

PhD scholarships 2024/25

Centre name: CEMAP (Center for Macroeconomic Policy)

Title of proposed research topic:

The following research topics are proposed

- 1) Macroprudential policies and financial stability. (Monetary Economics and Banking)
- 2) Macroeconomics of emerging economies in a post COVID economy (DSGE modelling), Macro Development and Macro Finance.
- 3) COVID-19, lockdowns, and their macroeconomic implications.
- 4) Optimal fiscal policy. (Macroeconomic Theory)
- 5) Population aging and macroeconomic policies.
- 6) The rise and the demise of reserve currencies in the international monetary system (International Macroeconomics)
- 7) Time series econometrics theory

Potential supervisors:

Prof Tatiana Damjanovic is a potential supervisor for the first topic
[Professor Tatiana Damjanovic- Durham University Business School](#)

Prof Parantap Basu is a potential supervisor for the second topic and for any topic in macro development issues such as growth-inequality relationship, human capital, and growth.
[Professor Parantap Basu- Durham University Business School](#)

Dr Mauro Bambi is a potential supervisor for the third topic and for any topic in economic growth and/or in habit formation.
<https://sites.google.com/site/maurobambi2019/home>

Dr Leslie Reinhorn and Dr Xiaoshan Chen are potential supervisors for the fourth topic
[Dr Leslie Reinhorn- Durham University Business School](#)

Dr Xiaoshan Chen is a potential supervisor for the fifth topic
<https://sites.google.com/site/xiaoshanchenfuller/home/research>

Dr Sara Eugeni is a potential supervisor for the sixth topic
<https://sites.google.com/site/saraeugeni82/>

Dr. Majid El-Sadoon a potential supervisor for the seventh topic
[Dr Majid Al Sadoon- Durham University Business School](#)

Description of possible research topics with some key references:

Topic 1: Macroprudential policies and financial stability

After 2008 financial crisis, macroprudential policy and financial stability issues became one of the most important research topics among academic and policymaker alike. As any other policy, macroprudential regulations have their costs and benefits. On the one hand, they aim to improve financial stability and reduce the probability and the costs of future financial crises. On the other hand, they may reduce the supply of credit and lead to fall in investment and economic contraction. Some macroprudential policies pursue financial stability (i.e. ring fencing, capital requirement) while the others stimulate credit expansion (i.e. QE and funding for lending scheme). It is vital to find the right balance in this crucial trade-off. The PhD student will investigate in this area and specifically he/she will contribute on the debate on the optimal design of macroprudential policies.

Requirement: MSC in Economics with excellent mark in Macroeconomics. Ability to solve constraint optimisation problems, basic knowledge of numerical methods and coding, preferably in MatLab and Dynare. In the research proposal please specify the model which you would like to use as a starting point of your research and which policy you would like to examine. Please try to read the following papers as examples of the macro models with banking sector.

Required reading

Gertler, M. and Kiyotaki, N., 2010. Financial intermediation and credit policy in business cycle analysis. In *Handbook of monetary economics* (Vol. 3, pp. 547-599).

Bernanke, B.S., Gertler, M. and Gilchrist, S., 1999. The financial accelerator in a quantitative business cycle framework. *Handbook of macroeconomics*, 1, pp.1341-1393.

Topic 2: Macroeconomics of banking in a post COVID economy

Following the Great Recession, there is a wave of literature integrating the banking sector in dynamic stochastic general equilibrium (DSGE) models. These models introduce lender's and borrower's moral hazard in the mainstream macroeconomic analysis (Bernanke, Gertler and Gilchrist, 1999; Gertler and Karadi, 2013). Covid-19 has brought additional complications due to massive nonperforming loans, which is likely to worsen in emerging economies due to poor financial market architecture. With the rising risk of default, banks have shifted their loan portfolio from commercial loans to mortgage loans and held a massive reserve. How would the macro-financial variables react to such changing landscape of the banking sector? This question can be addressed in the project using a canonical DSGE model. Besides, the study could investigate the policy questions such as designing appropriate monetary and fiscal

packages, macro-prudential norms and regulatory disciplines. The project could evolve from my previous works on DSGE models (Banerjee et al. 2020) developed for an emerging economy like India. The underlying framework could be extended to examine the new set of research problems. I am happy to supervise students who are interested in this line of research.

Required reading

Banerjee, S., Basu, P., & Ghate, C. (2020). A Monetary Business Cycle Model for India. *Economic Inquiry*, 58(3), 1362-1386.

Bernanke, B.S., Gertler, M. and Gilchrist, S., 1999. The financial accelerator in a quantitative business cycle framework. *Handbook of macroeconomics*, 1, pp.1341-1393.

Gertler, M. and Karadi, P. (2011), "A Model of Unconventional Monetary Policy," *Journal of Monetary Economics* 58(1), pp. 17-34.

Topic 3: COVID-19, lockdowns, and their macroeconomic implications.

