REM Newsletter 20/2021

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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 The papers have not been peer reviewed.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

For your 2021 calendar:

9th UECE Conference on Economic and Financial Adjustments, ISEG/UL – Lisbon School of Economics and Management/University of Lisbon, **July 30, 2021**. Submissions until **15 June 2021**, to rem@iseg.ulisboa.pt

INFER 2021, 23rd Annual Conference, ISEG/UL – Lisbon School of Economics and Management/University of Lisbon, **September 8-10, 2021.** Submissions until **31 July 2021**, via Conference Maker: https://editorialexpress.com/conference/INFER2021.

Announcements

Call for applications for PhD Research Grants 2021

Closing date: 31/05/2021

REM Working Papers

Financial development and macroeconomic performance: a panel data approach
Cândida Ferreira, *Working Paper 0173-2021*
Using panel fixed and random effects estimations as well as panel dynamic GMM estimations this paper analyses the contribution of the financial development, measured through the nine IMF financial development indices, to five macro performance indicators. The paper considers a panel with 46 developed countries, and a panel including only the sub-sample of the 28 EU countries, both over the interval 1990-2017. There are no remarkable differences between the results obtained for the two panels, and despite the lack of full convergence regarding the sign and strength of all estimation results, it is still possible to conclude that the IMF financial development indices have a dynamic and robust influence on all the five macro performance indicators. Overall, these indices contribute positively to the real GDP and negatively to the deflator, to the unemployment rate, to the current account, as well as to the net international investment position. There is also evidence that the results regarding the indices related to the different aspects of the financial institutions (access, depth, and efficiency) are statistically more robust than the results regarding the indices addressing the same aspects of the financial institutions.

Efficiency of Microfinance Institutions: analysis of Southern African Development Community (SADC) member countries Elsa Assiaty de L. A. Agostinho, Raquel M. Gaspar, *Working Paper 0172-2021*
Microfinance is seen as an important tool for financial inclusion and the fight against poverty because it has both a social and financial focus. The main objective of this paper is to evaluate the financial and social efficiency of 18 microfinance institutions (MFIs) in the year 2016 from 8 member countries of the Southern African Development Community (SADC). The methodology chosen is the data envelopment analysis (DEA) with variable returns to scale (VRS) using an input-oriented production approach. The results indicate higher scores of financial efficiency than social efficiency. This may suggest that microfinance institutions adopt a more institutionalist approach over the welfarist approach. We also find evidence that providing financial services to women or the entire disadvantaged population is profitable. However, non-bank financial institutions (NBFIs) and non-governmental organizations (NGOs) are more efficient in this regard than credit unions or banks.

A NEW APPROACH TO THE OPTIMIZATION PROBLEM João Ferreira do Amaral, *Working Paper 0171-2021*
A new approach to the problem of optimization is developed using tools such as the concepts of aggregate and of combined functions. The solving of a simple problem of calculus of variations with inequality constraints illustrates the potentiality of this new method.

ELECTRICITY, EXERGY AND ECONOMIC GROWTH IN MOZAMBIQUE, 1971 – 2014 Teles Huo , Miguel St. Aubyn, *Working Paper 0170-2021*
The article analyses the relationship between electricity consumption, useful exergy (UEx) and economic growth in Mozambique, from 1971 to 2014. UEx data for Mozambique was constructed following the methodology of Miller, et al. (2016): first, the conversion of final electricity consumption (FEC) into its exergy equivalent; second, the association of the exergy data with exergy categories, based on useful uses; and third, the determination of UEx applying efficiencies corresponding to each category of use. Efficiency scores to be applied depend strongly from local conditions, both in terms of the average annual ambient temperature (especially for heat production efficiencies), and in the industrial dynamics and standards (for mechanical work). The FEC data are expressed in GWh, obtained from the International Energy Agency database (IEA), which includes for Mozambique (until the date of writing) data covering the period from 1971 to 2014. Unrestricted VAR models were estimated which allow other types of effects to be captured. This option is particularly important for an economy like that of Mozambique, which underwent different phases and restructuring processes during the period under study. Results show that, in the period under analysis, there was a huge increase in FEC, from 2000 and 2001, as the effect of the start-up of the aluminium smelter company, Mozal. Despite the growth trend of UEx in the trade and services sector, total UEx continued to be strongly dominated by the UEx of the industry sector. The greatest contribution to total UEx came from the mechanical work of the industry sector, followed by the production of heat at high temperatures. UEx growth accelerated in 2000 and 2001 with the entry of the Mozal aluminium company, due to the importance of heat production at high temperatures. Our FEC model shows that economic growth in Mozambique has not been influenced by the increase in electricity consumption. However, the growth of the economy induces FEC growth. The UEx model indicates that there is no relationship between UEx and economic growth. The growth of the economy does not influence the UEx, unlike the result from FEC model.

