

# Integrating monetary economics with the rest of economics

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## Double-coincidence problems

“Since occasions where two persons can just satisfy each other’s desires are rarely met, a material was chosen to serve as a general medium of exchange.” (Paulus, a 2nd century Roman jurist)

- what was Paulus trying to do?
- how do we interpret “two persons”
- who are they

## The discrete-time setting of Zhu-Wallace 2007

Stage 1: portfolio choice for people (who have money)

- the government offers one-period discount bonds at a given price (in the general equilibrium, interest is financed by money creation)

Stage 2: people meet pairwise at random; know nothing about each other's histories; see each other's portfolio

- one person is a producer with disutility of production  $c(y)$
- the other is a consumer with utility of consumption  $u(y)$
- the continuation value of money is strictly increasing and concave

## A producer-consumer game (Zhu 2008)

Game is played relative to a (planner) suggested trade (depends on portfolios)

- each says *yes* or *no* (about proceeding to the next step)
- the consumer makes a trade proposal
- the producer says *yes* or *no*; if *yes*, then the trade is the consumer's trade proposal; if *no*, then the planner's suggested trade is carried out

Result: if the planner's suggested trade is IR and in the pairwise core, then it is the unique equilibrium outcome of this game

Coexistence: the planner's pairwise-core trade makes the gains from trade for the consumer increasing in the consumer's money holding

## Comments

Role of pairwise trade

General theory of imperfect substitutability among assets

Multiplicity (what are the favored assets?)

Welfare

- helps deal with capital over-accumulation (see Hu-Rocheteau 2013)
- improves welfare in settings in which lump-sum money creation is beneficial (on-going work)

Unexplored: what if people in a meeting can hide assets?