Several contributions have investigated the effects of a (prolonged) lockdown on the economy. Two are the perspectives followed by the literature.

The first asks the question how to set optimally the duration of the lockdown to reduce the economic costs of a pandemic. The trade-off here is between the cost of a too long lockdown as parts of the economy become inactive and the cost of having a too short lockdown with the associated increase in the infected and deceased and its implied economic and human cost (e.g., Giannitsarou et al. 2021, Alvarez et al. 2021, and Acemoglu et al. 2022). In these contributions the effects of the pandemic are explicitly considered by modelling the epidemic dynamics. One of the main issues with this literature is that the value of a life is country-specific and therefore the main results of these models are hardly robust to an open economy framework. Researching on this area could be a good starting point for a PhD dissertation.

The second perspective keeps aside the first order effects of the pandemic (no epidemic dynamics), and the focus is on the short and long run effects of a lockdown on the economy. One of the key questions is whether a lockdown may have permanently affected the consumers demand in a multi-sector economy and unveil the mechanisms behind these effects (e.g., Guerrieri et al. 2021, Bambi et al. 2022). The long run effect may include, among others, the permanent shut down of sectors of the economy, a surge in demand of the good/services unavailable during the lockdown, a price surge of these goods. Another question not fully investigated in the literature is the effects of a prolonged lockdown on the labour participation and labour composition, two variables whose dynamics seem significantly changed after the pandemic (Beraja and Wolf 2021). Researching on this area could be a good starting point for a PhD dissertation.

Topic 4: Optimal fiscal policy

Taxes on income, consumption, and other economic activities are distortionary. An active research agenda studies the optimal mix of tax rates when the government has a social welfare objective and faces a budget constraint. These problems are particularly interesting when consumers are heterogeneous, in which case the redistributive consequences of policies affect social welfare. Many of the papers on this topic combine careful theoretical modelling with computationally intensive numerical exercises (e.g., Golosov, Troshkin, and Tsyvinski, *American Economic Review*, 2016; Farhi and Werning, *Review of Economic Studies*, 2013; Albanesi and Sleet, *Review of Economic Studies*, 2006). A PhD student would be expected to learn the theoretical and computational techniques and use them to help deepen our understanding of which policies are optimal, and why.

Topic 5: Population aging and macroeconomic policies

Due to steady declines in fertility rates and rising life expectancy, many countries are facing rapid aging of their population. Population aging causes deteriorating fiscal balances, changes in patterns of savings and investment, and a shortage in labour supply which in turn lead to a decline in productivity and economic growth. Recent literature (e.g., Basso and Rachedi, 2019; Honda and Miyamoto, 2020; Wong, 2021) examines the implications of population aging on the transmission of monetary policy and fiscal multipliers. A PhD student would be expected to learn the theoretical and computational techniques of new Keynesian dynamic stochastic general equilibrium (DSGE) and OLG models with heterogeneous households to further analyse the effectiveness of monetary and fiscal policies, debt consolidation and optimal monetary and fiscal policy under these frameworks.

Topic 6: The rise and the demise of reserve currencies in the international monetary system

A lot of recent research has investigated the causes and the implications of the hegemonic role of the dollar in the international monetary system (for a review, Gourinchas, Rey and Sauzet, 2019). However, the dollar has not always been in the centre of the international monetary system. Before World War II, the British pound was the dominant currency (e.g., Eichengreen, 2005). Many commentators and policy makers often raise the question of whether the euro or the renminbi could eventually replace the dollar, or we are rather heading towards a multi-polar world. However, there is little research that explores the conditions under which a dominant currency could be replaced by another one or how we could transit from a dollar-centric world to a multi-currency scenario (e.g., Chahrour and

Valchev, 2021; Farhi and Maggiori, 2018). Prospective PhD students would develop a theoretical model to investigate these issues. In this context, one of the key unanswered questions that students would also address is whether a multi-currency world is welfare-superior to a world dominated by only one currency.

Dr. Majid El-Sadoon

Topic 7: Time series analysis

Description of possible research topic with some key references:

The project could include any of the following elements:

Cointegration

Unit roots

Forecasting

DSGE methodology

SVAR methodology

High-dimensional statistics

Key references:

Geometric and Long Run Aspects of Granger Causality. *Journal of Econometrics*, 178, Part 3 (0), January 2014, 558-568.

A Unifying Theory of Tests of Rank. *Journal of Econometrics*, Volume 199, Issue 1, July 2017, Pages 49-62.

The Linear Systems Approach to Linear Rational Expectations Models. *Econometric Theory*, 34(03), 2018, 628-658.

Testing Subspace Granger Causality. *Econometrics and Statistics*, Volume 9, January 2019, Pages 42-61.

The Spectral Approach to Linear Rational Expectations Models. Mimeo.

The Identification Problem for Linear Rational Expectations Models, with Piotr Zwiernik. Mimeo.

Regularized Solutions to Linear Rational Expectations Models. Mimeo.