Private Enterprise Development in Low-Income Countries

Joint Lending, not Borrowing: A New Approach to Credit and Entrepreneurship in LDCs

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We study how the quality of decision making, in this case by credit officers, depends on (1) whether decisions are made at the group or individual level, (2) whether soft information is available beyond hard information, and (3) the incentive structure that officers face. We find that individual credit officers are 28% less likely to assess applications correctly when soft information (e.g. caste of applicant) is provided. Further, biased individuals – as measured by an IAT – make worse decisions, particularly when their caste differs from the applicant's. However, we find that when evaluators are paired, the quality of decision making improves, especially when pairs are mixed-caste.

Motivation

A substantial literature across social science shows evidence of racial, class, and gender discrimination in a variety of settings, including schoolchildren (Rao, 2014), car dealers (Ayres and Siegelman, 1995), employers (Bertrand and Mullainathan, 2004), market traders (List, 2004), whites (Kang, 2005 and Dunham et al., 2013), taxicab drivers (Ayres et al., 2005) etc…

Incentives faced by decision makers may influence the incidence of biased decisions. Hoffman et al. (2018) studies whether firms should rely more on "hard information" such as job tests in hiring decisions, or on the "soft information" of managerial discretion. They find that firms should limit managerial discretion – when evaluating similar applicant pools, managers with more discretion make systematically worse hires. Frankel (2017) studies the theoretical problems of whether and how a firm can design an incentive scheme that makes the best use of a manager's inside information about a job candidate without violating her incentive-compatibility. The spirit of the main result is that the firm specifies an optimal test score above which an applicant must be accepted. Below that, the manager can exercise her discretion. Craig and Fryer (2018) show theoretically that the efficacy of affirmative action may be reduced depending on the complementarity between a firm's belief about workers, and workers' subsequent beliefs about what investments firms are likely to make in them.

Context

We implemented the pilot with our partner Spandana Sphoorty Finance Ltd., one of the largest Microfinance Institutions (MFIs) in India, which provides microfinance loans to low income households in semi rural/rural India. The MFI has operations spread across 10 states in India. We conducted lab sessions with their Loan officers, whose primary job is to assess the creditworthiness of applicants and support ground operations of the MFI. Due to the feature of low collateral in MFIs, the decision to give out loan depends to a great extent on the loan officer's discretion. Due to subjective assessment by loan officers, there is potential for bias in decision making. Hence, this group provided a good sample to study the role of biases in lending decisions. We selected 5 regional offices where Spandana has wider operations, 3 in Madhya Pradesh and 2 in Odisha. The loan officers were reporting to these offices with field work in interior parts of the state. In total we conducted 6 sessions with 114 such loan officers.

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Methodology

Theoretical Framework: The theory generates tests based on the rate of Type 1 and Type 2 errors for same- vs. other-caste applications to identify biased from unbiased decision-making. For example, the theory shows that the ratio of Type 1 errors for same- vs. other-caste applications is equal to the ratio for Type 2 errors if and only if the decision maker is unbiased. We also show that varying the magnitude of the piece-rate for correct evaluation enables us to distinguish bias from low ability. The theory also generates intuition for why "affirmative action" for committee composition could be more effective at reducing biased decision-making than traditional affirmative action (for applicants), and proposes an approach for studying the dynamic persistence of bias, as applicants selected by biased committees become the decision-makers of the future.

Experimental Design: We paired loan officers and had them evaluate packets of loan applications. The applications were anonymised and came from a set that included successful loans and loans that were either defaulted on or featured applicants from a black list. The evaluators were given implicit association tests (IATs) to capture biases against lower caste. Then, they either received applications as individuals or as pairs, with a random subset of the applications including soft information (caste) about the applicants.

Experimental Setup: Can be explained by the following components.

    Subjects: The subjects for this experiment were loan officers of the Spandana Sphoorty Financial Ltd. for a particular division of the MFI. About 12 loan officers attended each session.

