. in Development Studies

The Ph.D. in Development Studies is a research-focused program in the interdisciplinary area of the process of economic, social and political changes in modern societies. This program, originally hosted by ISEG, became a joint venture of ISEG, ICS (Institute of Social Sciences), IGOT (Institute of Geographic and Spatial Planning) and ISA (School of Agriculture) of Universidade de Lisboa.

## 6. Recent funded research projects

### FCT research projects in REM

#### UECE as Principal Organization

- *PTDC/IIM-ECO/4546/2014 - Theory and Experiments in Matching Markets*  
Mar 15, 2016 - Mar 14, 2019, Principal Researcher Joana Pais. Funding €57.210,00  
Joana Pais (ISEG/UECE), Filomena Garcia (ISEG/UECE), Flip Klijn (IAE-CSIC), László Kóczy (Budapest University of Technology and Economics), Marc Vorsatz (UNED), Peter Biró, Sofia Franco (NOVA SBE and UECE)
- *PTDC/IIM-ECO/5389/2014 - Yields, Financial, Macro and Fiscal Interactions*  
May 1, 2016 - Dec 31, 2018, Principal Researcher, António Afonso. Funding €67.774,00  
António Afonso (ISEG/UECE), Alexandros Kontonikas (University of Essex), João Jalles (IMF), Michael Arghyrou (Cardiff University), Lola Gadea (Universidad de Zaragoza), Mina Kazemi (ISEG, UECE)
- *PTDC/IIM-ECO/6337/2014 - Connecting the Real Economy and the Financial System: Theory and Empirics*  
Apr 11, 2016 - Apr 10, 2019, Principal Researcher Luca Opromolla. Funding €65.928,00  
Luca Opromolla (UECE and BdP), Alfonso Irarrazabal (BI Norwegian Business School), Elena Mattana (Aarhus University), Ettore Panetti (UECE and BdP), Filomena Garcia (ISEG/UECE), Luca Deidda (Università degli Studi di Sassari)
- *PTDC/EGE-ECO/28814/2017 - Markups, Fluctuations, and Financial Frictions*  
Oct 1, 2018 - Sep 30, 2021, Principal Researcher Luís Costa. Funding €239.543,00  
Luís Costa (UECE) - PI, Paulo Brito (UECE) - Co-PI, Carlos Santos (Nova SBE), Cláudia Custódio (Imperial College B.S.), Huw Dixon (Cardiff B.S.)
- *PTDC/EGE-ECO/28805/2017 - Transport Infrastructure and Urban Spatial Structure: Economic, Social and Environmental Effects*  
Oct 1, 2018 - Sep 30, 2021, Principal Researcher Patrícia Melo. Funding €229.539,27  
Patrícia Melo (UECE) - PI, João de Abreu e Silva (IST-ID) - Co-PI, Sofia Franco (UECE and NOVA SBE), Marcos Correia (IST-ID)
- *PTDC/EGE-IND/31081/2017 - Firms, competition and social welfare in a global economy*  
Oct 1, 2018 - Sep 30, 2021, Principal Researcher Filomena Garcia. Funding €239.990,02  
Filomena Garcia (UECE) - PI, Gustavo Torrens (Indiana University) - Co-PI, Jose Manuel Paz y Mino (Indiana University), Cecilia Vergari (Università di Bologna), Joana Resende (FEUP), Muxin Li (Indiana University)
- *PTDC/EGE-ECO/30690/2017 - Global Innovation Trends: Determinants and Characteristics of the Innovative Performance of Nations*  
Oct 1, 2018 - Sep 30, 2021, Principal Researcher Manuel Mira Godinho. Funding €176.339,30  
Manuel Mira Godinho (UECE) - PI, Sandro Mendonça (ISCTE-IUL and UECE) - Co-PI, Rui Cartaxo (ISEG), Vítor Ferreira, Hugo Confraria (UNU-MERIT), Pedro Lages, Kelyane da Silva

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#### UECE as Participating Organization

