

Discussion on  
Central Bank Digital Currency and Monetary Policy  
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# The setting

- Lagos-Wright model, permanent buyers and sellers, preference shocks, proportional bargaining, cash and cbbc
- the “direct” cost of carrying cbbc is  $K$ , while for cash it's zero

## Policy: cash / cbbc

- open market operations
- transfers (no taxation) → cash: lump-sum; cbbc: non-linear
- flexible exchange rate between cash and cbbc

⇒ Clear focus: retail cbbc, trade-off cbbc/cash: non-anonymity vs. anonymity and contingent transfers vs. lump-sum transfers

# Results

## Benchmark results

- costless cbdc, homogenous buyers

## Main contribution

- heterogenous buyers: cbdc may allow attaining efficient DM trade (unlike cash)
  - allows transfers contingent on money holdings / types (this paper) vs taxation (usual argument)
- Coexistence of cash and cbdc may entail lower welfare than cbdc or cash only (cash: outside option)
  - Cash as outside option wrt banks (e.g., Berentsen, Camera & Waller, 2007; Rocheteau, Wright & Zhang, 2018; Lagos and Zhang, 2019).
    - here different perspective.

## Assumption on the cost $K$

- the planner can know the buyer's type if the buyer uses cbdc  
→ shortcut.
- cost  $K$  from losing anonymity: on balances? on transactions / types? motive not modelled.
- why agents cannot exchange cbdc for cash when they want to keep anonymity? (get higher return).
- extension where  $K = 0$  but cbdc cannot be used in all transactions: easier to interpret (e.g. consumption that agents wish to keep private).

## Privacy part

- Privacy concerns: the planner wants to protect privacy on the types.
- No overlapping? In the baseline model the planner cares about the fact that agents incur the cost  $K$ .
- $K$  derives from losing anonymity vis-a-vis the planner (proportional bargaining: the seller observes money holdings).
- Clarify the role of  $K$  here:
  - Now the planner refrains from observing the types but agents still incur cost  $K$ ?
  - Why would someone who misreports incur the cost  $K$ ? In the off-equilibrium payoff to someone who hides his/her identity the cost  $K$  is subtracted, although the identity is being hidden.

## Cash as an outside option

- Cash is a clear outside option in an equilibrium if coexistence cash/cbdc.

- What about an equilibrium where all buyers use cbdc?

Planner's constraint:  $-(1 - \beta) D_w(\tilde{q}) + \beta\sigma\theta(wu(\tilde{q}) - c(\tilde{q})) - K \geq \max_{\bar{q}} \{-(\gamma_c - \beta) D_w(q) + \beta\sigma\theta(wu(q) - c(q))\}$

- Since the CB does not commit to a fixed exchange rate btw cbdc and cash, the price of one could be positive and the other zero in equilibrium (both fiat).
- Goal is to eliminate cash equilibrium? The planner is not able to select a particular equilibrium (cbdc only or cash only).

# Is cbdc different?

- Relation to the literature
  - Banks' deposits/credit vs cash: e.g, English, 1999; Erosa and Ventura, 2002; Lacker and Schreft, 1996; Andolfatto's cbdc paper.
  - Reminiscent: Cash in small transactions; cbdc in large transactions.
- Is cbdc different? I think Mohammad identifies a feature that makes it different: non-linear transfer scheme.
- But need to compare with fiscal policy
  - is cross-subsidisation related to the role of cbdc as a medium of exchange?
- What if heterogeneity over labor endowment in CM (instead of  $w$ )? The planner may want to transfer more to those with smaller cbdc balances.

# Calibration

- Why  $M1$  is a good choice? Big part of  $M1$  is not anonymous.
- low adoption scenario for cbdc: instead of biased/unbiased, could that come from heterogeneity over  $K$ . Data? Maybe you do not want to have two sources of heterogeneity?
- Interpretation of results: for US, introducing a cbdc will lead to an increase of 0.12% – 0.21% consumption. What about effect of  $K$ ?

## To finish

- Nice and elegant paper with clean results on the welfare-improving effects of cbdc.
- Need to clarify the disadvantage of cbdc.
- Your paper could provide implications for the design of cbdc  
→ token-based for small transactions / account-based for large transactions:
  - e.g., CBDC Policy-Maker Toolkit (2020), World Economic Forum
  - Rogoff's proposal for abolishing cash (2016): large-denomination vs. small-denomination bills