Drivers of the Tax Effort: Evidence from a Large Panel Victor Barros, Joao Tovar Jalles, Joaquim Miranda Sarmento, *Working Paper 0169-2021*

This paper extends previous literature by assessing the drivers of tax effort in a large panel of 122 countries over the period 1980 to 2017 and refining the analysis to regions, periods, income group, and economic development level. Our focus is on five blocks of determinants, namely: economic, fiscal, openness, structural, and political. We find that tax effort is influenced by all blocks, although results differ per income group. Tax effort in advanced economies is driven by all blocks of drivers, except political variables, while openness, structural, and political blocks prevail in developing economies. There is no consistency regarding the determinants across the four regions (Latin America, Africa, Europe and Asia). We also find that during the first two decades under analysis, tax effort is mainly associated with both higher levels of countries' tax revenues and the role of the agricultural sector in the economy, while from 1999 onwards the determinants are mainly driven by left-wing ruling governments and the economic and fiscal blocks of variables. Our results are robust for a battery of sensitivity and robustness tests. Taken all together, our findings suggest the existence of heterogeneous impacts, which implies that policies resulting in improvements in the level of tax effort can affect countries in different ways.

Can Covid-19 Induce Governments to Implement Tax Reforms in Developing Countries? Sanjeev Gupta, João Tovar Jalles, *Working Paper 0168-2021*

We estimate that the short to medium-term fiscal impact of previous pandemics has been significant in 170 countries (including low-income countries) during the 2000-2018 period. The impact has varied, with pandemics affecting government expenditures more than revenues in advanced economies, while the converse applies to developing countries. Using a subset of 45 developing countries for which tax reform data are available, we find that past pandemics have propelled countries to implement tax reforms, particularly in corporate income taxes, excises and property taxation. Pandemics do not drive revenue administration reforms.

The propensity to adaptation under the new era of climate changes Ary José A. de Souza-Jr., Flávio Terto, *Working Paper 0167-2021*

Decision utility or experienced utility: which one of them helps us better understand how it will occur the process to the adaptation of behavior's consumer regarding the impact of climate change? This paper argues how each one of the aforementioned concepts most may affect the consumer's routine as "decision-makers", within the context that disturbances and scarcity must narrow their available options. For this, we use the individual's choice reported in the 8th wave of European Social Survey, based on the choice-oriented perspective, which establishes a link between well-being and the propensity to adapt within this scenario. For this, an ordered logit model is applied upon environmental and socio-economic variables. In the end, our findings are consistent with a strong presence of rationality in the decision process towards adaptation.

Do Financial Markets Reward Government Spending Efficiency? António Afonso, João Tovar Jalles, Ana Venâncio, *Working Paper 0166-2021*

We link governments' spending efficiency scores, to sovereign debt assessments made by financial markets´, more specifically by three rating agencies (Standard & Poors, Moody´s and Fitch). Public efficiency scores are computed via data envelopment analysis. Then, we rely notably on ordered response models to estimate the response of sovereign ratings to changes in efficiency scores. Covering 34 OECD countries over the period 2007-2018, we find that increased public spending efficiency is rewarded by financial markets via higher sovereign debt ratings. In addition, higher inflation and government indebtedness lead to sovereign rating downgrades, while higher foreign reserves contribute to rating upgrades.