- *PTDC/ATP-DEM/0441/2014 - Portugal: Regional Integration of Demography and Economy*  
Jul 1, 2016 - Jun 30, 2019. Principal Researcher Eduardo Castro (Universidade de Aveiro). Funding €58.038,00

Eduardo Anselmo Moreira Fernandes Castro (Universidade de Aveiro), Alina Isabel Pereira Esteves, Anabela Botelho Veloso, Arnab Bhattacharjee, Diogo Abreu, Gonçalo Alves de Sousa Santinha, João Carlos Lopes (UECE), João Marques, João Ferreira do Amaral (UECE), José Manuel Gaspar Martins, Maria Cristina do Nascimento Rodrigues, Madeira de Almeida de Sousa Gomes, Maria Lucinda Cruz dos Santos Fonseca, Marta Sofia Magalhães Marques, Pedro G Carvalho, Vítor Escária (UECE), José Carlos Coelho (UECE - BI)

- *Project N° 029365 Welfare Intervention by the State and Economic Resilience in Portugal*

Principal Researcher Marta Simões. Funding €8762,50

Marta Simões (Universidade de Coimbra) - PI, Co-PI - Adelaide Duarte (Universidade de Coimbra); João de Sousa Andrade (Universidade de Coimbra); Sílvia Sousa (Universidade do Minho); Maria Teresa Garcia (UECE)

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#### CEMAPRE as Participating Organization

- *PTDC/MAT-PUR/29126/2017 – ExLy: New trends in Lyapunov exponents*

Sep 1, 2018 - Aug 31, 2021. Principal Researcher Pedro Miguel Nunes da Rosa Dias Duarte (FCiências ID). Funding €231.546,68

Pedro Miguel Duarte (FCiências ID) – PI, Co-PI - João Lopes Dias (CEMAPRE-ISEG/ULISBOA), Universidade da Beira Interior (UBI), Universidade do Minho (UM).

- *POCI-01-0145-FEDER-028234 – VOLANTIS: Advances in Nonlinear Time Series Econometric Modelling and Applications*

Oct 1, 2018 - Sep 30, 2021. Principal Researcher Cristina Alexandra de Oliveira Amado (Universidade do Minho). Funding €173.245,62

Cristina de Oliveira Amado (Universidade do Minho) – PI, Co-PI - Esmeralda A. Ramalho (CEMAPRE-ISEG/ULISBOA).

## 7. Staff

Research members

Executive board

**António Afonso**, Principal Researcher, President of REM, and President of UECE

**Isabel Proença**, Board member of REM, and President of CEMAPRE

**Joana Pais**, Board member of REM and UECE

## Members



Agnieszka Bergel

Doutoramento em Matemática Aplicada à Economia e Gestão, Universidade de Lisboa, Portugal (2013)

*Actuarial science, statistics, risk theory, financial mathematics*



Alda Carvalho

Doutoramento em Matemática Aplicada à Economia e Gestão, Universidade Técnica de Lisboa, Portugal (2010)

*Time series*



Alexandra Moura

Dottore di Ricerca in Mathematical Engineering, Politecnico di Milano, Italy (2007)

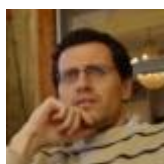
*Applied Mathematics, Mathematical Engineering, Numerical Analysis, Statistics and Actuarial Sciences*



Alfredo D Egídio dos Reis

Ph.D. in Actuarial Mathematics and Statistics, Heriot-Watt University, UK (1994)

*Actuarial science, risk theory, credibility theory, ruin theory*



Álvaro Novo

Ph.D. in Economics, University of Illinois at Urbana-Champaign, USA (2001)

*Labor economics*



Álvaro Manuel Pina

Ph.D. in Economics, European University Institute, Italy (2001)

*Fiscal policy in the European Monetary Union, Fiscal rules and institutions, Monetary integration and business cycles, macroeconomic modelling*



Amélia Bastos

Doutoramento em Economia, Universidade Técnica de Lisboa, Portugal (1999)  
*Social economics, poverty and social exclusion, child poverty*



