Fintech Lending and Sales Manipulation

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Summary.

Problem. Challenging debt enforcement given weak institutions hampers lending to Micro and SME.

Solution. Fintech payments companies lending to merchants; Location in payments chain allows automatic deduction of repayment at source before borrowing merchants receive sales proceeds.

Examples. PayPal, Square, Ant Fin., many more acting as lenders.

Methods. Regression discontinuity design and fit local regressions in narrow window (h = 7 days) around date of loan disbursal (\(\text{day}_0\)). Regress days after disbursal (\(\text{day}_j\)) on merchant’s sales (\(\text{sales}_{\text{prev}}\)) on date 1. Inclusion of dummy variable \(\Theta\) for post-disbursal days (\(\text{day}_j\geq 0\)) allows to interpret corresponding coefficient \(\alpha\), as the magnitude of the drop in sales on the day of disbursal.

\[
\begin{align*}
\min_{\delta, \Theta} & \sum \left[ \left( \text{sales}_{\text{prev}} - \alpha - \tau \times \Theta \right) \right] \\
& - \sum \left[ \left( \delta \times \left( 1 - D_i \right) \times \text{day}_{j\times} \right) - \left( \Theta \times D_i \times \text{day}_{j\times} \right) \right] \\
& \delta \geq 0
\end{align*}
\]

Selection of polynomial based on DIC (Hausman, Rapson 2018).

Normalization of Transaction Value. Sales variable \(\text{sales}_{\text{prev}}\) is total daily electronic transaction value divided by average daily value 120 to 30 days before loan disbursal.

Robustness Checks. No weekday effect. Robust results after we re-perform analysis after extracting residuals by controlling for weekday effects (Hausman, Rapson, 2018). No aggregate shock. Compare repeat and non-repeat with non-repeat and performing loans issued on same dates to rule out discontinuity being the result of an aggregate shock. No specific shock. Results not driven by particular month.

Check alternative Estimation Windows. Results robust to alternative estimation windows (14, 30, 90 days).

Conclusion. Potential. Seniority of lender achieved by payment companies lending has potential to strengthen debt enforcement and ease access to unbanked MSME.

Limitations. Ability to manipulate and divert sales constraints enforcement technology. Though move towards digital payments could mitigate possibilities for manipulation.

Table 7: Loan vs. Default Non-Performing Loans

<table>
<thead>
<tr>
<th></th>
<th>Default Non-Performing Loans</th>
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</tr>
</thead>
<tbody>
<tr>
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<td>0.696</td>
<td>0.765</td>
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</tr>
<tr>
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Results.

Result #1. Non-performing, repeat borrowers exhibit larger discontinuity, pointing towards diversion of electronic sales to intentionally default.

Stop transacting via payments company to default or delay repayment.

Learning effect

Result #2. Non-perf., repeat borrowers with better credit scores, show higher incidence of manipulation. We relate this to their better outside opportunities, i.e., access to alternative credit sources. (Note that lender does not report to credit bureau)

Competition in lending

Result #3. During Mar – Apr 2018 shortage of cash (cash crunch) in some Indian districts. Cash shortage constrains merchants discretion to divert sales to cash. Borrowing merchants in crunch districts no longer show discontinuity during crunch period – compared to merchants from non-crunch districts and non-crunch periods. Evidence for diversion of electronic sales to cash.

Competition in means of payments

Table 8: Performing and Non-performing Repeat Loans by Credit Score

<table>
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