On the Welfare Effects of Credit Arrangements

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[1] Views expressed are solely those of the author.

Card payments: welfare improving?

- Monetary theory seems to say yes (Kocherlakota 1998)
  - "Credit": allocation based on full knowledge of agents' transaction histories
  - "Money": allocation based on a subset of that information
  - In general, welfare [credit] $\geq$ welfare [money]
- Reality seems to say no
  - Card payments expensive ($\Rightarrow$Durbin amendment)
  - Monopolistically supplied (IO literature: Bolt & Chakravorti 2008)

Contribution of this paper

- Best-case scenario for card-like payment system
  - no IO frictions
- First-principles analysis
- Incorporates key payment frictions
  - intertemporal displacement of consumption [all models]
  - anonymity/ identity of transactors not automatically known [all models]
  - even correctly identified buyers may not repay [section 5]
  - availability of alternative payments technology [cash]
    - ★ LW environment $\Rightarrow$ money has endogenous value
- Some predecessors
  - (Emmons & Chakravorti 2003): GE effects of credit
  - (Kahn & Roberds 2008): identity risk
  - (Monnet & Roberds 2008): card pricing in LW environment

Basic environment-features

Paper sections 2 & 3

- Lagos & Rocheteau (2005) variant of LW
- Each period has day/night subperiods [intertemporal displacement]
  - Buyers consume during day, produce at night
  - vice-versa for Sellers
  - Walrasian markets for both day/night goods
- Daytime buyers not automatically recognizable [identity friction]
- 2 technologies to overcome buyers' anonymity
  - cash [available to all daytime buyers]
  - payment cards
    - ★ costlessly validate identity of an agent w. access to credit[2]
    - ★ only available to α buyers ("cardholders")
    - ★ not available to $1-\alpha$ constrained buyers

[2] In CDS' Economy 2; in their Economy 1, buyers with access to credit receive loans of cash

Basic environment-results

- "Proposition 0": first-best allocation implemented by FR
  - cards not needed
- If MP not at Friedman rule, then IR for cardholders to use cards, but
  1. $dW/d\alpha < 0$ [w. convex disutility c of producing daytime goods]
  2. W (all cash economy) $>$ W (economy with α cardholders)
- Bottom line: negative for cards

Extension to trading mechanism

Paper section 4

- Assumption of basic environment:
  - everyone pays same price for day goods
  - in reality, cardholders pay different price (NSR+paybacks)
- Modified environment: trading under 2-stage mechanism

1. Planner proposes transfers of goods/money based on type
   - constrained buyer, cardholder, or seller of day goods
2. Agents may either accept transfers (revealing type), or get nothing

Extension to trading mechanism

Section 4 - key result

- (Lemma 4) Under 2-stage mechanism
  - economy with payment cards achieves the first-best, if
    - ★ suff. many cardholders, or
    - ★ suff. low inflation
- Apparent positive for cards, but
- First-best achieved by price discrimination
  - Cardholders effectively pay a higher price for day goods
  - Opposite of what we see in practice

Proposed modification

(Monnet & Roberds 2008)

- Addition of a "shadow economy"
  - Small group of agents not observable by planner
  - Can buy/sell goods for cash
  - $\Longrightarrow$ all agents can trade anonymously in shadow economy
- Implications
  - Negative for cards
    - ★ rule out CDS' preferred 2-stage mechanism
  - Positive for cards
    - ★ planner can still use paybacks to slacken credit constraints

Conclusion

- Nice effort at first-principles modeling of card payments
- Suggestions
  - add shadow economy
  - modify underlying environment so FR not first-best
  - additional margin of differential verification costs/ endogenous α