

Grant Proposal for the Project: Fiscal Policy and Cryptocurrencies

Project Abstract

Given the boom that we have witnessed in the cryptocurrencies market in recent years, many economists have started studying their macroeconomic impact. Research has focused on the potential role that cryptocurrencies can play in the monetary system and their interplay with monetary policy. However, we can argue that also policies that are outside of the monetary market can affect, and be affected by, cryptocurrencies. Among these policies, we can certainly refer to governments' decisions regarding public spending, investments and taxation (normally grouped under the name of "fiscal policy").

For instance, we know that the final economic impact of governments' fiscal policy decisions are determined by how economic agents react to such decisions. Cryptocurrencies markets have now created a new alley that can affect the outcome of such policies.

Moreover, fiscal policy decisions can alter agents' choices regarding consumption and savings. These, in turn, can affect the flows on cryptocurrencies markets and modify their trends.

The project will investigate such links from a theoretical point of view and it will also empirically verify their existence.

Objectives and Scope

The objective of this project is to develop a theoretical macroeconomic model to address the interplay between fiscal policy decisions and cryptocurrencies markets as well as to validate empirically such insights.

From the theoretical and intuitive point of view, the main objectives of the project are the following.

Economic theory has well established that the results of fiscal policies are heavily dependent on the way economic agents (consumers, firms, investors, etc.) react to such decisions. Thanks to the development of cryptocurrencies as Ethereum, we have now a novel market that provides economic agents with a new reaction possibility to fiscal manoeuvres. At today, there is not a single study trying to address how fiscal policy outcomes are affected by the existence of cryptocurrencies markets. The first objective of the project is to close this gap by answering to the following research question: "Does the existence of cryptocurrencies markets affect the macroeconomic impact of fiscal decision? If yes, how?"

Based on the same intuition, there is also a potential impact of fiscal policies on the cryptocurrencies markets. Changes in the degree and direction of public spending and investments, as well as changes in the fiscal pressure, can alter the flows of wealth on the cryptocurrencies markets and then affect their value. This second objective will basically answer the following question: "Do cryptocurrencies markets react to fiscal policies? If yes, how?".

Currently, the understanding of the links between fiscal policy decisions and cryptocurrencies market is a completely unexplored territory. The project aims at successfully closing this gap.

Once these links are established from the theoretical point of view, the second objective of the project is to empirically validate them. This will also provide useful tools for forecasting.

Outcomes

The project will benefit the greater Ethereum ecosystem in several ways.

First, the knowledge of how fiscal decisions can affect the Ethereum (and in general cryptocurrencies) market is of paramount importance so to anticipate dynamics following governmental decisions. This will certainly benefit users (both traders and general users) of the Ethereum ecosystem. The model will provide a synthetic tool to rationalize, understand and disseminate the discovered links, while the empirical study will allow forecasting based on economic policy decisions.

Second, proving that cryptocurrencies markets affect the outcome of fiscal policy will improve the status of the entire ecosystem in the public discourse and it will also boost its institutional recognition. Both, in turn, will improve the visibility of the Ethereum ecosystem.

Project Team

The project will involve Dr. Pasquale Foresti of the University of Roehampton London. Projected hours of work are 1.5 days per week over 1 year.

Background

I am Senior Lecturer (Associate Professor) in Economics at University of Roehampton, London and Visiting Research Fellow at the London School of Economics and Political Science. My profile is available at this [link](#), while a list of publications and public working papers is available [here](#).

I have published in leading journals in the fields of Behavioural Macroeconomics, Fiscal-Monetary Policies and Financial Markets. Some recent examples are:

1. [Risk Sharing in the EMU: A Time-Varying Perspective](#) (2022). Journal of Common Market Studies.
2. [Animal Spirits and Fiscal Policy](#) (2020). Journal of Economic Behavior & Organization.
3. [On the Stock Market Reactions to Fiscal Policies](#) (2017). Journal of International Finance & Economics.
4. [Fiscal Rules, Financial Stability and Optimal Currency Areas](#) (2016). Economics Letters.

Methodology

In order to establish the potential links between fiscal policies and cryptocurrencies markets, a behavioural Dynamic Stochastic General Equilibrium (DSGE) model will be developed. DSGE models are now the workhorse for macroeconomic analyses. From the methodological point of view, the project aims at developing a novel model in which the representation of the economic system includes also cryptocurrencies markets. The main novelties of the model will be related to 2 aspects. Firstly, the project will lead to the first model including both fiscal policy and a cryptocurrencies market. In this, the micro-foundations of the cryptocurrency market will be based on the Ethereum system. Secondly, the project will produce the first model in which bounded rationality characterizes agents' expectations. In the macroeconomic literature on cryptocurrencies, there is not a single contribution that makes use of behavioural tools and bounded rationality. Nevertheless, as these tools permit to account for self-fulfilling waves of optimism and pessimism, they seem to be the most appropriate to model cryptocurrencies markets.