António Afonso

Doutoramento em Economia, Universidade Técnica de Lisboa, Portugal (2002)  
*Applied Economics, Public Finances, Financial Economics, Fiscal Policy*



Cândida Ferreira

Doutoramento em Economia, Universidade Técnica de Lisboa, Portugal (1996)  
*Monetary and Financial Economics, Financial Markets and the Macroeconomy, Financial Integration*



Carlos Farinha Rodrigues

Doutoramento em Economia, Universidade Técnica de Lisboa, Portugal (2005)  
*Distribuição do Rendimento, Desigualdade e Pobreza; Política Social, Avaliação de Políticas Públicas, Redistribuição do Rendimento, Microsimulação de Políticas Sociais e Fiscais.*



Carlos Oliveira

Doutoramento em Estatística e Processos Estocásticos, Instituto Superior Técnico, Portugal (2018)  
*Real Options Valuation, Optimal Stopping, Stochastic Optimal Control, Statistics and Actuarial Sciences*



Caterina Mendicino

Ph.D. in Economics, Stockholm School of Economics, Sweden (2006)  
*Macro-Financial Linkages, Monetary and Macro-Prudential Policy, General equilibrium models of banks and of the credit channel transmission mechanism*



Esmeralda A Ramalho

Ph.D. in Economics, University of Bristol, UK (2002)  
*Microeconometrics*



Eugenio Rodriguez Martinez

Doutoramento em Matemática Aplicada à Economia e Gestão, Universidade de Lisboa, Portugal (2017)  
*Actuarial sciences*



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Ph.D. in Economics, IIES-Stockholm University, Sweden (2013)

*Macroeconomics, Banking, Financial stability, Economic growth*



Fernando F Gonçalves

Ph.D. in Mathematics and Statistics, University of Edinburgh, UK (2007)

*Financial mathematics and applied econometrics*



Fernando Martins

Doutoramento em Economia, Universidade de Lisboa, Portugal (2015)

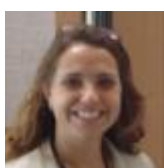
*Microeconomics*



Filipe Oliveira

Docteur en Mathématiques, Université Paris XI, France (2001)

*Partial Differential Equations*



Filomena Garcia

Docteur en Sciences Économiques, Université Catholique de Louvain, Belgium (2006)

*Industrial Organization, Game Theory, Matching, Networks, Banking, Economics of Education*



Francisco Louçã

Doutoramento em Economia, Universidade Técnica de Lisboa, Portugal (1996)

*Macroeconomic dynamics, Complexity, Evolutionary economics, History of economic thought*



Francisco Nunes

Doutoramento em Economia, Universidade Técnica de Lisboa, Portugal (2005)

*Pobreza e Exclusão Social, Sistemas de Segurança Social, Solidariedade e Acção Social, Protecção Social, Rendimento Mínimo Garantido*



Gianluigi Del Magno

PhD in Mathematics, Georgia Institute of Technology, USA (2002)

*Dynamical systems, hyperbolic billiards, random systems and filtering*



Graça Leão Fernandes

Doutoramento em Economia, Universidade Técnica de Lisboa, Portugal (1992)

*Labour market*



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Docteur en Sciences Économiques, Université Catholique de Louvain, Belgium (1995)

*Microeconometrics, models for discrete responses, panel data, bootstrap methods*



Joana Pais

Doctor en Economia, Universitat Autònoma de Barcelona, Spain (2005)

*Game theory, Matching theory, Auction theory*



João Andrade e Silva

Doutoramento em Economia, Universidade Técnica de Lisboa, Portugal (1991)

*Actuarial science*



João Dias

Doutoramento em Economia, Universidade Técnica de Lisboa, Portugal (1993)

*Statistics, econometrics*



João Ferreira do Amaral

Doutoramento em Economia, Universidade Técnica de Lisboa, Portugal (1984)

*Macroeconomics, Leontief theory, input/output, Information*



João Janela

Doutoramento em Matemática, Universidade Técnica de Lisboa, Portugal (2008)