    Loan Test: Loan data obtained from Spandana was used to create the loan tests. The test included a set of 10 or 20 loan applications, some of which were "good" loan files, i.e. loans that had been granted by Spandana, and others that were "bad", i.e. blacklisted. The evaluator had to rank the loan files from best to worst, putting all the "good" ones at the top of the list and the "bad" at the bottom.
Each loan file consisted of two parts: the application, which included information about the applicant – including soft information such as caste, religion and gender -; and the credit bureau report, which included hard information, such as where the applicant had borrowed from in the past and how many active loans he/she had. For the purpose of the experiment, some officers received both sections, while other received only the latter.

    Other tests: A short Raven's Matrix-based IQ test was given to the applicants, along with a short baseline information sheet. A paper-based Implicit Association Test (IAT) was also administered for caste, religion and gender, along with an MPL risk assessment.

    Payoffs: Participants were rewarded with a piece-rate for all the "good" files that the pair/individual ranked between rank 1 and k, where k was randomly-chosen. The piece-rate payoff was based on the daily salary that the loan officers received and the number of rounds in the experiments (i.e. the piece rate was set to achieve, in expectation, the daily salary of the officers, assuming a particular success rate).

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Results

The following are some of our findings:

1) For an individual evaluator, revealing soft information corresponds to a 19 percentage point decline in the probability of correct assignment. (Figure 1)
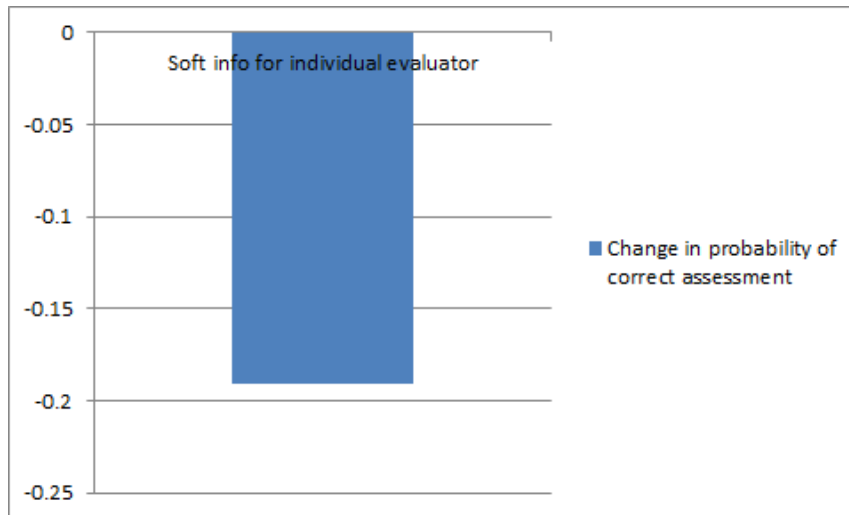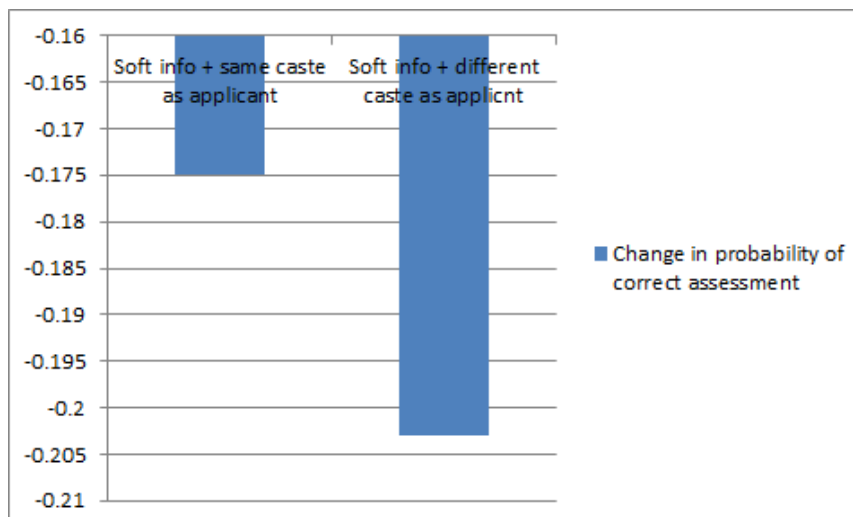

