Upstart

2023 Access to Credit Report

At Upstart, we're dedicated to improving access to credit for all. We believe our AI model is one of the most accurate, fair, and inclusive underwriting models in the market, and helps make the credit system more accessible, affordable, and secure. With Upstart's AI, lenders can approve more applicants with lower average APRs than traditional credit score models. This improves the financial health of Americans and unlocks opportunity for them.

Each year, Upstart evaluates the ability of our personal loan model to underwrite applicants in comparison to a more "traditional" model. We conduct the research looking back at the prior year. Our research showed that, in 2023, the Upstart model could approve more applicants, including Black and Hispanic applicants, at lower APRs than a more traditional underwriting model. In comparison to the traditional model, the Upstart model:

- Approves 101% more applicants and results in APRs that are 38% lower.
- Approves 116% more Black[1] applicants and results in APRs that are 34% lower.
- Approves 123% more Hispanic[1] applicants and results in APRs that are 37% lower.

The purpose of this report is to summarize the analysis which led to these conclusions, including a description of the traditional model's construction and the sample used as a basis for comparison. The traditional model used in the access-to-credit comparison uses a Cox Proportional Hazard modeling framework with seven inputs[2]:

1. *FICO Score*
2. *Debt-to-Income Ratio*
3. *Loan Amount*
4. *Number of Trade Accounts*
5. *Number of Inquiries*
6. *Monthly Income*
7. *Months Since Oldest Trade Account Opened*

[1] Upstart does not collect demographic information from its applicants. The demographic attributes are estimated via location and surname using the BISG methodology.
[2] Upstart validated the inputs as representative of the variables in a traditional model with industry participants and leading consultants.

This traditional model is trained on a subset of unsecured personal loans originated via the Upstart platform prior to July 2023, with a particular focus on three-year and five-year term options, which are the most popular loan terms. In addition, to ensure that the traditional model is calibrated to a similar level of risk as Upstart's state-of-the-art model, a post-processing adjustment is applied to the traditional model's predictions to facilitate an apples-to-apples comparison.

In order to compare Upstart's state-of-the-art model and this traditional benchmark, we simulate approval and pricing decisions for all applicants to the Upstart platform in calendar year 2023.[3] Approval comparisons are based on applicants receiving an offer for either a three-year or five-year loan, and APR comparisons are based upon pricing for five-year loan offers while holding the approval rate of both models constant. This is necessary to get an apples-to-apples comparison of the average APRs.[4]

We hope this report provides a better understanding of one of the important ways we measure progress against our efforts to advance access to affordable and inclusive credit nationwide.[5]

[3] We use version 15.0.0 of Upstart's personal loan underwriting model, launched in August 2023, for purposes of this analysis.

[4] Consider a model that approves a certain set of applicants. A second model that approves exactly these same applicants at the same APR, plus another set of applicants at the maximum APR will have a higher approval rate, but also a higher average APR. However, this inappropriately penalizes the second model in the comparison of APRs, even though it offers applicants the same APR if we consider the set of applicants approved by both the first and second model.

[5] In preparing the 2023 Access to Credit Report for publication, Upstart observed an error in the calibration methodology used for the hypothetical traditional model in our 2022 Access to Credit Report. This error had the effect of underestimating the lift provided by the Upstart model because it overestimated the performance of the hypothetical traditional model. After correcting for this error, the 2022 results more closely align with the results in this 2023 Report and are as follows: Upstart's model approves 93% more applicants and results in APRs that are 43% lower; Upstart's model approves 91% more Black applicants and results in APRs that are 38% lower; Upstart's model approves 110% more Hispanic applicants and results in APRs that are 42% lower.