*Numerical analysis*



João Carlos Lopes

Doutoramento em Economia, Universidade Técnica de Lisboa, Portugal (1996)

*Input-Output Analysis and Portuguese Economy*



João Lopes Dias

Ph.D. in Mathematics, University of Cambridge, UK (2002)

*Dynamical systems, renormalisation, generic conservative dynamics*





João Nicolau

Doutoramento em Matemática Aplicada à Economia e Gestão, Universidade Técnica de Lisboa, Portugal (2001)

*Estimation of stochastic differential equations, volatility of financial time series, non-linear time series*



João M E Guerra

Doctor en Matemàtiques, Universitat de Barcelona, Spain (2009)

*Stochastic Analysis and Mathematical Finance*



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Ph.D. in Economics (2011), University of Cambridge

Macroeconomics, applied econometrics, public finance, structural reforms, forecasting, energy economics



Jorge Caiado

Doutoramento em Matemática Aplicada à Economia e Gestão, Universidade Técnica de Lisboa, Portugal (2006)

*Time series, forecasting methods, applied econometrics*



Jorge Santos

Ph.D. in Economics, University of Kent, UK (1984)

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*Microeconometrics, data analysis*



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*Dynamical systems, Hamiltonian dynamics*



José Pedro Pontes

Doutoramento em Economia, Universidade Técnica de Lisboa, Portugal (1987)

*Regional and Urban Economics, International Economics, Industrial Organization, Non-cooperative Game Theory*

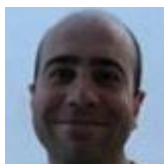




Leonor S Pinto

Doutoramento em Matemática Aplicada à Economia e Gestão, Universidade Técnica de Lisboa, Portugal (2004)

*Operational research, combinatorial optimization*



Luca David Opromolla

Ph.D. in Economics, New York University, USA (2006)

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Ph.D. in Economics, University of Cambridge, UK (1992)

*International finance and open economy macroeconomics*



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Ph.D. in Economics, University of York, UK (2001)

*Dynamic general-equilibrium models, Fiscal policy, Business cycles, Industrial organisation-macroeconomics interactions, Open-economy macroeconomics*



Manuel Guerra

Doutoramento em Matemática, Universidade de Aveiro, Portugal (2001)

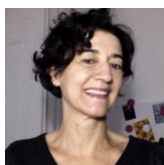
*Control theory*



Manuel M. Godinho

Ph.D. in Science and Technology Policy, University of Sussex, UK (1995)

*research interests*



Margarida Abreu

Docteur en Sciences Economiques, Universite Paris-Nanterre, France (1997)

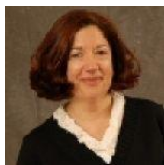
*Behavioral Finance, Financial Economics, Financial Markets, Investors Behavior, Monetary Integration, European Monetary Union*



Maria de Fátima Fabião Ribeiro

Doutoramento em Matemática Aplicada à Economia e Gestão, Universidade Técnica de Lisboa, Portugal (2005)

*Financial mathematics, delay differential equations*



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*Reinsurance, credibility theory, bonus systems, loss reserving, ruin theory*



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*Differential equations and financial mathematics*



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Doutoramento em Teoria de Controle e Estatística, Pontifícia Universidade Católica do Rio de Janeiro, Brazil (1999)

*Social Statistics*



Mário Centeno

Ph.D. in Economics, Harvard University, USA (2000)

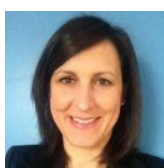
*Microeconomics*



Miguel St. Aubyn

Ph.D. in Economics, University of London, UK (1995)

*Applied Macroeconomics, Budgetary Policy, Economic Growth, Efficiency Measurement*



Nicoletta Rosati

Dottore di Ricerca in Statistica Applicata, Università degli Studi di Padova, Italy (2001)

*Econometrics of panels and pseudo-panels, non-linear microeconomic models, health and medical statistics.*



Nikolay Iskrev

Ph.D. in Economics, University of Michigan, USA (2008)

*Econometrics, macroeconomics, monetary policy*



Nuno Crato

Ph.D. in Applied Mathematics, University of Delaware, USA (1992)

