

## **An Alternative Credit Scoring System in China's Consumer Lendingmarket: A System Based on Digital Footprint Data**

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**Abstract :** Ever since the late 1990s, China has experienced explosive growth in consumer lending, especially in short-term consumer loans, among which, the growth rate of non-bank lending has surpassed bank lending due to the development in financial technology. On the other hand, China does not have a universal credit scoring and registration system that can guide lenders during the processes of credit evaluation and risk control, for example, an individual's bank credit records are not available for online lenders to see and vice versa. Given this context, the purpose of this paper is three-fold. First, we explore if and how alternative digital footprint data can be utilized to assess borrower's creditworthiness. Then, we perform a comparative analysis of machine learning methods for the canonical problem of credit default prediction. Finally, we analyze, from an institutional point of view, the necessity of establishing a viable and nationally universal credit registration and scoring system utilizing online digital footprints, so that more people in China can have better access to the consumption loan market. Two different types of digital footprint data are utilized to match with bank's loan default records. Each separately captures distinct dimensions of a person's characteristics, such as his shopping patterns and certain aspects of his personality or inferred demographics revealed by social media features like profile image and nickname. We find both datasets can generate either acceptable or excellent prediction results, and different types of data tend to complement each other to get better performances. Typically, the traditional types of data banks normally use like income, occupation, and credit history, update over longer cycles, hence they can't reflect more immediate changes, like the financial status changes caused by the business crisis; whereas digital footprints can update daily, weekly, or monthly, thus capable of providing a more comprehensive profile of the borrower's credit capabilities and risks. From the empirical and quantitative examination, we believe digital footprints can become an alternative information source for creditworthiness assessment, because of their near-universal data coverage, and because they can by and large resolve the "thin-file" issue, due to the fact that digital footprints come in much larger volume and higher frequency.

**Keywords :** credit score, digital footprint, Fintech, machine learning

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