

Do digital technologies offer a better way to loan people money?

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A new [paper](#) in the *Quarterly Journal of Economics* finds that a new form of digital technology—essentially preventing people from using an asset for which they have a loan if they don't make payments, rather than repossessing the asset itself—may be a better way for lenders to secure loans, particularly for loan recipients in developing countries.

Using collateral to secure debt helps overcome economic frictions, lowering the cost of providing credit. More than 80% of total household debt in the United States is secured by a physical asset. Yet, secured debt is much less common in low- and middle-income countries. This is because [property rights](#) are difficult to establish and enforce in economies with weak legal institutions. This translates to a high cost of repossessing collateral for creditors. This is especially true for lenders servicing households in [remote areas](#), where the costs associated with locating and repossessing collateral can be very high.

Poor households, which often lack savings, often have a hard time borrowing money. Recent technological innovations have facilitated new financial contracts that use digital collateral. An emerging example is pay-as-you-go (PAYGO) financing. The typical PAYGO contract requires a small down payment for the borrower to take possession of an asset, followed by frequent, small payments made via a mobile payment system. To screen borrowers and encourage repayment, PAYGO lenders rely on lockout technology. This enables the lender to disable the flow of services from the asset remotely.

Disabling the flow of services from digital collateral is cheap and easily reversible. If a farmer uses a loan to purchase a tractor and fails to make on-time payments, the lender won't come take back the tractor; the lender will just stop the tractor from working until the borrower starts paying his loans again.

In this study, researchers partnered with a large solar-home system provider in Uganda. The company's small-scale solar home system provides a household with access to a modest amount of electricity without being connected to the grid. Fenix offers PAYGO financing for its services. It also offers follow-up loans for good payers. The study examined the effects of digital collateral with Fenix's most popular follow-up product: a cash loan offered to customers near the beginning

of each school term, when children's school fees are due.

The researchers found that securing loans with digital collateral leads to positive selection, the take-up rate was about 7 percentage points lower for customers offered a (digitally) secured loan than those offered an unsecured loan (44% vs. 51%). They also found that securing a loan with digital collateral increased loan repayment and profitability significantly. Securing the loan with digital collateral increased average repayment after 200 days by 11 percentage points over the unsecured repayment rate of 62%.

Furthermore, the fraction of households that fully repaid the secured loan was 19 percentage points higher than for unsecured loans. The study also found that the school-fee loan increased school enrollment and attendance. Children in households that were offered a school-fee loan were significantly more likely to be enrolled at school compared to children in the control group. The loan offer increased the likelihood that each child would be enrolled by 3 percentage points (from 88% to 91%).

The researchers note that digitally secured collateral programs are becoming more common. A company called Pay Joy, which offers this type of loan for consumers in developing countries, has large scale operations in Mexico, and a growing customer base around the world. In India, digitally secured lending for smartphones is common, especially among two of the largest consumer lenders, Bajaj Finserv and TVS Credit.

The practice is even growing in developed countries. Creditors have deployed digitally secured loans in the United States for subprime auto loans. Manufacturers have installed starter interrupt devices, which allow the lender to remotely disable the car if the borrower is not in good standing on the loan, in more than two million vehicles. Recently, Ford

Motor Company filed for a patent on a technology that can disable features when borrowers are delinquent on auto loan payments.

"With the proliferation of smart devices, secured lending via digital collateral could easily be extended to a wide range of devices such as laptops, refrigerators, and televisions," said the paper's lead author, Paul Gertler.

More information: Paul Gertler et al, Digital Collateral, *The Quarterly Journal of Economics* (2024). [DOI: 10.1093/qje/qjae003](https://doi.org/10.1093/qje/qjae003)

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