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On the Foreseeable Distributive Impact of Central Bank Digital Currencies

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Several central banks are studying and experimenting with Central Bank Digital Currencies (CBDCs), with the aim to increase the effectiveness of monetary policy and to limit the spread of private cryptocurrencies. However, it is thus far unclear what the distributive impact of this innovative tool might be.

Using a 5-sectors stock-flow consistent model (SFC), we compare the impact on both income and wealth inequality of four alternative policy shocks. Our model encompasses two classes of households, non-financial corporations (NFC), banks, the government, the central bank, and the rest of the world; and it innovates upon the state of the art because beside modeling the circular flow of income and expenditure (and the associated stocks of capital, wealth, debt, etc.), it explicitly models the monetary and financial flows and their interdependence on the associated stocks. This is especially useful to our aims of highlighting the relationship between the circulation of traditional money and that of the CBDC.

In order to investigate the distributive impact of the issuance of a CBDC, we consider the changes in the distribution of income and wealth both between sectors (households, NFC, banks, and the rest of the world) and between upper-class and lower-class households. We calibrate the model on the eurozone economy before the covid-induced crisis.

The first two economic policy treatments that we consider are already widely implemented by policymakers in real contexts, namely: i) a fiscal transfer from the government to households (which could be targeted to the poorer households to any degree), and ii) quantitative easing by the central bank. We compare these treatments with two innovative economic policies: iii) the issuance of a CBDC targeted to households, and iv) the crediting of a CBDC on NFC accounts. We consider two different scenarios of CBDC issuance to highlight how the specific features and design of this tool might in practice change the economic outcomes significantly (indeed, the CBDC too can be targeted to some classes of households or firms to any desired degree, in principle).

The main impact of issuing a CBDC depends not only on its design (e.g. as an interest-bearing loan, or as a grant) but also on the households' and firms' behavioral response to this. Therefore, we create sub-scenarios within each treatment, to study how different uses of the CBDC affect our results. By contrast, we assume that for the banks the CBDC is not different from their reserves with the central bank, so that the two stand in a relation of perfect substitutability. Our main results are highlight the crucial relevance of understanding the relative predominance of direct effects (which in many cases increase inequality, as described below) and the policy's impact on economic growth (that in our model is pro-poor).

Specifically, fiscal transfers activate consumption demand mainly depending on the marginal propensity to consume (MPC) out of income, and they weigh on public deficit and debt. The total effect on income inequality depends critically on the level of firms' retained profits. In general, income inequality among different types of households tends to decrease albeit at a decreasing rate. We do not find substantial effects on wealth inequality in the long run.

Quantitative Easing and the issuance of a CBDC targeted to households mostly activate demand that depends on the MPC out of wealth; they widen the Central Bank's balance sheet but reduce public debt. The fiscal space generated by these policies impacts on income inequality depending principally on the reaction function adopted by the government. In addition, quantitative easing produces asset inflation that critically affects wealth inequality.

A CBDC allocated to firms can substitute for other external sources of firm financing, and it activates investment demand depending on whether the CBDC itself is perceived as a liability to be repaid in the future. Thus, a primary benefit of CBDCs in terms of growth impact is the activation of a new transmission channel of monetary policy, which crucially depends on the sensitivity of investment to NFC leverage. The impact on income inequality depends on multiple factors such as the bargaining power of poorer workers, the outstanding public debt as well as the level of retained earnings.

Yet, both for a CBDC targeted to households and to firms, a possibly crucial risk is that it might reduce the demand for banks' deposits and/or for their loans, thus negatively impacting on bank profits and thus on richer households' incomes. The lower demand for bank loans, in particular, highlight possible risks for financial stability that, although beyond the scope of the present study, nonetheless imply risks too for GDP growth, with potential associated increases in income inequality.