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The Latest REM Working Papers

The center of **Research in Economics and Mathematics** (REM) circulates research, notably by its affiliated members, as working papers intended for professional and public discussion and comment. The papers have not been peer reviewed.

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Events

REM Young Researcher Award

REM - Research in Economics and Mathematics, launches in 2019 the REM Young Researcher Award, with a monetary value of 1000 EUR. The prize awards the best Master thesis defended at ISEG, in the period October 2018 - December 2019, and whose supervisor is a member of REM in one ISEG Master courses. To apply, the candidates should send their thesis, together with the proof of the public defense and approval, by 31 December 2019, to rem@iseg.ulisboa.pt.

8th UECE Conference on Economic and Financial Adjustments, ISEG/UL – School of Economics and Management / University of Lisbon, Lisbon, 10th July 2020.

REM Working Papers

Sovereign debt crisis in Portugal and Spain, António Afonso, Nuno Verdial, *Working Paper 0112-2019*

The 2007-2008 financial crisis and the European sovereign debt crisis effects rippled through the financial system, banks and sovereign states. We analyze these events, focusing on the Portuguese and Spanish case after providing an insight into the Eurozone. We assessed the pricing of sovereign risk by performing an OLS/2SLS fixed effects panel analysis on a pool of Eurozone countries and a SUR regression with Portugal and Spain covering the period 1999:11 until 2019:6. Our results show that the pricing of sovereign risk changed with the crisis and the “whatever it takes” speech of Mario Draghi. Specifically, market pricing of the Eurozone credit risk, liquidity risk and the risk appetite increased after the crisis and it relaxed afterwards. We did not find evidence of specific pricing regime changes after the speech in the Portuguese and Spanish case.

Sovereign Indebtedness and Financial and Fiscal Conditions, António Afonso, João Tovar Jalles, *Working Paper 0111-2019*

We empirically assess the magnitudes of sovereign indebtedness responses for a sample of 123 Advanced and Emerging Market Economies, between 1980 and 2018, taking into account the changing characteristics of financial markets, notably the Global and Financial Crisis. Our results show that when the financial conditions are more stressful, for instance, higher yield spreads or a heightened degree of financial stress, fiscal authorities use more actively their primary balance to reduce sovereign indebtedness, which is not the case when financial market conditions are more benign. This is notably true for the case of Emerging Market Economies sovereigns, who most likely then struggle more to fund themselves.

The Short-Run and Long-Run Determinants of Household Saving: Evidence from OECD countries, Philemon Kwame Opoku, *Working Paper 0110-2019*

This paper examines the relationship between interest rates and household saving rates for an uneven panel of 19 OECD countries during the period 1995 to 2018. Unlike earlier studies, it uses the pooled mean group (PMG) methodology to investigate which of the interest rate effects, income or substitution, dominates in the short run, long run, or both periods. With the baseline estimations, I find that the income effect outweighs the substitution effect in the short run, and vice versa in the long run. I also finf that inflation (both expected and actual) household wealth through housing prices, unemployment rate, current taxes on income and wealth, and general government debt have significant negative impact on household saving in the long run. Current taxes on income and wealth has a strong negative impact on household saving in the short run.

Evaluating the European bank efficiency using Data Envelopment Analysis: evidence in the aftermath of the recent financial crisis, Cândida Ferreira, *Working Paper 0109-2019*

This paper seeks to contribute to the analysis of the bank efficiency in the European Union in the aftermath of the recent crisis, using Data Envelopment Analysis (DEA) and considering a sample of 485 banks from all current EU member-states between 2011 and 2017. The results obtained confirm the existence of bank inefficiency, and that this inefficiency is mostly due to inefficient managerial performance and bad combinations of the considered bank inputs and outputs. The results also provide enough evidence of appropriate scale production and dynamic technological changes during the considered interval. Moreover, the results obtained using panel estimates to explain the bank total factor productivity changes allow us to conclude that the choices of the banks in terms of the fixed assets, the profit before tax to the average assets, as well as the ratio of the off-balance sheet items to total assets contribute positively to the productivity changes. On the other side, the ratio of the impaired loans to equity, and the bank interest margins are not in line with the total factor productivity changesof the EU banking sector.

Periodic attractor in the discrete time best-response dynamics of the rock-paper-scissors game, José Pedro Gaivão, Telmo Peixe, *Working Paper 0108-2019*

The Rock-Paper-Scissors (RPS) game is a classic non-cooperative game widely studied in terms of its theoretical analysis as well as in its applications, ranging from sociology and biology to economics. Many experimental results of the RPS game indicate that this game is better modelled by the discretized best-response dynamics rather than continuous time dynamics. In this work we show that the attractor of the discrete time best-response dynamics of the RPS game is finite and periodic. Moreover we also describe the bifurcations of the attractor and determine the exact number, period and location of the periodic strategies.

Endogenous Quality and Firm Entry, Rui Faustino, *Working Paper 0107-2019*

During economic expansions the net product creation and average product quality increase as firms introduce new products with higher quality. The introduction of new products with higher quality produces a quality bias in price level measures. In this paper I develop a firm-entry model with endogenous quality of consumer goods. Following a TFP shock, the price level increases not only due to a larger number of varieties but also due to a higher average quality. Simultaneously, the channel of endogenous quality acts as a propagation mechanism to other variables in the economy, amplifying their response to shocks. This channel can also be either contractionary or shut down, depending on how consumers derive utility from quality.

Deep Habits in New Keynesian model with durable goods, Rui Faustino, *Working Paper 0106-2019*

Empirical evidence for the United States suggests that private consumption of durable and nondurable goods have a positive response to government spending shocks. Moreover, the markups for both goods tend be procyclical on productivity shocks and countercyclical on demand shocks. These facts contrast with the results obtained from standard two-sector New Keynesian models with perfect financial markets. In this paper we address these shortcomings by introducing habit formation on the consumption of both durable and nondurable goods. Habit formation on differentiated goods - i.e. Deep Habits - proves to significantly alter the dynamics of the model. However, the effects from habits on durable goods are only meaningful when defined over purchases rather than stocks. When we introduce capital formation into the model, it continues to be consistent with the responses observed in the data.

The development of higher education in Europe as a "coordination game", José Pedro Pontes and Ana Paula Buhse, *Working Paper 0105-2019*

This paper tries to explain differences in high education growth across European countries by using a coordination game (Stag Hunt) played by n candidates to college education. The payoff of enrolling in the university is positive only if there is "unanimity" i.e. if all candidates engage in higher education, being zero otherwise. This coordination requirement follows from the specialized nature of skills acquired through higher education, which can only be made profitable if each graduate is matched with graduate complementary specialists. This game has two strict Nash equilibria, where either all youngsters enter the university or none does. We show that the assessment of the factors that explain the differentia growth of universities across countries is related with alternative ways of selecting a Nash equilibrium in the coordination game. By using empirical data, we can conclude that demographic trends and a cumulative causation factor play a major role in tertiary education growth, while the "wage premium" associated with college attendance also matters but is relatively secondary. "Tuition fees" and other direct financial costs do not appear to be a significant cause or hindrance of university development.