For the empirical verification of the results, I plan to use sophisticated econometrics methods. A Bayesian Panel Vector Auto-regression will be adopted as it is the best suited method for this purpose. This technique will allow to study the impact of fiscal policies on cryptocurrencies by using impulse-response functions.

Timeline

Projected starting time is 1st September 2023 (or earlier if needed by the Ethereum Foundation). Planned length is 12 months. For a detailed explanation and graphical representation of the roadmap, please see Table 1.

Budget

The requested grant will account for 19,442.34 USD. For a detailed summary of how the grant will be used, please see Table 2 and Table 3.

TABLE 1: TIMELINE OF THE PROJECT
 {Projected starting time: 1-9-2023 ; Requested time for the project: 12 months}

	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12
Theory Part	Micro-foundations & Definition of the Model	Model Code Implementation and Simulation		Dissemination/Presentation of Results (1)				Dissemination/Presentation of Results (2)		Theoretical Article circulation & Submission to Journal		
		Interpretation of Preliminary Results	Interpretation of Results									
		Theoretical Article Preparation	Theoretical Article Preparation	Theoretical Article Preparation	Theoretical Article Preparation	Theoretical Article Preparation	Theoretical Article Preparation					
Empirical Part				Design of Empirical Model	Data Collection	Implementation of Empirical Analysis	Implementation and Interpretation of Empirical Analysis	Implementation and Interpretation of Empirical Analysis	Dissemination/Presentation of Results (1)		Dissemination/Presentation of Results (2)	
							Empirical Article preparation	Empirical Article preparation	Empirical Article preparation	Empirical Article preparation	Empirical Article preparation	Empirical Article circulation & Submission

TABLE 2: PROJECT EXPENSES

Budget Items	Description	Cost per Item in £	Total Cost In £	Total Cost in \$
Travel Expenses	Each row considers 2 European flights tickets		750£	
1 Travel for Dissemination (1)		250£		
2 Travel for Dissemination (2)		250£		
3 Travel for Dissemination (3)		250£		
Accommodation & Subsistence Costs	Each row considers accommodation costs at 165£/day x 3 nights		1,485£	
1 Accommodation for Dissemination (1)		495£		
2 Accommodation for Dissemination (2)		495£		
3 Accommodation for Dissemination (3)		495£		
TRAVEL & SUBSISTENCE [1]			2,235.00£	2,716.04\$
Registration Fees	Each row considers costs for registration at international conferences		900£	
1 Registration for Dissemination (1)		300£		
2 Registration for Dissemination (2)		300£		
3 Registration for Dissemination (1)		300£		
Submission Fees to Journals	It considers submissions fees to top-tier journals in economics.		450£	
1 Submission of paper based on theoretical analysis		250£		
2 Submission of paper based on empirical analysis		200£		
Software	2 Matlab Toolboxes plus yearly software update/maintenance		500£	
OTHER DIRECTLY INCURRED COSTS [2]	Total of registration and submission fees + Software		1,850.00£	2,248.21\$
TEACHING REPLACEMENT [3]	1.5 weekly days will be dedicated (counting for 30% of total time) to this project.		11,913.63£	14,478.04\$
TOTAL AMOUNT REQUIRED	[1]+[2]+[3]		15,998.63£	19,442.34\$

TABLE 3: DETAILED COSTING AS COMPUTED BY FINANCE DEPARTMENT AT
UNIVERSITY OF ROEHAMPTON, LONDON

PI	Pasquale Foresti
Bid reference	RBS-2023-02
Duration - months	12
Funder	https://esp.ethereum.foundation/academic-grants-2023

0.8228759

FEC Summary	100% (Total fEC of project) - £	Eligible (Total Funds applied for) - £	100% (Total fEC of project) - \$	Eligible (Total Funds applied for) - \$
DA staff - PI's time	23,513.61	-	28,574.92	-
DI staff - Teaching Replacement at 1.5 days per week	11,913.63	11,913.63	14,478.04	14,478.04
Travel and Subsistence	2,235.00	2,235.00	2,716.08	2,716.08
Other Directly Incurred Costs	1,850.00	1,850.00	2,248.21	2,248.21
Estates	5,314.50	-	6,458.45	-
Indirect	21,652.50	-	26,313.20	-
TOTAL	66,479.24	15,998.63	80,788.91	19,442.34
fEC Difference (UoR Contribution)	-50,480.61		-61,346.57	
Check to Fec Summary	-	Delete		
UoR recovery		24%		

NOTES:

- Apprenticeship Levy Included
- Inflation 3% - applied to paycosts only
- Any additional notes