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Paper or Plastic? Money and Credit as Means of Payment

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Executive Summary

Paper or Plastic? Money and Credit as Means of Payment

Analysis

In this paper, Cathy Zhang and Sébastien Lotz investigate the possible substitution away from cash to electronic payments, such as credit cards, using a simple framework where money and credit can coexist as means of payment. The objective is to determine the impact that retail payment innovations can have on future cash usage. Understanding how individuals substitute between cash and credit is a key policy concern for central banks when setting an inflation target, as well as legislators when developing new regulation on credit card fees. As it is the sole issuer of bank-notes, central banks also need to understand how consumers substitute credit for cash in order to predict consumers' demand for cash.

To capture the two-sided nature of actual payment systems, the model focuses on the market interaction between consumers (buyers, or borrowers) and retailers (sellers, or lenders). A vital distinction between cash and credit trades is that the former are settled on the spot while the latter involve delayed settlement. For credit to have a role, a costly record-keeping technology is introduced that allows transactions to be recorded. A retailer that invests in this technology will be able to accept an IOU from a consumer. In this way, credit allows retailers to sell to cash-strapped consumers or to those paying with future income. However, lenders cannot force borrowers to repay their debts. In order to motivate voluntary debt repayment, default by the borrower triggers a global punishment that banishes them from all future credit transactions. In that case, a defaulter can only trade with money.

Results

- The model identifies a key channel through which monetary policy can affect the substitution between cash and credit. In particular, monetary policy has two effects: First, a higher inflation rate both lowers the rate of return on money and makes default more costly. This induces individuals to shift from money to credit to finance their consumption. Consequently, as inflation falls, credit becomes more difficult to obtain and the economy can fall into a “credit crunch” where lenders stop extending credit and consumers must rely on cash to finance their consumption needs. Second, a deflationary policy can completely crowd out credit by creating a scenario in which cash provides as high of a return as the best alternative investment; in that case, there is a flight to cash where all borrowing and lending ceases to exist.

- When more sellers invest in the costly technology to record credit transactions, the gain for buyers from using and redeeming credit increases, which increases the availability of credit for buyers. At the same time, an increase in the buyer’s ability to repay raises the incentive to invest in the record-keeping technology and hence raises the fraction of credit trades. This complementarity between buyers and sellers leads to feedback effects that can generate multiple outcomes including some where both money and credit are used.

- Even with falling costs in electronic record-keeping, the model predicts that consumers may still end up using cash due to a hold-up in technological adoption. Since the benefits associated with technological adoption are shared between retailers and consumers, retailers fail to internalize the total benefit of adopting credit. Consequently, there may be sluggish behavior in the

adoption of new forms of payment. This can explain why some merchants in the U.S. have been slow to adopt new technologies for accepting credit.

Policy Implications

- The model provides a rationale for why central banks often prefer low inflation to deflation: deflation weakens the credit sector since it is a subsidy on holding money. When choosing an optimal inflation target, the central bank must therefore trade off the cost of lowering the rate of return on money with the benefit of a stronger credit system.

- The feedback effects between consumers and firms implies that policy aimed at one group may have multiplier effects. For instance, if policymakers pass a new law that decreases credit card fees for merchants, the merchants have a stronger incentive to adopt the technology that allows for credit. At the same time, when more merchants accept credit, the gain for consumers from using and redeeming credit also increases. This permits consumers to use more credit relative to cash which incentivizes sellers to invest even more in the credit technology, thus amplifying the initial policy change. This feedback effect can allow policymakers to induce sizable shifts in consumer behavior, which is an important channel that previous studies do not fully capture.

- Perhaps the largest potential gains from payment innovations lie in emerging markets, where the lack of financial infrastructure makes mobile payment systems especially appealing. However, in order for these innovations to be successful, policymakers need to introduce mechanisms such as information campaigns or financial literacy programs that inform consumers about the costs and benefits of these new payment devices.

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