Figure 1: Change in probability of correct assessment when soft information is provided to individual evaluators

2) These declines happen uniformly across whether the evaluator and the applicant are of the same or different castes. (Figure 2)

Figure 2: Change in probability of correct assessment when soft information is provided to individual evaluators (by caste)

3) Biased individuals make worse evaluations, and this is particularly true when the applicant's caste differs from the evaluator's. Though the effects are present for both cases, when the castes are different the effect is significant and more pronounced. (Figure 3)
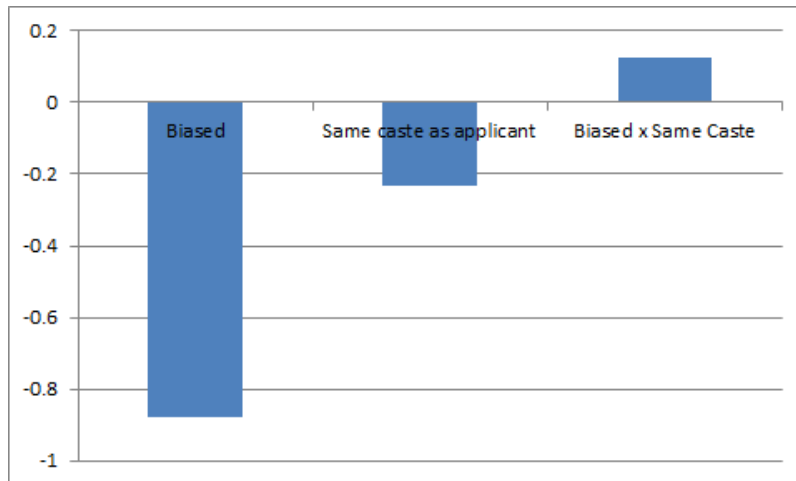

Figure 3: Change in probability of correct assessment when different types of information are provided to biased and unbiased evaluators

4) On average, pairs seem to perform slightly better (Figure 4), although soft information is detrimental to pairs with biases and reduces accuracy by almost 24 percentage points. (Figure 5.1)
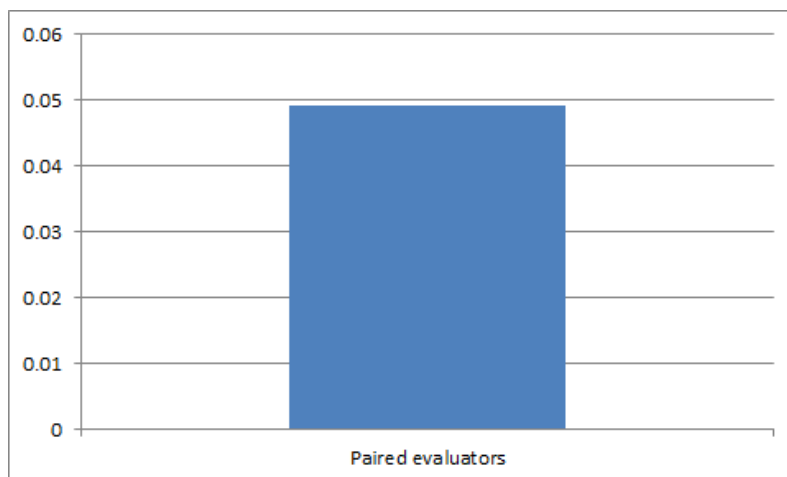

Figure 4: Change in probability of correct assessment when evaluation is done in pairs