*Time series, stochastic processes*



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Doutoramento em Economia, Nova School of Business and Economics, Portugal (2012)

*Structural breaks, economic forecasting, realized and stochastic volatility, unit roots, cointegration, long memory*



Onofre Simões

Doutoramento em Organização e Gestão de Empresas, Universidade Técnica de Lisboa, Portugal (1997)

*Actuarial science, financial mathematics*



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Ph.D. in Economics, Imperial College London, UK (2010)

*Economic geography*



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*International Trade, Economic Geography, Foreign Direct Investment*



Paulo Brito

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*Macroeconomics*



Paulo Parente

Ph.D. in Economics, University of Warwick, UK (2007)

*Econometric theory*



Paulo Trigo Pereira

Ph.D. in Economics, University of Leicester, UK (1994)

*Ação colectiva, Economia das instituições, Economia experimental, Finanças locais, Escolha pública*



Pedro Leão

Doutoramento em Economia, Universidade Técnica de Lisboa, Portugal (1998)

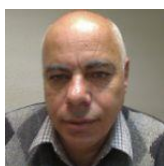
*Macroeconomics, International Economics*



Pierre Hoonhout

Ph.D. in Economics, University College London, UK (2011)

*Econometrics*



Raúl Brás

Doutoramento em Matemática Aplicada à Economia e à Gestão, Universidade Técnica de Lisboa, Portugal (2013)

*Combinatorial optimization, computer science*



Raquel M Gaspar

Ph.D. in Finance, Stockholm School of Economics, Sweden (2006)

*Mathematical finance, Term Structure Models, Interest rate & Credit Risk Models, Convexity Adjustments, Structured Products*



Rosa Borges

Doutoramento em Economia, Universidade Técnica de Lisboa, Portugal (2001)

*Capital Markets, Dividend and taxes, Capital Markets Efficiency, Bank and Assurance, Financial System and Risk, Financial Economics*



Rui Paulo

Ph.D. in Statistics, Duke University, USA (2002)

*Bayesian Inference, statistical analysis of computer models, Bayesian computation*



Sandra Gomes

Doutoramento em Economia (2014), ISEG

Research interests: International Economics, Monetary Economics, DSGE modelling, Bayesian estimation



Sandra Maximiano

Ph.D. in Economics, University of Amsterdam, The Netherlands (2007)

*Behavioral Economics, Experimental Economics, Public Economics, Economics of Gender, Organizational and Personal Economics, Economics of Piracy*



Sofia Franco

Ph.D. in Environmental Science and Management, University of California in Santa Barbara, USA (2007)

*Urban Economics, Land Use, Spatial and Dynamic Modelling, Transportation*



Sudipto Karmakar

Ph.D. in Economics, Boston University, USA (2013)

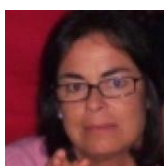
*Macroeconomics, Macprudential regulation and Real-financial Sector Linkages*



Susana Santos

Doutoramento em Economia, Universidade Técnica de Lisboa, Portugal (1999)

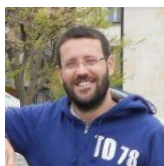
*Social and National Accounting, SAM-based Macro-modelling, Sustainable Development*



Tanya Araujo

Doutoramento em Matemática Aplicada, Universidade Técnica de Lisboa, Portugal (1995)

*Computational Economics and Finance, Agent-based Modeling, Network structure and dynamics*



Telmo Peixe

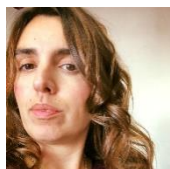
Doutoramento em Matemática, Universidade de Lisboa, Portugal (2015)  
*Hamiltonian Dynamics, Game Theory, Lotka-Volterra Systems, Replicator Equation*



Teresa Garcia

Doutoramento em Economia, Universidade Técnica de Lisboa, Portugal (2001)  
*Pension economics and finance, applied economics, microeconomics and financial economics*

#### Management Support



Sandra Araújo



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