STUDY SUMMARY

Combating Fraudulent Financial Technologies with Machine Learning

In recent years, the prevalence of predatory or fraudulent finance-related mobile applications has increased as mobile access and finance technology providers expand. Many consumers have fallen victim to such apps, in particular after the onset of COVID-19, which drove an increase in usage of digital financial services. To address this challenge, researchers are using data from the Google Play Store on finance technology providers in India, Nigeria, and Philippines to develop machine learning algorithms for detecting and reporting highly suspicious apps.

Policy Issue

Over the past decade, predatory and fraudulent practices in digital finance and financial technology have increased. The use of mobile applications for fraudulent purposes is of particular concern for several reasons. First, an increasing share of the global population now has access to mobile devices and uses them to access financial services. Second, there are ongoing concerns about low financial and digital literacy in many population groups—particularly among first-time users of formal financial services. Finally, there is anecdotal evidence that the COVID-19 pandemic has led to a proliferation of the methods and tools predatory and fraudulent providers use to exploit vulnerable households and businesses. In addition to the direct harm caused to consumers, this can lead to mistrust of digital finance, which can delay financial inclusion efforts and undermine the benefits of financial technologies.

A promising method that could contribute to mitigating fraudulent financial technologies would be to use machine learning--computer algorithms that can improve automatically through experience and by the use of data--to analyze available data collected regularly on the app stores to create a system for flagging and reporting highly suspicious apps.

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COUNTRIES
India, Nigeria, Philippines

PARTNER

PROGRAM AREA
Financial Inclusion

TOPIC
Consumer Protection

TIMELINE
2021-2022

Evaluation Context

Researchers previously conducted an analysis using mobile application data collected regularly for 72 countries, and found that some of the most downloaded mobile apps in a number of emerging and developing economies after the outbreak of COVID-19 include finance-related apps that are either likely to be predatory or completely fraudulent. For example, in certain countries, there is an observable wave of fraudulent personal lending apps which require new users to pay service fees to

gain access to cheap loans, but do not offer the loan thereafter. Others are set up to mirror legitimate finance-related apps and providers, and appear to be phishing for private sensitive information. In both cases, these apps are initially supported by extremely high ratings, driven by a high volume of fake reviews.

At the same time, the use of these applications generates rich data which can be analyzed to predict the likelihood of an app being problematic. This could feed into concrete measures to combat fraud by either improving vetting or monitoring.

Details of the Intervention

Note: This study is not a randomized controlled trial

Researchers are using mobile application data on finance technology providers in India, Nigeria, and Philippines--three emerging markets with fast-growing financial technology sectors--to create a system for detecting and reporting highly suspicious apps that could later be adapted to different contexts.

Using machine learning, researchers will set up models to predict the propensity of an app to be predatory or fraudulent drawing on both static and real-time signals from the apps' metadata (including indicators which currently may be both visible or invisible to potential app users), as well as those provided in the user review data. Researchers will train and test the algorithm on a database that contains the universe of Google play finance apps covering roughly a 1.5 year period from 2020 to mid-2021. By identifying which characteristics are associated with high rates of fraud, financial service providers, regulators, and application stores can more effectively protect consumers from predatory behavior.

Results and Policy Lessons

Project ongoing; results forthcoming.