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5) Finally, we see that for same cast partners, soft information actually provides more diligent assessment. (Figures 5.1 and 5.2)
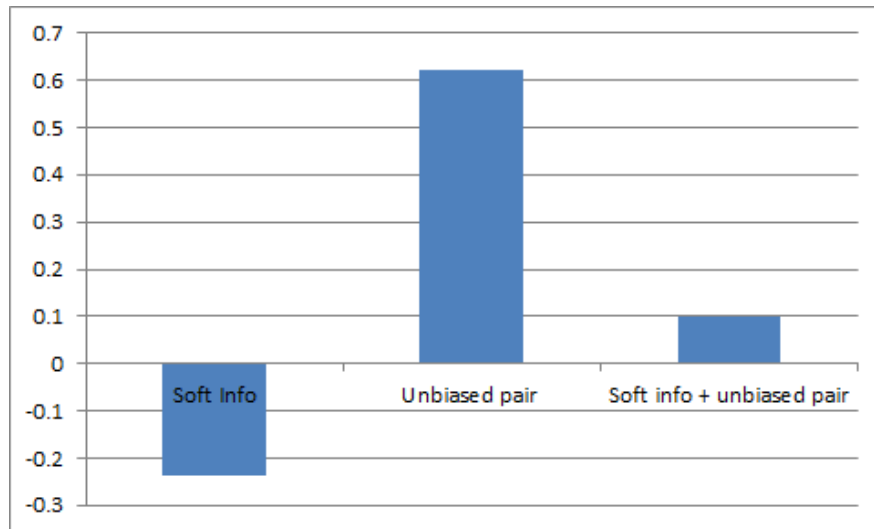

Figure 5.1: Change in probability of correct assessment when soft information is provided to paired evaluators
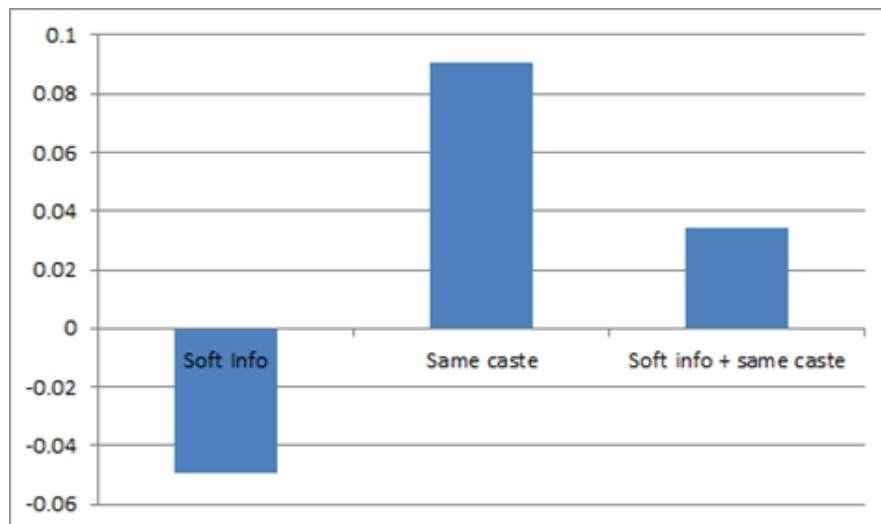

Figure 5.2: Change in probability of correct assessment when soft information is provided to paired evaluators, by caste of the other evaluator

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Implications for Policy

Credit is critical to entrepreneurs in developing economies, which makes the structure of lending decision-making especially important. Traditionally, decisions in the credit market are taken by individual loan officers. In our study, we show that groups may be better at identifying creditworthy loans, but only under certain incentive structures.

Another point that we deem as particularly policy-relevant is the presence of soft information in loan applications. It is currently the norm to include such information: however, we see that this can lead to suboptimal decision-making. We think this finding is especially important for policy, since the weakness of formal credit bureaus and other such institutions in developing contexts magnifies the effects of asymmetric information and bias.

For the same total wage burden, we show that groups may either nontrivially improve upon or do worse than individuals. We think our results suggest that strategic pairing of loan officers, combined with the right incentives, may enable banks to leverage the better information loan officers may have about certain types, and overcome the negative effects of bias.

Moving Forward…

We hope to study the trade-off between bias and information in all kinds of selection committees, and how this bias can be minimized in order to produce optimal outcomes for organizations.

We would particularly like to continue exploring joint decision-making under a variety of incentive structures.