

# Central Bank Digital Currency in Brazil

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## CBDC Benefits:

First, eliminates cash (which costly due to security and transportation). Second, generates financial inclusion (digital payment tools are cheaper than traditional bank accounts). Third, creates lower barriers to entry for new firms in the payments sector, fosters innovation, and increases competition among banks. Fourth, competes with private digital currency initiatives which could eventually undermine monetary policy.

## Model:

Focuses on the benefit of eliminating cash and the cost of reducing the consumer deposit demand. A means of payment choice model with monopolistic competition, populated by heterogeneous households, banks, firms, and a central bank. Only one period and households choose between cash, deposits, and CBDC, as well as care about interest remuneration and anonymity (motivated by tax evasion). Means of payment: 1) Cash: no remuneration and anonymity = 1; 2) Deposits: interest rate  $r_D$  and anonymity = 0; 3) CBDC: interest rate  $r_C$  and anonymity =  $\theta \in [0, 1]$ .  $N$  identical banks that take supply of deposits (households), demand for loans (firms), and  $r_I$  (interbank rate). They choose  $r_D$  (deposit rate) and  $r_L$  (loan rate) to maximize profit. Firms demand capital, taking  $r_L$  as given. Central Bank chooses CBDC  $\{r_C, \theta\}$  to maximize welfare, take  $r_I$  interbank rate as given, and play before others.

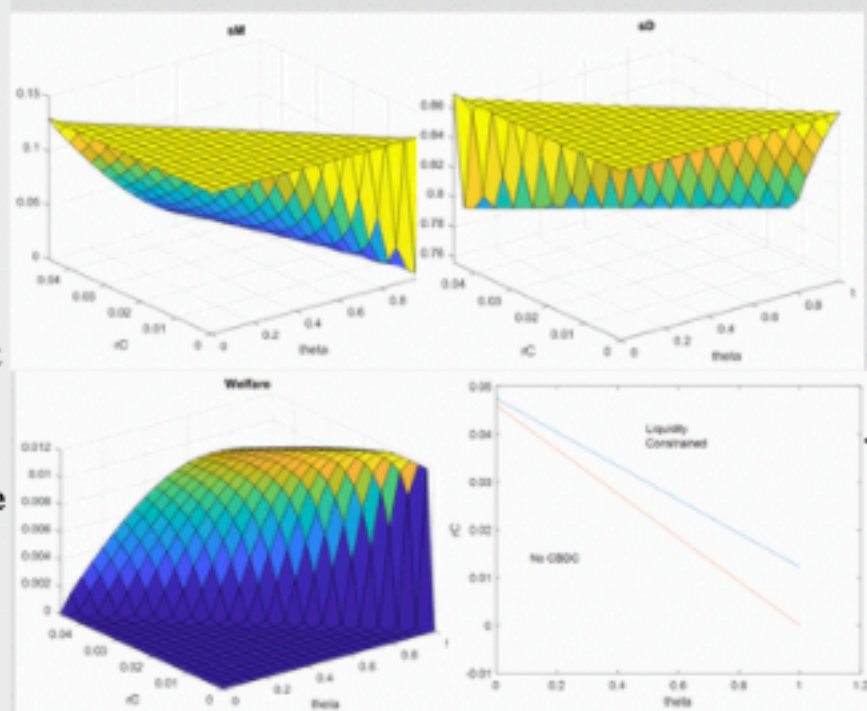
## Results:

If CBDC is attractive (remuneration-wise and anonymity-wise), it reduces cash and cost for society. However, it also reduces deposits, loans (liquidity constraint of banks), and output. Moreover, there is an optimum frontier (combination of  $r_C$  and  $\theta$ ) that can both reduce cash and not reduce loans (liquidity constraint binds).

## CBDC Costs:

First, reduces the consumer deposit demand and lowers bank lending to the general economy. Second, increases the risks of system-wide bank runs. Third, “full-fledged CBDC requires Central Banks to interface with customers, build front-end wallets, monitoring transactions, and being responsible for anti-money laundering and countering the financing of terrorism.”

## Results:



## Conclusions:

CBDC has potential to significantly improve welfare. However, there are serious implementation challenges. First, anonymity  $\theta$  is not easily measured and changed. Second, programmable money and internet may affect demand for CBDC, making it too attractive (even if not anonymous). Third, monetary policy ( $r_I$ ) changes with time, so  $r_C$  also needs to change to adjust demand for CBDC. Furthermore, it is possible to reduce cash holdings without posing risks to banks (fast payment system, like PIX, with programmable features).